Reworld™

Reworld Essex Company
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January 15, 2026

Mr. David Pepe, P.G., Director
New Jersey Department of Environmental Protection
Office of Permitting & Project Navigation
401 East State St.
Mail code: 401-07J
P.O. Box 420
Trenton, NJ 08625

Dear Mr. Pepe,

On behalf of Reworld Essex Company (formerly Covanta Essex Company), please find attached to this submittal the updated AO-25 Response to Comments document in English prepared by Reworld to provide responses to NJDEP comments received in October, 2024 on the original Response to Comments document submitted in February 2024. Reworld will submit the document in Spanish and Portuguese at a later date. Please note that the updated response document submitted online on January 12, 2026 contained an error that was discovered after submittal so this is a re-submittal of the updated response document to correct that error. Please let me know if you have any questions or comments on this document. Thank you.

Sincerely,

Patricia Earls
New Jersey Regional Environmental Manager

INTRODUCTION

In April of 2024, our company rebranded from Covanta to Reworld.[1] The new name is meant to better represent what occurs at our facilities. Reworld is a sustainable materials management company focused on transforming complex waste challenges into positive environmental impacts. Alongside Reworld's debut comes the introduction of groundbreaking solutions, with the focus on ReDirect360 (Zero Waste-to-Landfill), ReDrop (Wastewater Treatment), ReKiln (Alternative Fuel Engineering), ReMove (Transportation and Logistics), and ReCredit (Sustainable Carbon Offsets). These cutting-edge solutions empower customers to swiftly meet or exceed their sustainability objectives by minimizing carbon footprints, preserving resources, and trailblazing new revenue streams. Our Essex facility embodies these principles through our dedicated ferrous and non-ferrous metals recycling program. Consistent with the rebranding, where they appeared in the original document, Covanta has been changed to Reworld, Covanta Essex changed to Reworld Essex, and the Covanta Essex Facility changed to the Reworld Essex Thermomechanical Treatment Facility (the Reworld Essex TTF), the ECRRF, or the Facility.

Through the guidance of the NJDEP's Office of Permit and Project Navigation (OPPN), Covanta Essex (Essex County Resource Recovery Facility/ECRRF)) held a public hearing virtually on November 16, 2022, and received comments during the public comment period which began on September 16, 2022, and ended on December 16, 2022. The public hearing and comment period were meant to satisfy the requirements of Administrative Order 25 (AO-25), the precursor to the New Jersey Environmental Justice Law.[2] On February 20, 2024, Covanta Essex submitted an Environmental Justice Hearing Report (the EJ Report) to the New Jersey Department of Environmental Protection (NJDEP) which contained responses to the comments received during the comment period. In a letter dated October 17, 2024, the NJDEP's Office of Permitting and Project Navigation provided comments on the EJ Report for the Facility's consideration. This document is a revision of the original EJ Hearing Report edited to address many of the suggestions provided by the NJDEP. The following presents all comments received during the public hearing and throughout the public comment period via email.

Sustainability is commonly characterized in terms of interdependence among three broad dimensions—environment, economy, and society—while considering both present and future generations.[3] We tried to keep this in mind through all our responses, as we have highlighted numerous actions under each of the three components. Many of the comments were related to one or more of the five main topics below.

- Public Engagement
- Benefits from the Reworld Essex Facility
- Emissions: Controls and Performance Versus Permit Limits
- Purple Plumes
- Recommendations for the NJDEP

To the extent possible, we have consolidated our responses to these topics within the headings below in

[1] Covanta Celebrates its Transformation into Reworld™
[2] Microsoft Word - NJDEP Admin Order 2021-25 OBC Permit Process & Public Participation Consistent w EJ Law
[3] https://www.epa.gov/report-environment/sustainability-and-roe#:~:text=In%20practice%2C%20sustainability%20refers%20to,both%20present%20and%20future%20generation

the first part of this document. In our responses to individual comments, we have referenced our responses to these topics where appropriate, while providing additional direct responses depending on the question.

In Part II of this document, we respond directly to all comments that have not been addressed in Part I. For those questions that we feel are best addressed through our response in Part I, we have provided a reference to the appropriate topic in Part I. In addition, where comments were responded to during the live hearing, we have provided those responses as well so that the full context of Reworld's responses can be noted.

In the interest of transparency, all comments and responses are included in this response package with the multi-page comments assembled as Attachment 1. All comments are listed in the table of contents for ease of navigation through the document. If one person or group submitted multiple comments, their submittals and our responses have been compiled in one location within this document. If you feel like your question has not been addressed, we encourage you to contact our facility through our website[4] and speak to one of our management team.

Reworld is proud to provide municipal solid waste (MSW) disposal, metals recycling, and renewable power to the electrical grid. Since 2009, we have invested over one hundred million dollars into the Facility to improve air quality[5] and ensure sustainable materials management. We have also hosted thousands of students on site tours to support youth STEM (Science, Technology, Engineering, and Math) development. For many of our staff, approximately 13%, Newark is home, and for approximately 25%, Essex County is home, but whether we call it home or not, we all try to be good neighbors. Approximately 57% of our current site employees live within 15 miles of the Facility. We work hard to minimize our environmental impacts while actively expanding ways to supply associated co-benefits to the local community. This can most directly be seen through employment opportunities, sponsoring various programs and community building events.

Reworld understands and recognizes the community and Environmental Justice concerns over our Reworld Essex Facility. We will continue to engage and speak with community members and outside groups as this process moves forward. We have tried to directly address each of your questions and have grouped the comments into a few themes: regarding emission controls, those that were addressed directly to the NJDEP, questions on the purple plume incidents, questions on our public engagement process, and some on the general need for our facility. Reworld has been working hard for years to be a good neighbor and continuously looks for ways to improve our relationship with the community.

[4] https://www.reworldwaste.com/where-we-are/facilities/essex

[5] This includes a state-of-the-art baghouse, monitoring and, control improvements.

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Part I: General Responses to Common Issues and Concerns Raised

Many commenters referenced similar topics around the public engagement process, impacts of the Facility, emissions controls and performance versus permit limits, and recommendations for the NJDEP. In lieu of providing individual responses to each instance where these topics were raised, we have attempted to respond to these questions collectively below, so we can provide more background, and hopefully, clarity, to these important topics. In Part II, we either reference our responses in Part I, or provide additional information to respond specifically to the individual commenters.

Public Engagement

Public engagement is a critical part of the Administrative Order 25 (AO25)[6] process, and this document and public meeting is meant to satisfy those requirements. But open two-way dialogue has been an important part of our Community Outreach and EJ (Environmental Justice) policy for many years. As such, we welcome the feedback provided by our community members on the approach to public engagement we took in this process. Reworld believes that public engagement should be an ongoing process that lasts far beyond individual comment periods related to any individual permitting action. We have had a published EJ policy[7] for more than 10 years and have been working since we assumed operation of the ECRRF (Essex County Resource Recovery Facility) in 2005 to be a good neighbor involved with the community. We have hosted an annual Open House meeting with the public each year since taking over operation of the ECRRF and since 2019 we have held public meetings twice per year to encourage dialogue with the community. In 2022, our Essex team members contributed over 200 hours of community service in Newark.

Reworld has been working in close coordination with the NJDEP's Office of Permitting and Project Navigation (OPPN) for various projects including this one and has been following their guidance on best practices for complying with the public information session requirements. Reworld was advised by NJDEP to call the meeting a public hearing and to hold our public hearing virtually to increase potential participation. We acknowledge that some people may not have internet access, and still more people were apparently unaware of the hearing. While the first issue is outside of our control, to the second, we strongly recommend that all interested community members with internet can sign up for the NJDEP's Office of Environmental Justice (EJ) newsletter[8]. This is a free service that announces all scheduled upcoming EJ public hearings. To the notice aspect, we followed all NJDEP guidance and published in multiple newspapers, sent invitations to elected officials in and around the City of Newark, and reached out to community members from across the City with whom we have a relationship.

We also understand that since our public meeting, the NJDEP's guidance on public hearings has been updated and Reworld will follow all applicable guidance for any future meetings. We will also have language translation services available in case they are needed. The response document will also be posted on the Reworld Essex Facility website in Spanish and Portuguese. Notice of the public meeting and comment period was provided to the Newark Star Ledger and the Luso Americano (Portuguese) newspapers and was published in both newspapers on July 8, 2022. Numerous attempts were made to advertise our public hearing in a Spanish newspaper in the area, but we could not locate one at the time. The NJDEP has been sent a recording of our public hearing as well as this response to comments package in English, Portuguese, and Spanish which was posted on the NJDEP's EJ website. Any Portuguese or Spanish speaking residents still wishing to submit comments are encouraged to do so at any time through the normal channels listed on our website[9] and someone from our team will promptly respond. This document along with Portuguese and Spanish translations will also be made available to the public on our website[4]. Current NJDEP guidance on Public Hearing Best Practices is included here[10]. Consistent with the goals of New Jersey's environmental justice law (NJSA 13:1D-157) and Reworld's environmental

[6] https://dep.nj.gov/wp-content/uploads/ej/docs/njdep-ao-2021-25-environmental-justice.pdf
[7] https://www.reworldwaste.com/our-commitment/community
[8] https://public.govdelivery.com/accounts/NJDEP/signup/13189
[9] https://www.reworldwaste.com/where-we-are/facilities/essex

[10] https://dep.nj.gov/wp-content/uploads/ej/docs/njdep-ej-public-hearing-best-practices.pdf

policy in support of that law, Reworld Essex has been actively engaging with the community at numerous local events, some of those from 2021 thru 2025 are bulleted below.

2024-2025 Activities

- Beginner World Changers –Homelessness outreach, annual membership
- Bridges Outreach Inc.- Homelessness Outreach
- Essex County Parks – Joseph Di Yincenzo Golf Annual Sponsorship and Annual Earth Day sponsorship
- Go Green Initiative Association – Environmental Justice Advocacy
- The Salvation Army – Newark Branch, Holiday and Soccer Tournament Sponsorship
- Tri-Beacon Landscaping –Essex County Landscaping
- Zoological Society of New Jersey – Annual Sponsorship to support Essex County
- Essex County College – Annual student Business Plan sponsorship supporter
- Mighty Writers – Annual supporter to aide in student reading and writing workshops
- Solmar Restaurant – Held annual open community meetings
- Newark East Ward Councilman - Annual Easter and Holiday Sponsor to support the facility's residing ward
- Casa Essex – Annual sponsor of events to organization's mission to support at-risk youth
- Hawkins Elementary School – Annual Sponsor of several events involving back to school and holiday support
- Newark Public Schools – Annual sponsor and supporter of back-to-school drives to supply bookbags
- Science Park High School – Revitalized their on-site school garden project by donating fertilizer and plants
- NJ Audubon Society – Annual sponsor to aid in their mission to support habits and initiative in NJ
- Newark Business Partnership member (with Pocstock) - Annual sponsor to support the E-Commerce organization of Newark and recent sponsor of the creative photographer youth program to give kids camera equipment to complete course
- Lincoln Park Community Coastal District – Annual supporter to support the Central Ward of Newark in community-based initiatives
- Newark Science and Sustainability Center –Supporter from 2023 sponsorship
- Shani Baraka Center – Annual sponsor/donation for Domestic Violence resource center to help families in need
- Newark Department of Public Works – Annual supporter of Slam Dunk, the city-wide clean up initiative event
- Newark YMCA – Support of programs and youth that work to help the community
- United Community Corporation – Community support-based agency and recent sponsor of Back-to-School event to donate book bags
- Sustainable NJ – Frequent annual sponsor to support statewide mission to tackle Environmental Justice

2023 Activities

- Partnered with Bridges (a homeless case management company) to prepare and feed residents on a monthly basis
- Sponsored and volunteered with Beginning World Changers to feed residents at United Community Corp and the Shani Baraka Center for Women
- Sponsored the Essex County College Black History Month entrepreneurship competition
- Beginning World Changers Thanksgiving Drive
- Hawkins Street Elementary School:
- Black History Month event sponsorship
- Earth Day cleanup sponsorship
- Gift cards to families for Easter
- Back to School bags and supplies
- Thanksgiving meal for 100 families
- Coats for children in need
- Christmas food gifts cards from Seabra Markets
- Provided over 50 holiday gifts to children for the Salvation Army Angel Tree Program
- Slam Dunk the Junk community cleanups with Newark DPW In April and October
- Volunteering with St. Augustine's Soup Kitchen
- Read Across America book reading volunteers and book donation at several schools in the East Ward alongside Councilman Michael Silva
- Sponsored: Essex County Earth Day Festival
- Michael Silva East Ward sponsored Easter Egg Hunt and gift giving
- Weekly Mighty Writers Volunteer (a literary writing workshop and mentorship program to strengthen youth educational needs)
- YMCA Northern New Jersey – Changing the Face of STEM Summit
- Colombia University Student Tour

2022 activities

- Lunchtime Information Session (and reusable bag giveaway)
- Panasonic-Newark
- E-Waste Event @ Peter Francisco Park
- Slam Dunk the Junk Earth Day Event @ Westside Salvation Army
- Essex County Environmental Center Earth Day Celebration (sponsor and participant)
- Public Open Meeting at Blue Print Café
- Full day visit to St. Augustine’s Summer Day Camp
- Slam Dunk the Junk Cleanup event at Nat Turner Park
- Upcoming Thanksgiving meal distribution at Hawkins Street
- School
- Dinner Giveaway events at UCC (Urban Core Collective) Shelter, Shani Baraka Women’s
- Resource Center, and YM/WCA

2021 activities

- Boys & Girls Club of Newark – 5k for Wellness
- Salvation Army Ironbound Boys & Girls Club of Newark- Earth Day Recycling Class
- Riverfront Park & Branch Brook Park Cleanups
- Open Meetings at the Blue Print Café
- Quarterly E-waste collection events
- Hawkins Street Elementary School – Meal distributions, hats, and scarves through My Very Own Library Program, and Seabra gift card to all families
- Newark Public Schools – Go Green Initiative – Silver Certification for First Avenue School – Sustainable Hersey for Schools.

We want to stress that Reworld is committed to community partnership and speaking directly to EJ issues. We have had an EJ policy and program in place since 2011 and were the only industrial company in the State that we are aware of that testified in support of the New Jersey EJ Law. We are invested in the community for the long run, have worked hard to develop relationships with community leadership, and welcome future discussions, plant tours, and creative ideas to help highlight the amazing potential for this great City. We have established partnerships with at least 17 community organizations, two (2) colleges, and 13 public schools in the neighborhood and are always looking for new ways to further support the community.

Benefits from the Facility

At present there are only two (2) viable commercial methods to dispose of post-recycled MSW on a large scale: combustion or landfilling. The USEPA (United States Environmental Protection Agency) and the European Union rank waste management options in a hierarchy on a most preferred basis.[11] Source reduction and reuse along with recycling and composting are on top followed by energy recovery, then treatment and disposal. Two thirds of waste generated in the U.S. is disposed of in landfills, the least preferred and most environmentally impactful option.

Our facilities are thermomechanical treatment facilities (TTFs) or resource recovery facilities, not incinerators. The difference is important as specified in the New Jersey Solid Waste Rules (N.J.A.C. 7:26-1.4), and in the Glossary section of this document. But on a high level, incinerators are solely focused on reducing the volume of waste while TTFs recover metals in the waste for recycling, screen wastes incompatible to combustion, and often (as in the case of the Facility) send energy back into the grid.

Our Facility is permitted to process up to 985,500 tons of solid waste per year. We serve 22 municipalities and the surrounding region, including portions of New York City. We do so through a process that works to maximize potential benefits by recycling ferrous and non-ferrous metals, providing electric power, lowering greenhouse gas emissions through landfill methane avoidance, and avoidance of CO_2 equivalents (CO_2e) emissions from fossil fuel power generation. Each year, the Facility recycles approximately 18,600 tons of ferrous metals and 2,500 tons of non-ferrous metals, which directly equates to 704,000 metric tons of avoided greenhouse gases or removing 173,000 vehicles from the road for one year. Attached is a paper entitled "U.S. Waste-to-Energy GHG Reduction Overview" which summarizes a life cycle analysis which shows, according to USEPA (United States Environmental Protection Agency), that waste-to-energy facilities reduce greenhouse gas emissions into the atmosphere by about 2.4 tons for every ton of municipal solid waste combusted **(see Attachment 3)**.

Reworld Essex is regulated under a Title V Operating Permit. To properly compare our emissions footprint against other local sites or MSW disposal processes, one needs to consider the emissions that would be created because of these alternative services. Reworld Essex provides considerable power (426,000 MWh in 2022) to the local grid that would likely have to be provided by fossil fuels. This amounts to roughly 465 kWh per ton of waste processed in 2022, and enough energy to power 40,000 homes for one year. Our Facility also recycles ferrous and non-ferrous metals, saving emissions versus the processing of virgin material. To be transparent and build trust within our community, we post emissions data on our Facility website[12] every day.

We actively try to find new ways to support the community, listen to their feedback, and offer highly competitive career opportunities. We actively try to hire locally and currently have 57% of our staff at the Facility living within 15 miles. In addition, since the inception of the Facility, the City of Newark has received a significant host fee which is used to support their services and infrastructure.

[11] https://www.epa.gov/smm/sustainable-materials-management-non-hazardous-materials-and-waste-management-hierarchy
[12] https://www.reworldwaste.com/where-we-are/facilities/essex

Emissions

Permitting

Air permits are issued by state agencies (in this case the NJDEP) according to their State Implementation Plan (SIP) to comply with federal and New Jersey environmental laws. Emission standards are issued for industrial process operation classes to facilitate adherence to National Ambient Air Quality Standards (NAAQS). Based on the Facility's experience, the NJDEP will require emission controls, monitoring, and regular stack testing as requirements to obtain an operating permit. These controls are engineered based on federal and New Jersey air emission standards and air dispersion modeling that predicts potential impacts of those emissions to local sensitive receptors (the local community). There is an established process in place to minimize air impacts and adhere to state and federal laws. Permit limits are largely derived from technology-based standards and are included on a potential to emit (PTE) basis. PTE is based on maximum capacity operations for 8760 hours per year (or limited as the permit dictates) at permit limits. Actual emissions are considerably lower. The emissions profile from our plant is considerably lower than what our permit allows. Though we should also note that this has considerably improved over the last ten (10) years; most notably since the baghouse installations were completed in 2016. We understand that the Facility is in an overburdened community surrounded by other industrial sites, Port Newark, the airport, highways, and most importantly, homes. Reworld is working to minimize our impacts wherever feasible. We cannot control impacts from other sources in and around the City of Newark.

We are working to minimize our environmental impacts while also keeping a strong focus on meeting all our environmental compliance requirements. The Title V Operating Permit renewal application package was submitted to NJDEP on October 3, 2017, as required by the Title V permit conditions and N.J.A.C. 7:27-22.30(c) and (d) and was determined to be Administratively Complete on October 5, 2017, more than three (3) years before the environmental justice law was signed in September 2020. The current Solid Waste Facility Permit renewal application was submitted to NJDEP on November 19, 2020, and was determined to be Administratively Complete on January 26, 2021. The NJDEP has had these permit applications under review until now, and they are proceeding through the Administrative Order 25 (AO-25) process. This public response package is part of that process. We have been incorporating many of the key elements of the law for years, namely through our ongoing community engagement efforts and our work to reduce emissions to well below our permitted limits.

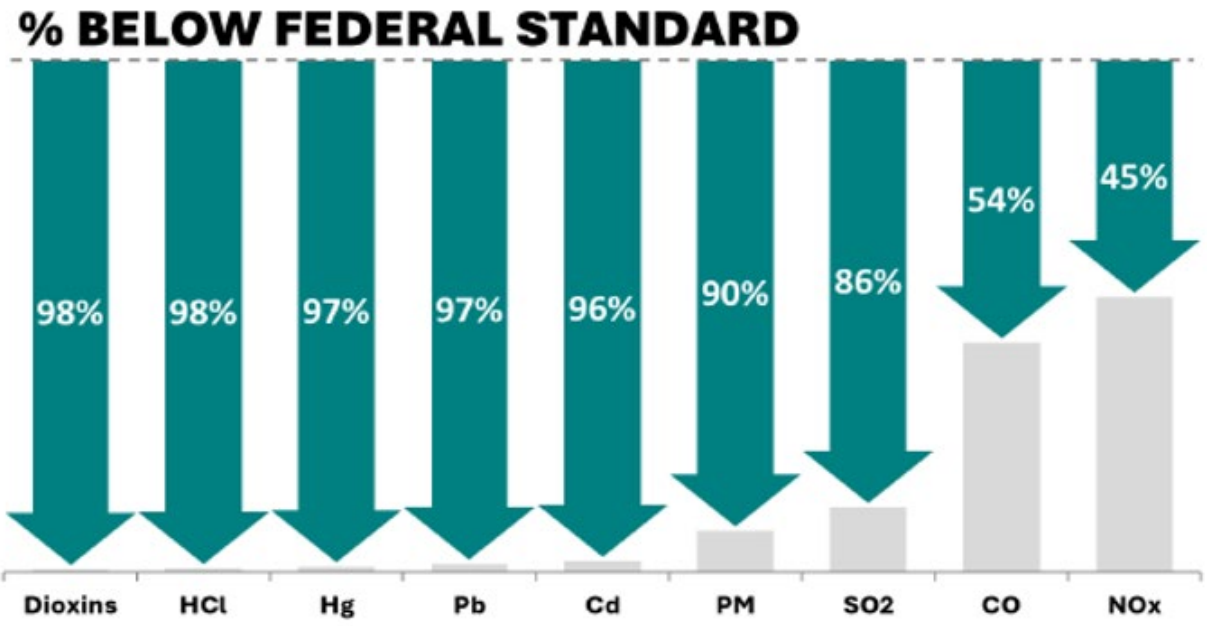
Facility Emissions

Reworld Essex significantly reduced emissions from the Facility during the past decade. Between 2014 and 2016, we have spent approximately $80 million to install a state-of-the-art baghouse on each of the three (3) municipal waste combustors that have had a dramatic effect on emissions. The baghouse installations were associated with the considerable reduction in PTE of more than 22 individual contaminants and contaminant classes including but not limited to: particulate matter (PM), PM-10, PM-2.5, Total Hazardous Air Pollutants (HAPs), arsenic, cadmium, lead, mercury, nickel, and dioxin/furan compounds. In 2013, the Facility spent $11.2 million on a new metals recovery system that improved recovery rates of ferrous and nonferrous metals by more than 150%. In 2011, the facility spent $6 million on a new Low NOx™ system based on Selective Noncatalytic Reduction (SNCR) technology that reduced NOx (nitrogen oxides) emissions by 30%.

While TTFs, like the one we operate in Newark, have important global benefits in terms of GHG reductions, recovery of metals, and electricity generation, we cannot overlook their potential local

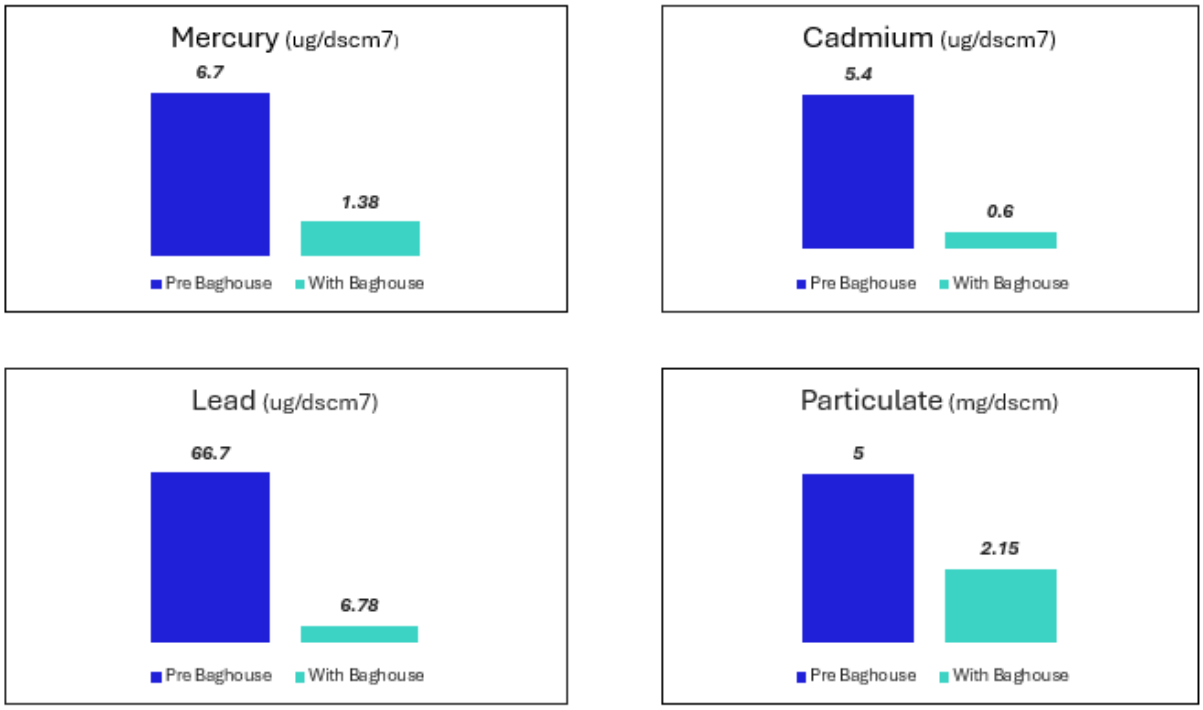
impacts. **Table 1** (below) includes a comparison of the average of the last three (3) years of stack test data for all three (3) emission units to permitted federal emission concentration limits. This is the most comprehensive way to judge facility emissions as stack testing must be conducted at representative operating conditions. We voluntarily proposed and accepted new technology-based emission limits with the baghouse installations. **Table 2** below demonstrates how the Reworld Essex facility's actual emissions of mercury, cadmium, lead and particulate have substantially improved after the baghouse installation project was completed in 2016.

Table 1 – Average Percent Below Federal Emissions Standards Based on Annual Stack Testing (2022-2024)



** 2022-2024 Average Annual Emissions compared to federal guidelines for existing facilities (40 CFR 60 Subpart Cb). Facility may be subject to more stringent requirements by permit or in accordance with other federal guidelines.

Table 2 – Effects of Baghouse Installation on Emissions



Airshed Emissions

Communities like the Ironbound have long had to deal with a disproportionate burden of environmental impacts from all sources, including transportation, nonpoint sources, small sources, and major facilities. Reworld Essex is also a source of local air pollution; albeit a relatively small portion of the overall regional emissions inventory. **Table 3** shows the total annual emission rates of criteria pollutants in Essex County from all sources (Row 2) based on data from USEPA's 2020 Triennial National Emissions Inventory (NEI). The NEI breaks down source emissions by biogenic sources, nonpoint sources, nonroad sources, onroad sources, "other fires", wildfires, and point sources, including the Reworld Essex facility. These comparisons indicate that the Facility represents a relatively small percentage of the total amounts of pollutants emitted in the County.

Table 3 – National Emissions Inventory (NEI) Summary for Essex County

2023 Contaminant Emissions vs 2020 Triennial NEI data (tons)						
Source	**CO**	**NOx**	**VOC**	**PM10**	**PM2.5**	**SO2**
Sum (All Source Types)	38026	8591	10576	2146	1264	263
2023 Reworld Essex Actual Emissions	181	860	4	49	44	65
Reworld Essex (% of all Emissions in Essex County)	**0.5%**	**10%**	**0.04%**	**2.3%**	**3.5%**	**24.7%**

Notes

1 Retrieved from https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei
2 The NEI breaks down source emissions by: biogenics, nonpoint, nonroad, onroad, "other fires", point, and wildfires.
3 All emissions figures are rounded to the nearest whole ton.

The percentages of emissions of various contaminants from the Reworld Essex TTF are also shown graphically in the charts contained in **Attachment 8.** The other sources of emissions vary depending upon the pollutant. These graphs confirm the conclusion that the emissions from the Facility represent a relatively small percentage of the total amount of pollutants emitted in the County.

Air Quality Modeling

In accordance with N.J.A.C. 7:27-22.8, Reworld's permit application to upgrade the ECRRF by replacing the existing electrostatic precipitators with baghouses, submitted to NJDEP in 2012, included a dispersion modeling analysis to evaluate the particulate air quality impacts associated with operating the Facility with baghouses. Modeling procedures and methodologies were consistent with the New Jersey air quality modeling guidance (Technical Manual 1002, November 2009) and USEPA Guideline on Air Quality Models ("GAQM, 2008"). The proposed allowable emission rates for PM10 and PM2.5 (17 lbs/hr) for each of the three (3) combustors were used in the evaluation. The results of the modeling analysis for both PM10 and PM2.5 indicated that the predicted 24-hour and annual impacts were below the Significant Impact Levels established by the USEPA and that the Facility would not cause or contribute to violations of the National Ambient Air Quality Standards or the New Jersey Ambient Air Quality Standards. Stack testing after completion of the upgrade project has shown actual emission concentrations of PM10 and PM2.5 to be well below the proposed allowable emission rates used in the modeling analysis.

A 2nd level screening analysis was also conducted and included in the 2012 application which evaluated the impacts of mercury, cadmium, lead, arsenic, beryllium, hexavalent chromium, nickel, and 2,3,7,8

TCDD. The analysis followed the risk screening procedures described in Section 3 of the New Jersey Technical Manual 1003 "Guidance on Risk Assessment for Air Contaminant Emission". The proposed emission rates of the pollutants were used to evaluate both short-term and annual impacts. The risk analysis showed that proposed allowable emissions resulted in short-term and annual concentrations which were below the applicable risk thresholds. Both the additive and combined carcinogenic and noncarcinogenic risk levels of the metals and 2,3,7,8 TCDD were determined to be negligible. As with PM10 and PM2.5 emissions, stack testing after completion of the upgrade project has shown actual emission rates of the substances to be well below the allowable emission rates used in the screening risk assessment.

Health Risk Assessment

To evaluate the potential health effects of the Reworld Essex Facility in accordance with NJDEP major source permit renewal regulations, the Facility contracted with AECOM in 2018 to conduct a human health risk assessment of the Facility focusing on potential inhalation effects of the emissions of hazardous air pollutants (HAPs). A copy of the report of the human health risk assessment is included in this document as **Attachment 2**. The maximum permitted short-term hourly emission rates and the permitted annual emission rates of air toxics were modeled in accordance with an approved protocol using USEPA's preferred dispersion model, AERMOD, to obtain air concentrations and deposition rates for the area surrounding the facility. The approach was conservative in that maximum allowable emission rates were used (as opposed to basing the analysis on the actual emission rates) and in that it assumed all three (3) MWCs (Municipal Waste Combustors) operated continuously (8,760 hours per year). The analysis was also conducted in accordance with the requirements in NJDEP's *Technical Manual 1003 -Guidance on Risk Assessment for Air Contaminant Emissions (November 18, 2009)* and NJDEP's *Technical Manual 1002 -Guideline on Air Quality Impact Modeling Analysis (November 2009)*.

The risk findings assessed calculated risk results relative to cancer and non-cancer thresholds contained in *Technical Manual 1003.* Facility-wide cancer risks were calculated at less than the ten in one million threshold which is considered to be negligible. The maximum acute risk results for each of the exposure scenario locations, applicable to both adults and children, were less than the acceptable Hazard Index risk threshold of 1. The health risk assessment deemed that the ambient impacts resulting from the Facility did not exceed acute or chronic thresholds for hazardous air pollutants as per NJDEP Tech Manual 1003.

Permit Condition Exceedances

Quite a few commenters cited the same statistic that our Facility has had 860 air permit exceedances since 2004. How exceedances are counted can vary based on the methodology used, and we were not able to replicate that number. Reworld tracks exceedances based on the reporting required by NJDEP, and as such has reported approximately 525 exceedances for the period 2005-2023. A significant percentage of these exceedances (83%) occurred prior to replacement of the originally installed electrostatic precipitators (ESPs) with conservatively designed baghouses during the baghouse installation/upgrade project which occurred during the period 2014-2016. The trend over the last two years has shown improvement as we continue to focus on root cause analysis and implementing corrective actions. Over the last two years we had 12 exceedances in 2024 and 9 exceedances in 2025.

It should be noted that some exceedances are not directly emission related, but rather operational parameters such as particulate control device inlet temperature, activated carbon feed rate, boiler steam flow rate, furnace temperature, and oxygen concentrations in the flue gas. These parameters serve as surrogates to alert the Facility when an emission related event may be imminent, or when long term compliance parameters may be approaching conditions outside of normal operation. Finally, almost 50 exceedance events were related to the purple plume issue, the resolution of which is addressed in detail later in this report. The Facility has an established root cause analysis program which includes an in-depth investigation into why these events occurred, implements corrective actions, and provides necessary communication throughout the Facility and Reworld to prevent recurrence. As a result of these actions and recent Facility upgrades, the number of events has been trending downward.

When the time periods of CEMS exceedances are compared against the time periods that the Facility operates in compliance, the result is that the Facility is well within its compliance limits. Since installation of the baghouses on all 3 units, the Facility has averaged a compliance record of 99.95%. This is based on a calculation where the total number of compliance periods for all the permit limits, including those monitored by CEMS, is calculated for each year and compared to the number of periods that the Facility was not in compliance with an emission limit This record provides assurances that the Facility operates within its established permit limits.

Selective Catalytic Reduction (SCR)

Many commenters cited concern over our annual emissions of nitrogen oxides (NOx) and ground level ozone, an air pollutant created when NOx and volatile organic compounds (VOCs) react in the presence of sunlight. Many suggested that Reworld Essex equip the Facility with selective catalytic reduction (SCR) technology to further reduce its NOx emissions. However, NOx emissions from the Facility are already well below USEPA guidelines for existing municipal waste combustor units and the Facility's concentration based allowable permit limit. The present NOx 24-hr average permit limit for each boiler is 150 parts per million, dry volume, corrected to 7% O_2 (150 ppmdv7), which is consistent with New Jersey's current State Implementation Plan (SIP) for ground-level ozone. All three (3) of the boilers currently average approximately 115-120 ppmdv7. This level of NOx control also exceeds the U.S. EPA New Source Performance Standards for new units of 150 ppmd7.[13]

Selective catalytic reduction (SCR) technology has been demonstrated as effective in reducing NOx emissions; however, it is best suited for **new** municipal waste combustion facilities. In the United States, SCR is operating at only one (1) facility, the Palm Beach Renewable Energy Recovery Facility No. 2 operated by Reworld in Palm Beach, Florida. The technology was included in the original construction of the Palm Beach No. 2 facility in 2015. However, SCR has not been installed at an existing facility in North America, nor is it included as part of recommendations by the Ozone Transport Commission or included in the USEPA's previous Good Neighbor Plan regulations, which were designed around collective action to reduce NOx emissions and other ozone precursors both in local airsheds and from upwind sources.[14]

[13] See 40 CFR §60.52b(a)(4)(ii)

[14] The Good Neighbor regulation was stayed by the United States Supreme Court on June 27, 2024, and on March 10, 2025, the EPA filed a motion with the U.S. Court of Appeals for the District of Columbia Circuit seeking a voluntary remand of the GNP. On March 12, 2025, the U.S. EPA issued a press release stating its intent to reconsider the Good Neighbor Plan collaboratively with states.

In its proposal for revised MACT standards for Large MWCs, the USEPA concluded that SCR "can only be reasonably applied during construction of the unit, so retrofitting SCRs to other existing units would be technically infeasible and or very costly if a supplemental burner is required to provide reheat."[15]

Reducing ground level ozone requires collective action. NOX is primarily emitted by mobile sources, power plants, and other sources of combustion. VOCs are emitted from sources such as motor vehicles, chemical plants, factories, consumer and commercial products, and natural sources such as trees. These ozone precursor pollutants and ozone can be transported from sources hundreds of miles upwind. Furthermore, due the complexities of ozone formation, reductions in NOx emissions do not necessarily translate into reductions in ozone formation. Not including upwind sources of NOx and ozone, Reworld Essex represents approximately 10% of the NOx emissions and 0.04% of the VOC emissions from within Essex County based on 2024 actual emissions. Two-thirds of NOx emissions in the County are from mobile sources, including cars, trucks and aircraft. In addition to NOx emission sources within the County, air quality within Essex County is significantly impacted by upwind sources, including some sources located in Pennsylvania. In its most recent State Implementation Plan (SIP) pertaining to NOx, NJDEP notes "New Jersey has implemented measures to control NOx emissions from … municipal solid waste (MSW) combustors. New Jersey has taken significant actions to address these important sources."[16]

Despite the need for additional improvements, monitored ground level ozone and other pollutant levels have steadily improved in the community and the State over the past few decades. **Figure 4-8** of the 2023 Ambient Air Quality Report (the Report) published by NJDEP (the most recent year for which data is published), shows the statewide lowering of ozone levels during the period 1997-2023 **(see Attachment 9)**. **Figure 4-9** of the Report shows the decline in the number of days on which the ozone NAAQS was exceeded in New Jersey during the period 2000-2023. Weather conditions have a significant effect on ozone formation. Hot dry summer conditions are more favorable for ozone formation than cool, wet conditions. In addition, NJDEP attributed two (2) of the 17 ozone standard exceedance days in 2023 to hundreds of wildfires in northwestern Canada and one in Kansas. An ambient air quality report compiled by Reworld showed similar reductions in ambient levels of sulfur dioxide, NOx, fine particulate matter (PM-2.5), and ground level ozone during the period 1997-2019. The Reworld report was compiled with data from six (6) ambient air quality monitors located in Essex County (**see Attachment 10**). No exceedances of any NAAQS were recorded at NJDEP's Newark Firehouse monitoring site located at the Clinton Street Firehouse in the Ironbound section of Newark during 2022.

Continuous Emissions Monitoring Systems (CEMS)

Multiple commenters urged the Department to require continuous emission monitoring (CEMS) for additional pollutants to measure emissions and enforce permit limits. The Facility presently monitors opacity, carbon monoxide, sulfur dioxide, and NOx in accordance with federal and state requirements. It was suggested that the emissions of hydrogen chloride, mercury, other toxic metals, particulate matter, and dioxins/furans should also be monitored continuously.

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[15] 89 *Fed. Reg.* 4255 (January 23, 2024)

[16] See p. 3-18 of NJDEP (2025) *State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards: 2015 70 ppb 8-Hour Ozone Moderate Classification for the Northern New Jersey-New York-Connecticut Nonattainment Area.* https://dep.nj.gov/wp-content/uploads/airplanning/ozone-70-ppb-moderate-final-sip-2-27-25.pdf

The selection of the parameters for continuous monitoring is designed to demonstrate proper operation of the combustion system and the air pollution control equipment. In addition to continuously monitoring for the emissions of carbon monoxide, sulfur dioxide, and oxides of nitrogen, each MWC is continuously monitored for a multitude of operational parameters related to emissions control and proper performance of the air quality control systems. Several parameters related to documenting good combustion efficiency are also continuously monitored to ensure compliance with state and federal requirements. In addition to monitoring carbon monoxide emission concentrations from each MWC, regulations also require that an MWC may not operate at a steam production rate greater than 110% of the rate recorded during the most recent compliant dioxin/furan test. Additionally, the inlet temperature to each fabric filter must not exceed 30^{o} F above the temperature at which it was operated during the most recent compliant dioxin/furan test to reduce the potential for the formation of dioxins and furans above levels achieved during compliant tests. These operating limits, in addition to other standard process controls, allow operators to effectively manage the operation of air quality control equipment and ensure the minimization of emissions.

Additional monitoring should be evaluated based on its ability to provide reliable, repeatable and accurate data and their ability to provide additional information about the not process not otherwise gathered by the monitoring described above. All CEMS instruments and their methods must be validated against standard methods and be approved by USEPA prior to being used for permit compliance to ensure data is accurate and reliable. CEMS methods have not been fully accepted by the USEPA for many pollutants, including dioxins/furans, PCBs, PM-10, PM-2.5, metals (e.g. lead, cadmium, and beryllium), fluorine, and sulfuric acid.

Reworld has prior experience operating mercury CEMS. Specifically, MWC Unit 4 at the Hillsborough County (FL) Resource Recovery Facility operated with a continuous mercury vapor monitor for a 2-year period (March 2013-February 2015) pursuant to a Florida Department of Environmental Protection (FDEP) permit approval. During the CEMS operational period, the facility utilized a consistent carbon injection rate for the control of mercury. The facility also continued to perform annual stack testing for mercury (utilizing EPA Method 29) for comparison to continuous monitoring results. Results from this 2-year operational period confirmed that the MWC was a consistent low mercury vapor emitter. Based on these results, the facility petitioned FDEP to discontinue mercury CEMS monitoring and to remove the provision from the facility permit. FDEP concurred and the mercury CEMS were removed from service. The Palm Beach Renewable Energy Facility No. 2 (PBREF-2), located in West Palm Beach FL, was permitted to operate by FDEP utilizing a mercury continuous monitor on one unit. The Palm Beach facility, which consists of three 1,000 ton per day combustion units, began commercial operation in 2015. In August 2018, the owner of the Facility (Solid Waste Authority of Palm Beach County) petitioned FDEP for approval to remove the mercury monitor. Specifically, the request outlined the following reasons for removal of the monitor:

- There was no underlying regulatory requirement for the implementation of the Hg CEMS.
- The Hg CEMS is not necessary for demonstrating continuous compliance.
- PBREF-2 is a low emitter of Hg.
- The Department allowed the Hillsborough County facility to discontinue the use of and the removal of the Hg CEMS on MWC Unit No. 4; and,
- Concerns associated with the Hg CEMS reliability and costs.

Based on this and other documentation submitted by the Solid Waste Authority of Palm Beach County, FDEP issued a Technical Evaluation and Preliminary Determination in October 2018 approving the removal of the monitor.

The Onondaga County (NY) Resource Recovery Facility tested a mercury sorbent trap monitoring system on one combustion unit pursuant to the Title V Operating Permit issued by the New York State Department of Environmental Conservation (NYSDEC). The Onondaga facility, owned by the Onondaga County Resource Recovery Agency and operated by Reworld, is a 330 ton-per-day per unit (nominal) waste to energy facility. The Onondaga facility mercury monitor (Amesa M by ENVEA, Altech Environment USA) utilized continuous sorbent filter cartridge traps to collect and measure the total vapor phase mercury in the combustion gas. The system ran continuously, and the trap was removed from service every 7 days and sent to an off-site lab for total mercury analysis, the results of which were used to calculate total mercury mass over the sample run time. System installation, operation and maintenance follows the requirements of 40 CFR Part 60, Appendix B Performance Specification 12B – Specifications and Test Procedures for Monitoring Total Vapor Phase Mercury Emissions from Stationary Sources Using a Sorbent Trap Monitoring System. In 2024 the NYSDEC determined that Reworld could discontinue the test program to monitor mercury emissions after it was determined that the results of 16 months of monitoring data showed average emission rates less than the rates measured during annual performance testing.

Measurement of hydrogen chloride would be duplicative of existing continuous measurement of acid gases through SO2 measurement. Sulfur dioxide contained in the flue gas of each MWC unit is continuously monitored at both the inlet and outlet of the air quality control system to determine compliance with the permitted emission standard and to ensure proper operation of the scrubber that is designed to remove all acid gases, including HCl. Sulfur dioxide is the least reactive of the acid gases with lime reagent introduced to the acid gas scrubber of each municipal waste combustor. Therefore, continuous measurement of SO2 acts as a conservative indicator for the control of all acid gases, including hydrogen chloride, hydrogen fluoride, and sulfuric acid mist. Stack testing of the emissions of these other acid gases is performed in accordance with the requirements of the Title V permit for the Facility.

Fugitive Emissions

The Solid Waste Facility Operating permit for the Facility includes several conditions which detail procedures to prevent spillage and scattering of ash by wind during transport, minimize dusting, and prevent the tracking of ash to the exterior of the building. Conditions #118 and #119 require all truck bodies to remove ash residue, non-processible waste materials and recovered metal to be sealed to prevent leakage and covered to prevent spillage or scattering by wind during transport. They also require that trucks be loaded so that they are filled to a level that prevents spillage of materials. Condition #120 requires that all ash and metal loading be conducted within the confines of the ash residue storage building in a manner that minimizes dusting and prevents tracking of ash to the exterior of the building. Condition #121 prohibits outside storage of ash residue, non-processible waste, and recovered metal to prevent dusting.

Truck Traffic

Potential environmental impacts from trucks entering and leaving the site were raised as a concern. The NJ EJ Alliance recently did a 1-hour truck count in the South Ward of Newark that tallied 21 buses, 83 medium duty trucks and 277 heavy duty trucks cutting through the neighborhood in one (1) hour [17]. In

[17] https://www.instagram.com/p/CwDcJVQuNWq/

comparison, waste trucks moving to or from the Facility are a relatively minor contribution to these totals. Our solid waste permit limits truck routes to and from the site and prioritizes major highways like the NJ Turnpike. For every Solid Waste Facility Operating Permit renewal application that is submitted to NJDEP, Reworld Essex compiles daily waste vehicle delivery counts including the average daily and peak daily delivery vehicle count. This data is compared to the previous renewal term as well as the original Environmental and Health Impact Statement (EHIS) to ensure that there has not been a significant increase in truck traffic in the most recent 5 (five) years. Further, during the solid waste permit renewal application process we found that the average volume of waste delivery vehicles during the review period (2015-2019) was 274 refuse delivery vehicles per day, which is consistent with the average volume of waste delivery vehicles of 272 refuse vehicles per day during the previous permit renewal review period (2006-2010) and well-below both the original Environmental Impact Statement (EIS) of 455 refuse vehicles per day on average and the 1995 expansion operation projections of 374 refuse vehicles per day on average. The highest volume delivery day during the solid waste permit renewal review period (2015-2019) was 440 waste delivery vehicles compared to 470 vehicles in the previous permit renewal review period (2006-2010), both of which are within the volume projected in the original EIS of 329 to 501 vehicles per day.

Additionally, our Solid Waste operating permit also requires Reworld Essex to assist the Essex County Solid Waste Management district in ensuring that haulers delivering waste to the Facility adhere to the designated primary refuse truck delivery routes from and to each collection area served by the Facility, as prescribed in the approved Essex County District Solid Waste Management Plan and any other District Solid Waste Management Plan. Delivery access to the facility for refuse collection vehicles originating in Essex County shall be as prescribed in the approved Essex County District Solid Waste Management Plan, which is included below. All such vehicles leaving the Site shall exit on the Facility access roads to Raymond Boulevard eastbound and proceed to either the N.J. Turnpike or Route 1-9. All vehicles delivering acceptable waste to the Facility and leaving the Facility, which operate in municipalities other than the City of Newark, shall utilize specified routes as detailed in Attachment 6.Haulage vehicles traveling to and from the Facility from Solid Waste Management Districts, service areas, or sources other than Essex County, are restricted to the use of New Jersey Turnpike Exit 15E which prevents these trucks from traveling on Newark local streets.

Purple Plumes

The Facility had multiple events (approximately 15) in 2019 and early-2020 where a pink or purple colored plume was recorded as opacity at or above the Operating Permit limit of 10% as a 6-minute block average. See **Table 4** below for a listing of the events between 2019 and 2020. The amount of iodine in the waste that caused those plumes was calculated to range from a feed rate of 110 to 610 pounds per hour based on an estimated iodine concentration of 0.2 to 0.9 weight percent of MSW[18]. Iodine is used in various industrial processes and is likewise found in several different waste streams. The plume was described as a pink or purple color with varying degrees of intensity. Colored plumes have infrequently been observed at certain facilities and have been correlated to iodine due to its known chemical and physical properties including;

- A melting point of 113.7°C and a boiling point of 184.3°C, and
- It forms a purple vapor when present at certain concentrations

Table 4- Purple Plume Opacity Events 2019 – 2020

Date	Day of Week	Boiler	Parameter	Exceedance		Avg Period	No. of Periods	Max Reading	Limit	Cause
				Start Time	End Time					
1/14/2019	Mon	3	Opacity	16:18	16:36	6-min	3	23.00%	10%	Purple plume
1/14/2019	Mon	2	Opacity	16:18	18:06	6-min	5	16.00%	10%	Purple plume
1/28/2019	Mon	3	Opacity	17:18	18:30	6-min	10	27.00%	10%	Purple plume
5/2/2019	Thu	2	Opacity	16:06	16:12	6-min	3	12.00%	10%	Purple plume
6/3/2019	Mon	2	Opacity	19:30	21:12	6-min	10	41.00%	10%	Purple plume
6/3/2019	Mon	3	Opacity	19:00	19:30	6-min	4	21.00%	10%	Purple plume
6/16/2019	Sun	1	Opacity	4:12	4:24	6-min	2	12.00%	10%	Purple plume
6/19/2019	Wed	2	Opacity	12:18	14:30	6-min	22	50.00%	10%	Purple plume
6/19/2019	Wed	3	Opacity	12:24	14:06	6-min	17	39.00%	10%	Purple plume
6/24/2019	Mon	2	Opacity	1:24	1:42	6-min	3	13.00%	10%	Purple plume
6/24/2019	Mon	1	Opacity	5:12	5:30	6-min	3	38.00%	10%	Purple plume
8/7/2019	Wed	3	Opacity	9:48	10:12	6-min	4	12.00%	10%	Purple plume
9/20/2019	Fri	3	Opacity	18:12	18:24	6-min	2	12.00%	10%	Purple plume
10/10/2019	Thu	1	Opacity	14:48	15:24	6-min	6	33.00%	10%	Purple plume
2/5/2020	Wed	1	Opacity	19:00	19:06	6-min	1	12.00%	10%	Purple plume
4/7/2020	Tue	1	Opacity	13:30	13:54	6-min	4	17.00%	10%	Purple plume

A 3rd-party professional (Green Toxicology LLC) examination of this issue is included within this comment response package as **Attachment 4**. Plume colors were analyzed by experts at Green Toxicology LLC (see **Attachment 4**) correlating stack opacity with iodine emission factors used previously at other sites and tailored to the facility by site-specific metrics. The color of the plume is dependent on the iodine concentration present at that time. As concentrations rise or fall, the plume color visible to an observer would be based on the amount of iodine vapor absorbed at that specific wavelength.

Reworld engaged AECOM to conduct air quality modeling of the predicted emission rates determined by Green Toxicology LLC and Reworld to enable evaluation of any public health impacts from the emissions of iodine, hydriodic acid, sulfuric acid, and sulfur dioxide during the events. The analysis conducted by

[18] Covanta Letter to Jeffrey Meyer of the NJDEP dated 1/7/2021, subject: Condition(d) of Phase I, Section B of Administrative Consent Order EA ID#200001-07736

AECOM (see Attachment 4) demonstrated that the maximum modeled concentrations over the entire receptor grid, including all sensitive receptors, were below the health benchmarks for all compounds.

Reworld immediately reported all exceedances of its permitted 6-minute opacity limit it the NJDEP and knew that iodine in the waste stream was the cause of the purple plume events but did not immediately know who the generator of the waste containing the iodine was. Medical waste facilities in the service area were contacted to remind them not to include iodine-containing material in the waste delivered to the Facility. Through a significant effort in reviewing scale records to identify haulers that delivered waste before the purple plume events and working with those haulers to identify their customers, Covanta ultimately identified the source of iodine in the waste after the last purple plume event on April 7, 2020, as the Troy Chemical Company located in Newark. Again, this was based on a review of all waste deliveries the day prior to and the day of the events and video footage of trucks dumping on the tipping floor. Once this waste was no longer being received at the Facility, there were no more purple plume events.

Reworld takes this issue extremely seriously and has rectified it by implementing a two-step process: (1) prevent iodized waste from being combusted by preventing its delivery through review of generators who use iodine in manufacturing process and, (2) communication with generators and waste haulers to ensure that they are aware of the potential issues with this type of waste if delivered to the Facility.

Actions Taken by Covanta (Reworld)

- Education – Reaching out to existing haulers and other customers to state that iodinated waste is not acceptable at Reworld Essex.
- Hospital Outreach – As a potential contributor to this issue due to iodine use in antiseptics, seven [7] major hospitals in the area were also contacted to discuss the issue.
- Essex County Solid Waste Advisory Committee - Covanta updated municipalities in the region on the issue and helped educate others on how to prevent future occurrences.
- Troy Chemical (Troy) Outreach- Troy was ultimately identified as the source of the contaminated wastes. Reworld tried numerous times to contact Troy about this issue and received no response, so we decided to sever all services with Troy and advised them to divert their waste to another location.
- Covanta Essex Company made changes to the Facility O&M manual to incorporate purple plume prevention procedures created to prevent purple plume events. These changes were completed and submitted to NJDEP on January 10, 2022, for incorporation into the Solid Waste Operating Permit renewal. As part of these changes, a new section was added to the Administrative Plans and Index section of the O&M manual identified as section API-3A, Purple Plume Mitigation Plan. This section includes protocols and procedures to prevent the delivery of iodinated waste to Reworld Essex and procedures and training at Reworld Essex to prevent processing of any iodinated waste delivered to Reworld Essex and deposited in the tipping floor area.
- Reworld Essex also submitted an updated Waste Flow Control Plan, identified as section API-3 in the Administrative Plans and Index section of the O&M manual, to specifically list “wastes containing iodine in any quantity” as an unacceptable waste which cannot be accepted at the Reworld Essex Facility.

- Reworld instituted procedures to address iodinated wastes including methodologies to identify potential generators/sources of these wastes, developed proactive steps to ensure these wastes are not included in the waste streams coming to the facility and inspection/interception protocols to ensure these waste types are not processed through the Facility. This has included the installation of digital cameras at appropriate locations throughout the Facility to monitor waste streams being tipped onto the tipping floor and being fed into the MWC units.

It should be noted that because of the actions taken by Reworld, the Facility has not had a purple plume event since April 2020.

Recommendations for the NJDEP

Many comments were addressed directly to the NJDEP in relation to Reworld's permit renewals. The NJDEP will read this document and has been involved in our process from the outset. As many comments in this subsection followed a similar format, we have included them here to hopefully address each main point and highlight the benefits of our Facility while presenting an accurate picture of environmental impacts.

Reworld is proud to provide municipal solid waste (MSW) disposal, metals recycling, and to supply power to the local community. Many of our management and staff live in Essex County. We work hard to minimize our environmental impacts while actively expanding ways to supply associated co-benefits to the local community. This can most directly be seen through employment opportunities and sponsoring various programs and relationship building events.

All permit decisions are made by the NJDEP. Covanta has been coordinating with them closely throughout this process, and we will relay your comments to them.

Reworld understands and recognizes the community and Environmental Justice concerns over our Facility. That is one of the key reasons we have spent over $100 million since 2009 to significantly reduce our emissions from Facility. We will continue to engage and speak with community members and outside groups as this process moves forward. Reworld has been following these enhanced engagement practices for more than ten (10) years. Engagement is required under AO-25, but it is a core belief that is instilled in our corporate EJ policy,[19] and as detailed in the engagement section of this document, we look for creative ways to support community events and efforts throughout the year.

The AO-25 Process

Specifically, AO 20-25 sets the following requirements[20]:

- Extends public comment periods to at least 60 days, with a potential extension for an additional 30-day period upon the written request of a member(s) of the overburdened community,
- Requires a mandatory public hearing in a manner intended to maximize participation of individuals within the overburdened community,
- During the extended public comment period and public hearing, encourages individuals to provide information regarding existing conditions within the overburdened community and potential facility-wide environmental and public health stressors that could result in adverse impacts in the event of an approval,
- Requires the applicant to respond to and address the concerns raised by individuals in the overburdened community and to conduct any additional analysis related thereto that the Department deems necessary for its review,

[19] https://www.reworldwaste.com/our-commitment/community
[20] https://www.nj.gov/dep/newsrel/2021/21_0028.htm

- Strongly encourages each applicant to engage directly with individuals in the overburdened community in advance of, and in addition to, formal public comment, including providing relevant information related to facility-wide impacts; and
- Where permits or approvals may be issued, the Department will apply such special conditions as may be necessary to avoid or minimize environmental or public health stressors.

Individual Responses

1. Holly Cox

Public Hearing Comment: I'm here to ask the DEP to deny Covanta's permit for the following reasons: One, Covanta is trying to gain approval for its permits before New Jersey's landmark environmental justice law goes into effect in 2023. Covanta is located in the Ironbound Section of Newark, a cumulatively adverse overburdened community. In fact, DEP considers the census block where Covanta is located to be adverse for twenty-four out of thirty-one environmental and health stressors. This means the protections of the E. J. Law unquestionably apply. As a result, Covanta must go above and beyond to reduce its emissions. Three, Covanta has had over eight hundred and sixty air permit violations since 2004. These include multiple instances of purple emissions that Covanta cannot explain, although I did just now hear you explain them. Compared to all New Jersey facilities, Covanta is in the top five highest emitters for harmful pollutants like lead, arsenic, and mercury. Five, Covanta is the number two emitter of nitrogen oxides in the entire State and is responsible for seventy percent of the stationary source emissions of nitrogen oxide in Essex County. Six, Covanta is the number two emitter of mercury in the entire State. It is responsible for 99.7% of mercury emissions from stationary sources in Essex County. Seven, Covanta is the number two emitter of hydrogen chloride in the entire state, responsible for 90.3% of hydrogen chloride emissions from stationary sources in Essex County. That's despite knowing that New Jersey's EJ Law has been signed by Governor Murphy. Covanta is currently trying to renew its permits for its polluting plant in overburdened neighborhoods before the rules have been finalized. I ask the DEP and Governor Murphy to please deny the permits for this Covanta plant and subject it to New Jersey's EJ Law, as the Ironbound section of Newark is a classic overburdened community. To conclude, when Governor Murphy signed the country's strongest environmental justice law in September 2020, he gave the NJDEP the power to deny permits to polluting facilities and communities that already face a toxic pollution burden from generations of environmental racism. So I now ask the DEP to please, uphold his vision and deny these permits. Thank you very much for the opportunity to speak.

Covanta Response: Holly, thank you for your comments. Concerning the applicability of the Environmental Justice regulation, Covanta submitted the air permit renewal application in 2017, over two (2) years before the EJ law was passed and five (5) years before the final implementation regulations were written. Title V Operating Permit renewal applications must be submitted at least 12 months before their five-year permit term expires. The filing of this renewal application is not related to the Environmental Justice Regulations. Reworld has complied with the regulatory permit submission due dates. This application is proceeding through the NJDEP's AO-25 process for EJ considerations.

To your points about the City of Newark being an overburdened community and the emissions from the Facility, you are correct that Newark is an overburdened community and there is much work left to do on reducing environmental and public health impacts in the city. Reworld is proud of our continued efforts in this area over the last ten (10) plus years, including the installation of three (3) state-of-the-art baghouses in 2014-2016 that drastically lowered our actual emissions well below our permitted allowable standards. Details on the emission reductions from the Facility and our past compliance history can be found in **Tables 1 and 2** of the **Emissions** section of this document.

In response to your comment concerning purple emissions, please see the **Purple Plumes** section for a detailed explanation of the causes and corrective actions taken by the facility. Finally, the NJDEP has been working with the facility throughout our application process and will be reading each of these comments and responses.

2. Steven Greenberg

Public Hearing Comment: The prior speaker said Covanta would not make any changes. Why would they not implement selective catalytic converter technology to reduce emissions and improve safety for the community?

Live response provided by Mike Van Brunt of Covanta: Thank you Stephen for the question. First of all, I think we'd start with the fact that the facility already performs very, very well with regard to NOx (nitrogen oxides) emissions. As Trish indicated, we've gone through a process of implementing what's called Low NOx (nitrogen oxides) technology, which helps us reduce NOx emissions from existing facilities and operations, and the facility's performance is right around the level that the Ozone Transport Commission recommended for existing facilities to address NOx emissions, particularly in those areas of the country, including New Jersey, that are in noncompliance or non-attainment, with the 2015 National Ambient Air Quality standards for ozone. It's also in line with the EPA's recent request for comment on its own Federal Implementation Plan for helping States reduce NOx emissions in those areas of non-attainment. And going back to the slide that Trish showed, if we look at our contribution, we contribute about six (6) percent. Arguably, if we implemented SCR we could, you know, potentially drop that to maybe three (3) or four (4) percent, but overwhelmingly the issue with NOx is really driven by mobile sources of emissions and transport of ozone in from other air sheds. And that's why you see, it was on the Ozone Transport Commission and the USEPA to really take a multi-targeted approach to make sure that those opportunities to reduce NOx that are easiest to achieve are done first, and then sort of do it in a stepwise fashion to make sure that all sources are reducing NOx emissions, as opposed to just, you know a source here and a source there such as the waste to energy facility.

Covanta Response: Concerning your comment concerning SCR, please see the above discussion concerning Emissions **and Selective Catalytic Reduction (SCR)**.

Public Hearing Comment: How did employees not realize they were throwing iodine into an incinerator?

Live Response from Jack Bernardino of Covanta: Thank you for the question. So that whole purple plume explanation that Trish went through we just kind of go through that. I think David mentioned and I mentioned in the process that when some of the trash is going through the tipping floor that we're able to back blade some of the trash to do an inspection on some of the material that comes in. This particular material was actually within residual bags that didn't have any more of the material that was able to be seen, so it wasn't that they were thrown into the incinerator, but it was pushed into the refuse pit. The material was residual material left in empty bags that were in the load of waste delivered. The material came in with standard waste coming from the generator, so it was pushed into the waste pit which is how it got to the plant. So what we do have is we do have cameras installed in the plant that we were able to focus in on some of the materials on the tipping floor, and we also did install cameras on

the hopper feeds of each boiler, so that will also help us identify issues and things like that. So, I hope that answers your questions.

Covanta Response: Please see the **Purple Plumes** section earlier in this document for detailed breakdowns of the causes and corrective actions taken related to these events. The term "back blade" refers to a step in the screening where the incoming waste is spread out so that site personnel can best view MSW contents. Reworld identified the source of the iodinated waste and has prohibited that facility from processing their materials at the Facility. It should be noted that because of the actions taken by Reworld Essex, the Facility has not had a purple plume event since April 2020.

Public Hearing Comment: Oh, thank you very much. I appreciate it. I asked a few questions. I just want to say I'm extremely unsatisfied with the answers. I feel like my questions were circumvented, and I regret asking them, so I feel like I just gave an opportunity for us to be peddled propaganda to make Covanta seem good. So I would like to translate the answer to everyone else on this call as to how I understood them in a more straightforward and a short fashion. My first question was about why they don't use the Advanced catalytic converters. Basically, our lives and health aren't worth the cost. They would only do things that they are pressured and forced to do so that's the answer to that. The second thing is, how do they throw the iodine into the incinerators. They really just don't care what they throw in there. They only implemented controls to say they did. They would really throw anything they could get away with in there, if they thought it would make them money. And overall, I would just like to comment on the tone of this presentation. It was completely unearnest. I do sales all the time and if I heard a presentation like this I would have hung up on you guys. You use every technique that's deceitful and unearnest, and I'm just going to read them off right now. I know all of them, because I do this myself. You only focused on the good numbers and statistics, regardless of the relevance of the situation. Pretty much like saying Gummy Bears are zero percent fat. We all know this, but it sounds good. So you said it anyway, even though it doesn't matter. You don't admit to any mistakes or wrong doing, even in the instance when we threw items into the incinerator that is clearly an error. But you basically were more concerned with my choice of saying threw instead of pushed. And you know, focusing on your pretty much mediocre solutions to the problem going forward. I think it literally was labeled, and you use some like weird speech to imply that it wasn't, even though you just couldn't see the label for some reason. And yeah, you just don't mention any of the downsides of the plants. Also, in your presentation, even though there's obviously some downturns, we just completely ignore them as well. So everyone else did a pretty good job articulating specific points against this. I employ everyone to research it. I pray that they don't let you guys do this. You need to be stopped. I view you as an enemy. Thank you.

Covanta Response: Steven, thanks for the questions. We will address the iodine points first. Please see the **Purple Plume** section earlier in this document for more detailed information. It does not take much iodine to cause the sort of purple plumes that occurred at the facility. We had processes in place to prevent this and have since strengthened them dramatically based on the best available science and industry practices.

Our environmental performance data is public information, available in compliance submittals to the NJDEP and published daily on our website via continuous emissions monitoring (CEMS)[21]. The

[21] Essex | Reworld

continuous emissions monitoring data from the previous day published on the website includes the maximum 6-minute opacity average, the maximum 4-hour CO concentration, the 24-hour SO2 and NOx average concentrations, and the 24-hr average SO2 control efficiency. Transparency is important to our company and is something that we continuously look for ways to improve.

To your question about catalytic converters, we look at the need for potential emission control upgrades based on need to reduce emissions, poor performance against our permit limits and risk thresholds, and the feasibility of employing a particular technology at a given facility. Please refer to the **Selective Catalytic Reduction (SCR)** section earlier in this document for more information. Currently, the site is performing quite well, and our management team continually reviews ongoing needs and potential areas for improvement.

3. Sean Mohen

Public Hearing Comment: Thank you for the opportunity to speak tonight. We're the regional hub for the 101 towns, 10 legislative districts, and 1.2 million people in Camden, Burlington, and Gloucester Counties. We stand in solidarity with our friends in the Ironbound in greater Essex County. It's clear the single best thing our municipalities and counties can do to combat the soaring cost and environmental emissions related to waste management is to implement comprehensive food waste management strategies. As part of the terms of EQT's leveraged buyout of Covanta last year, Covanta has to meet several key performance indicators, including increasing your waste to energy process by 40% by 2030. I don't see how you're able to do that and meet those KPIs as our solid waste districts are starting to execute better food waste management strategies. Given that Covanta's incinerators remain the number one stationary source of NOx and PM2.5 emissions in both Newark and Camden. And Covanta has not lived up to prior commitments related to bag houses. I am requesting for Covanta's application to be rejected. And on a related note, we also don't think the State should exempt waste Incinerators from fees collected under the regional greenhouse gas initiative. Thank you.

Covanta Response: Thank you for the comments, Sean. We agree with your comments on food waste diversion but please note that food wastes make up a relatively small (~24%) percentage of municipal solid wastes (MSW)[22] and that currently only landfills and waste-to-energy are viable options for the volumes of MSW that must be processed each day in this area. We have and will continue to support local recycling efforts to reduce waste streams. We take environmental management very seriously and are proud of the environmental benefits produced from our Facility via energy provided, recycled metals, and waste processed with a lesser environmental impact per ton of waste than landfills. **Attachment 3** includes a study of the comparative benefits of waste-to-energy versus landfilling. Covanta started the permitting effort to install baghouses at the ECCRF shortly after acquiring ownership of the Facility from the Port Authority of New York and New Jersey in 2012 and once permitted, installed them during the period 2014-2016 at a cost of more than $80 million. For our Facility in Camden, NJ, air and solid waste permit applications for replacing the existing electrostatic precipitators with state-of-the-art baghouses have been submitted to NJDEP and are under agency review.

[22] https://www.fda.gov/food/consumers/food-loss-and-waste#:~:text=EPA%20estimates%20that%20more%20food,percent%20of%20municipal%20solid%20waste.

4. Carly Berwick

Public Hearing Comment: My name is Carly Berwick. I live at 22 Paramount Terrace in Jersey City. I've lived on the west side of Jersey City since 2002. So for twenty years that means I've experienced what we all call the West Side smell and this is when the air blows from west to east from a variety of point sources in Newark and Kearny but particularly the garbage smell. And then what I call the diaper genie smell, which is that kind of covering up of a garbage smell. And presumably some of these chemicals are born on those smells as well. I'm also the parent of two soccer players in Newark, one of whom plays for the Ironbound Soccer Club, and they experience this smell during practices. As you know, there are thousands of young people committed to playing outside, particularly soccer in the City of Newark and the Ironbound, and they are disproportionately impacted. Not only in Newark and the Ironbound, but in Jersey City on the West side. The prior two speakers spoke eloquently to the idea of cumulative, adverse, burden. It was to some degree heartening to see some of your slides on the potential environmental benefits of the plant. But the plant should not be in this community which is one of the densest in the nation and emitting so consistently in ways that we can both smell and not smell, which is disturbing. I also wanted to point to the fact that six and eight percent of point source pollution is still pretty high for a single facility. So thank you for your time.

Covanta Response: Carly, thank you very much for your comments. Many of our employees live in the area (approximately 57%) and we work hard to be good neighbors. Odors from the Facility are controlled by maintaining the tipping floor building where waste is deposited for processing under a negative air pressure which prevents odors from leaving the building. This is accomplished by the continuous suction of combustion air by the three (3) municipal waste combustors through air vents located in the walls above the refuse pit where the waste is stored. In addition, the tipping floor building is equipped with roll up doors which enable the area to be closed off during periods other than when waste is being delivered. There are many other potential sources of odor located between the ECRRF and Jersey City, including MSW transfer stations. Given the measures taken to control odor at the Facility, it is unlikely that the Facility is the source of the odor you reference Please refer to the **Selective Catalytic Reduction (SCR) and Facility Emissions** sections earlier in this document for more information on the steps that Covanta takes to minimize emissions from our facility. You will see that our emissions have been reduced considerably over the last seven (7) years since we installed the new baghouses. Covanta Essex has also contracted with expert consultants in the past to objectively source any observed odors in the neighborhood. When odors were present, they were able to be traced back to small and local operations throughout the City. Odors from something as innocuous as a dumpster behind a restaurant can carry quite a distance. The subject odor study is included with this document as **Attachment 5.**

5. Wynnie-Fred Victor-Hinds

Public Hearing Comment: The waste management impact is a lot worse in people of color and underserved communities then more affluent and majority white communities. We deserve better. Specifically, how did Covanta support the EJ S232 Law?

Live Response from Mike Van Brunt of Covanta: Thanks Wendy for the question. I think you bring up a really good point that, frankly, is an issue that the entire waste sector overall faces. A historic location of facilities like ours and recycling facilities and like many other facilities across the country is that we're cited in historically overburdened communities. There's really no way around that fact. However, the facility is where it is and Covanta was not involved in the siting of that facility. However, we do

acknowledge that we do have impacts in the local community. We believe that the impacts based on looking at the inventory from the National Emissions inventory, those impacts are relatively small, and I certainly understand the point that yes, every impact is an impact, and we do have to look at cumulative impacts on communities and we have been working with the State in in terms of understanding that, and figuring out, you know, to the extent that we can. How do we operate? Better so that we can reduce our impacts, which is, one of the reasons why the baghouse retrofit at the Essex facility was so important because those were such significant emission reductions in the local community. So I think we all have to recognize that the facility is located in an overburdened community but the facility does operate very well relative to its permits. We have invested in the facility to reduce the impacts to the extent that we can. And the facility does as Jyoti pointed out, serve a very important role for managing waste that's left over that that comes from all of us.

Covanta Response: Thank you for your comments, Ms. Hinds. During the S232 stakeholder process Covanta was the only large industrial company in the State to come out in support of the law. We know that we are in two (2) textbook examples of overburdened communities, Camden and Newark. Although Reworld was not involved in the siting of either facility, we have been working to reduce our emissions and form stronger relationships with the communities they serve. Our baghouse installations were a great example of this for the Reworld Essex Facility, and we are expecting similar emission reductions from proposed upgrades to the Camden site. We are also proceeding with this application through the AO-25 process even though our renewal application was submitted years before the EJ law was even proposed. Covanta has been regulated by the NJDEP for decades and the agency knows our sites well and our compliance histories. We work hard to implement advanced environmental management systems and limit any potential environmental impacts.

6. Nicole Miller

Public Hearing Comment: My name is Nicole Miller. I am a resident of Newark. I live at 260 Eastern Parkway in Newark. And for this program we understand that Covanta is a long-time facility here in the City of Newark. But when we think about a renewal for this application, we think about the parameters of the upcoming EJ rule, and Covanta should not be allowed to circumvent that by preemptively submitting their applications to try to get around those regulations. So, for the EJ rule decisions where the facility can avoid impact the DEP should authorize as long as the conditions can avoid impact, and where a facility cannot avoid impact, they should be denied unless they can demonstrate a compelling interest. I'm not sure who would argue that there is a compelling interest in having both incineration and landfill, because a portion of the waste from the incineration is still landfilled, so there is both incineration and landfill, and I understand that for people who might live fifteen miles away from the facility in perhaps Brooklyn or Livingston, or Summit might not necessarily understand what the impacts are for people who live one mile away from the facility or less. When we have NOx, and I think, in your chart you mentioned PM10 but PM10 does not include PM2.5 or lower for the smaller amounts of particulate matter, and greenhouse gas does not fully articulate the health impacts of incineration on the local community. Included with that is not a consideration of one hundred and fifty of NOx, I think was mentioned in your own materials. That an entire six percent of the NOx emissions in this one facility. And when someone asked if you could perhaps drop that down, I think, to three, which is a fifty percent reduction that was dismissed as being too heavy of a burden. I do not think that it is too heavy of a burden, and the DEP should also consider that there are ways that Covanta can minimize and reduce its impacts, and they are not currently doing that, no matter how many trees they plant, they are not minimizing their impacts. Thank you very much.

Covanta Response:

Thank you for your comments, Nicole. The air permit renewal application package was submitted to NJDEP on October 3, 2017, as required by the Title V permit conditions and N.J.A.C. 7:27-22.30(c) and (d) which requires the application to be submitted at least 12 months prior to the permit expiration date. It was determined to be Administratively Complete by NJDEP on October 5, 2017, more than three (3) years before the environmental justice law was signed in September 2020. Therefore, the filing of this renewal application is not related to the Environmental Justice regulations. However, it was determined that this application should still proceed through the AO-25 process, which we are doing.

The current Solid Waste facility permit renewal application was submitted to NJDEP on November 19, 2020, as required by the current Solid Waste permit which requires a renewal application to be submitted at least 90 days prior to the permit expiration date and was determined to be Administratively Complete by NJDEP on January 26, 2021. The Administrative Order 25 (AO-25) process has governed this application, and we are required to meet the public engagement goals that are included. We are trying to be as transparent as possible and show the strong performance of the Facility. You are correct in saying that our ash must be landfilled, but our process vastly reduces volumes of MSW and does so much more cleanly than landfilling alone. Our process also recovers ferrous and nonferrous metals from the waste stream delivered to the Facility, metals which would otherwise be landfilled. Landfilling the non-hazardous ash generated from our process has a much lesser environmental impact than landfilling the MSW.

Several commenters suggested Reworld should consider installing selective catalytic reduction (SCR) technology to further reduce NOx emission from the facility. SCR technology has been demonstrated as effective in reducing NOx emissions, however, it is best suited for **new** municipal waste combustion facilities. SCR is appropriate for newly built facilities since the technology must be factored into the design and initial construction of the air pollution control system. In the United States, SCR is operating at only one (1) facility, the Palm Beach Renewable Energy Recovery Facility No. 2 operated by Reworld in Palm Beach, Florida. SCR technology was installed during the original construction of the Palm Beach No. 2 plant. However, SCR has not been installed at an **existing** WTE facility in North America. SCR was not included as part of the recommendations by the Ozone Transport Commission included in the USEPA's Good Neighbor Plan regulations, regulations which were designed around collective action to reduce NOx emissions and other ozone precursors from existing municipal waste combustion facilities, both in local airsheds and from upwind sources. Nor was SCR included by the USEPA in its proposal for revised MACT standards for large existing MWCs. As explained further in the **Selective Catalytic Reduction (SCR)** section of this document, the primary issues concerning installing SCR technology equipment are limited space and extremely high cost. At present, the Facility is operating well below its current permitted NOx limits.

Public Hearing Comment: If Covanta was interested in exploring composting, why didn't Covanta pay for the study with Rutgers when the Grant request was denied?

Covanta Live Response (Jack Bernardino): Thank you, Nicole. So yes, we were kind of surprised amongst all of us, the Composting Council, Rutgers and ourselves. There are actually, maybe one or two other groups. It sounded like it would be a great idea. We thought we were easily going to get the project. But, when it was denied, I think a lot of folks had kind of just backed off and went right over into other projects. So that's when I did run into some of the folks at the New Jersey Composting Council at another event, and we said, "Hey, what else can we do?" So that has been revisited, as I mentioned. So there's

other opportunities we are looking at. We're looking for locations right now. We're even looking at the process itself. And I'm sorry I don't remember the details specifically, but we were using a Gortex product as the cover. So, we're looking for other footprints of smaller areas that could allow for better management of the process itself. So yes, we are continuing to research and go forward and hopefully looking for the right opportunity to try this project and go from there.

Covanta Response: Thank you again, Nicole, for your question concerning composting. Composting can be an important component of waste management, but as of now only a relatively small percentage goes to compost. In 2018 in the United States according to the USEPA there was 292.4 million tons of MSW generated in this country, of which 25 million tons were composted, well less than 10%.[23]

7. Zulene Mayfield

Public Hearing Comment: My name is Zulene Mayfield. I'm the chairperson of Chester Residents Concerned for Quality Living here in Chester, Pa. We are also host to a Covanta incinerator. They are incinerators. They are not waste to energy or resource recovery facilities. They burn, and as a result of the burn they emit pollution into our air, our soil, and our water the same as they do in our Ironbound community. Our communities of color are over impacted. And we are suffering more from the systematic process of environmental racism. I would like to say a couple of things about this process. I think that this process is very restrictive and unfair to the public. For example, if this was an in-person meeting a person could show pictures or slides, and they could contribute that way. By not allowing the community and the public to put those things forward they are not a part of the record. So I think that this this type of a forum should be revisited and be a more fair process to the public overall. I would also like to say that incineration is the least cost-effective way of generating electricity. They are not in the business of generating electricity. They are in the business of burning trash, and as a result of that, a portion of the trash and the ash still goes to a landfill and you know that they emit arsenic and particular matter, all of these things into our neighborhoods, into our lungs, into our body systems, and it is very destructive to a community. Not only that because the incinerators are in our communities, there is also a devaluation of our property, so that needs to be factored in. That is an environmental justice concern, And I think that the DEP should not issue this permit based on the environmental impacts to an overexposed and an endangered community, which are our environmental justice communities. So we stand in solidarity with the Ironbound community, and we are asking the DEP to deny this permit and hold them accountable to the environmental justice law that was passed. Thank you so much.

Covanta Response: Thank you for your comments, Ms. Mayfield. Please refer to the **Public Engagement and Emissions** sections earlier in this document for a detailed description of the engagement processes that we have followed to this point and our emissions profile. We comply with the NJDEP requirements on permitting actions and take their advice at the time on what format to follow for public meetings. In the future we will be moving toward in-person events. As you will see in **Table 1** earlier in this document, our emissions profiles have performed quite well compared to our permit limits and actual emissions have been improved considerably with the installation of our baghouses.

[23] https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials

8. Casandra Bellevue

Public Hearing Comment: Good evening. My name is Casandra Bellevue and I'm an attorney with Earthjustice at 48 Wall Street, in New York, and we represent the Ironbound Community Corporation. As we all know the New Jersey environmental justice law, and in the interim, AO-25 call for stronger health protective measures in permits for facilities in or near overburdened communities. Covanta's facility is located in the Ironbound, which is a vibrant densely populated, multi-ethnic neighborhood in Newark, New Jersey. It is also an environmental justice community that hosts over three thousand five hundred permanent facilities, including the State's largest municipal waste incinerator, manufacturer warehouses, and many more all squeezed into just two zip codes. DEP considers the census block where Covanta is located to be adverse for twenty-four out of the thirty-one environmental and health stressors under the EJ law, including air pollution stressors, such as ground level ozone, fine particular matter, cancer causing air toxics, all contaminated site stressors, all solid waste stressors, and many others and Covanta is in a cumulatively adverse overburdened community, and therefore the protections of the EJ law, and in the interim AO-25 apply so Covanta must go above and beyond to reduce its emissions and not further burden this community. In order to reduce its emissions first Covanta needs to adopt selective catalytic reduction technology to reduce its emissions of smog forming nitrogen oxides, despite the reductions Covanta Essex was counting in its presentation. As far as stationary sources go, it is still the second highest emitter of nitrogen oxides in the entire State, contributing to over seventy percent of the stationary source emissions of nitrogen oxides in Essex County. Essex County currently does not meet Federal smog standards and the Ironbound is cumulatively adverse for smog under the EJ law. Other incinerators already use selective catalytic reduction technology and Covanta cannot consider using outdated sub-par technology that is harming the community. Second, Covanta Essex should also continuously monitor its mercury and hydrogen chloride emissions as it is the second highest emitter in both substances of stationary sources in the entire state. You were talking about how you guys continuously monitor all these other types of things like sulfur oxide, but mercury and hydrogen chloride emissions should also be continuously monitored. Covanta must enact a reliable system for sorting out unpermitted and harmful material before burning it and continuously monitor pollutants that it emits such as particulate matter. It took a year and a half for Covanta to identify the cause of the purple plume violations, and if they had had better management practices in the first place, it would have never happened. And lastly, Covanta should ensure that it's ash handling practices are as protective as possible, and don't result in fugitive ash emissions. In short, Covanta must rise to the occasion and put into place the high health protective standards required by the EJ Law that you guys claim that you have supported since the beginning. Now is the time for you to show your support.

Covanta Response: Thank you for your comments, Ms. Bellevue. We cannot control when to submit renewal applications for our Title V Operating Permit or Solid Waste permit. The Title V Operating Permit renewal application must be submitted at least 12-15 months prior to the listed expiration date on the permit, and the Solid Waste permit renewal application must be submitted at least 90 days prior to the expiration date of the permit. Once the application is submitted, the facility continues to operate under an application shield until the new permit is issued. This application is being considered under the NJDEP's AO-25 process for EJ considerations. As to our CEMS program, recent annual stack testing results (see **Table 1** in the Emissions section of this document) show our emissions profile at maximum capacity, including Hg (mercury) and HCl (hydrogen chloride) emissions which are considerably below our permitted allowable thresholds and were substantially reduced by the baghouse installation project.

The same can be said about our NOx emissions. SCR is appropriate for newly built facilities since the technology must be factored into the design and initial construction of the air pollution control system. SCR technology is considered commercially infeasible for existing facilities, as explained in the **Selective Catalytic Reduction (SCR)** section of this document. Fugitive ash emissions from the Facility are regulated under the Solid Waste Operating Permit for the Facility. The measures used to prevent fugitive ash emissions are discussed in the **Fugitive Emissions** section earlier in the document.

9. Margaret Wood

Public Hearing Comment: What plastics do you burn? What numbers? Three, four, five, six? Vinyl?

Live Response from Jack Bernardino of Covanta: Thank you, Margaret, for your question. So one of those permitted waste types that we're able to take is type 10 waste, which is basically your municipal solid waste, which is your trash that you throw out and put out to the curb every morning. So in that event, if there's incidental pieces of plastic that folks are throwing out, they're not recycling, and there's material in there it would get processed. What we do not accept is that if we do get bulk materials or recyclables we would reject that material. The incidental pieces that I mentioned earlier coming from a resident, yes, that may be combusted in our process.

Covanta Response: Permit Condition #34 of our solid waste permit details the process for what occurs if bulk recyclables are found in the incoming waste loads. Reworld inspects incoming waste loads in accordance with the Waste Flow Control Plan included as part of the Facility's approved Operations and Maintenance Manual. Such inspections are conducted to identify designated recyclable materials that are mandated to be source-separated by the County's Recycling Plan. If designated recyclable materials are detected in a delivered waste load, the Couty recycling coordinator is notified in writing including the identity of the generator who failed to source-separate the recyclable material. In accordance with the procedure detailed in the Waste Flow Control Plan, if bulk recyclables are identified in an incoming waste load, the delivery vehicle must be reloaded and the material rejected. If the material cannot be reloaded onto the delivery vehicle, a request is made to the hauler of the delivery vehicle to send another vehicle back to the Facility so that the recyclable material can be loaded onto that vehicle.

10. Christian Nowell

Public Hearing Comment: Hello, my name is Christian Nowell. I live in Fort Lee, New Jersey. I'm an environmental science teacher in the High School. Actually I toured the facility there a few years ago, before the pandemic with my AP Environmental Science class. So it was really interesting to see the process. But the thing that struck me was that the whole kind of business model relies on a steady stream of trash of municipal solid waste. In the presentation earlier, the choices to dealing with our solid waste was kind of given the false option of either waste going to landfills or waste being incinerated. There was a mention of increasing recycling. I don't think there was a mention of composting. So what I'm curious about is, Covanta has kind of shown to be taking some involvement in environmental initiatives in the community. But what has Covanta done to increase source reduction and composting? It seems that Covanta wouldn't be investing any effort into the host areas because it would hurt the business of Covanta. But you know that the option of source reduction, making sure that food waste is diverted, would reduce the amount of waste that would either go to a landfill or an incineration facility. I

was curious to that. It was presented that incineration avoids, 0.9 tons of CO2 equivalent for each ton of waste processed compared to landfilling. But I was wondering, though does this assume, that there is no capture of the methane from the landfills, because methane from landfills can be captured. I would just call on DEP and Governor Murphy to reject any permits for Covanta and strive to shut down this facility as soon as possible by investing all efforts, all of our energies towards reductions. Sort of the reduction of waste from the source, and then also through composting and recovery. That would be our ideal solution to handling the waste.

Additional written comments from Mr. Nowell were also mentioned at this time:

How do you account for the air pollution caused by the truck traffic delivering solid waste and removing residual waste? Is this counted toward the emissions produced from the facility?

So materials that are unmarked still get burned? Note this was not addressed in live response.

Live response provided by Mike Van Brunt of Covanta: Christian thanks for your questions. In terms of the landfill, and the diversion. We agree wholeheartedly that society needs to get out of the landfill business and move up the waste management hierarchy. And you know the challenge that we have in the United States is, we still are overwhelmingly relying on landfilling. We've landfilled about 250 million tons of waste a year. And we are not really making any improvement. So we need to do all these things. We need to keep our energy recovery facilities operating. We also need to invest heavily in anaerobic digestion, composting, recycling and one of the ways that Europe has been so successful at it is by implementing national based policies that drive waste up the waste management hierarchy. In terms of what we are doing as a company, and I think one of the previous speakers alluded to this, but with the purchase of our company by EQT, we did step up to two goals, both of which have financial impact for the company. One of those goals is to grow our overall sustainable waste management business which we see as everything up the hierarchy besides landfill. But then the second goal is to focus on recycling and increasing our recycling by 25% as a company under our management by 2025, and so that's an important area of focus for us to grow that part of our business and move up the waste hierarchy.

In terms of your question about the truck traffic caused by delivering solid waste and removing residual waste from the facility, they are not currently accounted for on the chart that we put up on the slide. So that's a really good question, and certainly something that we can take back and analyze to see what contribution the truck traffic has to the local air shed particularly that related to our facility. I suspect It's probably going to be relatively minor given the share of our truck traffic relative to the rest of the truck traffic that's in the Ironbound. Particularly traffic on the New Jersy Turnpike and what's going to and from Port Newark. But certainly, something that we can address.

There's one other question, too. You asked about the methane from landfills, and whether or not we assume that there was absolutely no capture. We actually do take into account manual capture in landfills. Despite all their best efforts, collecting gas from the landfill is very challenging to do, and the EPA estimates that even with the capture systems they can at best capture about fifty to sixty percent of the methane that's generated over the lifetime of the waste and the landfill.

Covanta Response: Thank you for your comments, Christian. To your questions about impacts from truck traffic, those emissions are not counted toward facility totals but they are examined regularly. The Solid

Waste permit renewal application that is available on our website also includes an updated traffic analysis based on waste deliveries between the 2015 and 2019 review period and compares current traffic to the original traffic impacts that were included in the original EIS that was done when the plant was constructed. As detailed in the **Truck Traffic** section earlier in this document, it was found that trucks related to site operations had negligible impact on the local airshed. The largest buckets of NOx and PM (particulate matter) emissions related to mobile sources[24] in the area come from Newark International Airport and passenger traffic on local highways.

Concerning your comment on methane capture from landfills, current lifecycle models apply default collection efficiencies based on the type of cover material and collection system present. Over its life in a landfill, a ton of waste will be subjected to a series of collection systems and cover types, beginning with no gas collection when the waste is initially placed, to a final cap and cover system with the highest collection efficiency, and ending with a return to no gas collection ,once gas collection is no longer required by regulation, or no longer economically attractive. A 2024 peer reviewed study reviewed landfill methane measurement data published over the past two (2) decades and found average collection efficiencies of 41%, 69%, and 71% for daily, intermediate, and final cover, respectively.[25] Over the life of waste in a landfill, these updated collection efficiencies yield a lifetime collection efficiency of 45% - 51%, well within the published range of 35% - 70%, which accounts for variation in collection efficiencies over time as described above. Please see Attachment 3 for more information.

11. Monica Wilson

Public Hearing Comment: My name is Monica Wilson. I work for an organization called GAIA the Global Alliance for Incinerator Alternatives. I'm calling from California in solidarity with the community in Newark. And I'm here to ask DEP to deny this permit for the Covanta incinerator in Essex, although it is unclear to me whether DEP is on this call, or whether this is a community outreach session. So I wanted to make several points. One is on this permit. The Covanta in Newark incinerator has over eight hundred and sixty air permit violations since August 2004. Covanta is in a cumulatively adverse, overburdened community, and the protections of the EJ law should and must apply. The continuous emissions monitoring systems should have already been in place for mercury, hydrogen chloride, particulate matter, and other harmful pollutants. I also want to take issue with the characterization of what the situation is with incineration in Europe. The reality is that Europe is pulling away from incineration. In many ways Denmark was mentioned as a model, but Denmark announced last year it will close many incinerators to meet the Nation's climate goals. The capital of Denmark announced this year that it will not be able to reach its carbon neutral city goal because of its incinerator emissions. Also, this year Scotland banned the construction of new incinerators. So the tide is really turned already in Europe. Pollution from European incinerators is now being recognized as a serious problem. Monitoring last year around the Paris incinerator, which is located right in the middle of Paris, shows high levels of dioxins that it does test. Around other incinerators they have found dioxin levels that exceed the EU action limits for food safety. So there's a myth that European incinerators are clean and healthy and safe. That is simply not true. Finally, on the European policy, there are huge pivots away from incineration, both on funding on climate and waste policy. So new policies include taxes on incineration to make it more

[24] https://www.njeja.org/wp-content/uploads/2021/04/NewarkCommunityImpacts_MJBA.pdf
[25] Charles R. Giordano, Michael E. Van Brunt, Shanee J. Halevi, Marco J. Castaldi, Zsanett Orlovits, Zoltan Illes, Landfill gas collection efficiency: Categorization of data from existing in-situ measurements, Waste Management, Volume 175, 2024, Pages 83-91, ISSN 0956-053X, https://doi.org/10.1016/j.wasman.2023.12.042.

expensive in Europe, ending public funding for incinerators and removing incinerators from renewable energy definitions. Germany, Denmark, and Sweden all now make incinerators pay for their climate or for their carbon dioxide emissions under their carbon trading system. Lastly, I wanted to point out that in general electricity produced by incinerators is more carbon-intensive than that produced by conventional fuels. And finally, I just have to note that the EJ policy that was shared today, was absurd. Even Waste Management has a far more robust and transparent EJ Policy and information on their website. So if you take the industry standard, this is totally subpar and unacceptable. Thank you so much.

Covanta Response: Thank you for your comments, Monica. The vast majority (roughly 83%) of the permit exceedances that you refer to occurred before we completed the baghouse upgrade project. Since that point emissions have come down drastically per **Table 1 and 2** in the Emissions section of this document. Our CEM systems are operated according to regulatory requirements and under expert supervision and maintenance by both in-house and third-party professionals. As stated previously, it was decided that this application should go through the AO-25 process for EJ considerations. As to your points about incineration in Europe, we cannot speak to other companies' best practices or emissions profiles, but we stand on our own. Waste-to-Energy (WTE) and landfilling are the only two disposal methods currently viable for large scale waste volumes. As stated previously and detailed in **Attachment 3**, WTE has much lower environmental impacts, a fact that is only highlighted more by each subsequent emissions control upgrade. Our baghouse installations are a great example of this. We simply do not agree with you about our EJ policy. It has been in place for over a decade, has been a core focus for our company during that time, and has yielded tangible improvements in community relations. We are continuously looking to improve our methods and are invested in being good neighbors and partners with the community.

12. Rachel Dawn Davis, Waterspirit

Public Hearing Comment: I'm Rachel Davis, I'm Public Policy and Justice organizer for Waterspirit, a nonprofit spiritual ecology Center and ministry of the Sisters of St. Joseph of Peace, based on stolen land in New Jersey, as we all are. I'm speaking on behalf of our thousands of members for almost twenty-five years throughout the northeast region, and in solidarity with our friends in the Ironbound community and surrounding areas where there is sustainable waste management. I echo many comments from earlier tonight. The people affected most directly can help Covanta, and your industry advance forward thinking food policies. If you wanted that to be the case, I echo Nicole Miller regarding DEP permit denial outright. This is not a grand effort to be inviting public discourse, as was mentioned also earlier, and it seems purposefully leaving many out versus ensuring well rounded voices. No amount of NOx is okay for any person to breathe, especially those brave enough to be having a baby. So in gestation, these types of pollution, especially those we don't even know, are devastating to development. The internationally award winning documentary film, The Sacrifice Zone is centered on the Ironbound of an area of most concern. Intergenerationally rooted in environmental racism. As we all know, we see health effects of this wildly excessive, dangerous amount of pollution. Everywhere you turn at every single stage of life, and how it affects people, and none is helpful. None actually outweigh the social and health costs which are economic and financial, of lackluster systems of waste management. How does Covent address the twenty-four of thirty-one health stressors to those inhaling air in the immediate and surrounding areas that was mentioned, of course, by everyone. Air knows no bounds. Why should this permit be renewed? Eight hundred and sixty air permit violations since August of 2004? In addition to several proposed pollution, creating facilities thrust upon residents and area dwellers, we urge NJDEP to ensure this

permit is not renewed, and there are more forward thinking methods that can be viable alternatives for waste management, and could be wholeheartedly put into practice in a true spirit of the environmental justice law. Thank you.

Covanta Response: Please refer to our **Public Engagement** and **Emissions** sections of this document for more information on our engagement processes and the steps that we take to minimize emissions. The NJDEP makes all decisions on permitting but as the air permit application was submitted nearly five (5) years before the EJ law came into effect, it would not be covered or open to its processes other than the AO-25 process. However, our Facility has been performing remarkably well compared to our permit limits and has seen dramatic emissions reductions due to our baghouse upgrade. The plant is considerably below permitted limit for NOx emissions . Reworld will reevaluate options for further reducing NOx emissions from the Facility once final emission standards have been established by the USEPA and/or the New Jersey DEP. Please refer to the **Selective Catalytic Reduction (SCR)** section earlier in this document for further information.

Written Comments Submitted Via Email:

May this comment find you and yours healthy and well. My name is Rachel Dawn Davis and I am the Public Policy & Justice Organizer for Waterspirit, a nonprofit ministry of the Sisters of St. Joseph of Peace. I am writing on behalf of Waterspirit's thousands of members who have been both celebrating and advocating for the protection of water for over 25 years across the northeast region and throughout our shared planet. While I attended the public comment session to audibly support allies experiencing direct impacts as front line residents, I am also submitting these comments in writing.

Waterspirit recommends that there be no further permitting awarded Covanta by the NJ Department of Environment due to the 24 of 31 health and environmental stressors. Since August 2004, Covanta Newark has accumulated 860 air permit violations. Cumulatively Covanta Newark is adding to the burden of overburdened areas of most concern. Intergenerational pollution is a result of environmental racism. The continuance of such outrageously tolerable practices without contrition goes in direct opposition to the environmental justice law as well as Governor Murphy's statewide climate related goals.

Waterspirit recommends that NJDEP and Covanta act in the spirit of the landmark cumulative impacts law being implemented in New Jersey. This law is meant to prevent, not prolong and perpetuate, pollution. Covanta is in violation of the environmental justice cumulative impacts law and should be held to account to, at the very least, significantly reduce pollution. Cancer, asthma, workdays, school days, medical bills, funeral costs add up over time, across generations.

Waterspirit recommends that NJDEP take action by ensuring ongoing public ownership of emissions monitoring. NJDEP and Covanta must hear the serious public outcry regarding

Covanta's purple emissions, containing lead, arsenic, and mercury, perhaps others. It is impossible to trust polluters with monitoring their own waste. For the residents and their health care providers to understand what they are ingesting day to day, they must partake in the data monitoring process. Covanta is the #2 emitter of nitrogen oxides in the entire state of New Jersey. Covanta is responsible for 70% of stationary source emissions of nitrogen oxides in Essex County. Covanta is the #2 emitter of mercury in the entire state. Covanta is responsible for 99.7% (nearly all) mercury emissions from stationary sources in Essex County. Other incinerators already continuously monitor mercury. Covanta's hydrogen chloride emissions must be independently monitored. Covanta is the #2 emitter of hydrogen chloride in the entire state. It is responsible for 90.3% of hydrogen chloride emissions from stationary sources in Essex County.

The capacity of continuously monitoring hydrogen chloride is being demonstrated by other incinerators today. Covanta must use continuous monitors for particulate matter, to make sure that there are no issues with the baghouse.

Waterspirit recommends Covanta adopt selective catalytic reduction technology to reduce its emissions of smog-forming nitrogen oxides as soon as possible. Essex County does not meet federal smog standards and the Ironbound community of Newark is cumulatively adverse for smog under the environmental justice rule in New Jersey. Incinerators in other geographic locations already use selective catalytic reduction technology. It is unacceptable for Covanta to utilize subpar components that are making residents sick.

Waterspirit recommends that NJ DEP and Covanta maintain fugitive emissions are prevented at all times; investing in protections wherever possible. Covanta should ensure that its ash handling practices are as protective as possible, and do not result in fugitive ash emissions.

Thank you for the opportunity to comment. We deeply appreciate the work of environmental justice being done in New Jersey and hope that righting wrongs of environmental racism collaboratively will help forge a positive, livable future for current generations and those to come. Wishing you a peace filled holiday season and a happy new year!

Rachel Dawn Davis
Public Policy & Justice Organizer
Waterspirit

Covanta Response: Thank you again for your comments Ms. Davis. The passion in your words is evident. The NJDEP will review this document and make all decisions on permitting. The Operating Permit and solid waste permit renewal applications were submitted well before the NJ EJ law was implemented earlier this year. Title V Operating Permit and Solid Waste permit renewal applications must be submitted by predetermined timelines, and the Facility has no control on how long the NJDEP takes to process the applications. These applications are being processed through the AO-25 EJ process and Reworld will meet all requirements from the NJDEP. We refer you back to the earlier subject matter sections for answers to your specific inquiries on Emission, Selective Catalytic Reduction (SCR), CEMS, and our past emissions performance. We were unable to confirm the statistic that you cited of 860 exceedances. Our total for that period is lower than that and more than 80% of those exceedances occurred prior to the installation of our new baghouses in 2014-

2016. We are making progress.

13. Nancy Zack

Public Hearing Comment: I can remember when Covanta first proposed its incinerator in the Ironbound and we people realized at that time that to burn garbage was going to not help us with recycling. We were going in the wrong direction, because the garbage incinerator, the garbage burner, had to be fed lots and lots of garbage. And I, as far as watching what garbage comes in, I was here when the load came in from Ohio without the manifest on it, and it was dumped into the incinerator. Blew up and forty firefighters ended up going to the hospital that day. It's very good to hear people calling for recycling again, and for composting. That's the way we should be going and we should have gone, and I think giving a permit so you can pollute is not a good idea, and I support all the other people who have called for the denial of this.

Covanta Response: Covanta did not site the Facility in the Ironbound area of Newark. The Facility was sited by the Port Authority of New York and New Jersey, Essex County, and the City of Newark. The Facility was operated by American Ref-Fuel until 2005 when Covanta acquired American Ref-Fuel and took over operation of the Facility. Covanta acquired ownership of the Facility in 2012 and proceeded to permit and replace the existing electrostatic precipitators with state-of- the-art baghouses during the period 2014-2016. The air pollution control upgrade project cost approximately $80 million dollars and achieved substantial reductions in emissions as presented at the EJ hearing.

Please refer to the **Benefits from the Facility** section earlier for details on our recycling benefits. It is an area that we take seriously. We recycle thousands of tons of ferrous and non-ferrous metals contained in the waste loads delivered to the Facility each year and have rigorous processes in place to ensure that the sort of safety incident that you referred caused by the mistaken receipt of an unidentified waste does not happen. Each hauler looking to dispose of material at our site must first have their manifest verified and approved by site personnel. Our waste inspection procedures to prevent bulk designated recyclables from being combusted are detailed in the Watse Flow Control Plan for the Facility.

14. Drew Curtis

Public Hearing Comment: So I live here in Ironbound section of Newark for the past twelve years, and I can tell that my amount of respiratory issues I've got here, and large part due to the fact that we're 07105. That's one of the most polluted zip codes in America, and that's where Covanta's garbage incinerator is located. If Covanta wasn't killing people because of their air pollution, it would be comical that you refuse to admit that you are a garbage incinerator, and you try to get up with these green washing schemes like waste to energy, and everything, too. But you are a garbage incineration company. I just want that to be known loudly. Just so many issues. You've been around, as you said, since 1990. That's over thirty years. You are out of date and out of touch like that. There should be no reason for you to keep working. You have had 860 permit violations, air permit violations since 2004. That's not good. You're not good at your job, either. You're failing, and you're not complying too. So there's no reason that you should be allowed to continue to operate. You all should be out of business. You need to update your catalytic reduction technology. You need some better monitors for mercury and hydrogen chloride. You need to do more monitoring for particulate matter and make sure there are no issues with

the baghouse, which we all know you were forced to install. By the way, it wasn't something that you did out of your good hearts. You have no idea what you're throwing away, too, which is why we see pink and purple smoke all the time. Not just hear about it, as the presenter said earlier. But just talking about this whole format for public hearing. We're not even allowed to see each other and talk to each other because we're on Zoom, which I understand is okay, because we are still in a pandemic, so it's safer for us all to be here. This should be a conversation, a dialogue where we back and forth, and communicate, not just being allowed to comment, and then being spoken at too. This is not how you do community engagement. So first we should have a real public hearing where there is a real community engagement and then DEP should deny any request for your premises and you also go out of business. Go back to Sweden, or whatever company owns you all now.

Covanta Response: Drew, thank you for the comments. The impacts from the airport and local highways alone cause high emissions and likely contribute to the corresponding respiratory ailments that you mentioned. Covanta causes a small fraction of those impacts and has been continuously working to improve our operations and reduce emissions. As you will see in Table 1 listed in the Emissions Controls section, the baghouse installation a few years ago drastically reduced our emissions footprint. Many commenters have demanded that we install an SCR system. Please see the **Selective Catalytic Reduction (SCR)** section earlier in this document for more information on this technology. The limits are set based on public health thresholds, and we routinely average approximately 34% below our NOx emissions limit.

Public Hearing Comment: What does combust mean?

Covanta Response: Covanta Live Response (Jack Bernardino)

The connotation of incinerator means, your incinerator of many, many years ago, of open burning without any type of air quality control. So that's why I think you know what we're talking about today that has evolved into a process of waste to energy where combustion is thermal treatment. And that would be my view as a non-engineer as far as combustion.

Covanta Response: Combustion means the process of burning something. In our case, we burn municipal solid waste (MSW) on a reciprocating grate in a furnace where the temperature on and just above the grate is approximately 2500°F. The combustion gases are induced from the furnace and maintained at approximately 1800°F for approximately 2 seconds as heat is recovered to make steam to generate electricity. This combustion technology maximizes contaminant destruction and minimizes potential emissions.

15. Chase Johnson

Public Hearing Comment: I had a couple of questions in the chat. I'm deeply concerned about the fact that everything is spoken in relative terms here. Relative terms do absolutely nothing in terms of individual impact. We're talking about absolute impact. To say we are the best of the worst doesn't really mean anything, because you're still the worst in terms of overall impact of parts per million for nitrous oxide, arsenic, the particulates that you guys are all generating. There's no visibility into what levels are going to impact people negatively. But we also know that you're well above those levels so seeking

relative terms doesn't really do anything, and I'd like you to address one. Why do you always try and pitch things in relative terms? But I believe we know the answer is because if you spoke in absolute terms in terms of negative impact you'd be well above the threshold always. Even if you're well below the arbitrary amount set by lawmakers and international bodies governing this. Secondly, I want to see how you compare in terms of kilowatt energy production to things like solar today that have a lot less of a carbon footprint. Solar is continually getting cheaper. I don't know why this community, especially with increased funding for solar projects coming out, things like the EPA would want to renew your permit when the cost of solar, and the investment going into it from our federal government and governing bodies is increasing. So, if you could go into you know the kilowatt per hour. Especially if you're going to take in all the externalities that you're uh putting into the community. I'd be very interested to see how much damage you're doing overall, and especially compared to solar and alternative methods. Finally talking about things in terms of what good you're doing for the world. It's good for you and the communities that are far away on a global scale, perhaps, that this doesn't go to a landfill, even though, as others have pointed out, that might not be the case. But I feel like very few of you would want to live in the communities and the amount of distance that we're living in. I live across the river in Harrison. I smell you guys all the time. It's absolutely disgusting. And I think we can all agree upon that. And I don't think any of you would want to live in that area, raise your children in that area or be pregnant with children in that area, and have exposure to your family members. So once again you're talking in relative terms that it's okay for these communities to have that burden because of the greater good it's going to do for everyone else. I don't think it's fair to sacrifice the people that live around in this area. I'm unaffiliated. I'm currently a student and I'm just deeply concerned about Covanta, claiming to be the best of the worst, and having us believe that we should accept that. We only are talking about everything in relative terms. When there are better relative options, as others have laid out here, I believe the permit should be denied, and I believe other options should be explored by the State.

Covanta Response:

Chase, thank you for your comments. While solar energy does have a lesser carbon footprint than the electricity generated at the Facility, solar energy doesn’t also manage post-recycled municipal solid waste. The primary purpose and benefit of the ECRRF is volume reduction of the municipal solid waste it processes. The recovery of energy in the form of electricity and the recovery of ferrous and nonferrous metals from the waste stream which would otherwise need to be mined or manufactured are significant benefits attributable to the technology used at the Facility. Taking into account methane avoidance and the recovery of metals from the waste stream, TTFs are the only major source of net carbon-negative energy, approximately 10 times better than solar and wind energy. In addition to diverting 944,000 tons of unrecycled MSW from landfills in 2024, 446,000 MWh of net electricity were exported from the Facility, enough to power 42,000 homes for 1 year or charge 103,000 electric vehicles for 1 year. The size of a solar farm needed to generate an equivalent amount of electricity is estimated at 1,000-1,200 acres, depending upon several factors including location and technology.

Environmental impact assessment is always relative. You must consider holistically the ambient levels of contamination in the area and source potential pathways from your facility (in this case our Essex plant) into and through neighboring communities. Our emissions profile has improved dramatically since we installed the fabric filter baghouses, and we are now orders of magnitude below many of our permitted emissions thresholds. We also account for small fractions of the overall ambient emissions concentration for criteria contaminants in Newark. There is too much industrial activity in Newark and the impacts

from the local airport and highways cannot be understated as collectively they account for the lion's share of emissions in the city.

Additional written comment in Q&A from Chase Johnson:

Why is there no discussion about the impact of the emissions you produce in absolute terms? How much Arsenic, NO2, etc. does it take to negatively impact a persons health vs how much you produce? Emissions of harmful chemicals don't have less of an impact on individuals because they are less than other sources in the area.

Live response provided by Mike Van Brunt of Covanta: I think Chase brings up a good point about the relative impacts and looking at what the total emissions are. But I guess my response to that is that the most important thing is going back to what the health impacts from the emissions from any facility are. And you know, the EJ Law requires us to also look at cumulative health impacts. So in response to an NJDEP request in 2019, we had a third party prepare dispersion modeling and facility wide risk assessment in response to the NJDEP as part of the permit renewal process. That analysis found that cancer risks and non-carcinogenic risks were found to be negligible in accordance with the NJDEP guidance, and what they do is they base that analysis off of the actual emissions from the facility based off of our stack testing, which we do every year as well as based off of the continuous emission monitoring system that's constantly monitoring emissions from the facility. And so I think that's probably ultimately the best arbiter of what are the actual impacts from the facility tracing it not only to what the actual mass emissions are out of the stack, but then also tracing it to what the health impact is on people who are looking at who live and work in the community. Secondly, you talked a little bit about the alternatives for electricity generation. We are very supportive of efforts to advance solar installations and wind installations. They're all a very important part of moving toward a future low carbon economy and getting away from fossil fuel combustion. The challenge with those is we still are left with the waste management need. And so can we put in place technologies that can address waste management? A big advantage that waste to energy facilities have is that we're dual purpose. We're able to not only generate electricity, but, more importantly, we're able to address the waste management need for waste after recycling.

Covanta Response: A copy of the health risk assessment referred to by Mr. Van Brunt in his live response is included as **Attachment 2** to this report. In addition to what Mr. Van Brunt said at the hearing about health impact assessments, since the site is a Title V facility, we must also submit an annual emission statement to the NJDEP. These are public documents and readily available through the NJDEP Dataminer system and public records request.[26]

16. Syd Chan

Public Hearing Comment: Hi I'm Syd Chan, I live in the Ironbound neighborhood and I did several years ago get a chance tour the Covanta Union facility in Rahway off Route 1 as part of a class that I was taking and I do want to say I was very impressed with the professionalism and the quality of that incinerator,

[26] https://njems.nj.gov/DataMiner

and I would assume the same professionalism and quality air pollution technologies are implemented here in Newark in the Covanta Essex facility. I do also want to point out that no matter where an incinerator is, it will always impact the community around it. There always has to be a community that is impacted by it. And if it's not our community, why should we export it to another community. That said I do think that Covanta assets can do better. It can continue, it should continue to improve their air quality monitoring and their scrubbing technologies. And it should continue to be a better neighbor to the community to support community organizations and support its neighbors and support waste reduction programs in Newark. Thank you.

Covanta Response: Thank you for your comments, Syd, and we are pleased that you enjoyed touring our Reworld Union facility. We take the sort of professionalism that you mentioned very seriously and dedicate considerable time toward reducing environmental impacts and bettering our relationship with the community. We run a state-of-the-art facility and provide a currently necessary public good in disposing of nearly 985,000 tons of MSW each year. We would suggest that you refer to the Emissions section earlier in this document for a summary of our performance versus our permit limits, how our average number of permit exceedances has dropped considerably, and the reduction of our actual emissions from the Facility.

17. Brian Russo, Clean Water Action, Delaware Riverkeeper

Comment (Submitted via email): Thanks for having me to speak. I'm going to repeat some of the things that some of the other people said. I worked for a major insurance company and worked in Newark, Kearney, and a couple of the surrounding areas for a couple of years. I'm asking that this permit be denied due to being an overburdened community. Covanta is to be adverse for twenty-four of thirty-one environmental and health stressors. It's adverse, in all air pollution stressors, all contaminated site stressors, all solid waste stressors and others. It's an overburdened community, and the projections of the EJ will apply. Covanta must go above and beyond to reduce emissions. There is over 860 air permit violations since August, 2005. It's in the top five highest emitters for harmful pollutants like lead, arsenic, and mercury. It needs to adopt selective catalytic reduction technology to reduce its emissions of smog forming nitrogen oxides. It's the number two emitter of nitrogen oxides in the entire State and it's responsible for seventy percent of this, the source emissions and nitrogen oxides in Essex County, Essex County does not meet Federal smog standards. The Ironbound is greatly impacted by smog. Under the EJ rule, one hundred and fifty other incinerator operators are already using selective catalytic reduction technology. It's not acceptable for Covanta to continue to use its outdated subpar technology that's harming the community. And they should continuously monitor its mercury emissions. It's the number two emitter of mercury in the entire state, it's responsible for 99.7% mercury emissions in Essex County, and it should continuously monitor its hydrogen chloride emissions. It's the number two emitter of hydrogen chloride in the entire state and is responsible for ninety percent of the emissions in Essex County. It must use continuous monitors for particle matter. It must make sure there are no issues with the Bag house. It must do a better job of sorting unpermitted harmful waste before burning it, and it must continuously monitor more of the pollution that it emits. Thank you for your time.

Covanta Response: Brian, thank you for the comments. The NJDEP will be reviewing this comment package and will consider all of them in their ultimate decision. Please refer to the subject matter sections earlier in this document for background on your questions. We work hard to run a state-of-the-art facility, and yield the lowest environmental impact possible, while processing close to one million tons of municipal solid waste a year. It should be noted that only one other municipal waste combustion

facility in the United States is using Selective Catalytic Reduction (SCR) technology to reduce NOx emissions. It is the Covanta Palm Beach Energy Renewable Park 2 facility located in West Palm Beach, Florida. SCR was included during the original construction of the facility. No existing facility in the United States has been retrofitted with SCR technology. Please see the **Selective Catalytic Reduction (SCR)** section earlier in this document for more information on this technology.

18. Vanessa Thomas

Public Hearing Comment: Good evening everyone. My name is Vanessa Thomas. I'm a senior at Rutgers, who's studying environmental policy, social justice, and sustainability. And I'm also an employee at the Ironbound Community Corporation where I work on the Environmental Justice and Community Development team. First, Covanta really needs to recognize the harmful impacts that the many toxic pollutants they emit have on the surrounding community, and also recognize that those toxins, regardless of the amount, produce multiplicative effects that greatly harm the surrounding community that you operate in. Second, it's honestly horrifying how many violations Covanta has racked up. Yet you put no cons when comparing your processes to landfills for chemicals like mercury and hydrogen chloride. Monitoring standards really need to be greatly increased given you're the second polluter of both in the entire state. Third, if you really value public hearings, public comments, and partnering with overburdened and EJ Communities like your PowerPoint Slide said, then I really encourage you to listen, not just to say you listen to commentary, but listen to hear and internalize what community members are saying, for in addition to green washing your processes, you quote supported the EJ Law. Yet you voted for the economic interest to be included in the law. So that's really odd, because that piece would have essentially gutted the EJ law. If you really value the community and want to play a role in the circular economy, then you'd be upfront about the cons of waste to energy facilities and be pushing for and funding alternatives for green tech for the beginning of product life cycle. But I don't think you would really ever do that, because it means that your business model would be basically obsolete. So, I thank you again for the opportunity to speak, and I'm going to end it sooner, so that the community members can get their word in. Thank you.

Covanta Response: Thank you for your comments, Vanessa. We are trying to listen to the community and act responsibly to reduce our environmental impacts, but we also ask for a fair accounting of our impacts to and within the community. We are a large visible company located in the middle of the community but there are many other sources that have greater negative environmental impacts than Covanta. Please see the **Emissions** and **Permit Condition Exceedances** sections of this document for a detailed breakdown of the compliance history that you referred to and a performance chart that shows actual emissions during stack tests versus permitted limits. This application is being considered by the NJDEP under the AO25 process. We have been following NJDEP guidance on the EJ process and will continue to abide by the conditions set out in our operating permits.

19. Melissa Miles

Public Hearing Comment: I agree with others questioning the validity of this process, which is not truly public, open, or accessible. I am concerned that there is not an email to send comments directly to the DEP. My questions are: One, does Covanta plan to hire more people for the tipping floor? The cameras are not adequate. Two, does Covanta Essex plan to instate Continuous monitoring of PM (particulate matter), Lead, and Mercury? Three, does Covanta Essex plan to adopt selective catalytic conversion?

Covanta's NOx emissions are a major issue, and catalytic conversion should mitigate that. Four, is Covanta prepared to voluntarily reduce emissions of both NOx and hydrogen chloride? Covanta as a major emitter of these two pollutants, and the disproportionate burden would probably be enough for the DEP to place conditions on the permit under the EJ law. If Covanta supports the EJ law, is it prepared to voluntarily adopt those standards even before the law begins to be enforced?

Live response provided by Jack Bernardino and Mike Van Brunt of Covanta:

Jack Bernardino –

Thank you for the question Melissa. Great to hear from you. I think maybe I'll take a piece of a couple of points here and comments about this process that we've been following. As for an open meeting, we had been following the NJDEP guidelines for conducting this open meeting. I think you're hopefully able to submit questions through the email addresses that we provided. Again, we will be wrapping up and rolling up those comments over to the DEP as well, with our appropriate responses. So I think that's just to comment on the process. The first question about hiring more people for the tipping floor you know we have right now I think it's two folks on the tipping floor each time, as we're accepting waste as well as doing the waste inspections that we've seen, we do actually have requirements of a minimum amount of inspections, or throw down inspections that we have to do on the tipping floor as prescribed by our operations Plan in addition to the cameras that we have. So those are what we've been using. Keep in mind that the issue that we had last occurred in April 2020. So, I think what we've got right now is working well. We haven't had an issue since April 2020, over two years ago. And for questions two through four I'll pass it over to Mike.

Mike Van Brunt

Thanks, Jack. Melissa, in regards to your question about continuous monitoring of PM (particulate matter) and Mercury, we're not planning to do that at this time. What we do as a surrogate for those are a few things. One is we do the stack testing on an annual basis where we test, for Particulate Matter, Lead, Mercury. And I certainly do understand that your comments are consistent with others who have raised the question. Well, why can't we do it more frequently? There are things that we monitor continuously that help us determine how well our air pollution control systems are operating. So, for example, the opacity readings that we have that we continuously monitor at our facility is a surrogate monitoring for particulate matter, lead, and mercury. Again, with regard to Mercury emissions, we have to track what our carbon injection rate is, and we also have to track things like temperature on the Bag House Inlet to make sure that the air pollution control equipment is operating functionally and as well as it can be, and what the stack test is really designed to do is to make sure that we continue to be successful when the air pollution control equipment is being operated as we're required to do. It's important to note that, unlike other options for waste management, we are not able to not send the flu gases to the air pollution control equipment. So anytime the facilities are operating, those flu gases are going to the Air pollution control equipment. So that's another way that we can ensure that we have continuous treatment of particular matter, lead, and mercury. Your next question, does Covanta have a plan to adopt selective catalytic conversion, we do not at this time. The facility already operates in line with what the EPA's expectations are, and what the Ozone Transport Commission's expectations are for existing facilities to help address those areas of the country that are exceeding the National Ambient Air Quality standard for NOx. We do operate an SCR facility. We have one facility in our fleet located down

in West Palm Beach. It was a brand new facility that was specifically designed to implement SCR. At this point in time we're not even sure if installing SCR would be technically feasible at the Essex facility, because it would require substantial changes to the facility in this configuration. We had those challenges as it stands with installing the bag house. But I think most importantly, is the return of the fact that it already is in line with what the EPA and the Ozone Transport Commission are expecting existing facilities to do and that's all done with the recognition that NOx is not a problem born by one facility, or even two facilities, but by numerous sources. The cars that we drive, the trucks that are on the road, the railroad locomotives that go through the local area. All of those release NOx emissions into the atmosphere that all need to be addressed collaboratively and together. Your next question, is Covanta prepared to voluntarily reduce emissions of both NOx and Hydrogen chloride? We already have reduced NOx as we reviewed through the presentation and hydrogen chloride. Right now we currently operate the air pollution control system in line with what we're required to do as part of our permit, and you know again, it's important to put those into perspective with the other sources of emissions, you know we are a larger source of HCl (hydrogen chloride) when it comes to point sources, but there's certainly other sources of HCl out there as well. And then, with regard to some of the questions that have arisen about the EJ Law and the timing of our responses and our permit renewal process. Let me be perfectly clear. It is not at all our intent to circumvent the EJ law, or the requirements. We submitted our first renewal application back in 2017. The renewal application process is really set by the timing of the Title V permit process. The term of a Title V permit is a period of five years. Now we have to submit permit applications that match up with that time period.

Covanta Response: Thank you for your comments, Melissa. The public engagement model that was used for this application process, as with our Camden facility, was done in concert with Best Practices from the NJDEP. Reworld has been following NJDEP guidance on this process and will see all comments and responses to these renewal applications. This comment period is intended to satisfy the requirements of AO-25 as detailed in the NJDEP section earlier in this document. As Mr. Van Brunt stated during the public hearing, our site submitted its air permit renewal application over five (5) years ago in line with permit schedule requirements.

To clarify, Mr. Van Brunt's use of a double negative about the combustion gases generated by our technology was made to indicate that the emissions are always directed through our air quality control systems. The combustion gases are directed to the air quality control equipment and are never bypassed directly to the atmosphere.

A **Glossary** of technical terms used in the live and written responses to comments has been added to this document as Attachment 7.

20. Christian Rodriguez, Ironbound Community Corporation

Public Hearing Comment: Thanks so much for, I mean I don't know if I should thank you for this type of presentation, I don't think is inclusive at all. But just to move forward, just want to say you keep saying in 2017 you all submit your permit. In 2017 I actually hosted a march to your facilities in the snow with those same kids that you have on your slides. They are the same ones that march to demand clean air because we're tired. We're tired of the pollution. You say these percentages like you're proud of those numbers, and you shouldn't be proud of the equation that you're painting. It's a super bad equation to

an overburdened community. You negatively add to our emissions. Covanta has over 860 air permit violations since August, 2004. These include multiple instances of purple emissions that Covanta cannot explain for months until now. It's like this meeting for you to now finally explain these purple plumes, these purple plumes that I actually follow, because I was afraid of what the heck was being emitted into my neighborhood. Those pictures that are going around, some of those pictures are my pictures, because it was scary to know what the heck this this purple plume was going into our neighborhood. How is that being a good neighbor. Compared to all New Jersey facilities, Covanta is the highest emitters for harmful pollutants like lead, arsenic, and mercury. How is that clean energy if these outputs are harmful to our communities, this is a false narrative. You are burning trash, which is incineration. Be transparent and truthful. The information about incinerations or incinerators in Europe that crap was false, and you should be ashamed for not doing more research about that before presenting that to our community like we wouldn't be able to catch on. Here's the number two emitter of nitrogen oxide in the entire state. You're responsible for seventy percent of stationary sources, emissions of nitrogen oxide and Essex County, and you do not meet Federal smog standards, and Ironbound where I live in where I grow food and where I work and breathe, you know it's the cumulatively adverse under the EJ rule. Other incinerators are already using this. Why can't you? You're definitely like my number one public enemy in my eyes. You say you looked into offering composting programs. You haven't partnered with anyone. You say you supported the EJ Bill. But then you ask for economic interest to be considered in the EJ law, despite the fact that we were opposing it. The community of Newark. We're opposing it, and you know that you would have watered down the bill. There are better and more efficient ways to provide energy to an overburdened community. Your permit should be denied. We don't want you. The kids don't appreciate you. We don't appreciate you lying to us. The little bit of trees and gloves you provide to the community doesn't compare to the negative impact you had on that. Thank you very much.

Covanta Response: Thank you for your comments, Christian. We try very hard to be transparent and improve our environmental impacts wherever possible. The baghouse retrofit was a great example of this, and the tremendous emissions benefits from this are detailed in the **Emissions** section earlier in this document. As to your comments on the format of our public hearing, we have been following their guidelines throughout on how to conduct these hearings. Their advice at the time of our hearing late last year was to do all virtual. We also have not been able to source the 860 violations statistic. Our figure, and that submitted on our compliance reports to the NJDEP, is around 525, and of that the vast majority occurred prior to the installation of the baghouses. Many also effectively double or triple counted the same emissions event. As an example, we have process parameters that monitor temperature and many that monitor emission limits. One emissions exceedance can affect several permit conditions. Please see the Permit Condition Exceedances and **Selective Catalytic Reduction (SCR)** sections sections earlier in this document for more information about NOx emissions from the Facility.

Public Hearing Comment: You have said that you have data that the purple plumes were not harmful. But how is that data accurate when you didn't know of the plumes yourself, and had to be notified? When did folks go out to measure the ground level effects on the community? The same day or in two days?

Covanta Live Response (Jack Bernardino and Trish Earls)

Jack Bernardino:

From what I understand when the purple plume issue occurred, we were right around the opacity limit. Well, pretty close to it, so we knew that it wasn't an issue of being that much higher from our opacity

limit itself. So we were right there on that limit. So as we reported that, and I think it is 10% is our limit. So we ended up doing the study. I know it wasn't obviously that same week. But that was done shortly after DEP asked for some calculations which we did provide. But I'm not sure what it was on the timing.

Trish Earls:

When these events happened, we were very much aware of what was going on, and knowing the nature of iodine when it combusts, we suspected that it was due to some iodine that had gotten fed to the boiler that was in the waste. We were the ones that notified New Jersey DEP of the events when they happened. And then since they became an issue in 2019 especially, where we had several events, as required by DEP and again something we want to do ourselves we did the analysis where we were able to correlate opacity levels to iodine emissions. And using that data, we were able to do an analysis based on ground level concentrations of iodine and we were able to show the results from the worst-case events were below the health thresholds that we were able to find to compare with again with DEP's approval of the whole process.

Covanta Response: Please see the **Purple Plumes** section earlier in this document for more information.

As described in the Glossary and mentioned by Mr. Bernardino in his live response, opacity limits define the acceptable level of visible emissions from industrial sources like smokestacks. Generally, these limits are expressed as a percentage of how much light is blocked by the emissions, with 10% being our permitted maximum 6-minute block average permit limit. These limits are established to reduce air pollution and protect public health.

21. David Horan

Public Hearing Comment: Just curious. So as Covanta says, it's not a trash incinerator. I'm curious, would Covanta be willing to accept any sort of liability if people develop respiratory issues in the area. Surely, if you are not a trash incinerator, it should be no problem at all to commit right now to provide money and accept liability to people who would develop issues?

Covanta Response: Our site is a waste incinerator, but we prefer the term Thermomechanical Treatment Facility because it more accurately highlights the extra steps that we take to minimize environmental impacts and provide benefits for the community.

Additional written comment in Q&A from David Horan:

If the risks are so negligible, will Covanta take on the financial cost of treatment for those who contract cancer/respiratory issues due to breathing the air around a Covanta plant?

Covanta Live Response (Mike Van Brunt and Jack Bernardino)

Mike Van Brunt -

First of all, people in Europe consider us to be incineration. It is so. We acknowledge the fact that we're combusting the waste and I don't think there's any way of arguing that we're not. With the question

about liability, the reality is why? In New Jersey, the DEP looked at cumulative health impacts precisely because, you can't assess impacts in the local air shed that are attributable to one facility. All of us are exposed to cumulative health impacts and certain parts, and certainly the Ironbound community is one that has a history of being overburdened. We have acknowledged that, and we recognize that and we are complying with our permits to the extent that we can, and as well as we can. And in fact, I think one of the questions that people raised about the number of violations that we incurred over a certain time period. Our compliance rate is over 99.9 percent, if we look at the number of compliance periods that we have to comply with. This facility is extraordinarily well regulated by the Department and by the State, and that's not to say that we do not have exceedances. We acknowledge that we have those experiences. One of the reasons why we elected to put our emissions performance data up online was to aid to that transparency. It's important to sort of recognize what the impacts are. It's also important to recognize that we exist in a community that has multiple impacts, all of which, you know, contribute to the overburdened condition that's there, that we are part of the problem as well as part of the solution. But, as I pointed to before, we're a very small part of that problem.

Jack Bernardino –

I just also wanted to mention something as well. I think there's the comments about composting, and I just wanted to share a few things with you. We're always looking for ways to move up the waste management hierarchy. Composting is included. I did want to share that we were asked by workers to partake in a composting study on urban compost. The study was meant to take place right here in Newark and unfortunately the grant for the project was not approved from what we found out late last year, or in the middle of last year. So we actually continued, and we are working on potential other avenues to support composting efforts. We actually just sponsored the last event that they had at the Wellington County center over there at Rutgers, and again looking for opportunities on compost and food composting.

Covanta Response: Please see the **Benefits from the Facility** section earlier in this document. At present landfilling and waste-to-energy are the only two viable options for disposing of very large volumes of municipal solid wastes (MSW). Perhaps composting will help on a larger scale someday but for now it is limited in scope and constrained by space requirements[27].

22. Maria Lopez – Nunez, Ironbound Community Corporation

Public Hearing Comment: Can Covanta share what happens to the used bag houses? Don't you burn them afterwards?

Live response provided by Trish Earls of Covanta: Yes, Maria, we do process our bags that we change out of our bag houses. We do change them out on a regular basis to ensure that they're operating optimally. We follow EPA guidance which allows us to combust the used bags in our emission units. The

[27] Vigneswaran, S., Kandasamy, J., & Johir, M. A. H. (2016). Sustainable operation of composting in solid waste management. *Procedia Environmental Sciences*, *35*, 408-415.

idea is that it allows the air pollution controls to control any toxic emissions that might come out of that, which makes more sense environmentally. So yes, we do process them.

Public Hearing Comment: Thank you for letting me speak, and I guess thank you at least, that this is an attempt at a conversation. I know that there's a long road ahead of us. I am wondering given that EPA has not updated its incinerator standards since two thousand, and whatever six, five, you know, in sixteen years. How the impact would be if the EPA actually updated its incinerator standards. My understanding is also that, the emission limits that you're claiming to be ninety-nine percent or ninety percent below are actually a miscalculation that you were taken to court over. So I just want that really reflected on the record. I think it is important that you use the words incineration and not waste to energy. Waste to Energy is very misleading. It makes it seem like you're mostly an electric company when we know that you're not. We know that you burn trash and we just want you to get more honest about that, so that we can actually have a community dialogue. I don't like how initially Covanta painted the community members almost as criminals, you know, trying to adjust our behavior and really setting ground rules that I thought were an antagonistic right, seeing like you're going to be attacked. People have a lot of feelings, and I do think it's your job to hear people out and do your best to just make it on the record, you know. Answer technically and be respectful. I would love to see Covanta to be a better neighbor, not just sponsoring football teams, but maybe you could replace the windows at Hawkins Street, you know, so that the kids don't have to smell the emissions or help people in Jersey City with their medical bills. You know there's like deeper ways that you can be a good neighbor. There are incinerators that pollute a lot less than you. That are of your size, and only have about forty violations in the same amount of time. So I think that it's important for you to just stay honest and be committed to an honest conversation and stop publishing pieces on the Internet. Thank you.

Covanta Response: Maria, thank you for the comments. As we have stated a few times in this document, we feel that the name “waste-to-energy” most accurately reflects our operations. Incinerator implies a single process – bring in trash and burn it, we do much more than that. The **Benefits from the Facility** section earlier in this document details many of these beneficial processes including metals recycling, power to the grid, and comparative emissions benefits versus landfilling an equal volume of MSW. Your suggestions about improved engagement practices are good ones but please note that odor studies done in the past have not sourced the Facility as a key odor driver. Rather most of the objectionable odors that were cited during the study came from small commercial dumpsters, flooding issues, the highways, and other industries in the area. To your question about the USEPA incinerator standards, those are delineated according to new or existing facilities. Covanta is confident that we can meet any new standard issued for existing incinerators. We refer you to **Table 1** in the **Emissions** section earlier in this document for our emissions performance versus our permit limits. All the data in that table was verified by emissions testing and the CEMS, the most accurate way of attaining worst-case emissions profiles.

23. Patricia Cortado

Public Hearing Comment:
My name is Patricia Cortado. I'm a resident of Ironbound. There seems like there's a lot of secrets Covanta is holding on to like this 860 air permit violations, since 2004, or what the one percent equivalence is out of the overall emission you all shared earlier, or the fact that Covanta is number two

emitter of nitrogen oxides, mercury, hydrogen chloride out of the state of New Jersey. It's also very tasteless for you to put responsibility to the people to sort out unpermitted or harmful waste. I quote iodine is added to table salt. Do you know whose neighborhood you're occupying? How are we supposed to eat anyway? Going back to the facts the EJ law protects us from facilities like Covanta. If we did not need any protection, then the EJ law doesn't need to be as strong as it is. I wish we did not need any protection, but the Ironbound community has been fighting for decades. That is generational. This permit goes beyond the land that you're occupying. The chronic illnesses that we're subjected to. It's not fair. It is not just. The Covanta Rep. basically, said "There's no way around occupying black and brown communities." And so, as a community member, I see what kind of neighbor, you continue to be. The kind who is okay to treat the people as disposable and sacrifice them for the sake of the one percent overall emission. The more you continue to burn waste in Ironbound in New Jersey. The bare minimum asked is how you would actually lessen your 860 air permit violations since 2004, if that's even possible. I was only nine years old in 2004, and I'm a whole adult now, and from the looks of it there's hope for me not to have to fight for facilities like you for the rest of my life because of the people here, the support, the leaders who are fighting against you and the leaders that are fighting for the EJ law. You have the opportunity to move away from the European model. You have the opportunity to move away from an outdated European model, a colonizer's model. Do what's right. There are better ways, and the maximum ask is to stop dumping on Newark. Thank you.

Covanta Response: Thank you for the comments, Patricia. We agree with your basic premise that too many industrial facilities are located in EJ areas. Since Reworld acquired ownership of the Facility and the site in 2012, and then a few years later (2014-2016) installed the baghouse upgrades, we saw emission levels and permit violations fall drastically. The Facility processes large volumes of MSW from local communities and New York City is cleaner than any other currently viable option. We cannot control the location of the site prior to Covanta acquiring operation of the Facility in 2005, but we can manage it in the most professional and respectful way possible, and we are constantly looking for ways to improve our already well-performing practices.

Public Hearing Comment: Can you explain your comment about Covanta accounting for 1% of the local airshed? Please give a numerical equivalent.

Live Response from Michael Van Brunt of Covanta: We look at the National Emissions Inventory (NEI) from EPA which is based on all emissions in the county, including stationary and mobile sources, and we look at what our emissions were on a mass basis for that particular year, and then compare it against the overall emissions from the NEI.

Covanta Response: Please see the earlier **Airshed Emissions** section of this document for more information on this point. The precise percentage for each contaminant would vary, but the calculation would follow the general process that Mike Van Brunt laid out in the public hearing.

24. Cynthia Mellon, Newark Environmental Commission

Public Hearing Comment: Part of our work of the Environmental Commission involves evaluating permit requests under the context of Newark's environmental justice and cumulative impacts, Ordinance, which is the strongest in the country. We've all lived with the effects of this incinerator for far too long. Our

commission was not given the opportunity to evaluate this permit request. If we had, we would have had ample grounds for denying it. Garbage incineration is a technology of the past. Finally, this is really not a hearing. It's a show by this company which has been harming New Jersey for decades. We can't even see each other. It's impossible to tell who is part of this hearing. And I will leave it at that.

Covanta Response: Thank you for your comments, Cythnia. Participants were listed during the hearing and will be made available as part of the final public record. The NJDEP has been offering guidance throughout this permitting process and will review all submitted comments and responses before making their final permit decision. Please note that this Operating Permit renewal application was submitted to the NJDEP almost seven years ago.

25. Christian Newell

Public Hearing Comment: Why did the facility remain in operation while the purple emissions were being released when it wasn't known what was being emitted.

Live Response from Jack Bernardino of Covanta: It was known that the emissions were due to the presence of Iodine in the waste. After each excursion, notification was made to the NJDEP while corrective actions were being researched and implemented.

Covanta Response: Please refer to the **Purple Plumes** section earlier in this document for a detailed response to your question. Covanta identified the source of the problem, notified the public about what was happening, and took tangible steps to ensure that this did not occur again. There have been no purple plume events at the ECRRF since April 2020 when Reworld Essex stopped processing waste from the Troy Chemical facility located in Newark.

26. David Pringle

Public Hearing Comment: Why are you so satisfied with doing the minimal necessary to be in compliance, instead of especially considering that you're in an overburdened community, going above and beyond in significantly reducing emissions, especially when that would be making fewer people sick in again a overburdened community. That's question number one. Second, whether you're complying with your permit or not. Given the toxicity of so many of your emissions, lead, mercury, et cetera. Would you oppose a step requiring you to do more than you're currently doing? And why are you then, already not doing that?

There's a third one. Why do you use the excuse of waiting until your permit is up for renewal? There's no reason you couldn't do better before a permit. DEP isn't preventing you from doing better. They're preventing you from doing worse so why aren't you doing more? And your five-year excuse is, you know, a very convenient one. Isn't it?

Covanta Response:

Thank you for your comments, David. We reject the idea that we only do the minimum. The replacement of the existing electrostatic precipitators with state-of-the-art fabric filter baghouses during the 2014-

2016 time period was by far the single most effective measure available to reduce emissions from the facility. As you can see in the emissions controls section earlier in this document, that measure drastically reduced the emissions of most of the pollutants emitted from the Facility and the site is now performing far better than what is required. We continuously look for ways to improve this performance. The timing of permit renewals is the same for all Title V air permit facilities. Renewals must be submitted at least 12 months prior to the expiration date of the permit. That is required by law under N.J.A.C. 7:27-22.30(b).

Written comments in the Q&A from David Pringle

Why are you satisfied with doing the minimal necessary be in compliance instead of doing a heck of a lot more especially when it's doable to make fewer people sick in an overburden community and?

You take credit for putting on a bag house only once it was required when you could've voluntarily done it years ago, will you be shutting this off at 8 o'clock, so much for a good public process?

How are you part of the solution when you're doing the minimum?

Why are you so satisfied with doing the minimal necessary to be in compliance, instead of especially considering that you're in an over burned community, going above and beyond in significantly reducing emissions.

Follow-ups / questions you avoided answering:

1) why should we have confidence in you when you brag about the recent baghouse when you opposed it for so many years before?

2) Will you commit to supporting not opposing DEP requiring much more stringent emission standards than in your current permit?

Covanta Live Response (Mike Van Brunt)

David, I think we are doing better than what we're required to do and in some cases we do ninety-nine percent better than what we're required to do by our permit. That's what we did for lead, cadmium, mercury, particular matter when we installed the baghouse. We accepted lower permit limits that would make those requirements even more stringent. So I think it's very clear that we're not comfortable just doing the bare minimum. We routinely operate well below our permit standards.

Covanta Response: Thank you for the questions, David. We have been following NJDEP guidance on the EJ process conducting this application process and hearing process. Given our emissions performance, as detailed in the Emissions Controls section earlier in this document, we do not expect the NJDEP to include new emission limits in our permit renewal. But if new conditions or limits are added, Covanta will comply with them.

Covanta did not oppose replacing the electrostatic precipitators at the Facility with baghouses. The Facility was sited by the Port Authority of New York and New Jersey, Essex County, and the City of Newark in the late 1980's. It was operated by American Ref-Fuel until 2005 when Covanta acquired American Ref-Fuel and took over operation (but not ownership) of the Facility. Covanta acquired ownership of the ECRRF in 2012 and then proceeded to permit the air quality upgrade project and once

permitted, replaced the existing electrostatic precipitators with state-of- the-art baghouses during the period 2014-2016. The air pollution control upgrade project cost approximately $80 million dollars and achieved substantial reductions in emissions as presented at the EJ hearing.

27. Tinisha Woods

Public Hearing Comment: I am a resident of Newark, invited by southward Environmental alliance. Our children suffer from frequent pollutants in the air. I would like to state that I do not support Covanta, and believe they should be denied by the DEP. My question is with Covanta being frequent, permit violators yet claim their transparency for our peace of mind. What will you do to reduce your frequency of violations?

Covanta Live Response (Mike Van Brunt)

Good question. You know, I think first and foremost, you know we've heard through a number of you now, the statistic about over eight hundred violations. Now that's a seventeen-year period that is covered and about twenty-seven of the violations that were listed fall within what's considered affirmative defense, and that's a provision in permitting that basically recognizes that during periods of startup, shut down, or necessary maintenance, there are periods when you will for a momentary period of time exceed a permit requirement. However, in order to claim that affirmative defense, we need to demonstrate that we are operating with due care, and that we did not violate our permit condition because of operator error, and that all reasonable efforts were taken to minimize emissions and the resulting emissions did not pose a threat to public health, welfare, or the environment. That's a really important thing to keep in mind.

Secondly, I don't think everybody appreciates the exacting level of requirements that some of our permit conditions have. So, for example, within that list of eight hundred things that were included may include things like you failed to inspect all security fences and locks quarterly. That may be something we didn't document that we have one. That was a one-minute temperature reading of 1135 degrees which in the minimum requirement that we had to have was 1136 degrees. So we had a permit violation because we were less than one degree off of what we needed to be. We're not arguing that these are not permit violations. They are, but it's important to keep in mind, too, in terms of those permit violations you know just because it's a violation, it doesn't translate into an issue that's dangerous to human health and environment. You asked a very good question about what we do to make sure. How do we reduce our emissions? One of the, we call them key performance indicators as a company, we have goals around all of our facilities to reduce what we call an excess emission event, which are these exact kind of events where we might exceed a permit limitation or another permit condition after every single one that we do, we have what's called a root cause analysis process, where we bring the team together and figure out how do we address the issue that contributed to the permit violations, and what steps can we take to make sure that it doesn't happen again. And so that's a very exhaustive process, and we track the corrective actions that come out of that and make sure that those corrective actions are completed. So a very important process for us to make sure that we're continuing to improve our own operations.

Covanta Response: Please refer to the **Permit Condition Exceedances** and **Benefits from the Facility** sections earlier in the document for more information. You will see that our annual permit exceedances have been reduced dramatically over the years. We have also not been able to identify where the elevated number of exceedances originated. Our exceedance totals since taking control of the facility are approximately 64% of what has been suggested (525 versus 860) and more than 80% of those occurred before we installed the new baghouses. We are working hard to make improvements wherever feasible.

28. Chloe D., Ironbound Community Corporation

Public Hearing Comment: What will your community engagement process be for gathering public comments? The Ironbound is multilingual. Will people have the option to send in voice memos? How will local and statewide residents be notified? In short, how does this meeting fit in with the rest of the process. And then also, how do we address the issues that are in the questions from Mr. Curtis (repeat of the same question) and Chloe D?

Live Response from Trish Earls of Covanta: Just so everyone is clear, this is an AO25 public hearing that is required by permit applicants, to hold a public hearing with the communities that their facility is in. And again, it's strictly to be between the applicant and the community. This is not a DEP hearing. So all comments do come to us directly at Covanta, and we will be creating a response to comments document as required under the procedure to address each comment that we get and we've gotten during this meeting. Again, we are recording this, so all comments and questions will be part of the record, and we will address them. And I believe we will be issuing that document in multiple languages. I believe Portuguese, Spanish, and English, and we are going to be making the recording available on our website as well as emailing it to everyone including the presentation. So again, the DEP will hold their own public hearing once the draft permits are issued, if and when they are issued. That would be when the DEP will hold their public hearing.

Covanta Response: Thank you for the comments, Chloe. Any concerned citizen, regardless of the language that they speak, can submit a comment or question to our facility at any time via the 'Contact Us'[28] section on our website or by calling the facility hotline at the number listed on our website. We also recommend that you sign up for our mailing list to receive updates on site operations and engagement opportunities with the community.[29]

29. Rachel Anderson

Comment (Submitted Via Email): Thank you for fielding these questions. This is for the NJ EPA/NJDEP and in turn COVANTA.

My concern, and it is apparently a concern of thousands of residents in the Newark/Essex area and across the states, is that as a collective there have not been any steps that the community can see to reduce and limit the waste that enters the Passaic River and into the airs that we breathe. I know, a superfund site, but why must it be??

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[28] https://www.covanta.com/contact-us?hsCtaTracking=fbfa75ac-cea7-441b-9400-8948c117367d%7C6d65dab1-72a6-49c7-8c8b-5816f7adbed0

[29] https://www.reworldwaste.com/where-we-are/facilities/essex

The Passaic River as you know has been a location known for the mistreatment of many manufacturing and industrial companies dumping their waste into which today is simply unacceptable. If we have government agencies continuing to allow companies to keep the bar so low, it is clear to the residents that the government does not care about the health and well-being of the public. This is disturbing. And to now allow COVANTA to continue to allow their play via the permit they are asking us to bless is completely missing the mark and not moving in the direction we need to go in. Therefore, I believe that NJDEP/NJEPA Region 2 shall not approve this permit application.

Formal questions:

- What measures is NJDEP or NJEPA Region 2 implementing to mitigate waste that is emitting into the air and the waterways in Newark and the Passaic River?

- How would the approval of this permit move us in the direction of decreasing waste in the process of ridding waste?

- Why can't communities clean up the Passaic River? What is it going to take to make the effort to clean our waterways?

Covanta Response: Thank you for your comments, Rachel. The facility does not discharge into the Passaic River. We have a stormwater management permit that regulates stormwater runoff. Storm drains on the site are connected to the facility's low quality water system where we then re-use that water in our processes that don't require potable water. Covanta cannot comment on your other questions about the Passaic River cleanup projects since we are not involved in those projects.

The NJDEP will see your questions and can respond directly, but we can just say that the Passaic River has a long industrial history, well over 125 years, with numerous sites polluting at will until the EPA passed the Clean Water Act in the early 1970s. Many of the remediation projects now associated with the river are multi-year efforts.

30. Paula Rogovin

Comment (Submitted via Email): **Attn: Patricia Earls**

Hello,

My name is Paula Rogovin. I am from the Coalition to Ban Unsafe Oil Trains,

I look at the Covanta application from the vantage point of a retired teacher (44 years teaching kindergarten and first grade) and a grandparent of 6. The health impacts of Covanta must be looked at in relation to the existing pollution in the Newark area. Scientists and health care professionals have confirmed that ***it is the combined impact*** that makes it especially important that the DEP concerns itself with this issue while considering this application. **(See attached letter in relation to the PVSC application. The conditions are the same for the Covanta application.)**

We already know that the DEP considers the census block where Covanta is to be adverse for 24 out of their 31 environmental and health stressors. It is adverse for ALL air pollution stressors (number of permitted air sites, ground-level ozone, fine particulate matter, cancer risk from air toxics, non-cancer risk from air toxics, and traffic-related stressors), ALL contaminated site stressors, ALL solid waste

stressors, and others. This means Covanta is in a cumulatively adverse overburdened community, and the protections of the EJ Law apply.

COVANTA IS NOT A GOOD NEIGHBOR. **It is NEGLIGENT** in terms of concern for the residents of Newark and beyond. Covanta Newark has over 860 air permit violations since August 2004. These include multiple instances of purple emissions that Covanta could not explain for months.

Compared to all New Jersey facilities, Covanta is in the top 5 highest emitters for harmful pollutants like lead, arsenic, and mercury. Each of these pollutants are especially harmful to pregnant women and children.

It is unacceptable for Covanta to be allowed to poison the people, the air, the land, and the water. It is unacceptable for Covanta to continue to use outdated, subpar technology that is harming the community.

Therefore, Covanta MUST BE REQUIRED to go above and beyond to reduce its emissions.

Covanta is the #2 emitter of nitrogen oxides in the entire state! It is responsible for 70% of the stationary source emissions of nitrogen oxides in Essex County. This is especially harmful to children.

Covanta MUST BE REQUIRED to adopt selective catalytic reduction technology to reduce its emissions of smog-forming nitrogen oxides.

Covanta is the #2 emitter of hydrogen chloride in the entire state! It is responsible for 90.3% of hydrogen chloride emissions from stationary sources in Essex County. This is especially harmful to children.

Covanta MUST BE REQUIRED to continuously monitor its hydrogen chloride emissions.

Most of the time, Covanta has no idea what waste it is throwing into the incinerator, whether plastic, metal, or other harmful substances. This is incredibly irresponsible as it endangers lives.

Covanta MUST BE REQUIRED to do a better job of sorting out unpermitted or harmful waste before burning it and must continuously monitor more of the pollutants that it emits.

Covanta MUST BE REQUIRED to use continuous monitors for particulate matter, to make sure that there are no issues with the baghouse.

Covanta MUST BE REQUIRED to ensure that its ash handling practices are as protective as possible, and do not result in fugitive ash emissions.

It is urgent that the DEP take this seriously and require these changes. This is a matter of life and death.

Covanta Response: Thank you for your comments, Paula. We believe that the **Public Engagement** and **Emissions** sections earlier in this document answer many of your questions. Know that we take being a good neighbor very seriously. We have had an EJ and engagement policy in place for more than a decade now, have expanded our staffing levels solely focused on these areas, and continue to expand our local hiring practices.

The NJDEP has been offering us guidance throughout this process and will review all submitted comments before making any permit decisions.

The **Purple Plumes** section of this document details some of our manifest verification processes and steps that we have taken to ensure the composition of MSW that we burn is within acceptable ranges. Currently, we use opacity monitoring as a surrogate for PM (particulate matter) emissions, a practice long accepted by the EPA under Test Method 9.[30]

The Solid Waste Facility Operating permit for the Facility includes several conditions which detail procedures to prevent spillage and scattering of ash by wind during transport, minimize dusting, and prevent the tracking of ash to the exterior of the building. Please see the **Fugitive Emissions** section earlier in this document for a description of the control measures. All of the ash that we produce is tested before it leaves our site to ensure that it is non-hazardous.

31. Nandini Checko

Public Comment: I'm deeply concerned about the continued incineration problems with Covanta. Covanta Newark has over 860 air permit violations since August 2004. These include multiple instances of purple emissions that Covanta could not explain for months. Compared to all New Jersey facilities, Covanta is in the top 5 highest emitters for harmful pollutants like lead, arsenic, and mercury. Covanta should continuously monitor its mercury emissions. Covanta is the #2 emitter of mercury in the entire state! It is responsible for 99.7% (nearly all) mercury emissions from stationary sources in Essex County. Other incinerators already continuously monitor mercury.
When we know better, it's our responsibility to do better. Please be sure to **NOT** automatically renew their permits without first confirming that processes, accountability, and enforcement are in place for better environmental standards and transparency.

Thank you,

Nandini Checko

Covanta Response: Thank you for your comments, Nandini. They will be reviewed and considered by the NJDEP before any permitting decision is made. Please refer to the **Permit Condition Exceedances** and **Benefits from the Facility** sections of this document for more information on each of your points. We could not confirm the statistic of 860 permit exceedances that you and many other commenters cited. Our records have the number over that period much lower and greatly reduced on a per year basis since the installation of our baghouses in 2016. Many of the exceedances are also parametric conditions such as process temperature that are meant to judge the health of our systems long-term but in the short term have little to no actual environmental impact.

Please see the **Continuous Emissions Monitoring Systems (CEMS)** section earlier in this document for more information on your continuous monitoring system questions.

[30] https://www.epa.gov/emc/method-9-visual-opacity

32. Jonathan Smith, Earthjustice, ICC Comment (Submitted via Email)

The Earthjustice and Ironbound Community Corporation (ICC) comments are included in their entirety in Attachment 1.

Covanta Response: Thank you very much for your thoughtful and obviously well-researched comments. Let's start with a fundamental premise that the CIty of Newark is a textbook EJ area, with far too much industry in one small geographic location. We have supported the EJ law from the start for this reason and want to do our part to help bring down the levels of impacts in the area. However, we do not feel that our impacts are being appropriately considered in relation to other sources in the area.

Our Title V Operating Permit renewal application was submitted in 2017, three (3) years before the EJ law was passed and nearly six (6) years before the implementation regulations were finalized. The timing of this submittal was dictated by the expiration date of our permit. All Title V Operating Permit renewal applications must be submitted no later than 12 months prior to the expiration of the existing permit. That is a regulatory requirement under N.J.A.C. 7:27-22.30(c) completely aside from the EJ law. Based on the submittal date of the Title V permit renewal application, our application is being considered under Administrative Order 2020-25 (AO 2021-25) which applied prior to adoption of implementation rules for the EJ law in April of 2023. As you know, since it is a renewal of an existing permit, the NJDEP has the right to include permit conditions in a proposed permit if our site cannot voluntarily reduce projected undue impacts. As detailed in the **Emissions** section earlier in this document, we believe that the installation of the baghouses qualifies as this sort of voluntary reduction. As you will see in **Table 1** of the **Emissions** section earlier in this document, our emissions profile during stack testing (at maximum capacity) is considerably below permitted thresholds. Covanta has a 99%+ compliance rate, and we operate a sophisticated environmental management system to ensure that this continues. If the NJDEP were to include justified permit conditions, we would follow them. Covanta processes a large volume of MSW each year that would otherwise just go to landfills at a much worse environmental impact. We work to reduce our impacts and produce a small fraction of the NOx, PM, VOC (Volatile Organic Compounds), and CO emissions in Newark. The bulk of each comes from the airport, highway traffic, and specialized industries. Covanta is supportive of the EJ law and of your general efforts to ease the level of undue impacts in the City.

The commenter suggested numerous times that Reworld should immediately install Selective Catalytic Reduction technology to further reduce NOx emissions from the Facility. In the interim, the commenter urges Covanta to evaluate the ability to achieve a more stringent NOx permit limit with the selective noncatalytic reduction (SNCR) technology currently in use at the Facility. A NOx limit of 110 parts per million by dry volume corrected to 7% O2 (ppmdv7) on a 24-hour average basis is suggested as a minimum standard to which the Facility should be subject.

The only waste-to-energy facility in the United States equipped with SCR technology is Covanta's facility located in West Palm Beach, FL, at which SCR was incorporated during initial construction of the facility. In its proposal for revised MACT standards for existing Large MWCs, the USEPA concluded that SCR "can only be reasonably applied during construction of the unit, so retrofitting SCRs to other existing units would be technically infeasible and or very costly if a supplemental burner is required to provide

reheat."[31] Retrofitting SCR technology at an existing facility like the ECRRF may not be feasible because of space constraints for the SCR equipment and the ability to accomplish the necessary reconfiguration of the flue gas ductwork for each of the three municipal waste combustors. Please see the **Selective Catalytic Reduction (SCR)**section earlier in this document for more information.

The current NOx limits for the combustors at the ECRRF is 150 ppmdv7 on a 24-hr average basis and 300 ppmdv7 on a 1-hour average basis. Continuous emission NOx monitoring data collected at the Facility indicates that the daily concentration of NOx emissions from the combustors has averaged approximately 115-120 ppmdv7.

Hazardous Air Pollutant Limits

The commenter opined that the potential to emit (PTE) values for hazardous air pollutants (HAPS) emitted by the Facility should be lowered to reflect actual emissions data from stack tests conducted at the ECRRF. In addition, it was requested that any renewal permit issued by NJDEP should contain emission limits for HAPS emitted at levels above the reporting thresholds in N.J.A.C. 7:27-17.9. The commenter urged that hydrogen chloride is not deleted from the Pollutant Emissions Summary contained in the permit. The commenter also stated that Covanta should include permit limits for the HAPs benzo(a)pyrene and perchloroethylene (tetrachlorethylene) or that Covanta should support its claim in the health risk assessment that the PTEs for these two HAPs are below NJDEP's reporting thresholds. It was also stated that because Covanta lowered the annual emission rate of 2,3,7,8-TCDD in the Pollutant Emissions Summary to 0.000119 tons per year, the permitted annual emission rate should be lowered to the same rate. The commenter also claimed that pound per hour (lb/hr) HAP emission limits should be lowered in line with claimed annual emission reductions attributable to installation of the baghouses.

Covanta Response:

After submittal of the renewal application, Covanta Essex was requested by NJDEP to perform a second-level screening analysis to evaluate the potential inhalation risk posed by substances emitted at rates greater than the HAP-specific reporting thresholds. The report of that analysis dated March 1, 2019, is contained in **Attachment 2**. The second-level risk screening analysis was performed using the PTE (permitted) levels of the pollutants and demonstrated the predicted cancer and non-carcinogenic risks were negligible for all compounds at the maximally impacted receptor, including sensitive receptors. It was noted by the commenter that a pre-draft renewal permit contained emission limits for the six pollutants referenced by the commenter which exceeded the threshold levels but for which the permit did not contain emission limits. Covanta Essex anticipates that those emission limits would be retained in any renewal permit issued by NJDEP and would reflect the emission rates evaluated in the risk screening analysis.

Covanta did not propose a reduction in the permitted emission limit for hydrogen chloride (HCL) emissions from the MWC (Municipal Waste Combustor) units in the application for the baghouse upgrade project because no changes to the acid gas scrubbers which control acidic gas emissions from the MWCs (Municipal Waste Combustors) units were proposed. The PTE of hydrogen chloride emissions of 284 tons per year is contained in the Pollutants Emission Summary of the existing Title V permit and

[31] 89 *Fed. Reg.* 4255 (January 23, 2024)

would also be included in any renewal permit issued by the NJDEP. For the period 2020-2022, HCL emissions from the ECRRF averaged 88 tons per year.

The emissions of benzo(a)pyrene and tetrachloroethylene from the ECRRF were tested in 2018 and 2023 in accordance with the Title V permit for the Facility. As indicated in the table below, the emissions based on the test results were well below the reporting thresholds which are equal to the permit limits.

Table 5 – HAPs Emissions

Unit	Pollutant	Test Year	Stack test result (lb/hr)*	Maximum annual emissions (lb/yr)	Reporting Threshold (lb/yr)
1	Benzo(a)pyrene	2018	1.16E-07	0.0010	0.04
2	Benzo(a)pyrene	2018	8.19E-08	0.0007	0.04
3	Benzo(a)pyrene	2018	1.69E-07	0.0015	0.04
1	Benzo(a)pyrene	2023	9.35E-08	0.0008	0.04
2	Benzo(a)pyrene	2023	1.50E-07	0.0013	0.04
3	Benzo(a)pyrene	2023	1.21E-06	0.0106	0.04
1	Tetrachloroethylene	2018	<7.30E-04	6.395	180
2	Tetrachloroethylene	2018	<7.13E-04	6.246	180
3	Tetrachloroethylene	2018	<3.16E-03	27.682	180
1	Tetrachloroethylene	2023	<3.42E-04	2.996	180
2	Tetrachloroethylene	2023	<3.65E-04	3.197	180
3	Tetrachloroethylene	2023	<3.26E-04	2.856	180

* Note that results that include "<" indicate that the test result was below the detection limit for that pollutant. Annual emissions totals assume emissions are equal to the detection limit. NJDEP 2023 test report review not complete.

Because the maximum annual emissions of both pollutants are less than the reporting thresholds, these two (2) HAPs were not included in the inhalation risk analysis.

In accordance with Condition No. 56 in the Facility Specific Conditions of the Title V Permit, the annual emission limit of 2,3,7,8-TCDD (total for 3 MWC units) is correctly stated as 0.000119 tons per year.

SOTA Thresholds

The commenter said that the new EJ Law and AO-25 compel Covanta to complete State-Of-The-Art (SOTA) analyses for ten (10) pollutants emitted above NJDEP's SOTA threshold values, regardless of whether such analyses were completed in the past.

Covanta Response: Covanta is not required to complete a SOTA analysis under the AO-25 requirements for the renewal permit at this time, however, SOTA analyses were completed when required by regulation and the control equipment was designed, installed and is being operated according to the approved permit which satisfied the SOTA requirements. As correctly stated by the commenter, the Facility was originally built before the NJDEP's SOTA program came into effect. In the application for the baghouse upgrade project in 2012, it was determined that seven (7) pollutants required a SOTA analysis

based on the applicable SOTA emissions thresholds. Five (5) of those seven (7) pollutants (particulate matter, lead, cadmium, mercury and total dioxins and furans) complied with the emission standards at 40 CFR (Code of Federal Regulations) Part 60 Subpart Cb which by regulation represented SOTA. Covanta Essex provided SOTA analyses for the emissions of PM-10 and arsenic which were approved and incorporated into the Title V Operating Permit. The Facility complies with the SOTA program and is not subject to additional SOTA requirements for the proposed permit renewal.

Permit Limits Relative to Other Incinerators

The commenter suggested that Covanta should lower the permit limits for the ECRRF to be in line with limits applicable to other incinerators. More stringent limits for various pollutants applicable to other incinerators were provided for comparison with those applicable to the ECRRF.

Covanta Response: Covanta does not agree with this concept for several reasons. The permit limits that apply to a particular MWC unit depend on factors which render simple, direct comparisons of emission limits of limited value. The time when the existing MWC unit was permitted can have a large effect on the emission limits which apply because of the applicability of federal and state standards at the time of permitting as well because of any required BACT/LAER determinations. Differences in the design of air pollution control equipment on a given unit can also be a significant factor. The applicability of Prevention of Significant Deterioration and Nonattainment New Source Review to a particular facility depends upon the throughput capacity of the unit and its location. Nearby terrain and sensitive receptor activities like fishing and agriculture in the surrounding area can affect air quality modeling and health risk analytical results, factors that may affect the magnitude of acceptable emissions limits.

PM Emission Limits

The commenter stated that the emission limit for particulate matter should not increase and that the total (3 combustors) emission limit for both PM-2.5 and PM-10 should both be reduced from the current total limit of 203 tons per year to a total rate of 134 tons per year to match the permit limit for particulate matter.

Covanta Response: Covanta proposed and accepted a more stringent filterable particulate matter emission limit of 12 mg/dscm7 as tested using USEPA (United States Environmental Protection Agency) Reference Method 5 in the permit application for installation of the baghouses. This concentration limit equates to a total of 53.1 tons of filterable particulate matter (PM) per year. PM-10 and PM-2.5 include filterable PM and condensable particulate matter as tested using USEPA Method 201A/202. Covanta added a condensable fraction to the filterable limit to arrive at a proposed emission rate of PM-10 and PM-2.5 of 17.0 pounds per hour proposed as our emission limit per unit. This rate equates to a total (3 combustors) annual limit of 203 tons per year. No changes to the existing emission limits for PM, PM-10, and PM-2.5 are proposed as part of this permit renewal.

Affirmative Defense and SSM Provisions

The commenter stated that the permit should not include affirmative defense provisions to allow emission exceedances during emergencies. It was also noted that emission limit exemptions during periods of startup, shutdown, and malfunction should be removed from the permit.

Covanta Response:

Covanta Essex has been advised by NJDEP that the agency will no longer accept Affirmative Defense for exceedances of federal emission standards but per New Jersey state regulations, the Affirmative Defense provisions still apply for New Jersey emission standards. In response to a request from NJDEP during the agency's initial review of the ECRRF renewal application, Covanta Essex proposed emission limits for unit startup and shutdown periods. The review of the proposed limits has not yet been finalized by the NJDEP, but Covanta fully expects that a proposed renewal permit issued by the NJDEP would contain startup and shutdown emission limits.

Cumulative Impact Assessment
The commenter stated that Covanta must perform and submit a new risk assessment which takes into account cumulative impacts.

Covanta Response:
Because the air permit renewal application was submitted and deemed administratively complete prior to the adoption date of April 17, 2023, of the Environmental Justice regulations, the renewal is being reviewed by the NJDEP under AO 2O21-25 (AO-25). Covanta Essex has met all AO-25 requirements to this point and will continue to follow the guidance of the NJDEP on this issue. A new risk assessment which takes into account cumulative impacts is not required at this point. Please refer to **Attachment 2** (Health Hazard Risk Assessment) and **Attachment 4** (Purple Plumes toxicology report) as well as **Table 1** in the **Emissions** section earlier in this document for examples as to how our facility takes our environmental impacts seriously and routinely examines these impacts against published threshold levels. The second-level risk screening analysis contained in Attachment 2 shows the predicted cancer and non-carcinogenic risks were negligible for all compounds at all evaluated receptors, including sensitive receptors.

CEMS
The commenter stated Covanta must install continuous emission monitoring systems for hydrogen, chloride, mercury, and particulate matter.

Covanta Response:
Please refer to the CEMS and Facility Emissions sections earlier in this document for the information that you inquired about.

Hazardous Chemical Storage
The commenter stated that Covanta must continuously monitor and report quantities and concentrations of hazardous chemicals stored on site, like ammonia, that could spill, leak, or cause accidents.

Covanta Response:

Large quantity storage of hazardous substances at the ECRRF include aqueous ammonia (20,000 gallons), sulfuric acid (6,000 gallons), and sodium hydroxide (6,000 gallons). In addition, ultra-low sulfur No. 2

fuel oil is stored in an underground storage tank (20,000 gallons). Aqueous ammonia is injected into the boilers at the facility to reduce the emissions of NOx. Sulfuric acid and sodium hydroxide were used to regenerate ion exchange resin beds that are used to purify boiler make-up water. The fuel oil is used as auxiliary fuel for the boilers as well as fuel for an emergency diesel generator, an emergency diesel fire pump, and mobile equipment such as front-end loaders. Note that due to the conversion of the boiler make-up water purification system to a reverse osmosis system recently, the usage of sulfuric acid and sodium hydroxide has been greatly reduced so that the large storage tanks listed above for those substances will no longer be needed. The sodium hydroxide storage tank has been emptied and has been re-purposed as a service water tank. Plans for the removal of the sulfuric acid tank are currently in progress.

In accordance with rules of the NJDEP, the ECRRF has a certified Discharge Prevention, Containment and Countermeasure Plan (DPCC Plan) and a certified Discharge Clean-up and Removal Plan (DCR Plan) which were last renewed in June 2022 and are approved for a 3-year period between April 7, 2022 and April 7, 2025. The plans contain a great deal of technical information about the hazardous substances stored on site, storage vessels including materials of construction, containment, overfill protection measures, piping, and necessary integrity testing schedules. The DPCC plan contains visual and inspection monitoring procedures, housekeeping and maintenance requirements, a personnel training program, and physical security measures aimed at minimizing the possibly of a release of stored materials. Also included are Standard Operating Procedures and a recordkeeping system.

The DCR Plan contains information on notification procedures, emergency drills and personnel training to deal with a release in the unlikely event one was to happen. The DCR Plan describes containment and removal of materials and equipment and onsite and offsite response measures. The DCR Plan also contains a letter from the Newark Office of Emergency Management agreeing to respond to an emergency at the Facility and documentation of insurance of the Facility.

Both the DPCC Plan and the DCR Plan are updated on an as needed basis and will be updated to reflect the changes to the storage of sodium hydroxide and sulfuric acid mentioned above. The design of the Facility and adherence to the measures of both plans comprehensively address the prevention and management of potential chemical releases.

Additionally, in accordance with Section 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA), the ECRRF submits a Community Right-to-Know Survey to the NJDEP each year listing all the hazardous substances stored on site.

Emissions From Auxiliary Burners

The commenter urged Covanta to evaluate measures that could be taken to minimize harmful emissions from its auxiliary burners.

Covanta Response:

As noted in the response to the previous comment, Covanta Essex uses ultra-low sulfur No. 2 fuel oil as auxiliary fuel for startup and shutdown of the boilers and to maintain good combustion, as necessary. The No.2 oil used at the Facility is ultra-low sulfur oil which has a maximum sulfur content of 0.0015%. The baghouses are online during startups and shutdowns to control the emissions generated during

these periods and acid gas scrubbers and ammonia injection is in service at all times during the combustion of MSW. During startup, the acid gas scrubbers inject water for temperature control. Lime slurry is injected once MSW enters the boiler. Ammonia is injected when MSW is being combusted. During shutdown, all control systems are in operation until the boiler is off MSW.

Also, Covanta is evaluating all improvements and/or upgrades that can be made to improve the operation of the auxiliary burners to minimize emissions.

Purple Plumes

The commenter said the air permit should incorporate all continuing requirements from the purple plume administrative consent order as enforceable permit conditions.

Covanta Response:

Covanta has no objection to incorporation of continuing requirements from the purple plume Administrative Consent Order being included in the renewal air permit.

Solid Waste Permit Issues

The commenter requested that the renewed waste permit for the Facility contain all changes after the November 2021 application was filed. It was also stated that Covanta should conduct throwdown inspections of all non-residential loads and that improved waste inspection procedures should be made enforceable conditions in the air permit because they affect air emissions.

Covanta Response:

The submission referred to in November 2021 dealt with baghouse disposal procedures and updates to the O & M manual that will be folded into the solid waste permit and approved once the NJDEP grants permit approval. We have been implementing these processes in anticipation since the 2021 submittal. Where appropriate, Covanta would not object to including such conditions in the air permit renewal.

Attachment 1 – Multi-Page Comments and Associated Exhibits

Chris Whitehead

From: Paula Rogovin <paularogovin3@gmail.com>
Sent: Friday, December 16, 2022 10:18 AM
To: Essex Info Session Comments
Subject: Covanta
Attachments: PVSC Health Professional Sign On Letter (2) (2).pdf

*** Warning: External message - exercise caution.***

To Covanta Essex Company
183 Raymond Boulevard Newark, NJ 07105

Attn: Patricia Earls

Hello,

My name is Paula Rogovin. I am from the Coalition to Ban Unsafe Oil Trains,

I look at the Covanta application from the vantage point of a retired teacher (44 years teaching kindergarten and first grade) and a grandparent of 6. The health impacts of Covanta must be looked at in relation to the existing pollution in the Newark area. Scientists and health care professionals have confirmed that ***it is the combined impact*** that makes it especially important that the DEP concerns itself with this issue while considering this application. **(See attached letter in relation to the PVSC application. The conditions are the same for the Covanta application.)**

We already know that the DEP considers the census block where Covanta is to be adverse for 24 out of their 31 environmental and health stressors. It is adverse for ALL air pollution stressors (number of permitted air sites, ground-level ozone, fine particulate matter, cancer risk from air toxics, non-cancer risk from air toxics, and traffic-related stressors), ALL contaminated site stressors, ALL solid waste stressors, and others. This means Covanta is in a cumulatively adverse overburdened community, and the protections of the EJ Law apply.

COVANTA IS NOT A GOOD NEIGHBOR. **It is NEGLIGENT** in terms of concern for the residents of Newark and beyond. Covanta Newark has over 860 air permit violations since August 2004. These include multiple instances of purple emissions that Covanta could not explain for months.

Compared to all New Jersey facilities, Covanta is in the top 5 highest emitters for harmful pollutants like lead, arsenic, and mercury. Each of these pollutants are especially harmful to pregnant women and children.

It is unacceptable for Covanta to be allowed to poison the people, the air, the land, and the water. It is unacceptable for Covanta to continue to use outdated, subpar technology that is harming the community.

Therefore, Covanta MUST BE REQUIRED to go above and beyond to reduce its emissions.

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Covanta MUST BE REQUIRED to ensure that its ash handling practices are as protective as possible, and do not result in fugitive ash emissions.

It is urgent that the DEP take this seriously and require these changes. This is a matter of life and death.

Paula Rogovin
625 Linden Avenue
Teaneck NJ 07666

Governor Murphy and the Passaic Valley Sewerage Commission,

The undersigned scientists and health professionals are writing to express concerns about the siting of the proposed PVSC power plant in the Ironbound area of Newark, a community that is already disproportionately plagued by pollution and neighborhood conditions that contribute to poor health. A gas fired power plant would worsen air quality and negatively impact the health of Ironbound residents.

The Ironbound community is overburdened by multiple harmful exposures. Residents experience high levels of pollution from numerous sources including an incinerator, power plants, heavy industry, Newark airport, truck and train traffic, and a major highway. The Ironbound is categorized as an environmental justice (EJ) community due to its close proximity to numerous pollution sources as well as a high percentage of low-income, people of color, and linguistically isolated residents.[1] Ironbound also qualifies as an overburdened community under New Jersey's Environmental Justice Law, based on the high percentage of low-income households (55%) and majority people of color (60%).[2] The addition of a gas-fired power plant would increase the pollution and health burdens in this community and should not be permitted.

Ironbound residents are plagued by health inequities. The New Jersey Hospital Association (NJHA) Vulnerable Communities Database ranks the Ironbound zip code 510th out of 537 zip codes, where a lower ranking indicates less vulnerability.[3] Compared to other NJ communities, NJHA finds a higher proportion of residents who are low-income, lack a high school diploma, disabled, unemployed, Medicaid recipients, and limited English speakers. Collectively, these factors increase the risk of health problems in this community. These demographic risk factors interact with chemical exposures to multiply the impacts of chemical exposures such as air pollutants.[4,5]

Newark residents, and Black, LatinX, and immigrant communities in particular, were disproportionately impacted by the COVID-19 pandemic, with high rates of severe illness and deaths compared to other populations.[6] This may be due to a number of factors including high rates of comorbid conditions that increase risk of severe disease as well as greater exposure to air pollutants. Several studies show greater COVID-19 morbidity and mortality in areas with high levels of air pollution.[7]

Children are uniquely vulnerable to environmental pollutants. The Centers for Disease Control and Prevention has found that children age 6-11 have higher levels of common chemicals in their bodies than adults.[8] This is due to their age-appropriate hand-to-mouth behaviors, closer proximity to the ground, and higher breathing rates, all of which place young children at increased risk for exposures compared with adults.[9] In addition, children's rapidly developing organ systems place them at higher risk of harm from environmental pollutants.

Children are highly impacted by the environmental conditions in Newark where 25% of children, more than 3 times the national rate, are diagnosed with asthma and hospitalized at 30 times the rate as children in other areas of the country.[10] The high rates of unmanaged asthma in this community are a major contributor to chronic school absenteeism, which in turn contributes to an educational achievement gap and loss of social and emotional supports. During the 2013-2014 school year, one in four children in grades K-3, or 4,328 students, was chronically absent, missing 10 or more school days, with asthma given as the primary health reason.[11] The addition of yet another pollution source would further worsen the health of this community's youngest residents.

Gas fired power plants pollute the air and contribute to the climate crisis. A gas fired power plant

will undoubtedly increase air pollutants including CO2, NOx, particulate matter, SO2, and VOCs in the Ironbound, a community that already experiences some of the worst air pollution in the country.[12] These air pollutants have been linked to a host of health problems including respiratory and cardiovascular disease, autism, learning disabilities, cancer, and neurodegenerative disease.[13] In addition to these direct health impacts, air pollutants from gas-fired power plants are a major contributor to the climate crisis and will increase risk of harm from severe weather events, heat, and flooding in this community.

Safer alternatives to gas fired power plants exist. Importantly, so-called "clean renewable" alternatives to natural gas such as hydrogen, biogas, or waste methane gas with carbon capture are not safe or acceptable solutions as they too contribute to the climate crisis and will further poor air quality for Ironbound residents.[14,15,16] For the reasons outlined above, we urge you to deny the air permit for the PVSC power plant in favor of a solution that utilizes one hundred percent, zero-emission, renewable energy. Doing so would be consistent with Governor Murphy's environmental justice commitment and climate goals, and decrease further harm against the people of the Ironbound community as well as the whole of Newark.

Sincerely,

Health Organizations:
Environmental Health Project
Health Justice
Science and Environmental Health Network
Concerned Health Professionals of New York
Center for Environmental Health
CleanEarth4Kids.org
Health Care Without Harm

Health Professionals:
Adam C. Kaplan, MD, Primary Care Physician
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Chris Whitehead

From: Nandini Checko <nchecko@anjec.org>
Sent: Monday, December 12, 2022 1:02 PM
To: Essex Info Session Comments
Subject: Coventa Essex - Attn: Patricia Earls

*** Warning: External message - exercise caution.***

Hello Ms. Earls,

I'm deeply concerned about the continued incineration problems with Coventa. Covanta Newark has over 860 air permit violations since August 2004. These include multiple instances of purple emissions that Covanta could not explain for months. Compared to all New Jersey facilities, Covanta is in the top 5 highest emitters for harmful pollutants like lead, arsenic,and mercury. Covanta should continuously monitor its mercury emissions. Covanta is the #2 emitter of mercury in the entire state! It is responsible for 99.7% (nearly all) mercury emissions from stationary sources in Essex County. Other incinerators already continuously monitor mercury.

When we know better, it's our responsibility to do better. Please be sure to **NOT** automatically renew their permits without first confirming that processes, accountability and enforcement are in place for better environmental standards and transparency.

Thank you,
Nandini Checko

Governor Murphy and the Passaic Valley Sewerage Commission,

The undersigned scientists and health professionals are writing to express concerns about the siting of the proposed PVSC power plant in the Ironbound area of Newark, a community that is already disproportionately plagued by pollution and neighborhood conditions that contribute to poor health. A gas fired power plant would worsen air quality and negatively impact the health of Ironbound residents.

The Ironbound community is overburdened by multiple harmful exposures. Residents experience high levels of pollution from numerous sources including an incinerator, power plants, heavy industry, Newark airport, truck and train traffic, and a major highway. The Ironbound is categorized as an environmental justice (EJ) community due to its close proximity to numerous pollution sources as well as a high percentage of low-income, people of color, and linguistically isolated residents.[1] Ironbound also qualifies as an overburdened community under New Jersey's Environmental Justice Law, based on the high percentage of low-income households (55%) and majority people of color (60%).[2] The addition of a gas-fired power plant would increase the pollution and health burdens in this community and should not be permitted.

Ironbound residents are plagued by health inequities. The New Jersey Hospital Association (NJHA) Vulnerable Communities Database ranks the Ironbound zip code 510th out of 537 zip codes, where a lower ranking indicates less vulnerability.[3] Compared to other NJ communities, NJHA finds a higher proportion of residents who are low-income, lack a high school diploma, disabled, unemployed, Medicaid recipients, and limited English speakers. Collectively, these factors increase the risk of health problems in this community. These demographic risk factors interact with chemical exposures to multiply the impacts of chemical exposures such as air pollutants.[4,5]

Newark residents, and Black, LatinX, and immigrant communities in particular, were disproportionately impacted by the COVID-19 pandemic, with high rates of severe illness and deaths compared to other populations.[6] This may be due to a number of factors including high rates of comorbid conditions that increase risk of severe disease as well as greater exposure to air pollutants. Several studies show greater COVID-19 morbidity and mortality in areas with high levels of air pollution.[7]

Children are uniquely vulnerable to environmental pollutants. The Centers for Disease Control and Prevention has found that children age 6-11 have higher levels of common chemicals in their bodies than adults.[8] This is due to their age-appropriate hand-to-mouth behaviors, closer proximity to the ground, and higher breathing rates, all of which place young children at increased risk for exposures compared with adults.[9] In addition, children's rapidly developing organ systems place them at higher risk of harm from environmental pollutants.

Children are highly impacted by the environmental conditions in Newark where 25% of children, more than 3 times the national rate, are diagnosed with asthma and hospitalized at 30 times the rate as children in other areas of the country.[10] The high rates of unmanaged asthma in this community are a major contributor to chronic school absenteeism, which in turn contributes to an educational achievement gap and loss of social and emotional supports. During the 2013-2014 school year, one in four children in grades K-3, or 4,328 students, was chronically absent, missing 10 or more school days, with asthma given as the primary health reason.[11] The addition of yet another pollution source would further worsen the health of this community's youngest residents.

Gas fired power plants pollute the air and contribute to the climate crisis. A gas fired power plant

will undoubtedly increase air pollutants including CO2, NOx, particulate matter, SO2, and VOCs in the Ironbound, a community that already experiences some of the worst air pollution in the country.[12] These air pollutants have been linked to a host of health problems including respiratory and cardiovascular disease, autism, learning disabilities, cancer, and neurodegenerative disease.[13] In addition to these direct health impacts, air pollutants from gas-fired power plants are a major contributor to the climate crisis and will increase risk of harm from severe weather events, heat, and flooding in this community.

Safer alternatives to gas fired power plants exist. Importantly, so-called "clean renewable" alternatives to natural gas such as hydrogen, biogas, or waste methane gas with carbon capture are not safe or acceptable solutions as they too contribute to the climate crisis and will further poor air quality for Ironbound residents.[14,15,16] For the reasons outlined above, we urge you to deny the air permit for the PVSC power plant in favor of a solution that utilizes one hundred percent, zero-emission, renewable energy. Doing so would be consistent with Governor Murphy's environmental justice commitment and climate goals, and decrease further harm against the people of the Ironbound community as well as the whole of Newark.

Sincerely,

Health Organizations:
Environmental Health Project
Health Justice
Science and Environmental Health Network
Concerned Health Professionals of New York
Center for Environmental Health
CleanEarth4Kids.org
Health Care Without Harm

Health Professionals:
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Covanta Essex Company **December 16, 2022**
183 Raymond Boulevard Newark, NJ 07105
Attn: Patricia Earls
Sent Via email: EssexInfoSession@covanta.com

May this comment find you and yours healthy and well. My name is Rachel Dawn Davis and I am the Public Policy & Justice Organizer for Waterspirit, a nonprofit ministry of the Sisters of St. Joseph of Peace. I am writing on behalf of Waterspirit's thousands of members who have been both celebrating and advocating for the protection of water for over 25 years across the northeast region and throughout our shared planet. While I attended the public comment session to audibly support allies experiencing direct impacts as front line residents, I am also submitting these comments in writing.

- **Waterspirit recommends that there be no further permitting awarded Covanta by the NJ Department of Environment due to the 24 of 31 health and environmental stressors.** Since August 2004, Covanta Newark has accumulated 860 air permit violations. Cumulatively Covanta Newark is adding to the burden of overburdened areas of most concern. Intergenerational pollution is a result of environmental racism. The continuance of such outrageously tolerable practices without contrition goes in direct opposition to the environmental justice law as well as Governor Murphy's statewide climate related goals.

- **Waterspirit recommends that NJDEP and Covanta act in the spirit of the landmark cumulative impacts law being implemented in New Jersey.** This law is meant to prevent, not prolong and perpetuate, pollution. Covanta is in violation of the environmental justice cumulative impacts law and should be held to account to, at the very least, significantly reduce pollution. Cancer, asthma, work days, school days, medical bills, funeral costs add up over time, across generations.

- **Waterspirit recommends that NJDEP take action by ensuring ongoing public ownership of emissions monitoring. NJDEP and Covanta must hear the serious public outcry regarding Covanta's purple emissions, containing lead, arsenic and mercury, perhaps others.** It is impossible to trust polluters with monitoring their own waste. For the residents and their health care providers to understand what they are ingesting day to day, they must partake in the data monitoring process. Covanta is the #2 emitter of nitrogen oxides in the entire state of New Jersey. Covanta is responsible for 70% of stationary source emissions of nitrogen oxides in Essex County. Covanta is the #2 emitter of mercury in the entire state. Covanta is responsible for 99.7% (nearly all) mercury emissions from stationary sources in Essex County. Other incinerators already continuously monitor mercury. Covanta's hydrogen chloride emissions must be independently monitored. Covanta is the #2 emitter of hydrogen chloride in the entire state. It is responsible for 90.3% of hydrogen chloride emissions from stationary sources in Essex County.

The capacity of continuously monitoring hydrogen chloride is being demonstrated by other incinerators today. Covanta must use continuous monitors for particulate matter, to make sure that there are no issues with the baghouse.

- **Waterspirit recommends Covanta adopt selective catalytic reduction technology to reduce its emissions of smog-forming nitrogen oxides as soon as possible.** Essex County does not meet federal smog standards and the Ironbound community of Newark is cumulatively adverse for smog under the environmental justice rule in New Jersey. Incinerators in other geographic locations already use selective catalytic reduction technology. It is unacceptable for Covanta to utilize subpar components that are making residents sick.

- **Waterspirit recommends that NJ DEP and Covanta maintain fugitive emissions are prevented at all times; investing in protections wherever possible.** Covanta should ensure that its ash handling practices are as protective as possible, and do not result in fugitive ash emissions.

Thank you for the opportunity to comment. We deeply appreciate the work of environmental justice being done in New Jersey and hope that righting wrongs of environmental racism collaboratively will help forge a positive, livable future for current generations and those to come.

Wishing you a peace filled holiday season and a happy new year!

Rachel Dawn Davis
Public Policy & Justice Organizer
Waterspirit

December 16, 2022

Via Email

Covanta Essex Company
183 Raymond Boulevard
Newark, NJ 07105
Attn: Patricia Earls
EssexInfoSession@covanta.com

cc: Sean Moriarty, Deputy Commissioner, New Jersey DEP
David Pepe, Director, Office of Permitting and Project Navigation, New Jersey DEP

Re: AO-25 Comments on Covanta Essex Air and Waste Permit Renewals

On behalf of the Ironbound Community Corporation, Earthjustice submits the following comments under New Jersey Department of Environmental Protection ("DEP") Administrative Order No. 2021-25 ("AO-25") regarding the March 2, 2018 Title V Operating Permit Renewal Application (the "Air Application") and the November 19, 2020 Solid Waste Permit Renewal Application (the "Waste Application") for Covanta Essex Company's Essex County Resource Recovery Facility municipal solid waste incinerator located at 183 Raymond Boulevard, Newark, New Jersey ("Covanta Essex" or "Covanta"). As explained further below, under the new Environmental Justice Law ("EJ Law") regulatory regime, Covanta is a facility that contributes to adverse cumulative stressors in the overburdened community of the Ironbound area of Newark. Accordingly, Covanta must go beyond the four corners of the current permits and take all possible measures to reduce the facility's emissions and negative impact on the community.

Nearly a fifth of Newark's population lives in the four square miles of the Ironbound, making it one of the most densely populated areas of the city. It is also one of the most diverse, with two-thirds of the population born outside of the United States. Half of Ironbound households are classified as low-income (twice the federal poverty level or less).[1] The Ironbound

[1] *See* EPA, EJSCREEN Report (Version 2018), "the User Specified Area, New Jersey, EPA Region 2" at 3 (generated Oct. 23, 2019) (attached as Exhibit 1).

and Newark more broadly are emblematic of the low-income communities and communities of color that, as the EJ Law notes, "historically . . . have been subject to a disproportionately high number of environmental and public health stressors, including pollution from numerous industrial, commercial, and governmental facilities located in those communities."[2] Indeed, DEP classifies all census blocks in Newark as overburdened communities because they meet at least one of the criteria—of color, low income, or limited English—of the EJ Law, and much of the Ironbound meets all three of these criteria.[3]

According to DEP's Data Miner website, over 3,900 environmental permits cover facilities located within the two zip codes of the Ironbound.[4] These include more than 200 facilities that store and use hazardous materials on site, over 70 of which store a large enough volume of hazardous chemicals to trigger the requirement to submit hazardous chemical inventory forms. The U.S. Environmental Protection Agency's ("EPA's") EJSCREEN website shows that the Ironbound neighborhood has Environmental Justice Indices in the 80th and 90th percentiles for nearly *every* environmental justice variable—including fine particulate matter ("PM2.5"), ozone, diesel particulate matter, air toxic cancer risk, respiratory hazard index, and proximity to facilities with Clean Air Act Risk Management Plans—regardless of whether the reference comparison is the United States, EPA Region 2, or New Jersey average.[5]

In 2020, New Jersey enacted the EJ Law as a promise to overburdened communities that the State would no longer allow for the continuation of old patterns of disproportionate impacts from environmental harms. Specifically, the New Jersey Legislature declared that "it is past time for the State to correct th[e] historical injustice" of the "legacy of siting sources of pollution in overburdened communities [which] continues to pose a threat to the health, well-being, and economic success of the State's most vulnerable residents."[6] It is similarly past time for Covanta to reduce its impacts on the overburdened community of the Ironbound beyond the bare minimum previously required in its permits. As explained below, the EJ Law now compels Covanta to adopt additional emission controls, tighten emission limits, improve and expand monitoring, and minimize the facility's impacts on the Ironbound as much as possible.

I. THE EJ LAW AND AO-25 REQUIRE COVANTA'S PERMITS TO INCLUDE ALL FEASIBLE MEASURES TO REDUCE ENVIRONMENTAL IMPACTS.

Under the new substantive and procedural safeguards of the EJ Law, facilities located in overburdened communities may no longer do nothing more than the bare minimum to mitigate

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[2] N.J.S.A. 13:1D-157.
[3] *See* DEP, *Overburdened Communities Under the New Jersey Environmental Justice Law in Newark City, Essex County* (map) (June 1, 2022), https://dep.nj.gov/wp-content/uploads/ej/docs/essex-newark-city-maps-obc.pdf.
[4] *See* DEP, DEP DataMiner, https://www13.state.nj.us/DataMiner (last visited Dec. 9, 2022) (follow "search by site" then "search by ZIP code" and enter "07114" and "07105").
[5] *See* EPA, EJSCREEN Report, *supra* note 1.
[6] N.J.S.A. 13:1D-157.

their harms on the surrounding community. Specifically, the EJ Law states that for renewals of major source permits in overburdened communities—like Covanta's—DEP may "apply conditions . . . to protect public health, upon a finding that approval of a permit or permit renewal, as proposed, would, together with other environmental or public health stressors affecting the overburdened community, cause or contribute to adverse cumulative environmental or public health stressors in the overburdened community that are higher than those borne by other communities within the State, county, or other geographic unit of analysis . . ."[7] While other portions of the EJ Law are not fully in force until DEP finalizes its implementing regulations,[8] AO-25 notes that DEP already has "inherent authority . . . to apply conditions to permits" and therefore instructs that DEP "shall . . . apply such special conditions [to permits] as may be necessary to avoid or minimize environmental or public health stressors upon the overburdened community to the maximum extent allowable by law."[9]

DEP has proposed a regulation (the "EJ Rule")[10] that clarifies the process under which a facility would "cause or contribute to adverse cumulative environmental or public health stressors in the overburdened community that are higher than those borne by other communities."[11] Under the EJ Rule's approach, DEP compares the values for 26 environmental and public health stressors for the block group where the facility is located to the values of the State and county.[12] If a stressor is above either the State or county value it is classified as "adverse," and if the block group has more total adverse stressors than the 50th percentile of block groups in either the State or county, then the block group is said to have "adverse cumulative stressors."[13] The protections of the EJ Law apply in full force to block groups with "adverse cumulative stressors," including provisions mandating that permit renewals adopt "[a]ll feasible measures to avoid facility contributions to environmental and public health stressors."[14]

Covanta is located in just such an overburdened community that is fully protected under the EJ Law. DEP has classified a whopping 24 out of 26 stressors as adverse in the overburdened community where Covanta is located, including:[15]

- All 5 "Concentrated Areas of Air Pollution" stressors (Ground-Level Ozone; Fine Particulate Matter (PM2.5); Cancer Risk from Diesel Particulate Matter; Cancer Risk from Air Toxics Excluding Diesel Particulate Matter; and Non-Cancer Risk from Air Toxics);
- All 3 "Mobile Sources of Air Pollution" stressors (Traffic–Cars, Light- and Medium-Duty Trucks; Traffic–Heavy-Duty Trucks; and Railways);

[7] N.J.S.A. 13:1D-160(d).
[8] N.J.S.A. 13:1D-160(a).
[9] DEP, Admin. Order No. 2021-25 (Sept. 20, 2021) ("AO-25").
[10] Environmental Justice Rules, 54 N.J.R. 971(a) (proposed June 6, 2022) (to be codified at N.J.A.C. 7:1C).
[11] N.J.S.A. 13:1D-160(d).
[12] *See* EJ Rule, Proposed N.J.A.C. 7:1C-2.1 & Appendix.
[13] EJ Rule, Proposed N.J.A.C. 7:1C-2.1.
[14] EJ Rule, Proposed N.J.A.C. 7:1C-8.6 & 7:1C-9.1.
[15] DEP, Overburdened Community Stressor Summary for Block Group 340130075012 (June 2, 2022) (attached as Exhibit 2).

- All 3 "Contaminated Sites" stressors (Known Contaminated Sites; Soil Contamination Deed Restrictions; and Ground Water Classification Exception Area/Currently Known Extent Restrictions);
- All 2 "Transfer Stations, or Other Solid Waste Facilities, Recycling Facilities, Scrap Metal Facilities" stressors (Solid Waste Facilities and Scrap Metal Facilities);
- The "Combined Sewer Overflow" stressor;
- Five of the "May Cause Potential Public Health Impacts" stressors (Drinking Water; Potential Lead Exposure; Lack of Tree Canopy; Impervious Surface; and Flooding);
- All 3 "Density/Proximity" stressors (Emergency Planning Sites; Permitted Air Sites; and NJPDES Sites); and
- All 2 "Social Determinants of Health" stressors (Unemployment and Education)

With so many adverse stressors (24 altogether), the overburdened community where Covanta is located easily surpasses the 50th percentile of block groups in the state (13) and Essex County (15), and therefore this overburdened community has cumulative adverse stressors.[16] This overburdened community thus is subject to a "disproportionately high number of environmental and public health stressors, including pollution from numerous industrial, commercial, and governmental facilities," and must be protected by the EJ Law to its fullest extent.[17]

As a major polluter in the Ironbound and Essex County, Covanta contributes to many of these adverse stressors. Covanta Essex is the number one stationary-source emitter of many air pollutants in the county, emitting 99.7% of the county's mercury from major stationary sources, 90.3% of the hydrogen chloride ("HCl"), 70% of the oxides of nitrogen ("NOx"), 64.3% of the lead, and 43.7% of the PM2.5.[18] Indeed, Covanta Essex is one of the top pollutant emitters out of all New Jersey stationary sources, being the second highest emitter of arsenic, HCl, mercury, and NOx; third highest emitter of beryllium; fourth highest emitter of carbon tetrachloride; fifth highest emitter of lead and sulfur dioxide ("SO2"), and sixth highest emitter of carbon monoxide ("CO") statewide.[19]

The renewed permits must include all feasible measures to reduce emissions and mitigate the impacts associated with Covanta's air emissions, solid waste handling, truck traffic, and other adverse stressors to which the facility contributes. The mere fact that a particular control measure is not expressly required by any pre-existing EPA or DEP regulation is no longer an excuse for Covanta's permits to fail to impose that measure. To the extent that any control measure, permit condition, or action recommended in these comments is not required by other EPA or DEP

[16] *Id.*
[17] *See* N.J.S.A. 13:1D-157.
[18] Earthjustice et al., *New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities* 9 (2021), https://earthjustice.org/sites/default/files/files/nj-incinerator-report_earthjustice-2021-02.pdf.
[19] *Id.* at 5.

regulations, they are now required by the EJ Law and AO-25 and must be included in the renewed permits.

II. COVANTA'S AIR PERMIT MUST UPDATE ITS OUTDATED EMISSION CONTROL TECHNOLOGY AND LOWER ITS EMISSION LIMITS.

A. The Covanta Air Permit Must Include a More Stringent NOx Limit for its Three Municipal Waste Combustors.

Long-term exposure to NOx pollution can lead to a range of adverse health impacts, including respiratory illnesses, such as asthma and bronchitis, as well as heart disease. NOx pollution also contributes to the formation of ground-level ozone (smog) and acid rain. To reduce the likelihood of subjecting the community around the facility to these health and environmental effects, Covanta must be required to comply with a significantly more stringent limit on NOx emissions from its three municipal waste combustors.

According to the pre-draft permit dated October 11, 2019 ("Pre-Draft Permit"), Covanta Essex's three municipal waste combustors are subject to a NOx limit of less than or equal to 150 ppmvd @ 7% O2 based on a calendar-day average.[20] To achieve this limit, Covanta utilizes Selective Non-Catalytic Reduction ("SNCR").

As discussed below, it is well documented that municipal waste combustors using SNCR can achieve significantly greater NOx control than is currently required of Covanta Essex. By installing Selective Catalytic Reduction ("SCR"), Covanta could achieve even larger NOx reductions.

1. Covanta Must Install SCR and Use a NOx Limit of 50 ppmvd.

By installing SCR, Covanta could achieve an emission limit that is only one-third of its current limit. SCR is a widely available technology that already is in use, for example, at Palm Beach Renewable Energy Facility #2 in Florida. Specifically, the Palm Beach facility uses SCR and, since its original pre-construction permitting in 2010, has been subject to a NOx emission limit of 50 ppmvd as a 24-hour block arithmetic mean.[21] SCR is thus plainly a feasible control measure that Covanta must now adopt under the EJ Law and AO-25. To minimize the adverse effects of its NOx pollution on the already overburdened community around the Covanta Essex facility, **Covanta must retrofit the Covanta Essex facility with SCR and the Air Permit must include a 50 ppmvd limit.**

[20] Pre-Draft of Air Pollution Control Operating Permit Renewal, Covanta Essex 23 (Oct. 11, 2019) (attached as Exhibit 3).
[21] Title V Air Operation Permit Renewal, Palm Beach Energy Renewable Park, Sec. III: Emissions Units and Specific Conditions, at 25 (Sept. 1, 2016) ("PB2 Permit") (attached as Exhibit 4).

2. In the Interim, Covanta Can Achieve the More Stringent 110 ppmvd NOx Limit Recently Adopted by Pennsylvania.

During the period under which Covanta is sourcing and installing the SCR technology noted above, Covanta should adopt a significantly more stringent—but still achievable using its existing SNCR—NOx limit than what is set forth in the Pre-Draft Permit. Specifically, in April 2022, the Pennsylvania Department of Environmental Protection ("Pennsylvania DEP") set a reasonably available control technology ("RACT") limit for existing sources at 110 ppmvd NOx @ 7% oxygen using a daily average.[22] Pennsylvania DEP explained that it decided to tighten the NOx RACT limit based on its analysis demonstrating that for sources using SNCR, "the emission limitation of 110 ppmvd NOx @ 7% oxygen is achievable, cost-effective and constitutes RACT for municipal waste combustors."[23] Pennsylvania DEP also observed that the Municipal Waste Combustor Workgroup Report published by the Ozone Transport Commission likewise "concluded that based on the workgroup's . . . review of engineering studies of similar [municipal waste combustors] in the [ozone transport region], a control level of 110 ppmvd on a 24-hour averaging period is likely achievable for most large [municipal waste combustors] in the [ozone transport region]."[24] In fact, the Ozone Transport Commission reported that numerous facilities operating with SNCR are already subject to a 110 ppmvd limit, and that testing reveals that many of these facilities' actual emissions are significantly below that level.[25]

While the EJ Law and AO-25 compel Covanta to install SCR and achieve the lowest NOx emission rate possible, in the interim and at the very least, Covanta's current SNCR is capable of achieving compliance with a 110 ppmvd or lower limit. **Covanta must evaluate how much it can reduce its NOx emissions and the renewed Air Permit must include that lower NOx limit and associated compliance assurance conditions.**

B. The Air Permit Must Incorporate New Limits for Hazardous Air Pollutants.

N.J.A.C. 7:27-22 provides that facilities with Title V permits "shall ensure that no air contaminant is emitted from any significant source operation at a rate, calculated as the potential to emit, that exceeds the applicable threshold for reporting emissions set forth at N.J.A.C. 7:27–22 Appendix, Table A, incorporated herein by reference, or 17.9, Tables 3A and 3B, unless emission of the air contaminant is authorized by the operating permit."[26] This includes new hazardous air pollutants ("HAPs") and thresholds that DEP added to these regulatory provisions in 2018.

The Facility-Wide Risk Assessment appended to the Air Application lists various potential to emit ("PTE") values for the HAPs that exceed the N.J.A.C. 7:27-17.9 reporting

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[22] 25 Pa. Bull. 6960, 6991 (Nov. 12, 2022),https://www.pacodeandbulletin.gov/secure/pabulletin/data/vol52/52-46/52_46_rr.pdf (enacting 25 Pa. Code § 129.112(f)).
[23] *Id.* at 6966.
[24] Pa. DEP, Technical Support Document for Additional RACT Requirements for Major Sources of NOx and VOCs for the 2015 Ozone NAAQS, at 17 (Apr. 2022) (attached as Exhibit 5).
[25] Ozone Transport Comm'n Stationary & Area Sources Comm., Municipal Waste Combustor Workgroup Report, at 16 (Apr. 2022) (attached as Exhibit 6).
[26] N.J.A.C. 7:27-22.3(c).

thresholds.[27] But as the table below shows, these PTEs appear to be extremely high compared to the 2016–2019 actual emissions data that Covanta reported to DEP in response to a Technical Notice of Deficiency Letter regarding its Waste Permit.[28] Given that Covanta operated at 98.9% of its permitted capacity during this period,[29] and stack tests are done under "worst case" conditions, the PTEs should not be up to 71 times greater than actual emissions. Accordingly, **Covanta must lower its PTE values and associated permit limits to be in line with data in the Technical Notice of Deficiency Letter.**

Table 1. Covanta Essex HAP PTEs Compared to Actual Emissions

HAP	Air Permit Application PTE (lb/hr)	Actual Emissions at 98.9% throughput (lb/hr)	Ratio of PTE to Actual Emissions
Mercury	0.01	0.000485	2,061%
Lead	0.037	0.00088	4,205%
Cadmium	0.0037	0.0000933	3,966%
Arsenic	0.0037	0.0000515	7,184%
Beryllium	0.00025	0.00000707	3,536%
Chromium	0.012	0.000566	2,120%
Nickel	0.0033	0.000674	4,896%

In addition, this Facility-Wide Risk Assessment shows that Covanta emits six HAPs above the reporting thresholds in N.J.A.C. 7:27-17.9, but the Application proposes no corresponding emission limits for these pollutants.[30] These pollutants are hexavalent chromium, total dioxins/furans, carbon tetrachloride, formaldehyde, trichloroethylene, and vinyl chloride. **The Air Permit should include emission limits for these HAPs.** Previously, DEP did not directly apply this requirement to permit renewals that expired prior to February 21, 2021, but DEP has since removed that qualification from the regulations.[31] At any rate, Covanta's renewed permit will clearly expire after 2021, so this exemption would not apply even if it were still in the regulations.[32] Indeed, the Pre-Draft Permit appears to include emission limits for these

[27] Air Application, Air Quality Evaluation and Modeling Report: Hazardous Air Pollutants Risk Assessment, at 3-4, tbl.3-2 (PDF page 151).
[28] Letter from Patricia Earls, Covanta, to Anthony Fontana, DEP, re: Technical Notice of Deficiency, at 2 tbl.1 (Jan. 10, 2022) (attached as Exhibit 7).
[29] Covanta is permitted to process 985,500 tons of waste per year. Covanta's Waste Application states that Covanta processed 958,128 tons in 2016, 968,485 tons in 2017, 985,477 tons in 2018, and 985,499 tons in 2019. Waste Application at 76. This averages to 98.9% of the throughput limit over this period.
[30] *Compare* Air Application, Air Quality Evaluation and Modeling Report: Hazardous Air Pollutants Risk Assessment, at 3-4, tbl.3-2 (PDF page 151) (listing 16 HAPs that Covanta emits above reporting thresholds) *with* Air Application, Section C, Pollutant Emissions Summary (PDF page 111) (listing only 10 HAPs that have emission limits in the permit).
[31] *See* 53 N.J.R. 317(a) (proposed Mar 1. 2021).
[32] *See* Memorandum from Danny Wong, Bureau Chief, to Operating Permit Section Staff, re: Operating Permit Renewals – Expiration Dates (June 20, 2022), https://dep.nj.gov/wp-content/uploads/boss/permitting-guidance/operating-permit-renewals.pdf ("[DEP] will now set the permit expiration date five (5) years from the issuance date of the renewed operating permit. Please note that this is different from our past practice of setting the expiration date in five-year intervals from the [i]nitial operating permit issuance date.").

pollutants,[33] and the permit that results from this AO-25 process should continue to include these limits even if not specifically referenced in the Air Application.

In addition to the pollutants listed above, hydrogen chloride ("HCl") is noticeably absent from the Air Application's proposed Pollutant Emissions Summary,[34] even though it is included in the corresponding summary in the Pre-Draft Permit.[35] **Covanta must not delete HCl from the Pollutant Emissions Summary or otherwise reduce the related permit conditions.** Covanta has the potential to emit an astounding 284 tons of HCl per year, is responsible for 90% of stationary-source HCl emissions in Essex County, and is the second highest emitter of HCl among all New Jersey stationary sources (surpassed only by the Covanta company's incinerator in Camden).[36] It does not appear that Covanta's baghouse project has done anything to reduce HCl emissions, since the Air Application does not seek to change the PTE for HCl as it does for other pollutants. If anything, the permit should strengthen conditions on HCl, including, as explained below, requiring continuous emission monitoring of HCl.

In addition to the pollutants discussed above, the Pre-Draft Permit requires Covanta to stack test for two other pollutants—benzo(a)pyrene and perchloroethylene (tetrachloroethylene) ("PERC")—to ensure that these do not exceed DEP's reporting thresholds.[37] In the Air Application, however, Covanta does not report a PTE for these pollutants, and instead merely states that the "[e]mission rate will be below reporting threshold."[38] **Covanta should include emission limits for these pollutants or fully explain why the PTEs for these pollutants would be below DEP thresholds.**

The Air Application asks to lower the emissions of Dioxin TCDD (2,3,7,8) in the Pollutant Emissions Summary down to 0.000119 tpy,[39] but it proposes no change to the Permit emission limit of 0.00013 tpy.[40] **The Permit's emission limit for Dioxin TCDD (2,3,7,8) should be lowered to no higher than 0.000119 tpy.**

Finally, while the Air Application proposes various reductions to the tons-per-year emission limits for HAPs because of installation of the baghouse, the Application does not appear to propose any corresponding reductions for the pounds-per-hour emission limits for these HAPs. **The Permit should reduce lb/hr HAP emission limits in line with the tpy emission limit reductions.**

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[33] *See, e.g.*, Pre Draft Permit, Facility Specific Requirements (U1, OS Summary), at 26–27, Ref. ## 39, 41–44.
[34] Air Application, Section C, Pollutant Emissions Summary (PDF page 111).
[35] Pre-Draft Permit, Section A, Pollutant Emissions Summary, at 5, tbl.3.
[36] Earthjustice et al., *supra* note 18, at 5, 9.
[37] *E.g.*, Pre-Draft Permit, Facility Specific Requirements (U1, OS Summary), at 20, 47, Ref. ## 3, 31.
[38] Air Application, Air Quality Evaluation and Modeling Report: Hazardous Air Pollutants Risk Assessment, at 3-4, tbl.3-2 (PDF page 151).
[39] Air Application, Section C, Pollutant Emissions Summary (PDF page 111).
[40] Air Application, App'x C, at Ref. # 55 (PDF page 119).

C. The Air Permit Should Pay Particular Focus on HAPs Whose Emissions Exceed SOTA Thresholds.

Based on the Application's reported PTEs for various HAPs, it appears that Covanta emits at least *ten* pollutants above DEP's State of the Art "(SOTA") thresholds, and at levels up to 21,867 times higher than the thresholds. The chart below compares Covanta's reported PTEs[41] with the DEP's SOTA thresholds, and highlights pollutants which exceed the SOTA thresholds.[42]

Table 2. Covanta Essex HAP PTEs Compared to DEP SOTA Thresholds

Pollutant	SOTA Threshold (lb/yr)	SOTA Threshold (tpy)	Covanta Reported PTE (tpy)	Reported PTE as % of SOTA Threshold
Arsenic	10	0.005	0.044	880%
Beryllium	16	0.008	0.003	38%
Cadmium	20	0.01	0.044	440%
Chromium	10,000	5	0.143	3%
Chromium VI	4	0.002	0.0144[43]	720%
Dioxin (TCDD 2,3,7,8)	0.0012	0.0000006	0.00012	20,000%
Dioxins/furans (total)	0.00012	0.00000006	0.0013	2,186,667%
Hydrogen chloride	10,000	5	284	5,680%
Hydrogen fluoride	200	0.1	10.8	10,800%
Lead	20	0.01	0.44	4,400%
Mercury	20	0.01	0.12	1,200%
Nickel	2,000	1	0.039	4%
POM	20	0.01	3.81	38,100%
Benzo(a)pyrene	20	0.01	n/a	n/a
Carbon tetrachloride	2,000	1	0.0900	9%
Formaldehyde	4,000	2	1.0770	54%
Perchloroethylene (tetrachloroethylene)	10,000	5	n/a	n/a
Trichloroethylene	10,000	5	0.0780	2%
Vinyl chloride	400	0.2	0.0360	18%

The Covanta facility was constructed before implementation of DEP's SOTA program, so it is unclear whether Covanta has ever formally triggered the requirement to complete a SOTA analysis for these ten pollutants because of a "[n]ewly constructed, reconstructed, or

[41] *See* Air Application, Air Quality Evaluation and Modeling Report: Hazardous Air Pollutants Risk Assessment, App'x B, at 4 (PDF page 171).
[42] N.J.A.C. 7:27-17.9.
[43] Calculating by tripling per-combustor PTE listed at Air Application PDF page 151.

modified equipment [or] control apparatus."[44] Whether Covanta has previously undergone a SOTA analysis or not, however, the new obligations of the EJ Law and AO-25 compel Covanta to do so now. **Covanta must complete a SOTA analysis and tighten controls for its pollution, especially for these ten pollutants that already exceed SOTA thresholds.** This is particularly apt given that DEP has proposed requiring a "top down" control technology analysis under the EJ Rule that mirrors the current "top down" case-by-case SOTA review.[45]

D. The Covanta Air Permit Must Lower Its Emission Limits to Be in Line with Other Incinerator Permits.

In addition to the Pre-Draft Permit's overly high NOx 150 ppmvd emission limit (explained above), many of the Pre-Draft Permit's emission limits for other pollutants exceed comparable limits in other incinerators' permits, even incinerators with greater waste throughput than Covanta Essex. These tighter emission limits in other permits show that there is much room for Covanta Essex's permit to tighten emission limits and further protections in accordance with the EJ Law and AO-25. As the chart below shows, the Covanta Essex permit currently allows pollution levels up to 15 times higher than the permits of other, larger incinerators. Accordingly, **the renewed Covanta Essex permit should reduce emission limits to levels no higher than the emission limits in these other permits.**

Table 3. Covanta Essex Permit Limits Compared to Permit Limits of Larger Incinerators[46]

Pollutant	Covanta Essex Limit	Other Permit Limits	Ratio of Covanta Essex to Other Permit Limit (standardized throughput)
NOx	95 lb/hr (0.03393 lb/hr/tpd)	37.4 lb/hr (PB2)[47] (0.01247 lb/hr/tpd)	272%
		88.56 lb/hr (Chester)[48] (0.02523 lb/hr/tpd)	134%
	300 ppmvd 1hr	247 ppmv 1 hr (Detroit)[49]	121%

[44] *See* N.J.A.C. 7:27-22.35(a) (effective date Sept. 5, 1995).
[45] *Compare* 54 N.J.R. 971(a), Proposed N.J.A.C. 7:1C Subchapter 7 & 7:1C-8.5 *with* DEP, State of the Art (SOTA) Manual, at 1.7 (July 1997), https://dep.nj.gov/wp-content/uploads/boss/state-of-the-art/sota0.pdf.
[46] To account for different sizes of the incinerators, the chart presents mass-based limits standardized to the various waste throughputs of each facility in parentheses. These throughput-standardized figures are also used to calculate the ratio of Covanta's limits to other incinerators' limits in the right column. The throughputs used for these calculations are: 3,510 tons of waste per day ("tpd") for Covanta Delaware Valley ("Chester" – 125% of Covanta Essex's 2800 tpd throughput); 3300 tpd for Detroit Renewable Power ("Detroit" – 118% Covanta Essex throughput); 3300 tpd for Pinellas County Resource Recovery Facility ("Pinellas" – 118% Covanta Essex throughput); 3000 tpd for Covanta Fairfax ("Fairfax" – 107% Covanta Essex throughput); and 3000 tpd for Palm Beach Renewable Energy Park 2 ("PB2" – 107% Covanta Essex throughput).
[47] PB2 Permit at 25 (Exhibit 4).
[48] Chester Permit at 22 (attached as Exhibit 8).
[49] Detroit Permit at 45 (attached as Exhibit 9).

CO	1,260 tpy (0.45 tpy/tpd)	241.2 tpy (Fairfax)[50] (0.0804 tpy/tpd)	560%
VOCs	83 tpy (0.0296 tpy/tpd)	50 tpy (Chester)[51] (0.0142 tpy/tpd)	208%
	66 ppmv	65 ppmv (Detroit)[52]	102%
SO2	996 tpy (0.3557 tpy/tpd)	706.4 tpy (Fairfax)[53] (0.2355 tpy/tpd)	151%
	29 ppmvd or 25% of uncontrolled emissions (75% reduction) (24-hour average)	29 ppmvd or 15% of uncontrolled emissions (85% reduction) (Detroit)[54]	167%
HCl	29 ppmvd or 5% of uncontrolled emissions (95% reduction)	20 ppmvd (Pinellas & PB2)[55]	145%
Lead	0.4 mg/dscm	0.125 mg/dscm (PB2)[56]	320%
Cadmium	0.035 mg/dscm	0.01 mg/dscm (PB2)[57]	350%
Dioxin/ Furan	30 ng/dscm	2 ng/dscm (Fairfax)[58]	1500%
HFl	10.8 tpy (0.00386 tpy/tpd)	7.12 tpy (Fairfax)[59] (0.00237 tpy/tpd)	163%
Mercury	0.12 tpy (0.00004286 tpy/tpd)	0.05655 tpy (PB2)[60] (0.00001885 tpy/tpd)	227%
	28 ug/dscm or 95% reduction	25 ug/dscm (PB2)[61]	112%
Ammonia	10.1 lb/hr (0.00361 tpy/tpd)	8.28 lb/hr (PB2)[62] (0.00276 tpy/tpd)	130%

[50] Fairfax Permit at 12 (attached as Exhibit 10) (60.3 tpy per unit for 4 units).
[51] Chester Permit at 18.
[52] Detroit Permit at 44.
[53] Fairfax Permit at 12 (176.6 tpy per unit for 4 units).
[54] Detroit Permit at 42.
[55] Pinellas Permit at 11 (attached as Exhibit 11); PB2 Permit at 25.
[56] PB2 Permit at 25.
[57] *Id.*
[58] Fairfax Permit at 12.
[59] *Id.* (1.78 tpy per unit for 4 units).
[60] PB2 Permit at 25 (37.7 lb/yr per unit for 3 units).
[61] *Id.*
[62] *Id.* (2.76 lb/hr per unit for 3 units).

E. The Air Permit's PM Emission Limit Must Not Increase.

The current, operative air permit limits facility-wide PM10 emissions to 134 tpy.[63] But the Air Application asks for a PM10 permit limit of 203 tpy, in addition to a 203 tpy limit for PM2.5.[64] Similarly, the Pre-Draft Permit lists emission limits of 203 tpy for PM10 and 203 tpy for PM2.5.[65] **The Permit must not increase PM emission limits, and the facility-wide emission limits for both PM10 and PM2.5 (a subset of PM10) must be no higher than 134 tpy.**

F. The Air Permit Must Not Include Illegal SSM and Affirmative Defense Provisions.

1. The Air Permit Must Remove Impermissible Affirmative Defense Provisions.

The Air Permit must remove all affirmative defense provisions, including those in General Provisions Nos. 2(c), 13(a), and 13(b). Federal courts and EPA have made clear that each of these "affirmative defense" provisions is impermissible:

- **General Provision 13(a):** This provision relies on EPA Title V regulation 40 C.F.R. § 70.6(g) to provide Covanta with an affirmative defense to permit violations during "emergencies." But in 2014, the D.C. Circuit held that EPA has no authority to create blanket affirmative defenses to violations of emission standards, since the Clean Air Act ("CAA") says only courts—not EPA—can decide whether a particular violation is excusable.[66] In a 2016 proposed rule to eliminate this illegal "affirmative defense" provision, EPA clarified that states like New Jersey "have *never* been obligated to include the § 70.6(g) affirmative defense provision in their part 70 operating permit programs . . . [or] individual operating permits."[67] So General Provision 13(a) must be removed from the Air Permit because it violates the CAA, and there is no EPA regulation that requires this provision.

- **General Provisions 2(c) and 13(b):** General Provision 13(b) directly incorporates the language of N.J.A.C. 7:27-22.16(*l*) to provide Covanta with an affirmative defense to permit violations that "occurred as a result of an equipment malfunction, an equipment startup or shutdown, or during the performance of necessary equipment maintenance." General Provision 2(c), meanwhile, sets forth the parameters by which

[63] 2019 Permit, Section A, Pollutant Emissions Summary, at 4 tbl.1.
[64] Air Application, App'x C, at Ref. ## 41, 42 (PDF pages 114–15).
[65] *See* Pre-Draft Permit, U1 Facility Specific Requirements, at 23, Ref. ## 26, 27 (67.7 tpy limit for each of three combustors).
[66] *Nat. Res. Def. Council v. EPA*, 749 F.3d 1055, 1063 (D.C. Cir. 2014) ("[U]nder the [CAA's] statutory scheme, the decision whether to accept the defendant's [affirmative defense] argument is for the court in the first instance, not for EPA.").
[67] Removal of Title V Emergency Affirmative Defense Provisions from State Operating Permit Programs and Federal Operating Permit Program, 81 Fed. Reg. 38,645-01, 38,647 (June 14, 2016) (emphasis added).

Covanta can claim the affirmative defense under N.J.A.C. 7:27-22.16(*l*). But in the 2016 proposed rule referenced above, EPA explained that provisions like these "that do not exactly mirror the language of 40 C.F.R. § 70.6(g), but nonetheless provide for title V affirmative defenses" would need to be revised because these provisions "generally implicate the same concerns that prompted the EPA to propose removing 70.6(g)."[68] EPA specifically listed N.J.A.C. 7:27-22.16(*l*) as a provision that would need to be revised because it contains an impermissible affirmative defense.[69] Thus, General Provisions 2(c) and 13(b) are illegal and should be removed from the Air Permit.

Recent developments further support the position that these affirmative defense provisions must be removed from Covanta's permit. In a November 9, 2020 proposed rule, EPA reiterated its position that the 2014 D.C. Circuit decision compelled it to remove affirmative defense provisions from other CAA regulations.[70] On September 30, 2021, EPA issued a policy memo reiterating EPA's position that "[State Implementation Plan] provisions that contain exemptions or affirmative defense provisions are not consistent with CAA requirements."[71] Finally, on April 1, 2022, EPA *re*-proposed the 2016 proposed rule that would amend its Title V regulations to completely remove 40 C.F.R. § 70.6(g)—the provision on which General Provision 13(a) relies—and reiterated that such an action would require the removal of state provisions like N.J.A.C. 7:27-22.16(*l*)—on which General Provisions 2(c) and 13(b) rely.[72]

Now, with the clear statutory mandate of the EJ Law to minimize pollution and increase protections in overburdened communities, it is impermissible for a permit in a cumulatively adverse overburdened community—like Covanta's—to continue to include illegal exemptions and affirmative defenses that were never required in the first instance.

2. The Air Permit Must Remove Impermissible SSM Exemptions.

In addition to the affirmative defense provisions above, the Air Permit must also remove emission-limit exemptions during periods of startup, shutdown, and malfunction ("SSM"). In 2008, the D.C. Circuit Court of Appeals held that SSM exemptions violate the Act's requirement that all emission limitations apply "on a continuous basis."[73] In response to this holding, EPA issued a Final Rule in 2015 in which the Agency recognized that its "justification for exemptions from emission limitations during SSM events in NSPS [New Source Performance Standards] . . .

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[68] *Id.* at 38,651.
[69] *See* EPA, Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs, EPA-HQ-OAR-2016-0186-002, at 2 tbl.1 (attached as Exhibit 12).
[70] National Emission Standards for Hazardous Air Pollutants: Polyvinyl Chloride and Copolymers Production Reconsideration, 85 Fed. Reg, 71,490, 71,505–06 (Nov. 9, 2020) (proposed rule removing affirmative defense from regulations governing for polyvinyl chloride and copolymers production)
[71] Memorandum from Janet McCabe, EPA Deputy Adm'r, to EPA Regional Administrators 3 (Sept. 30, 2021), https://www.epa.gov/system/files/documents/2021-09/oar-21-000-6324.pdf.
[72] Removal of Title V Emergency Affirmative Defense Provisions from State Operating Permit Programs and the Federal Operating Permit Program, 87 Fed. Reg. 19,042-01, 19,044-45 (Apr. 1, 2022).
[73] *See Sierra Club v. EPA*, 551 F.3d at 1026–27 (citing 42 U.S.C. § 7602(k)).

made prior to the 2008 decision of the court in the Sierra Club case . . . is no longer correct."[74] Accordingly, new NSPS standards issued after 2008 do not include SSM exemptions, and EPA has been eliminating pre-existing SSM exemptions in many federal regulations as they are reviewed and revised pursuant to schedules under the Clean Air Act.[75] EPA has also prohibited states from applying SSM exemptions to any NSPS standard incorporated in their SIPs.[76] Pre-2008 general NSPS provisions that appear to allow an SSM exemption are, in EPA's own words, "inconsistent with the CAA" and are no longer good law.[77] In September 2022, the Ironbound Community Corporation joined a petition to EPA to remove all these remaining illegal SSM exemptions from the regulations once and for all.[78]

In accordance with this principle, DEP guidance prohibits SSM exemptions in air permits, and specifies that startup and shutdown operating scenarios must still include emission limits compliant with RACT.[79] The guidance also states that malfunction operating scenarios "[m]ay not be included in [the] permit application."[80] But Covanta's operative Permit does the exact opposite on both counts. Many of the Permit's emission limits state that they apply "except during periods of startup, shutdown, and malfunction."[81] In addition, the current Covanta Permit includes a malfunction-specific operating scenario,[82] and the renewal application does not request any changes to this. To start, **the malfunction scenario should be removed from the Permit, and all malfunction exemptions should be deleted from emission limits, since these are no longer permissible in New Jersey air permits.**

As for startup and shutdown, the current permit does not contain separate operating scenarios, but provides (impermissibly) that various emission limits do not apply during startup and shutdown. This is particularly egregious because the federal NSPS that applies to Covanta—NSPS Subpart CB: "Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors that Are Constructed on or Before September 20, 1994"—contains no SSM exception. Instead, the Permit points to NSPS Subpart FFF as the source of the SSM exception,[83]

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[74] State Implementation Plans: Response to Petition for Rulemaking, 80 Fed. Reg. 33,840,33,907–08 (June 12, 2015).
[75] *See id.* at 33,890.
[76] *See id.* at 33,892.
[77] *Id.* at 33,890.
[78] Petition for Rulemaking to Eliminate Startup, Shutdown, and Malfunction Exemptions in Clean Air Act Section 111 Regulations (Sept. 13, 2022) (attached as Exhibit 13).
[79] DEP, Startup/Shutdown/Malfunction Guidance (July 2018), https://www.nj.gov/dep/aqpp/permitguide/SSM.pdf.
[80] *Id.*
[81] *See, e.g.*, 2019 Permit, Facility Specific Requirements (U1, OS Summary), at 50–52, Ref. ## 111–121.
[82] *See* 2019 Permit, Facility Specific Requirements (U1, OS2/OS4/OS6), at 71–74 (requirements applicable to operation under malfunction conditions).
[83] *See,* 2019 Permit, Facility Specific Requirements (U1, OS Summary), at 50–52, Ref. ## 111–121 (citing 40 C.F.R. § 62.14109(b)). While both Subpart FFF and Subpart Cb incorporate portions of 40 C.F.R. § 60.58b of Subpart Eb, Subpart FFF incorporates "the compliance and performance testing methods and procedures listed in 40 CFR 60.58b of subpart Eb," 40 C.F.R. § 62.14109(b), whereas Subpart Cb incorporates only "the performance testing methods listed in § 60.58b of subpart Eb," 40 C.F.R. § 60.38b(a). Thus, Subpart Cb incorporates those portions of 40 C.F.R. § 60.58b that concern performance testing, *e.g.*, 60.58(b) through 60.58(q), but Subpart Cb does *not* incorporate the "compliance"-related SSM exception of 60.58b(a), which is not relevant to "performance testing."

but that NSPS applies to incinerators that were "not regulated by an EPA approved and currently effective State or Tribal plan" as of November 12, 1998.[84] Just because New Jersey failed to even submit a state plan to regulate incinerators by that date[85] does not mean that New Jerseyans should be subject to lesser protections. At any rate, as explained in the recent petition to EPA, all SSM exemptions in EPA regulations, including those on which the Permit relies, are no longer good law and cannot be relied upon.[86] Thus, **the Air Permit must include emission limits during all startup and shutdown periods, with adequate compliance assurance provisions.** While the Pre-Draft Permit does include emission limits during startup and shutdown operation scenarios, it fails to include any monitoring, recordkeeping, or reporting during these periods and thus fails Title V's compliance assurance requirements.

III. COVANTA MUST DO A NEW RISK ASSESSMENT THAT TAKES INTO ACCOUNT CUMULATIVE IMPACTS.

DEP regulations require Covanta Essex to conduct a facility-wide risk assessment for its toxic emissions in support of its permit renewal application.[87] The purpose of this assessment is to "evaluate the incremental inhalation risk from exposure to the permitted air toxic emissions."[88] In other words, these assessments are to protect public health.

The Risk Assessment appended to the Air Application claims that both the carcinogenic and non-carcinogenic risks from its facility-wide emissions are negligible.[89] That cannot be the extent of the analysis. As stated previously, the EJ Rule requires applicants seeking permit renewals for polluting facilities in overburdened communities to perform an impact assessment of environmental and public health stressors within the community, and the facility's contributions to these stressors. The types of emissions Covanta produces have cumulative impacts on the community because they deteriorate air quality, contribute to smog, and are linked to increased risk of miscarriages, preterm birth, asthma, developmental issues in children, and more.[90] Pursuant to the EJ Law and AO-25, a revised risk assessment should take into account the cumulative effects of all of the pollutants Covanta emits—as opposed to looking at each pollutant in isolation—as well as the pollutants emitted from other nearby sources and existing concentrations of pollutants in the Ironbound.

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[84] 40 C.F.R. § 62.14102(a).
[85] *See* Federal Plan Requirements for Large Municipal Waste Combustors Constructed on or Before September 20, 1994, 63 Fed. Reg. 63,191, 63,193 tbl.1 (Nov. 12, 1998) (listing New Jersey under "Neither a State plan nor a negative declaration letter submitted to EPA").
[86] *See* Petition for Rulemaking to Eliminate Startup, Shutdown, and Malfunction Exemptions in Clean Air Act Section 111 Regulations (Sept. 13, 2022) (Exhibit 13); *see also* Examples of NSPS and NESHAPs 2022, Exhibit 1 attached to that Petition (attached hereto as Exhibit 14) (listing Subpart Eb as NSPS with SSM exception that EPA must remove).
[87] N.J.A.C. 7:27-22.3(cc); 7:21-22.30(f).
[88] DEP, Technical Manual 1003: Guidance on Preparing a Risk Assessment for Air Contaminant Emissions 2–3 (2018), https://dep.nj.gov/wp-content/uploads/boss/technical-manuals/1003.pdf.
[89] Air Application, Air Quality Evaluation and Modeling Report: Hazardous Air Pollutants Risk Assessment, at 5-1 to 5-3, tbls. 5-1 & 5-2 (PDF pages 161–63).
[90] Earthjustice et al., *supra* note 18 at 9.

IV. COVANTA MUST INSTALL CONTINUOUS EMISSIONS MONITORING SYSTEMS FOR HCL, MERCURY, AND PM2.5.

A continuous emissions monitoring system ("CEMS") for HCl, mercury, and PM2.5 would benefit the community by providing a more accurate picture of the facility's emissions and enabling Covanta to quickly identify and correct any problems with the facility's operations that cause unusually high emissions. In addition, continuous monitoring is needed to assure the facility's compliance with the applicable emission limits.

CAA Title V instructs that "[e]ach permit . . . shall set forth . . . requirements to assure compliance with the permit terms and conditions."[91] EPA regulations further specify that where the underlying applicable requirement does not require periodic testing, the permit must specify "periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit."[92] Even if the underlying requirement does specify some form of monitoring, the permitting authority must include additional monitoring if needed to "assure compliance."[93]

As explained below, the monitoring specified in the Pre-Draft Permit is insufficient to assure Covanta's ongoing compliance with its HCl, mercury, and PM2.5 limits. To ensure the legally required protection for the overburdened community around the Covanta Essex facility, Covanta must install a CEMS for each of these pollutants and the Air Permit must identify each CEMS as a means for assuring Covanta's compliance with applicable CAA requirements. As explained below, continuous monitoring for HCl, mercury, and PM2.5 is feasible and appropriate for the Covanta Essex facility.

A. A HCl CEMS Is Needed to Assure Compliance with the Short-Term HCl Limits.

The Pre-Draft Permit identifies two short-term HCl emission limits applicable to Covanta Essex's three municipal waste combustors:

(1) 21.6 lb/hour derived from the Prevention of Significant Deterioration ("PSD") construction permit, monitored by annual stack emission testing, based on the average of three Department validated stack test runs.[94]

(2) 29 ppmvd @ 7% O2 or 5% of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume), whichever is less stringent, derived from the NSPS, 40 C.F.R. part 60, Subpart Cb (40 C.F.R. § 60.33b(b)(3)(ii) and § 62.14103(b)(2)), monitored by annual stack testing.[95]

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[91] 42 U.S.C. § 7661c(c).
[92] 40 C.F.R. § 70.6(a)(3)(i)(B).
[93] *Id.* § 70.6(c)(1). *See also Sierra Club v. EPA*, 536 F.3d 673, 677 (D.C. Cir. 2008) ("[A] monitoring requirement insufficient 'to assure compliance' with emission limits has no place in a permit unless and until it is supplemented by more rigorous standards.").
[94] Pre-Draft Permit, Facility Specific Requirements, at 45, 86, 127.
[95] *Id.* at 50, 91, 132.

While the first limit, derived from Covanta's PSD permit, is expressly defined as an hourly limit, the second limit, derived from the federal NSPS, does not specify an averaging period and thus applies instantaneously, at all times. The annual testing requirement associated with these hourly and instantaneous limits cannot assure Covanta's ongoing compliance as mandated by Title V and the federal Title V regulations. For example, stack tests from 2015 to 2020 show that HCl emissions ranged from 0.527 to 10 ppm @ 7% O2, and from 0.284 to 5.2 lb/hr.[96] Not only does annual testing provide an extremely limited snapshot of the facility's operations that cannot account for variability in the facility's HCl emissions, but the annual test fails to provide any indication of whether the facility's three municipal waste combustors are meeting the HCl limits during startup and shutdown. The total absence of any HCl monitoring during startup and shutdown is expressly acknowledged in the Pre-Draft Permit, which identifies the hourly PSD HCl limit as being applicable during startup and shutdown but states that the monitoring requirement during such periods is "None."[97]

Under similar circumstances, EPA objected to the Title V permit for the Montgomery County Resource Recovery Facility ("MCRRF") in Maryland. Specifically, EPA agreed with Petitioners that the frequency of monitoring must bear some relationship to the averaging time used to demonstrate compliance, and accordingly, concluded "that the annual stack test required by the Permit, by itself, is insufficient to assure compliance with the hourly HCl emission limit."[98]

Following EPA's objection, the Maryland Department of the Environment revised MCRRF's Title V permit to require installation of a HCl CEMS and to identify the HCl CEMS as the facility's compliance demonstration method for the hourly HCl limit.[99] Likewise, at least one other of Covanta's facilities, Covanta Delaware Valley LP in Chester, Pennsylvania, also utilizes a HCl CEMS.[100]

It is plainly feasible for the Covanta Essex facility to utilize a HCl CEMS, given the use of HCl CEMS at the MCRFF and Covanta Delaware Valley facilities. Moreover, in light of EPA's 2020 objection to the Title V permit for MCRRF, a HCl CEMS is required to satisfy Title V's compliance assurance monitoring requirements. A HCl CEMS is particularly necessary given that, as noted above, Covanta Essex is the highest emitter of HCl in Essex County and second highest emitter of HCl in all of New Jersey.[101] Not only would a HCl CEMS provide data on a frequency that is relevant to the time period over which compliance with the HCl limit is measured, but a HCl CEMS also would demonstrate compliance with the PSD HCl limit during

[96] Waste Application at 104–110.
[97] Pre-Draft Permit, Facility-Specific Requirements, at 53, 56, 94, 97,135, 138.
[98] Order Granting a Petition for Objection to Permit at 9, *Montgomery Cnty. Res. Recovery Facility* (EPA Dec. 11, 2020), https://www.epa.gov/sites/default/files/2020-12/documents/montgomery_response2019.pdf.
[99] Part 70 Operating Permit for MCRRF, at 47 (attached as Exhibit 15).
[100] *See* Chester Permit (Exhibit 8).
[101] Earthjustice et al., *supra* note 18, at 5, 9.

startup and shutdown. **Covanta must install and utilize a HCl CEMS and the Air Permit must include the HCl CEMS as the compliance demonstration method.**

B. A Mercury CEMS Is Needed to Assure Compliance with the Applicable Short-Term Mercury Limits.

Mercury, which causes a wide range of adverse health effects including neurological damage, kidney damage, and birth defects, is among the most toxic substances emitted from the Covanta Essex facility. Mercury exposure is especially dangerous for young children and pregnant women, as it can affect the developing brain and nervous system. According to the Pre-Draft Permit, the Covanta Essex facility releases up to 240 pounds of mercury into the air each year.[102] Ensuring Covanta Essex's mercury emissions are controlled to the maximum degree possible should be among Covanta's highest priorities. A key action that Covanta could take to ensure maximum mercury control is to install a mercury CEMS.

A Mercury CEMS would provide a reliable and cost-effective means for Covanta to ensure that its facility complies with applicable short-term mercury limitations on a continuous basis. According to the Pre-Draft Permit, the facility's three municipal waste combustors are subject to the following short-term mercury emission limits:

(1) Mercury Emissions <= 28 ug/m^3 corrected to 7% O2, based on stack emission tests, or >= 95 percent reduction based on stack emission tests, derived from the PSD permit. Compliance is determined via annual stack testing, though quarterly stack tests are required if any stack test exceeds the applicable limit.[103]

(2) Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm @ 7% O2, derived from the PSD permit. Compliance is determined via an annual stack test, but no monitoring during startup[104] or shutdown[105] despite being applicable during those periods.[106]

(3) Mercury Emissions <= 0.05 mg/dscm @ 7% O2 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7% oxygen, whichever is less stringent, derived from the federal NSPS, 40 CFR 60.33b(a)(3)] &. [40 CFR 62.14103(a)(3). Compliance is determined via annual stack testing.[107]

Limit (2) is expressly framed as an hourly limit. Limits (1) and (3) do not specify an averaging period and thus should be interpreted as applying on an instantaneous basis. As

[102] Pre-Draft Permit, Section A, Pollutant Emissions Summary, at 5 tbl.3 (0.12 tpy).
[103] Pre-Draft Permit, Facility-Specific Requirements, at 31, 72, 113.
[104] *Id.* at 53, 94, 135.
[105] *Id.* at 56, 97, 138.
[106] *Id.* at 46, 87, 128.
[107] *Id.* at 50, 91, 132.

recorded in the Pre-Draft Permit, Limit (1) specifies that the limit is "based on stack emission tests." This language impermissibly restricts the evidence that can be used to demonstrate that Covanta is not complying with this limit and it must be removed. It is unclear whether this language appears in the PSD permit itself since, according to DEP, the PSD permit has been "destroyed."[108]

For all of these short-term mercury limits, the specified annual testing requirement is insufficient to assure Covanta's ongoing compliance as mandated by Title V and the federal Title V regulations. For example, stack tests from 2015 to 2020 show that mercury emissions ranged from below 0.887 to 13 ug/dscm @ 7% O2, and from below 0.000336 to 0.0046 lb/hr.[109] As with the short-term HCl limits, annual testing does not account for emissions variability that can easily result in Covanta violating mercury limits between stack tests. And, as with the short-term HCl limits, the annual testing does nothing whatsoever to assure that Covanta complies with the applicable mercury limit during startup and shutdown.[110]

A Mercury CEMS would dramatically improve Covanta's ability to track compliance with the applicable short-term mercury limits, enabling Covanta to quickly correct operational problems that increase mercury emissions. As Covanta is aware, installation of a mercury CEMS at the Covanta Essex facility is feasible, as demonstrated by its multi-year field test of a mercury CEMS at its Hillsborough County Resource Recovery Facility in Tampa, Florida. While Florida DEP ultimately allowed Covanta to remove the mercury CEMS after demonstrating that the Hillsborough facility's mercury emissions were very low, Covanta's successful field test of the mercury CEMS (from February 2012 through May 2015) demonstrates that they are feasible for use at its Covanta Essex facility.[111] Likewise, hundreds of power plants across the United States have installed mercury CEMS to comply with the monitoring requirements in the Mercury and Air Toxics Standards rule.[112]

To protect the community around the Covanta Essex facility, **Covanta must install and utilize a mercury CEMS and the Air Permit must include the mercury CEMS as the compliance demonstration method.** Continuous mercury monitoring would enable Covanta to better understand its mercury emissions and hopefully identify additional ways to reduce its emissions of this highly toxic pollutant. In addition, access to continuous mercury emissions data would serve to reassure the community that Covanta Essex is meeting its mercury emission limits at all times, including during startup and shutdown.

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[108] Dec. 6, 2022 Email Communications between Earthjustice and DEP.
[109] Waste Application at 104–110.
[110] *See id.* at 53, 56, 94, 97, 135, 138 (identifying the hourly PSD limit on emissions of mercury compounds as being applicable during startup and shutdown but stating that the monitoring requirement during such periods is "None").
[111] *See* Air Permit No. 0570261-018-AC/PSD-FL-369E, Hillsborough County Resource Recovery Facility (June 11, 2015) (attached as Exhibit 16).
[112] *See* 40 C.F.R. pt. 63, subpt. UUUUU. *See also* Zero Mercury Working Grp., *Continuous Emission Monitoring Systems for Mercury* (2013), https://www.nrdc.org/sites/default/files/int_13090401a.pdf.

C. A PM CEMS Is Needed to Assure Covanta's Compliance with the Applicable 99% PM Control Efficiency Requirement Applicable to Covanta's Baghouses and the Hourly PM2.5 Emission Limit.

Particulate matter can be very hazardous to human health. PM2.5 presents the most danger because it can bypass the body's natural defenses in the nose and throat and enter the lungs. Short-term exposure to PM2.5 can aggravate lung disease, cause asthma attacks and acute bronchitis, and increase susceptibility to respiratory infections. Long-term exposures, such as those experienced by people living for many years in areas with high particulate matter levels, are associated with problems such as reduced lung function and the development of chronic bronchitis, and even premature death. Given the serious health risks posed by PM2.5, Covanta must do everything that it can to minimize its PM2.5 to the maximum extent, including supplementing its existing PM monitoring activities with a PM CEMS.

The Pre-Draft Permit subjects Covanta Essex's three municipal waste combustors to a PM2.5 limit of 17 lb/hr, for which compliance is demonstrated via an annual stack test.[113] As with the HCl and mercury limits, the Pre-Draft Permit identifies the PM2.5 limit as applicable during startup and shutdown (and "Warm-Up") but fails to provide a method for demonstrating the facility's compliance during such periods.[114] The Pre-Draft Permit also lists a general particulate emissions limit of 0.1 gr/dscf at 12% of CO_2, also monitored by an annual stack test.[115]

Covanta Essex controls PM with baghouses that are required to achieve 99% control efficiency.[116] At present, Covanta relies on a Continuous Opacity Monitoring System ("COMS") to determine when baghouse replacement is needed.[117]

To ensure that Covanta Essex complies with the applicable PM limits and that the facility's baghouses are achieving the maximum possible reduction in PM, **Covanta must install a PM CEMS.** Combining a PM CEMS with the existing COMS would provide much more accurate and reliable detection of baghouse filter leaks. The quicker Covanta can detect filter leaks, the quicker Covanta can fix them, thereby minimizing PM emissions and reducing the risk to public health and the environment.

[113] Pre-Draft Permit, Facility Specific Requirements, at 45, 86, 127.
[114] *Id.* at 53, 56, 58, 94, 97, 135, 138.
[115] *Id.* at 22.
[116] *Id.* at 31, 45, 72, 113.
[117] Pre-Draft Permit at PDF pages 277, 279, 281 ("A change in opacity level signifies that bag replacement is required.").

V. COVANTA MUST CONTINUOUSLY MONITOR AND REPORT QUANTITIES AND CONCENTRATIONS OF HAZARDOUS CHEMICALS STORED ON SITE LIKE AMMONIA THAT COULD SPILL, LEAK, OR CAUSE ACCIDENTS.

Covanta stores aqueous ammonia in a tank on site.[118] Aqueous ammonia can ignite when it makes contact with combustible materials such as wood, paper, oil, clothing, and other substances.[119] Once heated, it can produce corrosive or toxic fumes harmful to human health when inhaled, causing injury to the respiratory tract, skin, and eyes; as a liquid, it can cause first to second degree burns to the skin.[120] Additionally, aqueous ammonia is extremely hazardous to aquatic life.[121] A spill of this chemical, depending on where it occurs in the Ironbound, has the potential not only to worsen public health and cause fires, but also to have a serious impact on the nearby Passaic River.

All Title V permits shall include "enforceable . . . standards . . . and such other conditions as are necessary to assure compliance with applicable requirements of [the CAA], including the requirements of the applicable [State] implementation plan."[122] To ensure that these standards and requirements are truly "enforceable," Congress required that "[e]ach [Title V] permit . . . shall set forth . . . monitoring . . . and reporting requirements to assure compliance with the permit terms and conditions."[123] This monitoring, recordkeeping, and reporting requirement applies to "[a]ny standard or other requirement under section 112 of the Act, including any requirement concerning accident prevention under section 112(r)(7) of the Act."[124] As relevant here, Section 112(r)(7) requires facilities "at which a regulated substance is present in more than a threshold quantity to prepare . . . a risk management plan to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the

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[118] *See* 2019 Waste Permit at 3.
[119] Nat'l Insts. of Health, PubChem Compound Summary for CID 14923, Ammonium Hydroxide § 11.1.5 Fire Hazards, https://pubchem.ncbi.nlm.nih.gov/compound/Ammonium-Hydroxide (last visited Dec. 9, 2022).
[120] *Id.* at § 11.1.6 Hazards Summary.
[121] *See* Tanner Indus., Inc., *Safety Data Sheet: Ammonium Hydroxide* 1, 6 (Nov. 1, 2018), https://www.tannerind.com/PDF/Ammonium-Hydroxide-SDS.pdf.
[122] 42 U.S.C. § 7661c(a).
[123] *Id.* § 7661c(c); *see also In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit*, 13 E.A.D. 357, 394 n.54 (EAB 2007) ("'[F]ederal enforceability' has been interpreted as requiring practical enforceability as well. That is, the permit must include conditions allowing the applicable enforcement authority to show continual compliance (or non-compliance) such as adequate testing, monitoring, and record keeping requirements").
[124] 40 C.F.R. § 70.2.

environment."[125] A Risk Management Plan ("RMP") is thus a "requirement" for which permits must include monitoring and reporting in order to ensure compliance.[126]

In New Jersey, EPA has approved DEP to implement and enforce the Chemical Accident Prevention provisions of CAA Section 112 and EPA's implementing Part 68 regulations,[127] which are incorporated by reference into New Jersey's Toxic Catastrophe Prevention Act ("TCPA").[128] The TCPA program is thus federally enforceable. Ammonia over 20,000 lbs at 20% or greater concentration is a listed substance under Section 112(r) of the Clean Air Act on Accidental Release Prevention and Risk Management Plan Rule. Aqueous ammonia is similarly listed under the TCPA as a Group II EHS for which the threshold quantity is 19,000 lb of 28% by weight or more.[129]

Covanta's Air Permit includes a general provision setting forth that Part 68 applies if the listed substance exceeds the threshold quantity, but it contains no provisions for monitoring and reporting sufficient to determine whether that threshold has been exceeded.[130] A facility's episodic assurance in a permit renewal or modification application that—at the time of the application—it is not subject to Section 112(r)(7) is not sufficient to determine whether the quantity of the substance may exceed the RMP threshold over the intervening months or years between applications. Accordingly, **the permit must include conditions requiring the monitoring and reporting of aqueous ammonia quantities and concentrations** so that DEP, EPA, and the public can ensure that Covanta is complying with any requirement over the course of the permit term, based on both the EPA and TCPA thresholds, to register and prepare an RMP.

Sufficient monitoring and reporting will be all the more necessary as the forthcoming updated version of the RMP regulations will likely require a base level of data to determine applicability.[131] For Covanta to refuse to monitor and record its ammonia levels would be contrary to the intent of the law—that monitoring and recording be performed under Title V to "assure compliance with the permit terms and conditions."[132]

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[125] 42 U.S.C. § 7412(r)(7)(B)(ii).
[126] *See also Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1018 n.3 (D.C. Cir. 2000) (quoting John S. Seitz, *Developing Approvable State Enabling Legislation Required to Implement Title V*, at 4 (Feb. 25, 1993)) ("Permits must incorporate terms and conditions to assure compliance with all applicable requirements under the Act, including . . . sections 111 and 112 . . . monitoring, recordkeeping and reporting requirements, and any other federally-recognized requirements applicable to the source.").
[127] *See generally* 40 C.F.R. pt. 68.
[128] *See* N.J.A.C. 7:31-1.1, 7:31-1.4.
[129] N.J.A.C. 7:31-6.3(a), Table 1, Part A – EHS List.
[130] *Cf.* Order Granting in Part and Denying in Part Petition for Objection to Permit at 18, *Keyspan Generation Far Rockaway Station* (EPA Sept. 24, 2004), https://www.epa.gov/sites/default/files/2015-08/documents/keyspan_decision2002.pdf (If "evidence [exists] to suggest that [a facility] is subject to section 112(r) requirements," then "its permit must include certain conditions necessary to implement and assure compliance with such requirements.").
[131] *See* Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention, 87 Fed. Reg. 53,556-01 (proposed Aug. 31, 2022).
[132] 42 U.S.C. § 7661c(c); *see also Shell Offshore*, 13 E.A.D. at 394 n.54.

The Air Permit should also incorporate, or at least reference, the mitigating measures related to aqueous ammonia in the Waste Permit.[133] These measures are relevant to the CAA chemical disaster program and thus should be in the Air Permit and not relegated solely to the Waste Permit. While these Waste Permit provisions reference Covanta's Discharge Prevention, Containment, and Countermeasure ("DPCC") Plan and Discharge Clean-up and Removal Plan, Covanta and DEP cannot solely rely on the existence of those plans to satisfy unrelated CAA requirements such as the RMP preparation requirement.[134] Moreover, DEP keeps these plans confidential, so they cannot satisfy the public availability requirements of Title V.[135]

Covanta should not wait for its aqueous ammonia to exceed regulatory thresholds, but instead start adopting some of the safety provisions of the RMP program now. For example, Covanta should conduct an Inherently Safer Technology ("IST") review that identifies all "available inherently safer technology alternatives or combinations of alternatives that minimize or eliminate the potential for an EHS release."[136] Now, under the proposed EJ Rule (and AO-25 in the interim), Covanta has a duty to the overburdened community in which it is located to not cause or contribute to adverse environmental and health impacts. The IST provides one of many ways the facility can achieve this goal: reduce the risk of chemical catastrophe by reducing or substituting the potentially dangerous or harmful chemical. At every step of this process, Covanta should make its data and findings easily accessible on its website and should solicit input from the community, as meaningful public participation and engagement cannot occur without transparency from Covanta.

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[133] *See* 2019 Waste Permit, Requirements Report, at I-16 ¶ 101.

[134] *See In re Newark Energy Ctr. Proposed Air Pollution Control Operating Permit Modification*, No. A-5794-14T1, 2017 WL 5983119, at *5 (N.J. Super. Ct. App. Div. Dec. 1, 2017) ("[T]he Spill Act's controlling provisions fail to mention permitting, and do not link the Spill Act's emergency planning and reporting obligations to a facility's eligibility for a [Title V air] permit to operate."). While DPCC plans must include a "description of all aboveground storage tanks" and their size, N.J.A.C. 7:1E-4.2(c)(1), DEP's Spill Act regulations contain no requirement to monitor, keep records, and report the quantity and concentration of tank contents. *Cf.* N.J.A.C.7:1E-2.10, 7:1E-2.15(d) (requiring recordkeeping of tank inspection, testing, and repair, but not tank contents). And since the RMP requirement is triggered by the quantity and concentration of ammonia, a DPCC plan—which does contain information about the quantity and concentration of ammonia at the facility at any given time—does not shed light on the applicability of RMP requirements.

[135] *See In re Newark Energy Ctr.*, 2017 WL 5983119, at *2 (DPCC plans "are not generally available to the public"). In contrast, any requirement in a Title V permit or related document "shall be available to the public." 42 U.S.C. § 7661b(e); *see also id.* § 7661a(b)(8) (state implementing programs must "make available to the public any permit application, compliance plan, permit, and monitoring or compliance report"); 40 C.F.R. § 70.4(b)(3)(viii) (same). Thus, provisions in a confidential DPCC plan cannot "enable . . . the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements," as required by Title V. Operating Permit Program, 57 Fed. Reg. 32,250-01, 32,251 (July 21, 1992); *see also* 40 C.F.R. § 70.6(b)(1) ("All terms and conditions in a part 70 permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Act.").

[136] DEP, Guidance for Toxic Catastrophe Prevention Act (TCPA) Inherently Safer Technology (IST) Review 2 (rev. Sept. 25, 2017), https://www.nj.gov/dep/enforcement/tcpa/downloads/istguidance_rev2.pdf; N.J.A.C. 7:31-4.12(d).

VI. COVANTA MUST EVALUATE WHAT IT CAN DO TO MINIMIZE HARMFUL EMISSIONS FROM ITS AUXILIARY BURNERS.

The auxiliary burners that Covanta Essex uses during startup burn highly polluting diesel fuel. In its 2018 Title V renewal application, Covanta explained to DEP that it was exploring the feasibility of switching to natural gas by connecting to the natural gas transmission line that runs to the fueling station installed in 2013.[137] Covanta must explore all means by which it could decrease air pollution from the auxiliary burners. Any such measures must be included as enforceable conditions in Covanta's Title V permit.

VII. THE AIR PERMIT MUST INCORPORATE ALL CONTINUING REQUIREMENTS FROM THE "PURPLE PLUME" ADMINISTRATIVE CONSENT ORDER AS ENFORCEABLE PERMIT CONDITIONS.

In October 2020, Covanta signed an Administrative Consent Order ("ACO") with DEP in which it agreed to pay penalties and take remedial steps to correct repeated violations of applicable requirements associated with a "purple plume" emanating from the facility.[138] Among other things, the ACO specifies that Covanta must (1) prepare a public outreach plan that includes procedures to provide timely updates on any operational upsets that result in permit excursions and periodic notifications to local community groups and hold bi-annual community outreach events, (2) enlist an independent waste operations consultant to review and develop new protocols for waste receipt, inspection, and handling, (3) install and operate digital cameras to monitor waste streams being tipped in the transfer house and conveyed into the boilers, (4) train employees to identify inappropriate waste material, follow best management practices, and prevent iodine from entering the facility, (5) undertake identification and estimation of air pollution emissions and air dispersion modeling of the impacts of the identified purple plumes, (6) prepare and implement a mitigation plan, and (7) file progress reports with DEP every two months. We recognize that many of these activities are already underway, and some likely have been completed. For those requirements that either have not been completed by the date that Covanta's renewal air permit is issued or that involve ongoing obligations, **such ACO obligations must be incorporated into Covanta's Title V renewal permit as enforceable permit conditions.**

The primary goal of the Title V permit program is to "assure compliance" with applicable Clean Air Act requirements, and one of the key mechanisms for achieving that goal is the inclusion of an enforceable "compliance schedule" in a source's permit.[139] If a source is not in compliance with all applicable requirements at the time of permit issuance, its compliance schedule "shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the

[137] Air Application, Response to Additional Comments (PDF page 240).
[138] *See* In re Covanta Essex Company, Newark, NJ, Administrative Consent Order entered with the Division of Air Enforcement, DEP, EA ID # NEA 200001-07736 (Oct. 2020).
[139] 42 U.S.C. § 7661c(a); *id.* § 7661(3).

source will be in noncompliance at the time of permit issuance."[140] Even for requirements with respect to which the source anticipates that it will be in compliance at the time of permit issuance, a source's Title V permit must include "operational requirements and limitations that assure compliance."[141]

Accordingly, any ACO requirement that constitutes a "remedial" measure is designed to bring the facility into compliance with a requirement but not assure ongoing compliance must be included in Covanta's Air Permit as part of the remedial compliance schedule. For example, preparing a mitigation plan and public outreach plan and identifying pollutants in the purple plume are compliance schedule requirements. On the other hand, those requirements that are intended to apply on an ongoing basis to ensure Covanta's continuing compliance with applicable air pollution requirements over the permit term must be incorporated into Covanta's Air Permit as independent and enforceable permit conditions. Examples of such requirements include implementation of waste receipt, inspection, and handling protocols and periodic employee training. Importantly, no ACO requirement that remains applicable to Covanta at the time that DEP issues the renewed Air Permit should be left out of the permit. Because the ACO is designed to achieve and maintain compliance with federally enforceable requirements in New Jersey's CAA State Implementation Plan, the ACO's requirements are "applicable requirements" for Title V purposes and Covanta's Title V permit must therefore assure the facility's compliance with those requirements.

VIII. WASTE PERMIT ISSUES

Covanta submitted its Waste Application in November 2021, but the following year Covanta submitted additional proposed changes to its Waste Permit and associated Operations and Maintenance manual in responses to DEP's Technical Notices of Deficiency.[142] These include changes to Covanta's spent baghouse handling practices, addressing an incident in which a spent baghouse full of potentially hazardous waste was mistakenly shipped to a non-hazardous waste landfill.[143] **Covanta's renewed Waste Permit must include all changes proposed after the November 2021 Application.**

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[140] 40 C.F.R. § 70.5(c)(8)(iii) (describing the requirement for a permit applicant to include a proposed compliance schedule in its permit application); *see also id.* § 70.6(c)(3) (requiring a Title V permit to include a compliance schedule).

[141] 40 C.F.R. § 70.6(a)(1). *See also* 42 U.S.C. § 7661c(a) (Title V permits must "include enforceable emission limitations and standards . . . and such other conditions as are necessary to assure compliance with applicable requirements of this chapter, including the requirements of the applicable implementation plan"); *id.* § 7661c(c) (a Title V permit must contain "inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions"); *id.* § 7661a(f) (A Title V permit must "appl[y] and ensure[] compliance with" all Clean Air Act requirements that apply to the permitted source.).

[142] *See* Letter from Patricia Earls, Covanta, to Anthony Fontana, DEP, re: Technical Notice of Deficiency (Jan. 10, 2022) (Exhibit 7).; Letter from Patricia Earls, Covanta, to Anthony Fontana, DEP, re: Second Technical Notice of Deficiency (May 10, 2022) (attached as Exhibit 17).

[143] *See* Letter from Patricia Earls, Covanta, to Anthony Fontana, DEP, re: 15-Day Report for Incident Reported on June 4, 2021 (June 25, 2021) (attached as Exhibit18).

In addition, the Waste Permit must improve waste inspection protocols to ensure that prohibited waste is not thrown into the boilers. The inadequacy of Covanta's current practice is highlighted by the purple plume saga, in which Covanta was unable to prevent the purple plumes or locate their source for months. While the ACO required Covanta to take additional waste inspection measures to prevent future burning of purple plume-causing iodinated waste, those measures do not appear strong enough to ensure that Covanta never burns iodinated waste—or other, less conspicuous prohibited waste—again. For example, in response to the ACO, Covanta says it is now conducting throwdown inspections of all hospital waste.[144] But, according to Covanta, the purple plume came from an industrial source, not a hospital. **Covanta should at the very least conduct throwdown inspections of all non-residential loads.**

While Covanta reports that after the ACO it upgraded two of its tipping floor cameras for "greater visual observation of loads" and storage of video recordings for up to 40 days, fewer than half of its cameras are of this upgraded variety, and the cameras appear to be used for only after-the-fact investigations after a prohibited item has already been burned.[145]

Materials Recovery Facilities use technology to sort different types of recyclable and non-recyclable waste to their proper destination, so there is no excuse for Covanta to push piles of waste into boilers without proper sorting and inspection, particularly under the EJ Law and AO-25. **The Waste Permit should require improved waste inspection procedures, and these measures must also be incorporated into the Air Permit as enforceable conditions because the composition of the waste affects air emissions.**

IX. CONCLUSION

The EJ Law and AO-25 compel Covanta to go beyond the bare minimum. The renewed Air and Waste Permits must take the measures recommended above, and all other feasible measures, to protect the people of the Ironbound from additional negative and disproportionate impacts from Covanta's pollution.

Sincerely,

/s/ Jonathan Smith
Jonathan Smith
Casandia Bellevue
Earthjustice
jjsmith@earthjustice.org
212-845-7379

/s/ Keri Powell
Keri Powell
Of Counsel, Earthjustice
Powell Environmental Law
kpowell@powellenvironmentallaw.com
917-573-885

On behalf of the Ironbound Community Corporation

[144] *See* Letter from David Blackmore, Covanta, to Jeffrey Meyer, DEP, re: Halogenated Waste Pollution Prevention Plan, at § 4.1 (July 29, 2021).
[145] *See* Letter from David Blackmore, Covanta, to Jeffrey Meyer, DEP, re: ACO Progress Report #13, at § G (Nov. 1, 2022).

List of Exhibits:

Exhibit 1: EPA, EJSCREEN Report (Version 2018), "the User Specified Area, New Jersey, EPA Region 2" (generated Oct. 23, 2019).

Exhibit 2: DEP, Overburdened Community Stressor Summary for Block Group 340130075012 (June 2, 2022).

Exhibit 3: Pre-Draft of Air Pollution Control Operating Permit Renewal, Covanta Essex (Oct. 11, 2019).

Exhibit 4: Title V Air Operation Permit Renewal, Palm Beach Energy Renewable Park, Sec. III: Emissions Units and Specific Conditions (Sept. 1, 2016).

Exhibit 5: Pa. DEP, Technical Support Document for Additional RACT Requirements for Major Sources of NOx and VOCs for the 2015 Ozone NAAQS (Apr. 2022).

Exhibit 6: Ozone Transport Comm'n Station & Area Sources Comm., Municipal Waste Combustor Workgroup Report (Apr. 2022).

Exhibit 7: Letter from Patricia Earls, Covanta, to Anthony Fontana, DEP, re: Technical Notice of Deficiency (Jan. 10, 2022).

Exhibit 8: Title V State Operating Permit, Covanta Delaware Valley (Sept. 2, 2016).

Exhibit 9: Renewable Operating Permit, Detroit Renewable Power (Sept. 16, 2014).

Exhibit 10: Federal Operating Permit, Covanta Fairfax (June 10, 2016).

Exhibit 11: Title V Air Operation Permit Renewal, Pinellas County Resource Recovery Facility (Sept. 27, 2016).

Exhibit 12: EPA, Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs, EPA-HQ-OAR-2016-0186-002.

Exhibit 13: Petition for Rulemaking to Eliminate Startup, Shutdown, and Malfunction Exemptions in Clean Air Act Section 111 Regulations (Sept. 13, 2022).

Exhibit 14: Examples of NSPS and NESHAPs 2022.

Exhibit 15: Part 70 Operating Permit for Montgomery County Resource Recovery Facility (June 20, 2022) [Excerpt].

Exhibit 16: Air Permit No. 0570261-018-AC/PSD-FL-369E, Hillsborough County Resource Recovery Facility (June 11, 2015).

Exhibit 17: Letter from Patricia Earls, Covanta Essex Co., to Anthony Fontana, DEP, re: Second Technical Notice of Deficiency (May 10, 2022).

Exhibit 18: Letter from Patricia Earls, Covanta Essex Co., to Anthony Fontana, DEP, re: 15-Day Report for Incident Reported on June 4, 2021 (June 25, 2021).

Exhibit 1

EJSCREEN Report (Version 2018)

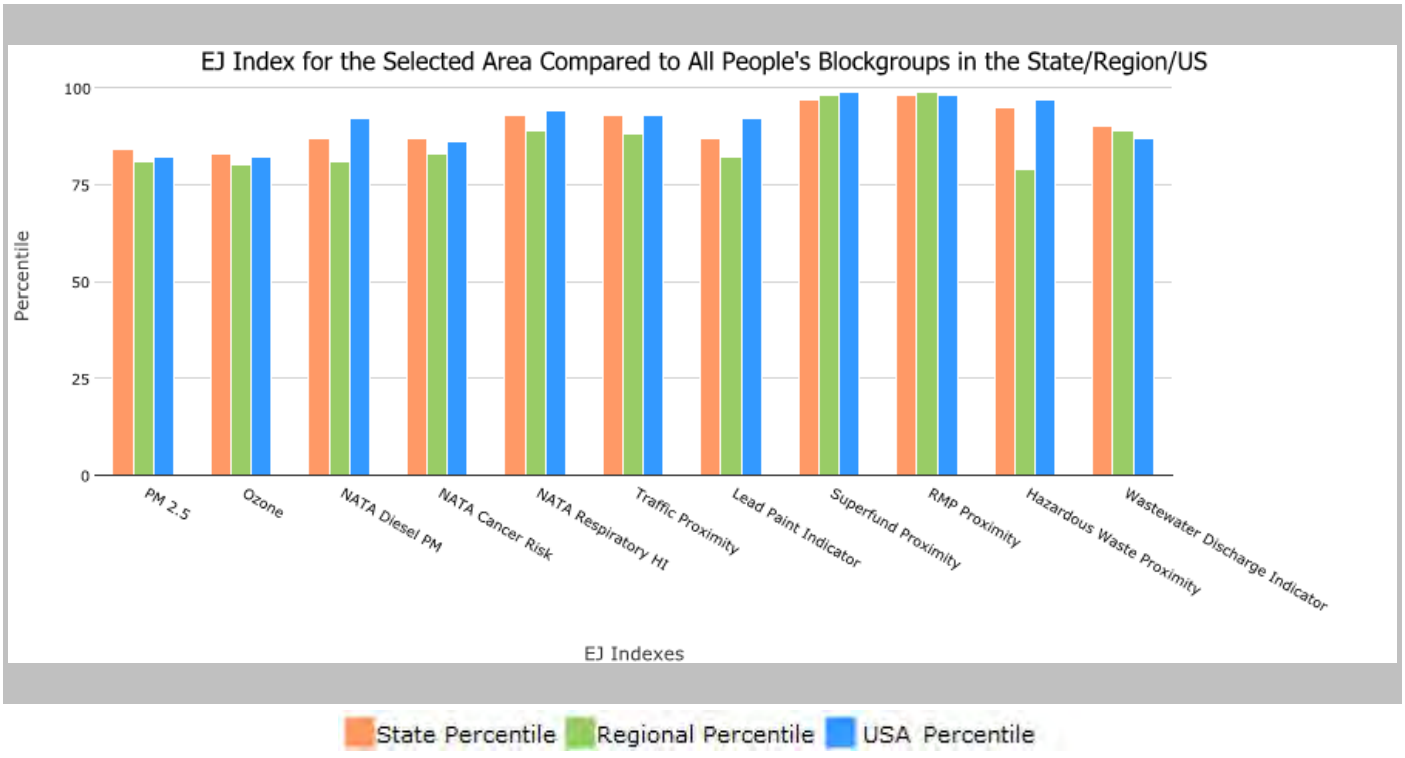
the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 58,611

Input Area (sq. miles): 6.69

Ironbound

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	84	81	82
EJ Index for Ozone	83	80	82
EJ Index for NATA* Diesel PM	87	81	92
EJ Index for NATA* Air Toxics Cancer Risk	87	83	86
EJ Index for NATA* Respiratory Hazard Index	93	89	94
EJ Index for Traffic Proximity and Volume	93	88	93
EJ Index for Lead Paint Indicator	87	82	92
EJ Index for Superfund Proximity	97	98	99
EJ Index for RMP Proximity	98	99	98
EJ Index for Hazardous Waste Proximity	95	79	97
EJ Index for Wastewater Discharge Indicator	90	89	87



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2018)

the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 58,611

Input Area (sq. miles): 6.69

Ironbound



Sites reporting to EPA	
Superfund NPL	2
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	19

EJSCREEN Report (Version 2018)

the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 58,611

Input Area (sq. miles): 6.69

Ironbound

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	9.8	9.43	77	9.21	69	9.53	53
Ozone (ppb)	42	43.6	17	41.9	47	42.5	44
NATA* Diesel PM (µg/m^3)	2.3	1.31	88	1.88	70-80th	0.938	95-100th
NATA* Cancer Risk (lifetime risk per million)	58	42	94	44	80-90th	40	90-95th
NATA* Respiratory Hazard Index	5.1	2.1	98	2.4	95-100th	1.8	95-100th
Traffic Proximity and Volume (daily traffic count/distance to road)	1600	660	89	1800	79	600	91
Lead Paint Indicator (% Pre-1960 Housing)	0.6	0.41	68	0.51	56	0.29	82
Superfund Proximity (site count/km distance)	2.1	0.43	97	0.28	98	0.12	99
RMP Proximity (facility count/km distance)	6	0.71	99	0.57	99	0.72	99
Hazardous Waste Proximity (facility count/km distance)	18	4.9	94	34	71	4.3	97
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0012	0.66	85	1.1	75	30	69
Demographic Indicators							
Demographic Index	56%	34%	79	37%	74	36%	79
Minority Population	68%	43%	73	44%	70	38%	78
Low Income Population	49%	25%	86	30%	80	34%	76
Linguistically Isolated Population	40%	7%	97	8%	96	4%	98
Population With Less Than High School Education	37%	11%	95	13%	93	13%	93
Population Under 5 years of age	7%	6%	66	6%	65	6%	61
Population over 64 years of age	7%	15%	17	15%	17	14%	20

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Exhibit 2

Overburdened Community Stressor Summary

Block Group: 340130075012 **Municipality: Newark City** **County: Essex** **OBC Criteria: Low Income and Minority**

Combined Stressor Total	
Block Group Value: Combined Stressor Total	**24**
County	15
State	13
Geographic Point of Comparison	**13**
Adverse Cumulative Stressors	**Higher than 50th Percentile**

Concentrated Areas of Air Pollution					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Ground-Level Ozone (3-year average days above standard)	**1.3**	1.0	1.3	**1.0**	**Yes**
Fine Particulate Matter ($PM_{2.5}$) (3-year average days above standard)	**0**	0	0	**0**	**Yes**
Cancer Risk from Diesel Particulate Matter (estimated cancer risk/million)	**316**	174	95	**95**	**Yes**
Cancer Risk from Air Toxics Excluding Diesel Particulate Matter (estimated cancer risk/million)	**63**	51	40	**40**	**Yes**
Non-Cancer Risk from Air Toxics (Combined Hazard Quotient)	**4.92**	3.67	2.05	**2.05**	**Yes**

Mobile Sources of Air Pollution					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Traffic – Cars, Light- and Medium-Duty Trucks (Annual Average Daily Traffic (AADT)-mile/square mile)	**275483**	38409	23623	**23623**	**Yes**
Traffic – Heavy-Duty Trucks (AADT-mile/square mile)	**25749**	293	398	**293**	**Yes**
Railways (rail mile/square mile)	**1.79**	0.0	0	**0**	**Yes**

Contaminated Sites					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Known Contaminated Sites (weighted sites/square mile)	**37.26**	3.81	1.49	**1.49**	**Yes**
Soil Contamination Deed Restrictions (percent area)	**19.23**	0.0	0	**0**	**Yes**
Ground Water Classification Exception Area/Currently Known Extent Restrictions (percent area)	**48.93**	0.0	0	**0**	**Yes**

Transfer Stations, or Other Solid Waste Facilities, Recycling Facilities, Scrap Metal Facilities					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Solid Waste Facilities (sites/square mile)	**0.93**	0	0	**0**	**Yes**
Scrap Metal Facilities (sites/square mile)	**0.72**	0	0	**0**	**Yes**

Point-Sources of Water Pollution					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Surface Water (percent of uses impaired)	**66.67**	100.0	87.99	**87.99**	**No**
Combined Sewer Overflows (count)	**3**	NA	NA	**NA**	**Yes**

May Cause Potential Public Health Impacts					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Drinking Water (count of public drinking water violations or exceedances, or percent of private well testing exceedances)	**13**	NA	NA	**NA**	**1**
Potential Lead Exposure (percent houses older than 1950)	**58.02**	50.73	15.38	**15.38**	**Yes**
Lack of Recreational Open Space (population/acre of open space within 0.25 mile)	**16.34**	29.38	19.14	**19.14**	**No**
Lack of Tree Canopy (percent lack of tree canopy)	**93**	61	63	**61**	**Yes**
Impervious Surface (percent impervious surface)	**80**	40	34	**34**	**Yes**
Flooding (Urban Land Cover) (percent urban land use area flooded)	**94**	0	2	**0**	**Yes**

Density/Proximity Stressors					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Emergency Planning Sites (sites/square mile)	**3.4**	0.17	0.05	**0.05**	**Yes**
Permitted Air Sites (sites/square mile)	**3.97**	1.5	0.8	**0.8**	**Yes**
NJPDES Sites (sites/square mile)	**0.12**	0.02	0.0	**0.0**	**Yes**

Social Determinants of Health					
Stressor	**Block Group Value**	County Non OBC 50th	State Non OBC 50th	**Geographic Point of Comparison**	**Adverse Stressor**
Unemployment (percent unemployed)	**29.38**	3.3	3.7	**3.3**	**Yes**
Education (percent without high school diploma)	**28.63**	1.49	3.59	**1.49**	**Yes**

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Data Source: Environmental Justice (EJ) Law Combined Stressor Summary for New Jersey, published 06/02/2022

Exhibit 3

State of New Jersey
Department of Environmental Protection
Air Quality, Energy and Sustainability
Division of Air Quality
Bureau of Stationary Sources
401 E. State Street, 2nd Floor, P.O. Box 420, Mail Code 401-02
Trenton, NJ 08625-0420

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

Air Pollution Control Operating Permit
Renewal

Permit Activity Number: BOP170001 **Program Interest Number: 07736**

Mailing Address	Plant Location
CARLOS ASCENCIO FACILITY MANAGER COVANTA ESSEX CO 183 RAYMOND BLVD Newark, NJ 07105	COVANTA ESSEX CO 183 Raymond Blvd Newark Essex County

Initial Operating Permit Approval Date: **July 8, 2004**

Operating Permit Approval Date: **PreDraft**

Operating Permit Expiration Date: **October 27, 2023**

AUTHORITY AND APPLICABILITY

The New Jersey Department of Environmental Protection (Department) approves and issues this Air Pollution Control Operating Permit under the authority of Chapter 106, P.L. 1967 (N.J.S.A. 26:2C-9.2). This permit is issued in accordance with the air pollution control permit provisions promulgated at Title V of the Federal Clean Air Act, 40 CFR 70, Air Pollution Control Act codified at N.J.S.A. 26:2C and New Jersey State regulations promulgated at N.J.A.C. 7:27-22.

The Department approves this operating permit based on the evaluation of the certified information provided in the permit application that all equipment and air pollution control devices regulated in this permit comply with all applicable State and Federal regulations. The facility shall be operated in accordance with the conditions of this permit. This operating permit supersedes any previous Air Pollution Control Operating Permits issued to this facility by the Department including any general operating permits, renewals, significant modifications, minor modifications, seven-day notice changes or administrative amendments to the permit.

Changes made through this permit activity are provided in the Reason for Application.

PERMIT SHIELD

This operating permit includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17.

COMPLIANCE SCHEDULES

This operating permit does not include compliance schedules as part of the approved compliance plan.

COMPLIANCE CERTIFICATIONS AND DEVIATION REPORTS

The permittee shall submit to the Department and to United States Environmental Protection Agency (US EPA) periodic compliance certifications, in accordance with N.J.A.C. 7:27-22.19. **The annual compliance certification** is due to the Department and EPA within 60 days after the end of each calendar year during which this permit was in effect. **Semi-annual deviation reports** relating to compliance testing and monitoring are due to the Department within 30 days after the end of the semi-annual period. The schedule and additional details for these submittals are available in Subject Item - FC, of the Facility Specific Requirements of this permit.

ACCESSING PERMITS

The facility's current approved operating permit and any previously issued permits (e.g. superseded, expired, or terminated) are available for download in PDF format at: http://www.nj.gov/dep/aqpp. After accessing the website, click on "Approved Operating Permits" listed under "Reports" and then type in the Program Interest (PI) Number as instructed on the screen. If needed, the RADIUS file for your permit, containing Facility Specific Requirements (Compliance Plan), Inventories and Compliance Schedules can be obtained by contacting the Helpline number given below. RADIUS software, instructions, and help are available at the Department's website at http://www.nj.gov/dep/aqpp.

HELPLINE

The Operating Permit Helpline is available for any questions at (609) 633-8248 from 9:00 AM to 4:00 PM Monday to Friday.

RENEWING YOUR OPERATING PERMIT AND APPLICATION SHIELD

The permittee is responsible for submitting a timely and administratively complete operating permit renewal application pursuant to N.J.A.C. 7:27-22.30. Only applications which are timely and administratively complete are eligible for an application shield. The details on the contents of the renewal application, submittal schedule, and application shield are available in Section B - General Provisions and Authorities of this permit.

COMPLIANCE ASSURANCE MONITORING

Facilities that are subject to Compliance Assurance Monitoring (CAM), pursuant to 40 CFR 64, shall develop a CAM Plan for modified equipment as well as existing sources. The rule and guidance on how to prepare a CAM Plan can be found at EPA's website: https://www.epa.gov/air-emissions-monitoring-knowledge-base/compliance-assurance-monitoring. In addition, CAM Plans must be included as part of the permit renewal application. Facilities that do not submit a CAM Plan may have their permit applications denied, pursuant to N.J.A.C. 7:27-22.3.

ADMINISTRATIVE HEARING REQUEST

If, in your judgment, the Department is imposing any unreasonable condition of approval, you may contest the Department's decision and request an adjudicatory hearing pursuant to N.J.S.A. 52:14B-1 et seq. and N.J.A.C. 7:27-22.32(a). All requests for an adjudicatory hearing must be received in writing by the Department within 20 calendar days of the date you receive this letter. The request must contain the information specified in N.J.A.C. 7:27-1.32 and the information on the NJ04 - Administrative Hearing Request Checklist and Tracking Form available at https://www.state.nj.us/dep/aqpp/applying.html.

If you have any questions regarding this permit approval, please call Ted Chleboski at (609) 777-0129.

Approved by:

_____
Yaso Sivaganesh

Enclosure

CC: Suilin Chan, United States Environmental Protection Agency, Region 2

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

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Section A

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

POLLUTANT EMISSIONS SUMMARY

Table 1: Total emissions from all Significant Source Operations[1] at the facility.

Facility's Potential Emissions from all Significant Source Operations (tons per year)										
Source Categories	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs* (total)	CO_2e[2]
Emission Units Summary	81.9	1249	529	980	57.9	208	208	0.441	300.8	
Batch Process Summary	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Group Summary	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Emissions	81.9	1249	529	980	57.9	208	208	0.441	300.8	378,000

Table 2: Estimate of total emissions from all Insignificant Source Operations[1] and total emissions from Non-Source Fugitives at the facility.

Emissions from all Insignificant Source Operations and Non-Source Fugitive Emissions (tons per year)									
Source Categories	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)
Insignificant Source Operations	NA	NA	NA	NA	NA	NA	NA	NA	NA
Non-Source Fugitive Emissions[3]	NA	NA	NA	NA	NA	NA	NA	NA	NA

VOC: Volatile Organic Compounds
NOx: Nitrogen Oxides
CO: Carbon Monoxide
SO_2: Sulfur Dioxide
TSP: Total Suspended Particulates
Other: Any other air contaminant regulated under the Federal CAA
PM_{10}: Particulates under 10 microns
$PM_{2.5}$: Particulates under 2.5 microns
Pb: Lead
HAPs: Hazardous Air Pollutants
CO_2e: Carbon Dioxide equivalent
N/A: Indicates the pollutant is not emitted or is emitted below the reporting threshold specified in N.J.A.C. 7:27-22, Appendix, Table A and N.J.A.C. 7:27-17.9(a).

*Emissions of individual HAPs are provided in Table 3 on the next page.
Emissions of "Other" air contaminants are provided in Table 4 on the next page.

[1] Significant Source Operations and Insignificant Source Operations are defined at N.J.A.C. 7:27-22.1.
[2] Total CO_2e emissions for the facility that includes all Significant Source Operations (emission units, batch process, group) and Insignificant Source Operations.
[3] Non-Source Fugitive Emissions are defined at N.J.A.C. 7:27-22.1 and are included if the facility falls into one or more categories listed at N.J.A.C. 7:27-22.2(a)2.

Section A

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

POLLUTANT EMISSIONS SUMMARY

Table 3: Summary of Hazardous Air Pollutants (HAP) Emissions from Significant Source Operations [4]:

HAP	TPY
Arsenic	0.0441
Beryllium	0.003
Cadmium	0.0441
Chromium	0.143
Dioxins/Furans	0.00013
TCDD (2,3,7,8)	0.000119
Hydrogen Chloride	284
Hydrogen Fluoride	10.8
Lead	0.441
Mercury	0.12
Nickel	0.039
Polycyclic Organic Matter	3.81
Formaldehyde	1.08
Carbon Tetrachloride	0.09
Trichloroethylene	0.078
Vinyl Chloride	0.036

Table 4: Summary of "Other" air contaminants emissions from Significant Source Operations:

Other Air Contaminant	TPY
Ammonia	68.9
H_2SO_4	52.5

[4] Do not sum the values below for the purpose of establishing a total HAP potential to emit. See previous page for the allowable total HAP emissions.

Section B

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

GENERAL PROVISIONS AND AUTHORITIES

1. No permittee shall allow any air contaminant, including an air contaminant detectable by the sense of smell, to be present in the outdoor atmosphere in a quantity and duration which is, or tends to be, injurious to human health or welfare, animal or plant life or property, or which would unreasonably interfere with the enjoyment of life or property. This shall not include an air contaminant that occurs only in areas over which the permittee has exclusive use or occupancy. Requirements relative only to nuisance situations, including odors, are not considered federally enforceable. [N.J.A.C. 7:27-22.16(g)8]

2. Any deviation from operating permit requirements which results in a release of air contaminants shall be reported to the Department as follows:

   a. If the air contaminants are released in a quantity or concentration which poses a potential threat to public health, welfare or the environment or which might reasonably result in citizen complaints, the permittee shall report the release to the Department:

      i. Immediately on the Department hotline at 1-(877) 927-6337, pursuant to N.J.S.A. 26:2C-19(e); and

      ii. As part of the compliance certification required in N.J.A.C. 7:27-22.19(f). However, if the deviation is identified through source emissions testing, it shall be reported through the source emissions testing and monitoring procedures at N.J.A.C. 7:27-22.18(e)3; or

   b. If the air contaminants are released in a quantity or concentration which poses no potential threat to public health, welfare or the environment and which will not likely result in citizen complaints, the permittee shall report the release to the Department as part of the compliance certification required in N.J.A.C. 7:27-22.19(f), except for deviations identified by source emissions testing reports, which shall be reported through the procedures at N.J.A.C. 7:27-22.18(e)3; or

   c. If the air contaminants are released in a quantity or concentration which poses no potential threat to public health, welfare or the environment and which will not likely result in citizen complaints, and the permittee intends to assert the affirmative defense afforded by N.J.A.C. 7:27-22.16(l), the violation shall be reported by 5:00 PM of the second full calendar day following the occurrence, or of becoming aware of the occurrence, consistent with N.J.A.C. 7:27-22.16(l). [N.J.A.C. 7:27-22.19(g)]

3. The permittee shall comply with all conditions of the operating permit including the approved compliance plan. Any non-compliance with a permit condition constitutes a violation of the New Jersey Air Pollution Control Act N.J.S.A. 26:2C-1 et seq., or the CAA, 42 U.S.C. §7401 et seq., or both, and is grounds for enforcement action; for termination, revocation and reissuance, or for modification of the operating permit; or for denial of an application for a renewal of the operating permit. [N.J.A.C. 7:27-22.16(g)1]

4. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of its operating permit. [N.J.A.C. 7:27-22.16(g)2]

5. This operating permit may be modified, terminated, or revoked for cause by the EPA pursuant to 40 CFR 70.7(g) and revoked or reopened and modified for cause by the Department pursuant to N.J.A.C. 7:27-22.25. [N.J.A.C. 7:27-22.16(g)3]

6. The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this operating permit; or to determine compliance with the operating permit. [N.J.A.C. 7:27-22.16(g)4]

7. The filing of an application for a modification of an operating permit, or of a notice of planned changes or anticipated non-compliance, does not stay any operating permit condition. [N.J.A.C. 7:27-22.16(g)5]

8. The operating permit does not convey any property rights of any sort, or any exclusive privilege. [N.J.A.C. 7:27-22.16(g)6]

9. Upon request, the permittee shall furnish to the Department copies of records required by the operating permit to be kept. [N.J.A.C. 7:27-22.16(g)7]

10. The Department and its authorized representatives shall have the right to enter and inspect any facility subject to N.J.A.C. 7:27-22, or portion thereof, pursuant to N.J.A.C. 7:27-1.31. [N.J.A.C. 7:27-22.16(g)9]

11. The permittee shall pay fees to the Department pursuant to N.J.A.C. 7:27. [N.J.A.C. 7:27-22.16(g)10]

12. Each permittee shall maintain records of all source emissions testing or monitoring performed at the facility and required by the operating permit in accordance with N.J.A.C. 7:27-22.19. Records shall be maintained, for at least five years from the date of each sample, measurement, or report. Each permittee shall maintain all other records required by this operating permit for a period of five years from the date each record is made. At a minimum, source emission testing or monitoring records shall contain the information specified at N.J.A.C. 7:27-22.19(b). [N.J.A.C. 7:27-22.19(a) and N.J.A.C. 7:27-22.19(b)]

13. a. For emergencies (as defined at 40 CFR 70.6(g)(1)) that result in non-compliance with any promulgated federal technology-based standard such as NSPS, NESHAPS, or MACT, a federal affirmative defense is available, pursuant to 40 CFR 70. To assert a federal affirmative defense, the permittee must use the procedures set forth in 40 CFR 70. The affirmative defense provisions described below may not be applied to any situation that caused the Facility to exceed any federally delegated regulation, including but not limited to NSPS, NESHAP, or MACT.

    b. For situations other than those covered above, an affirmative defense is available for a violation of a provision or condition of the operating permit only if:

        i. The violation occurred as a result of an equipment malfunction, an equipment startup or shutdown, or during the performance of necessary equipment maintenance; and

        ii. The affirmative defense is asserted and established as required by N.J.S.A. 26:2C-19.1 through 19.5 and any implementing rules. [N.J.A.C. 7:27-22.16(l)]

14. Each permittee shall meet all requirements of the approved source emissions testing and monitoring protocol during the term of the operating permit. Whenever the permittee makes a replacement, modification, change or repair of a certified CEMS or COMS that may significantly affect the ability of the system to accurately measure or record data, the permittee must recertify the CEMS or COMS in accordance with Section V.B. and Appendix E of Technical Manual 1005. The permittee is responsible for contacting the Emission Measurement Section to determine the need for recertification and/or to initiate the recertification process. The permittee is responsible for any downtime associated with the replacement, modification, change or repair of the CEMS or COMS. [N.J.A.C. 7:27-22.18(j)]

15. Each owner and each operator of any facility, source operation, or activity to which this permit applies is responsible for ensuring compliance with all requirements of N.J.A.C. 7:27-22. If the owner and operator are separate persons, or if there is more than one owner or operator, each owner and each operator is jointly and severally liable for any fees due under N.J.A.C. 7:27-22, and for any penalties for violation of N.J.A.C. 7:27-22. [N.J.A.C. 7:27-22.3]

16. In the event of a challenge to any part of this operating permit, all other parts of the permit shall continue to be valid. [N.J.A.C. 7:27-22.16(f)]

17. Unless specifically exempted from permitting, temporary mobile equipment for short-term activities may be periodically used at major facilities, on site for up to 90 days if the requirements listed below, (a) through (h) are satisfied.

    a. The permittee will ensure that the temporary mobile equipment will not be installed permanently or used permanently on site.

    b. The permittee will ensure that the temporary mobile equipment will not circumvent any State or Federal rules and regulations, even for a short period of time, and the subject equipment will comply with all applicable performance standards.

    c. The permittee cannot use temporary mobile equipment unless the owner or operator of the subject equipment has obtained and maintains an approved Air Pollution Control Permit, issued pursuant to N.J.A.C. 7:27-8 or 22, prior to bringing the temporary mobile equipment to operate at the major facility.

    d. The permittee is responsible for ensuring the temporary mobile equipment's compliance with the terms and conditions specified in its approved Air Pollution Control Permit when the temporary mobile equipment operates on the property of the permittee.

    e. The permittee will ensure that temporary mobile equipment utilized for short-term activities will not operate on site for more than a total of 90 days during any calendar year.

    f. The permittee will keep on site a list of temporary mobile equipment being used at the facility with the start date, end date, and record of the emissions from all such equipment (amount and type of each air contaminant) no later than 30 days after the temporary mobile equipment completed its job in accordance with N.J.A.C. 7:27-22.19(i)3.

    g. Emissions from the temporary mobile equipment must be included in the emission netting analysis required of the permittee by N.J.A.C. 7:27-18.7. This information is maintained on site by the permittee and provided to the Department upon request in accordance with existing applicable requirements in the FC Section of its Title V permit.

    h. Where short-term activities (employing temporary mobile equipment) will reoccur on at least an annual basis, the permittee is required to include such activities (and the associated equipment) within one year of the first use, in its Title V permit through the appropriate modification procedures.

18. The permittee shall ensure that no air contaminant is emitted from any significant source operation at a rate, calculated as the potential to emit, that exceeds the applicable threshold for reporting emissions set forth in the Appendix to N.J.A.C. 7:27-22 or 7:27-17.9(a), unless emission of the air contaminant is authorized by this operating permit. [N.J.A.C. 7:27-22.3(c)]

19. Consistent with the provisions of N.J.A.C. 7:27-22.3(e), the permittee shall ensure that all requirements of this operating permit are met. In the event that there are multiple emission limitations, monitoring, recordkeeping, and/or reporting requirements for a given source operation, the facility must comply with all requirements, including the most stringent.

20. Consistent with the provisions of N.J.A.C. 7:27-22.9(c), the permittee shall use monitoring of operating parameters, where required by the compliance plan, as a surrogate for direct emissions testing or monitoring, to demonstrate compliance with applicable requirements.

21. The permittee is responsible for submitting timely and administratively complete operating permit applications:

Administrative Amendments [N.J.A.C. 7:27-22.20(c)];
Seven-Day Notice changes [N.J.A.C. 7:27-22.22(e)];
Minor Modifications [N.J.A.C. 7:27-22.23(e)];
Significant Modifications [N.J.A.C. 7:27-22.24(e)]; and
Renewals [N.J.A.C. 7:27-22.30(b).

22. The operating permit renewal application consists of a RADIUS application and the application attachment available at the Department's website http://www.nj.gov/dep/aqpp/applying.html (Attachment to the RADIUS Operating Permit Renewal Application). Both the RADIUS application and the Application Attachment, along with any other supporting documents must be submitted using the Department's Portal at: http://njdeponline.com/. The application is considered timely if it is received at least 12 months before the expiration date of the operating permit. To be deemed administratively complete, the renewal application shall include all information required by the application form for the renewal and the information required pursuant to N.J.A.C. 7:27-22.30(d). However, consistent with N.J.A.C. 7:27-22.30(c), the permittee is encouraged to submit the renewal application at least 15 months prior to expiration of the operating permit, so that any deficiencies can be identified and addressed to ensure that the application is administratively complete by the renewal deadline. Only renewal applications which are timely and administratively complete are eligible for an application shield.

23. Except as allowed in Technical Manual 1005, or otherwise allowed by the Department in this permit or in written guidelines/ procedures issued or approved by the Department, process monitors required by the Compliance Plan included in this permit must be operated at all times when the associated process equipment is operating. The permittee must keep a service log to document any outage.

24. Consistent with the provisions of N.J.A.C. 7:27-22.3(s), Except as otherwise provided in this subchapter, the submittal of any information or application by a permittee including, but not limited to, an application or notice for any change to the operating permit, including any administrative amendment, any minor or significant modification, renewal, a notice of a seven-day notice change, a notice of past or anticipated noncompliance, does not stay any operating permit condition, nor relieve a permittee from the obligation to obtain other necessary permits and to comply with all applicable Federal, State, and local requirements.

25. For all source emissions testing performed at the facility, the phrase "worst case conditions without creating an unsafe condition" used in the enclosed compliance plan is consistent with EPA's National Stack Testing Guidance, dated April 27, 2009, where all source emission testing performed at the facility shall be under the representative (normal) conditions that:

    i. Represent the range of combined process and control measure conditions under which the facility expects to operate (regardless of the frequency of the conditions); and

    ii. Are likely to most challenge the emissions control measures of the facility with regard to meeting the applicable emission standards, but without creating an unsafe condition.

26. A Permittee may seek the approval of the Department for a delay in testing required pursuant to this permit by submitting a written request to the appropriate Regional Enforcement Office in accordance with N.J.A.C. 7:27-22.18(k). A Permittee may also seek advanced approval for a longer period for submittal of a source emissions test report required by the permit by submitting a request to the Department's Regional Enforcement Office in accordance with N.J.A.C. 7:27-22.19. [N.J.A.C. 7:27-22.18(k) and N.J.A.C. 7:27-22.19]

27. Applicable requirements derived from an existing or terminated consent decree with EPA will not be changed without advance consultation by the Department with EPA. N.J.A.C. 7:27-22.3(uu).

Section C

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

STATE-ONLY APPLICABLE REQUIREMENTS

N.J.A.C. 7:27-22.16(b)5 requires the Department to specifically designate as not being federally enforceable any permit conditions based only on applicable State requirements. The applicable State requirements to which this provision applies are listed in the table titled "State-Only Applicable Requirements."

STATE-ONLY APPLICABLE REQUIREMENTS

The following applicable requirements are not federally enforceable:

SECTION	SUBJECT ITEM	ITEM #	REF. #
B	---	1	---
B	---	13b	---
D	FC	---	3
D	FC	---	9

Section D

Facility Name: COVANTA ESSEX CO
Program Interest Number: 07736
Permit Activity Number: BOP170001

FACILITY SPECIFIC REQUIREMENTS AND INVENTORIES

FACILITY SPECIFIC REQUIREMENTS PAGE INDEX

Subject Item and Name — **Page Number**

Facility (FC):

FC 1

Insignificant Sources (IS):

IS NJID	IS Description	
IS1	No. 2 Fuel Oil Tanks (<10,000 Gallons Capacity)	5
IS2	Fuel Oil Tank (>10,000 Gallons Capacity)	6

Groups (GR):

GR NJID	GR Designation	GR Description	
GR1	NSPS Sub A	Equipment Subject to Federal NSPS Requirements	8

Emission Units (U):

U NJID	U Designation	U Description	
U1	MWC #1	Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF	18
U2	MWC#2	Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF	59
U3	MWC#3	Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF	100
U6	Lime Silo A	Lime Storage Silo A (E4) controlled by filter CD1013	141
U7	Lime Silo B	Lime Storage Silo B (E5) controlled by filter CD1014	144
U8	Lime Silo C	Lime Storage Silo C (E6) controlled by filter CD1015	147
U9	Slaker A	Lime Slaker Vent A (E9)	150
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U11	Carbon Silo	Activated Carbon Storage Silo (E14) controlled by filter CD1020	154
U12	Flyash Cond	Flyash Conditioning Room (E12, E13) controlled by filters CD1017, 1018 & 1019	158
U13	Em Generator	7.4 MMBtu/hr, 740 KW Diesel Engine-driven Emergency Generator (E7)	161
U14	Em FW Pump	1.59 MMBtu/hr, 240 BHP Diesel Engine-driven Emergency Fire Pump (E8)	167
U15	Ash Convey	Ash and Metals Recovery System (E16, E17, E21-E30), controlled by particulate filter CD1022	173

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/201

New Jersey Department of Environmental Protection
Reason for Application

Permit Being Modified

Permit Class: BOP **Number:** 90003

Description of Modifications:

Title V Air Permit Renewal

The following changes are made at renewal:
- Permit structure changes for simplicity and clarity include permitting each MWC under separate emission unit (U1, U2 and U3)
-update unsteady-state and malfunction scenarios at U1, U2 and U3
-Delete electrostatic precipitators and associated requirements at U1, U2 and U3 since baghouses are fully operational
-Delete equipment E31, Re-Feed Chute, and E32, permitted under U15 (OS31 and OS32)
-Replace components of the non-ferrous metals recovery system for improved metals recovery.

Minor Modification application BOP180001 is combined under this renewal permit
-Revise carbon injection rate for U1, U2 and U3 based on environmental improvement pilot study (EIPT) results
-Revise emission limits (formaldehyde and VOC, carbon tetrachloride, trichloroethylene, vinyl chloride) as a result of rule revisions at N.J.A.C.7:27-17.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Subject Item: **FC**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	General Provisions: The permittee shall comply with all applicable provisions of N.J.A.C. 7:27-1. [N.J.A.C. 7:27- 1]	None.	None.	None.
2	Control and Prohibition of Open Burning: The permittee is prohibited from open burning of rubbish, garbage, trade waste, buildings, structures, leaves, other plant life and salvage. Open burning of infested plant life or dangerous material may only be performed with a permit from the Department. [N.J.A.C. 7:27- 2]	None.	None.	Obtain an approved permit: Prior to occurrence of event (prior to open burning). [N.J.A.C. 7:27- 2]
3	Prohibition of Air Pollution: The permittee shall not emit into the outdoor atmosphere substances in quantities that result in air pollution as defined at N.J.A.C. 7:27-5.1. [N.J.A.C. 7:27- 5]	None.	None.	None.
4	Prevention and Control of Air Pollution Control Emergencies: Any person responsible for the operation of a source of air contamination set forth in Table 1 of N.J.A.C. 7:27-12 is required to prepare a written Standby Plan, consistent with good industrial practice and safe operating procedures, and be prepared for reducing the emission of air contaminants during periods of an air pollution alert, warning, or emergency. Any person who operates a source not set forth in Table 1 of N.J.A.C. 7:27-12 is not required to prepare such a plan unless requested by the Department in writing. [N.J.A.C. 7:27-12]	None.	None.	Comply with the requirement: Upon occurrence of event. Upon proclamation by the Governor of an air pollution alert, warning, or emergency, the permittee shall put the Standby Plan into effect. In addition, the permittee shall ensure that all of the applicable emission reduction objectives of N.J.A.C. 7:27-12.4, Table I, II, and III are complied with whenever there is an air pollution alert, warning, or emergency. [N.J.A.C. 7:27-12]
5	Emission Offset Rules: The permittee shall comply with all applicable provisions of Emission Offset Rules. [N.J.A.C. 7:27-18]	None.	None.	None.
6	Emission Statements: The Permittee shall comply with all the applicable provisions of N.J.A.C. 7:27-21. [N.J.A.C. 7:27-21]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
7	Compliance Certification: The permittee shall submit an annual Compliance Certification for each applicable requirement, pursuant to N.J.A.C. 7:27-22.19(f). [N.J.A.C. 7:27-22]	None.	None.	Submit an Annual Compliance Certification: Annually to the Department and to EPA within 60 days after the end of each calendar year during which this permit was in effect. The Compliance Certification shall be certified pursuant to N.J.A.C. 7:27-1.39 by the responsible official and submitted electronically through the NJDEP online web portal. The certification should be printed for submission to EPA. The NJDEP online web portal can be accessed at: http://www.state.nj.us/dep/online/. The Compliance Certification forms and instructions for submitting to EPA are available by selecting Documents and Forms and then Periodic Compliance Certification. [N.J.A.C. 7:27-22]
8	Prevention of Air Pollution from Consumer Products and Architectural Coatings: The permittee shall comply with all applicable provisions of N.J.A.C. 7:27-24 and [N.J.A.C. 7:27-23]	None.	None.	None.
9	Any operation of equipment which causes off-property effects, including odors, or which might reasonably result in citizen's complaints shall be reported to the Department to the extent required by the Air Pollution Control Act, N.J.S.A. 26:2C-19(e). [N.J.S.A. 26: 2C-19(e)]	Other: Observation of plant operations. [N.J.S.A. 26: 2C-19(e)].	Other: Maintain a copy of all information submitted to the Department. [N.J.S.A. 26: 2C-19(e)].	Notify by phone: Upon occurrence of event. A person who causes a release of air contaminants in a quantity or concentration which poses a potential threat to public health, welfare or the environment or which might reasonably result in citizen complaints shall immediately notify the Department. Such notification shall be made by calling the Environmental Action Hotline at (877) 927-6337. [N.J.S.A. 26: 2C-19(e)]
10	Prevention of Significant Deterioration: The permittee shall comply with all applicable provisions of Prevention of Significant Deterioration (PSD). [40 CFR 52.21]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
11	The permittee shall comply with all applicable provisions of National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Asbestos, Subpart M. [40 CFR 61]	Other: Comply with 40 CFR 61.145 and 61.150 when conducting any renovation or demolition activities at the facility. [40 CFR 61].	Other: Comply with 40 CFR 61.153 when conducting any renovation or demolition activities at the facility. [40 CFR 61].	Comply with the requirement: Upon occurrence of event. The permittee shall comply with 40 CFR 61.153 when conducting any renovation or demolition activities at the facility. [40 CFR 61]
12	Protection of Stratospheric Ozone:1) If the permittee manufactures, transforms, destroys, imports, or exports a Class I or Class II substance, the permittee is subject to all the requirements as specified at 40 CFR 82, Subpart A; 2) If the permittee performs a service on motor "fleet" vehicles when this service involves an ozone depleting substance refrigerant (or regulated substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified at 40 CFR 82, Subpart B. 3) The permittee shall comply with the standards for labeling of products containing or manufactured with ozone depleting substances pursuant to 40 CFR 82, Subpart E. 4). The permittee shall comply with the standards for recycling and emission reductions of Class I and Class II refrigerants or a regulated substitute substance during the service, maintenance, repair, and disposal of appliances pursuant to 40 CFR 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B. 5) The permittee shall be allowed to switch from any ozone depleting substance to any alternative that is listed in the Significant New Alternative Program (SNAP) promulgated pursuant to 40 CFR 82, Subpart G. [40 CFR 82]	Other: Comply with 40 CFR 82 Subparts A, B, E, F, and G. [40 CFR 82].	Other: Comply with 40 CFR 82 Subparts A, B, E, F, and G. [40 CFR 82].	Comply with the requirement: Upon occurrence of event. The permittee shall comply with 40 CFR 82 Subparts A, B, E, F, and G. [40 CFR 82]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
13	Deviation Reports: The permittee shall submit to the Department a certified six-month Deviation Report relating to testing and monitoring required by the operating permit. [N.J.A.C. 7:27-22.19(d)3], [N.J.A.C.7:27-22.19(e)], and [N.J.A.C. 7:27-22.19(c)]	None.	Other: The permittee shall maintain deviation reports for a period of five years from the date each report is submitted to the Department. [N.J.A.C.7:27-22.19(a)] and [N.J.A.C. 7:27-22.19(e)].	Submit a report: As per the approved schedule. The six-month deviation reports for the period from January 1 through June 30 shall be submitted by July 30 of the same calendar year, and for the period from July 1 through December 31, shall be submitted by January 30 of the following calendar year. The annual compliance certification required by N.J.A.C.7:27-22.19(f) may also be considered as your six-month Deviation Report for the period from July 1 – December 31, if submitted by January 30 of the following calendar year. The reports shall be certified pursuant to N.J.A.C. 7:27-1.39 by the responsible official and submitted electronically through the NJDEP online web portal. The NJDEP online web portal can be accessed at: http://www.state.nj.us/dep/online/ . The Compliance Certification forms are available by selecting Documents and Forms and then Periodic Compliance Certification. [N.J.A.C. 7:27-22]
14	Used Oil Combustion: No person shall combust used oil except as authorized pursuant to N.J.A.C. 7:27-20. [N.J.A.C. 7:27-20.2]	None.	None.	Comply with the requirement: Prior to occurrence of event (prior to burning used oil) either register with the Department pursuant to N.J.A.C. 7:27-20.3 or obtain a permit issued by the Department pursuant to N.J.A.C. 7:27-8 or 7:27-22, whichever is applicable. [N.J.A.C. 7:27-20.2(d)]
15	Prevention of Accidental Releases: Facilities producing, processing, handling or storing a chemical, listed in the tables of 40 CFR Part 68.130, and present in a process in a quantity greater than the listed Threshold Quantity, shall comply with all applicable provisions of 40 CFR 68. [40 CFR 68]	Other: Comply with 40 CFR 68. [40 CFR 68].	Other: Comply with 40 CFR 68. [40 CFR 68].	Other (provide description): Other. Comply with 40 CFR 68 as described in the Applicable Requirement. [40 CFR 68]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Subject Item: **IS1 No. 2 Fuel Oil Tanks (<10,000 Gallons Capacity)**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.
2	Fuel stored in New Jersey that met the applicable maximum sulfur content standard of Tables 1A or 1B of N.J.A.C. 7:27-9.2 at the time it was stored in New Jersey may be used in New Jersey after the operative date of the applicable standard in Table 1B. [N.J.A.C. 7:27- 9.2(b)]	None.	None.	None.
3	The vapor pressure of the liquid, excluding the vapor pressure of water, shall be less than 0.02 psia at the liquid's actual temperature or at 70 degrees F, whichever is higher. [N.J.A.C. 7:27-22.1]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Subject Item: **IS2 Fuel Oil Tank (>10,000 Gallons Capacity)**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.
2	Fuel stored in New Jersey that met the applicable maximum sulfur content standard of Tables 1A or 1B of N.J.A.C. 7:27-9.2 at the time it was stored in New Jersey may be used in New Jersey after the operative date of the applicable standard in Table 1B. [N.J.A.C. 7:27- 9.2(b)]	None.	None.	None.
3	The operating temperature shall not be greater than 350 degrees F. [N.J.A.C. 7:27-22.1]	None.	None.	None.
4	The vapor pressure of the liquid, excluding the vapor pressure of water, shall be less than 0.02 psia at the liquid's actual temperature or at 70 degrees F, whichever is higher. [N.J.A.C. 7:27-22.1]	None.	None.	None.
5	The tank or vessel shall have no visible emissions, exclusive of water vapor, to the outdoor atmosphere. [N.J.A.C. 7:27-22.1]	None.	None.	None.
6	The tank or vessel shall not emit any air contaminants which may cause an odor detectable outside the property boundaries of the facility. [N.J.A.C. 7:27-22.1]	None.	None.	None.
7	The tank or vessel shall not be subject to any NESHAPS, MACT, or NSPS air pollution control standards, excluding the NSPS requirements to maintain a record of the contents of the tank or vessel, the period of storage of these contents, and the maximum true vapor pressure of the liquid stored. [N.J.A.C. 7:27-22.1]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
8	The tank's or vessel's potential to emit each TXS and each HAP does not exceed the de minimus reporting thresholds as specified in N.J.A.C. 7:27-22, Appendix. [N.J.A.C. 7:27-22.1]	None.	None.	None.
9	The percentage by weight of all HAPs collectively in the raw material stored in the tank, or mixed or blended in the vessel, is less than 1.0 percent. [N.J.A.C. 7:27-22.1]	None.	None.	None.
10	The owner or operator shall have readily available upon Department request a statement certified in accordance with N.J.A.C. 7-27-1.39, signed by the responsible official, as defined at N.J.A.C. 7:27-1.4, that: (1) specifies the contents of the tank; (2) affirms that the tank or vessel meets the applicable requirement and (3) attests that the tank or vessel is in compliance with all other applicable State or federal air pollution requirements. [N.J.A.C. 7:27-22.1]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Subject Item: **GR1 Equipment Subject to Federal NSPS Requirements**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	For equipment subject to NSPS (E1, E2, E3, E16 and E17), all requests, reports, applications, submittals, and other communications to the Administrator pursuant to Part 60 shall be submitted in duplicate to the Regional Office of US Environmental Protection Agency. Submit information to: Region II, Director, Air and Waste Management Division, US Environmental Protection Agency, 21st Floor, 290 Broadway, New York, NY 10007. [40 CFR 60.4(a)]	None.	None.	Submit a report: As per the approved schedule to EPA Region II as required by 40 CFR 60. [40 CFR 60.4(a)]
2	For equipment E1, E2, E3, E16 and E17, copies of all information submitted to EPA pursuant to 40 CFR Part 60, must also be submitted to the appropriate Regional Enforcement Office of NJDEP. [40 CFR 60.4(b)]	None.	None.	Submit a report: As per the approved schedule to the appropriate Regional Enforcement Office of NJDEP as required by 40 CFR 60. [40 CFR 60.4(b)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	The owner or operator subject to the provisions of 40 CFR Part 60 (equipment E1, E2, E3, E16 and E17) shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in section 60.14(e). The notification shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of facility before and after the change and the expected completion date of the change. Notification shall be postmarked within 60 days or as soon as practicable before any change is commenced. The Administrator may request additional relevant information subsequent to this notice. [40 CFR 60.7(a)(4)]	None.	None.	Submit notification: Upon occurrence of event to EPA Region II and the appropriate Regional Enforcement Office of NJDEP as required by 40 CFR 60.7 [40 CFR 60.7(a)(4)]
4	For equipment E1, E2, E3, E16 and E17, the owner or operator shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility, any malfunction of air pollution control equipment or any periods during which continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b)]	None.	Recordkeeping by data acquisition system (DAS) / electronic data storage upon occurrence of event , or manually in a permanently bound logbook. The records should be kept in a permanent form suitable for inspections. [40 CFR 60.7(b)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
5	For equipment E1, E2 and E3, each owner or operator required to install a continuous monitoring device shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form (see section 60.7(d)) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period. [40 CFR 60.7(c)]	None.	Other: Written records of excess emissions shall include the following information: (1) The magnitude of excess emissions computed in accordance with section 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period and excess emissions. The process operating time during the reporting period. (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted. (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments. (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.[40 CFR 60.7(c)].	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): Semi-annually on January 31 and July 31 of each year. Additionally, the report shall be submitted to the EPA Region II Administrator and be in the format specified at 40 CFR 60.7(c) and 40 CFR 60.7(d). Written reports of excess emissions shall include all the information included in the written records listed under recordkeeping requirement of this applicable requirement. [40 CFR 60.7(c)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
6	For equipment subject to NSPS CMS requirements (E1, E2 and E3): Each owner or operator required to install a continuous monitoring device shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form (see section 60.7(d)) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period. [40 CFR 60.7(c)]	None.	Other: Written records of excess emissions shall include the following information: (1) The magnitude of excess emissions computed in accordance with section 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period and excess emissions. The process operating time during the reporting period. (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted. (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments. (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.[40 CFR 60.7(c)].	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): Semi-annually beginning on the 30th day of the 6th month following initial performance tests. The report shall be postmarked by the 30th day following the end of each six-month period. The report shall be submitted to the EPA Region II Administrator and the Regional Enforcement Office of NJDEP and be in the format specified at 40 CFR Part 60.7(c) and 40 CFR Part 60.7(d). Written reports of excess emissions shall include all the information included in the written records listed under recordkeeping requirement of this applicable requirement. [40 CFR 60.7(c)]
7	For equipment E1, E2 and E3, the owner or operator shall conduct performance tests and data reduction in accordance with the test methods and procedures contained in each applicable subpart, unless otherwise specified and approved by the Administrator. [40 CFR 60.8(b)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
8	For equipment E1, E2 and E3, performance tests shall be conducted under conditions the Administrator specifies to the plant operator based on representative performance of the affected facility. Operations during periods of startup, shutdown and malfunction shall not constitute representative conditions for the purpose of the performance test nor shall emissions in excess of the level of the applicable emission limit be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. [40 CFR 60.8(c)]	None.	None.	None.
9	For equipment E1, E2 and E3, the owner or operator shall provide the Administrator at least 30 days prior notice of any performance test and shall provide adequate performance testing facilities as specified in 40 CFR Part 60.8(e). [40 CFR 60.8(d)]	None.	None.	None.
10	For equipment E1, E2 and E3, unless otherwise specified in the applicable subpart, each performance test shall consist of three separate runs using the applicable test method. [40 CFR 60.8(f)]	None.	None.	None.
11	For equipment E1, E2 and E3, compliance with NSPS standards specified in this permit, other than opacity, shall be determined only by performance tests established by 40 CFR 60.8, unless otherwise specified in NSPS. [40 CFR 60.11(a)]	None.	None.	None.
12	For equipment subject to the NSPS COM requirement (E1, E2, and E3), the owner or operator shall demonstrate compliance with NSPS opacity standards specified in 40 CFR Part 60. [40 CFR 60.11(b)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
13	For equipment required to conduct visual opacity tests (E16 and E17): The owner or operator shall demonstrate compliance with NSPS opacity standards specified in 40 CFR Part 60, unless otherwise specified and approved by the Administrator. [40 CFR 60.11(b)]	Monitored by visual determination annually, based on 6 minute blocks. Compliance with fugitive ash emission limits shall be based on a series of three one hour observations, performed annually, using EPA Reference Method 22. This is based on the requirement at 40 CFR 60.58b(k). [40 CFR 60.39b(d)]&. [40 CFR 60.11(b)]	Recordkeeping by data acquisition system (DAS) / electronic data storage annually , or manually in a permanently bound logbook. The owner or operator shall maintain records of opacity of emissions based on Method 9 observations. [40 CFR 60.13(h)]	Submit a report: Annually. The owner or operator shall submit results of Method 9 observation data to the Administrator. [40 CFR 60.11(e)(2)]
14	For equipment E1, E2, E3, E16 and E17, the NSPS opacity standard shall apply at all times except during periods of startup, shutdown, malfunctions and as otherwise specified in this permit. [40 CFR 60.11(c)]	None.	None.	None.
15	At all times, including periods of start-up, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility (equipment E1, E2, and E3), including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operation and maintenance procedures, and inspection of the source. [40 CFR 60.11(d)]	None.	None.	None.
16	No owner or operator subject to NSPS standards in Part 60, shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere. [40 CFR 60.12]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
17	Opacity: For equipment E1, E2, and E3, the owners and operators of a COMS installed in accordance with the provisions of 40 CFR 60, must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in the applicable version of PS-1 in appendix B of this part. For a COMS, the optical surfaces, exposed to the effluent gases, must be cleaned before performing the zero and upscale drift adjustments, except for systems using automatic zero adjustments. The optical surfaces must be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity. [40 CFR 60.13(d)(1)]	None.	Other: Maintain records in accordance with 40 CFR 60.7(f).[40 CFR 60.13(d)].	None.
18	Opacity: Unless otherwise approved by the Administrator, the following procedures must be followed for a COMS. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter or other related technique to produce a known obstruction of the light beam. Such procedures must provide a system check of all active analyzer internal optics with power or curvature, all active electronic circuitry including the light source and photodetector assembly, and electronic or electro-mechanical systems and hardware and or software used during normal measurement operation. [40 CFR 60.13(d)(2)]	None.	Other: Maintain records in accordance with 40 CFR 60.7(f).[40 CFR 60.13(d)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
19	Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all continuous opacity monitoring systems shall be in continuous operation for equipment E1, E2, and E3. They shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period. [40 CFR 60.13(e)(1)]	Other: See Applicable Requirement. [40 CFR 60.13(e)(1)].	Other: See Applicable Requirement. [40 CFR 60.13(e)(1)].	None.
20	Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all continuous monitoring systems measuring emissions except opacity shall be in continuous operation for equipment E1, E2, and E3. They shall complete a minimum of one cycle of operation (sampling, analyzing and data recording) for each successive 15-minute period. [40 CFR 60.13(e)(2)]	Other: See Applicable Requirement. [40 CFR 60.13(e)(2)].	Other: See Applicable Requirement. [40 CFR 60.13(e)(2)].	None.
21	All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility (equipment E1, E2, and E3) are obtained. Procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B of 40 CFR Part 60 shall be used. [40 CFR 60.13(f)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
22	For equipment E1, E2, and E3, the owner or operator shall reduce all continuous monitoring systems for measuring opacity data to 6-minute averages which shall be calculated from 36 or more data points equally spaced over each 6-minute period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. For owners and operators complying with the requirements in 40 CFR 60.7(f)(1) or (2), data averages must include any data recorded during periods of monitor breakdown or malfunction. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O2 or ng of pollutant per J of heat input). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subparts. After conversion into units of the standard, the data may be rounded to the same number of significant digits as used in the applicable subparts to specify the emission limit (e.g. rounded to the nearest 1 percent opacity). [40 CFR 60.13(h)]	None.	Other: See Applicable Requirement. [40 CFR 60.13(h)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
23	For equipment E1, E2, and E3, the owner or operator shall reduce all continuous monitoring systems (other than opacity) data to 1-hour averages which shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. For owners and operators complying with the requirements in 40 CFR 60.7(f)(1) or (2), data averages must include any data recorded during periods of monitor breakdown or malfunction. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O2 or ng of pollutant per J of heat input). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subparts. After conversion into units of the standard, the data may be rounded to the same number of significant digits as used in the applicable subparts to specify the emission limit (e.g. rounded to the nearest 1 percent opacity). [40 CFR 60.13(h)]	None.	Other: See Applicable Requirement. [40 CFR 60.13(h)].	None.
24	Changes in time periods for submittal of information and postmark deadlines set forth in this subpart, may be made only upon approval by the Administrator and shall follow procedures outlined in 40 CFR Part 60.19. [40 CFR 60.19]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Summary of Federal Rules applicable to this Emission Unit: NSPS 40 CFR Part 60 Subpart A (See GR1) NSPS 40 CFR Part 60 Subpart Cb NSPS 40 CFR Part 62 Subpart FFF PSD Regulations at 40 CFR 52 [None]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
2	STACK TESTING SUMMARY: The permittee shall conduct a stack test annually using a protocol approved by the Department to demonstrate compliance with emission limits for opacity, lead, cadmium, HCl, dioxins and furans, TSP, PM-10, PM-2.5 and mercury as specified in the compliance plan for OS Summary and OS1. For mercury, testing shall be performed at the inlet and outlet simultaneously. Conduct annual performance tests no less than 9 calendar months and no more than 15 calendar months following the previous performance test, and must complete 5 performance tests in each 5-year calendar period. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. [40 CFR 60.38b], [40 CFR 62.14109(a)] & [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s). Testing for Mercury shall be performed at the inlet and outlet simultaneously.[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 no later than 180 days prior to the testing due date or request from EMS, in writing, to use a previously approved protocol no later than 90 days prior to the testing due date. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT) that is downloaded at: http://www.epa.gov/ttnchie1/ert , unless another format is approved by EMS. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. The test shall be no less than 9 calendar months and no later than 15 months after the previous test. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. As indicated in 40 CFR 59b(g)(1), a list of the emission levels achieved during performance tests shall be included in the semi annual report submitted pursuant to 40 CFR 60.39b(d), 40 CFR 60.39b(f), and 40 CFR 14109(a). [N.J.A.C. 7:27-22.18(e) and. [N.J.A.C. 7:27-22.18(h)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	STACK TESTING SUMMARY: Conduct stack tests at least 18 months prior to the expiration of the renewed operating permit using an approved protocol to demonstrate compliance with emission limits for particulates, opacity, SO2, nitrogen oxides, SO3 + H2SO4 (as converted and expressed as H2SO4), Volatile Organic Compounds (VOC), Arsenic, Beryllium, Chromium, Nickel, Ammonia, TCDD (2,3,7,8-), polycyclic aromatic hydrocarbons (or polycyclic organic matter), Benzo (A) Pyrene, formaldehyde, Carbon tetrachloride, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, CO, HF and scrubber efficiency as specified in the compliance plan for OS Summary & OS1. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. The permittee may propose, in the stack test protocol, to use CEMS data to satisfy the stack testing requirements, for NOx, CO and/or SO2, with EMS approval. In order for EMS to approve using CEMS data at the time of the stack test, the CEMS must be certified and be in compliance with all daily, quarterly and annual quality assurance requirements. The CEMS shall monitor and record emissions in units identical to those required by the applicable stack testing conditions of this permit. CEMS data, if allowed by this permit, shall be taken at the same worst case conditions as described above. [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 at least 30 months prior to the expiration of the approved operating permit. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT), unless another format is approved by EMS. The ERT program can be downloaded at: http://www.epa.gov/ttnchie1/ert. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. [N.J.A.C. 7:27-22.18(e)] and . [N.J.A.C. 7:27-22.18(h)]

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4	Particulate Emissions <= 42.3 lb/hr based on the Maximum Gross Heat input. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
5	SO2 <= 2,000 ppmv at standard conditions. [N.J.A.C. 7:27- 7.2(b)1]	SO2: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
6	SO2 <= 1,100 lb/hr (in any 60-minute period). [N.J.A.C. 7:27- 7.2(b)2]	None.	None.	None.
7	SO2 <= 2,200 lb/hr for each MWC at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(b)2]	None.	None.	None.
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 10 mg/ft^3 at standard conditions. [N.J.A.C. 7:27-7.2(g)1]	None.	None.	None.
9	SO3 and H2SO4, as converted and expressed as H2SO4 <= 260 lb/hr in any 60-minute period. [N.J.A.C. 7:27- 7.2(g)2]	None.	None.	None.
10	SO3 and H2SO4, as converted and expressed as H2SO4 <= 520 lb/hr at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(g)2]	None.	None.	None.
11	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
12	SO2 <= 1.2 lb/MMBTU gross heat input determined as a 30-day rolling average. [N.J.A.C. 7:27-10.3(a)3]	SO2: Monitored by continuous emission monitoring system continuously. Compliance with the standard shall be determined in accordance with the provisions of 40 CFR Part 60 Subpart Da. [N.J.A.C. 7:27-10.3(b)]	SO2: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
13	Particulate Emissions <= 0.1 gr/dscf (grains including ash per cubic feet of dry flue gas at standard conditions) at 12% of CO2 excluding the contribution of auxiliary fuel. [40 CFR 52.21] and. [N.J.A.C. 7:27-11.3(a)4]	Particulate Emissions: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
14	Opacity <= 1 Ringelmann Smoke Chart , except, 1. Smoke emitted during the building of a new fire, the shade or appearance of which is not greater than Number 2 of the Ringelmann smoke chart for a period of three consecutive minutes; or ii. Emissions of such opacity within a stack or chimney to a degree greater than the emission designated as Number 2 of the Ringelmann smoke chart for a period not greater than three consecutive minutes. [N.J.A.C.7:27-11.3(b)2ii] and. [N.J.A.C. 7:27-11.3(b)3]	Opacity: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-11.3(e)] and. [N.J.A.C. 7:27-22.16(o)]	Opacity: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]
15	Particles of unburned waste or ash from the incinerator shall not be individually large enough to be visible while suspended in the atmosphere. [N.J.A.C. 7:27-11.3(c)]	None.	None.	None.
16	Odor: The incinerator operation shall not result in odors being detectable by sense of smell in any area of human use or occupancy. [N.J.A.C. 7:27-11.3(d)]	None.	None.	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
17	NOx (Total) <= 150 ppmvd @ 7% O2 based on a calendar day average. [N.J.A.C.7:27-22.16(a)] &. [N.J.A.C. 7:27-19.12(a)1]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously and calculating the average each calendar day. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
18	NOx (Total) <= 300 ppmvd @ 7% O2 based on a 1-hour average. [N.J.A.C.7:27-22.16(a)] &. [40 CFR 52.21]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
19	Opacity <= 10 % (6 minute average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The discrete block average will begin on the hour. [N.J.A.C. 7:27-22.16(e)]	Opacity: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(e)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
20	VOC (Total) <= 28 tons/yr. Total VOC emissions includes formaldehyde emissions. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
21	NOx (Total) <= 416 tons/yr. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22(16)o]	NOx (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
22	CO <= 176.3 tons/yr , based on 100 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
23	SO2 <= 326.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
24	SO3 and H2SO4, as converted and expressed as H2SO4 <= 17.5 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly an d12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
25	TSP <= 17.7 tons/yr , based on concentration limit of 12 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
26	PM-10 (Total) <= 67.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
27	PM-2.5 (Total) <= 67.7 tons/yr. PM-2.5 is assumed by the facility to be equal to PM-10. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
28	HAPs (Total) <= 100.2 tons/yr. [N.J.A.C. 7:27-22.16(a)]	HAPs (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HAPs (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
29	Arsenic compounds <= 0.0147 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
30	Beryllium compounds <= 0.001 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Beryllium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
31	Cadmium compounds <= 0.0147 tons/yr based on concentration limit of 10 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
32	Chromium compounds <= 0.0477 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
33	HCl Emissions <= 94.7 tons/yr. [N.J.A.C. 7:27-22.16(e)]	HCl Emissions: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
34	Hydrogen fluoride <= 3.6 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Hydrogen fluoride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
35	Lead compounds <= 0.147 tons/yr based on concentration limit of 100 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
36	Mercury compounds <= 0.04 tons/yr based on concentration limit of 28 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by calculations at the approved frequency using the following formula (using EPA F-Factor 14,389 dscf @ 7% O2): Hg (tons per year) = X times 1 m3/35.3 ft3 x 14389 dscf/MMBTU x 423 10E6 Btu/hr/unit x 8760 hrs/yr x (1 gram/10E6 ug) x (1 lb/454 grams) x 1 ton/2000 lb, where X equals the average of all stack test results for the calendar year expressed in ug/dscm. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system annually . [N.J.A.C. 7:27-22.16(o)]	None.
37	Nickel compounds <= 0.013 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
38	Polycyclic organic matter <= 1.27 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Polycyclic organic matter: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
39	Dioxins/Furans (Total) <= 0.0000433 tons/yr based on concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
40	TCDD Emissions (2,3,7,8-) <= 0.0000396 tons/yr. [N.J.A.C. 7:27-22.16(e)]	TCDD Emissions (2,3,7,8-): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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41	Formaldehyde <= 0.359 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
42	Carbon tetrachloride <= 0.03 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
43	Trichloroethylene <= 0.026 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
44	Vinyl chloride <= 0.012 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
45	Ammonia <= 23 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
46	Maximum Gross Heat Input <= 423 MMBTU/hr (HHV) while firing municipal solid waste (MSW) and <= 109 MMBTU/hr while firing No. 2 fuel oil. [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain initial calculations (contained in letter dated October 30, 2001). [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
47	Steam production rate <= 247,500 pounds per hour at 650 psia and 752 degrees F (nominal). [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Monitored by integrated steam flow monitor continuously , based on a 4 hour block average. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	None.
48	The amount and types of solid waste accepted and incinerated at the facility shall be consistent with the requirements identified in the facility's approved Solid Waste Facility Permit issued by the Department's Solid and Hazardous Waste Management Program pursuant to N.J.A.C. 7:26. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
49	The owner or operator shall develop a QA/QC plan for all CEMS/COMS required by this permit prepared in accordance with the NJDEP Technical Manual 1005 posted on the AQPP webpage at http://www.state.nj.us/dep/aqpp. [N.J.A.C. 7:27-22.16(a)]	Other: The QA/QC coordinator shall be responsible for reviewing the QA/QC plan on an annual basis. [N.J.A.C. 7:27-22.16(o)].	Other: Maintain readily accessible records of the QA/QC plan including QA date and quarterly reports. [N.J.A.C. 7:27-22.16(o)].	None.
50	The permittee shall request approval from the Department's Emission Measurement Section (EMS) to allow continued use of the exisitng CEMS when a change to the units of measurement is made to a permit limit. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain readily accessible records of the Permittee's written request to EMS, and the response from EMS.[N.J.A.C. 7:27-22.16(o)].	None.
51	Oxygen: The average concentration of oxygen in the flue gas at the furnace's exit shall not be less than 3% by volume measured on a dry basis (3.5% by volume measured on a wet basis) for any five minute period. If the five (5) minute average oxygen concentration in the flue gas at any furnace's exit drops below 3.0% by volume on a dry basis (3.5% on a wet basis), for more than a thirty-minute period, waste charging to the affected furnace shall cease. [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Oxygen: Monitored by continuous emission monitor continuously based on any 5 minute averaging period. [N.J.A.C. 7:27-22.16(e)]	Oxygen: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Record and maintain the details and duration of any cessation of waste charging due to low oxygen content. [N.J.A.C. 7:27-22.16(e)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
52	The Permittee shall monitor incoming waste trucks to determine whether they contain large quantities of easily discernible yard wastes, such as grass clippings, leaves, tree trimmings, bushes and shrubs and prevent bulk quantity of these wastes from being charged to the incinerators. 40 CFR 52.21 and [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
53	The rate of carbon injection >= 17 lb/hr. The carbon injection system shall be operated and maintained in accordance with the facilitiy's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. Rate of Carbon Injection: The carbon feed auger speed for each consecutive three hour period (12 to 3, 3 to 6, etc) must be maintained at or above the speed that has been determined, by actual measurement during calibration, to deliver the minimum required carbon feed rate. If the auger or M-drive malfunctions where carbon is not being recorded by the DCS, hopper fills may be used to demonstrate compliance with continuous carbon feed. Quarterly Carbon Usage: The actual total quantity of carbon used at the facility must equal or exceed the minimum required quarterly carbon usage (Qmin = R, carbon pounds per hour, multiplied by the total hours of waste feed to all three units during a calendar quarter.) [N.J.A.C. 7:27-22.16(a)]	Other: Rate of Carbon Injection: Carbon feed auger shall be continuously monitored. In addition, Hopper Fill Cycle Rate shall be 2.0 hours or less and shall also be continuously monitored. The operation below the minimum allowable carbon feed rate as indicated by the auger speed must be corrected within three hours of the start of the condition that causes the excursion so that the proper rate is restored. If the problem is not corrected within 3 hours, the waste charging to the furnace's hopper must cease until carbon feed is again at the minimum allowable rate. As an alternate, hopper fills may be used to demonstrate that the minimum allowable carbon feed is being maintained. The total time of all such excursions for each unit in a calendar quarter must not exceed 2% of the total operating time for the quarter. Quarterly Carbon Usage: Monitored by material balance quarterly: once per quarter; quarters shall begin on January 1, April 1, July 1, and October 1 of each year. Material balance shall be based on bulk deliveries of carbon and storage silo inventories. As an alternative, hopper fills, which are recorded during each shift, may be used to determine quarterly carbon usage. [N.J.A.C. 7:27-22.16(o)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. Rate of Carbon Injection: Record and maintain all alarms indicating problems with auger operation and/or speed, or with Hopper Fill Cycle Rate, all excursions and corrective actions. Quarterly Carbon Usage: DAS or manually to include the total hours of waste feed to each unit, the total combined hours, total minimum combined quantity of carbon required, and total combined amount of carbon actually used per quarter. Hopper fills also may be recorded. [N.J.A.C. 7:27-22.16(o)]	Quarterly Carbon Usage: Submit a report: On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
54	During operation, the carbon injection system operating parameter(s) that are the primary indicator(s) of the carbon mass feed rate (e.g., screw feeder setting) must equal or exceed the level established during performance tests for mercury emissions. This is as required by 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)] & [40 CFR 62.14109(b)]	Other: Monitored by carbon feed rate, as required at 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)]&[40 CFR 62.14109(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously The facility shall record the average carbon mass feed rate (in kg/hr or lb/hr) estimated for each hour of operation. This is as required at 40 CFR 60.59b(d)(4)(iii). Also, as required at 40 CFR 60.59b(d)(15), the facility shall record the dates where the carbon feed rate is less than the levels established by the performance tests for mercury and dioxins/furans. [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.
55	SO2 <= 94 ppmvd , corrected to 7% O2 based on 1-hour block average or >= 70 percent reduction based on 1-hour block average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
56	Hydrogen chloride <= 47 ppmvd , corrected to 7% O2 based on stack emission tests or >= 90 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen chloride: Monitored by stack emission testing annually, based on the average of three 1-hour tests. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Hydrogen chloride: Recordkeeping by stack test results annually. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]
57	Operating Control Efficiency >= 70 % control. Permittee shall equip and operate the facility with a vapor control system that reduces the total acid gas emissions to the outdoor atmosphere by no less than 70 percent by weight. This equipment shall be in operation at any time waste is being charged to the combustor. [N.J.A.C. 7:27-22.16(a)]	Operating Control Efficiency: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Operating Control Efficiency: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
58	Scrubbing Medium Inlet Pressure <= 3,600 inches. Lime slurry shall be the scrubbing medium. The scrubber shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the Manufacturer recommendation. [N.J.A.C. 7:27-22.16(a)]	Scrubbing Medium Inlet Pressure: Monitored by pressure measurement device daily when in operation. [N.J.A.C. 7:27-22.16(o)]	Scrubbing Medium Inlet Pressure: Recordkeeping by manual logging of parameter or storing data in a computer data system daily. Records shall be kept in a logbook or in readily available computer files. [N.J.A.C. 7:27-22.16(o)]	None.
59	Particulates Control Efficiency >= 99 %. Applicable to the baghouse. Bag cleaning, maintenance and replacement shall be conducted on a schedule specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Other: Monitored by manufacturer speicifications and recommendations to maintain the required minimum baghouse efficiency.[N.J.A.C. 7:27-22.16(o)].	Particulates Control Efficiency: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record all maintenance information. Maintain baghouse construction/design documents showing minimum efficiency. [N.J.A.C. 7:27-22.16(o)]	None.
60	THERMAL DeNOx SYSTEM: The SNCR shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
61	Mercury Emissions <= 28 ug/m^3 corrected to 7% O2, based on stack emission tests, or >= 95 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-27.4(a)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Test frequency shall be reverted to quarterly in accordance with N.J.A.C.7:27-27.4(b) if any stack test results exceed the applicable limit. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-27.4(c)]	Mercury Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-27.4(b)] and. [N.J.A.C. 7:27-27.8(a)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
62	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(c) of NSPS Subpart Eb as follows: The temperature at the particulate control device inlet shall not exceed the maximum demonstrated particulate matter control device temperature as defined in 40 CFR 60.51b by more than 17 degrees Celsius (or 31 degrees Fahrenheit), except: (1) During the annual dioxin/furan performance test the 2 weeks preceding the annual dioxin/furan performance test, no particulate matter control device temperature limitations are applicable; (2) The particulate matter control device temperature limits may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluation system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of the-art for controlling facility emissions. [40 CFR 60.34b(b)], [40 CFR 60.39b(d)] & [40 CFR 62.14104(b)]	Monitored by temperature instrument continuously, based on a 1 hour block average which shall be used to calculate 4-hour block arthithmetic avarages, based on the requirement at 40 CFR 60.58b(i)(7). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(b)]	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 4-hour block arithmetic temperature averages shall be computed and recorded and be available for submittal to the Administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(ii). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
63	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(b) of NSPS Subpart Eb as follows: No owner or operator of an affected facility shall cause it to operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load as defined in 40 CFR 60.51b, except: (1) During he annual dioxin/furan performance test and the 2 weeks preceding that test, no municipal waste combustor unit load limit is applicable; (2)The municipal waste combustor unit load limit may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the art for controlling facility emissions. [40 CFR 34b(b)], [40 CFR 60.39b(d)]& [40 CFR 62.14104(b)]	Other: The owner or operator shall operate a steam or feedwater flow meter on a continuous basis, as required at 40 CFR 60.58(i)(6)(i). Steam (or feed water flow) flow calculations as required under 40 CFR 60.58(i)(6)(i) shall be in accordance with ASME PTC 4.1-1964 (Reaffirmed 1991), Power test codes : Test Code for Steam Generating Units (with 1968 and 1969 Addenda). For design, construction, installation, calibration, and use of nozzles and orifices required in 40 CFR 60.58(i)(6)(ii), proceed in accordance with the recommendations in ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971). Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed, as stipulated at 40 CFR 58b(i)(6)(iii). Also, as stipulated at 40 CFR 58b(i)(6)(iv), all signal conversion elements associated with steam (or feedwater flow) measurements must be calibrated according to the manufacturer's instructions before each dioxin/furan performance test, and at least once per year. [40 CFR 60.39b(d)] &[40 CFR 62.14104(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously based on the requirment at 40 CFR 60.58(i)(6)(i). [40 CFR 60.39b(d)] &. [40 CFR 62.14104(b)]	None.
64	The municipal waste combustor operator training and certification shall be at least as protective as those requirements lised in 40 CFR 60.54b of Subpart Eb. [40 CFR 60.35b]	None.	None.	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
65	Each chief facility operator and shift supervisor must obtain and maintain a current provisional operator certification from either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. [40 CFR 60.35b, 40 CFR 60.39b(d), 40 CFR 60.54b] & [40 CFR 62.14105(a)]	None.	Other: The facility shall maintain the following records for a period of five years: Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have been fully certified or who are provisionally certified by the American Society of Mechanical Engineers (ASME) or an equivalent State approved certification program, including the dates of initial and renewal certifications and documentation of current certification. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have completed the EPA municipal waste combustor operator training course or a State approved equivalent course including documentation of training completion. This is based on the recordkeeping requirements at 40 CFR 60.59b(d)(12) [40 CFR 62.14105(a)].	None.
66	Each chief facility operator and shift supervisor must complete full certification or must have scheduled a full certification exam with either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. 40 CFR 60.39b(d)& [40 CFR 62.14105(b)]	None.	None.	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
67	The facility must not be operated unless one of the following persons is on duty: - a fully certified chief facility operator; - a provisionally certified chief facility operator who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF; - a fully certified shift supervisor; or - a provisionally certified shift supervisor who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF. If one of the persons listed above must leave the facility during their operating shift, a provisionally certified control room operator who is onsite may fulfill this requirement. [40 CFR 60.39b(d), 40 CFR 60.54b(i)] & [40 CFR 62.14105(c)]	None.	None.	None.
68	As further clarification to the preceding "Stand-in" Provisions, a provisionally certified control room operator can stand-in for a certified plant or shift supervisor when they are off site for periods of up to eight hours without notification of EPA, for periods up to two weeks if EPA is notified in writing, and case by case with enforcement discretion for periods longer than two weeks if EPA is notified in writing with adequate detail of the reasons for the situation and if the MWC owner demonstrates to EPA that a good faith effort is being made to correct the problem. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
69	Each chief facility operator, shift supervisor and control room operator at an affected facility must complete the EPA municipal waste combustor operator training course or the State municipal waste operator training course, except for chief facility operators, shift supervisors, and control room operators who have obtained full certification from the ASME on or before the effective date of 40 CFR 62 Subpart FFF. [40 CFR 60.39b(d), 40 CFR 60.54b] &. [40 CFR 62.14105(d)]	None.	None.	None.
70	OPERATING MANUAL: The facility must develop and update on a yearly basis a manual that must, at a minimum, address the following elements of municipal waste combustor unit operation: - A summary of the applicable standards of 40 CFR 62 Subpart FFF; - A description of basic combustion theory applicable to a MWC unit; - Procedures for receiving, handling and feeding MSW; - Procedures for MWC unit startup, shutdown and malfunction; - Procedures for maintaining proper combustion air supply levels; - Procedures for operating the MWC unit within the standards established under 40 CFR 62 Subpart FFF; - Procedures for responding to periodic upset or off-specification conditions; - Procedures for minimizing particulate matter carryover; - Procedures for handling ash; - Procedures for monitoring MWC unit emissions; - Reporting and Recordkeeping procedures. [40 CFR 60.39b(d), 40 CFR 60.54b(e)] & [40 CFR 62.14105(e)]	None.	Other: The operating manual and records of training must be available for inspection by USEPA or the Department upon request. [40 CFR 60.39b(d)] &[40 CFR 62.14105(g)].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
71	TRAINING FOR OPERATING MANUAL REVIEW: - The facility must establish a training program to review the operating manual according to the schedule specified below with each person who has responsibilities affecting the operation of the facility, including but not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Each person undergoing the manual review training shall do so no later than the dates specified below, whichever is later: - The date prior to the day the person assumes responsibilities affecting MWC unit operation; or - The date 12 months after the effective date of 40 CFR 62 Subpart FFF; or - Annually following the initial review. ACCESS TO OPERATING MANUAL: The operating manual must be kept in a location readily accessible to each person required to undergo training. [40 CFR 60.39b(d), 40 CFR 60.54b(f) & (g)] & [40 CFR 62.14105(f)]	None.	Other: The facility shall maintain records showing the names of persons who have completed a review of the operating manual including the date of initial review and subsequent annual reviews. This is based on the recordkeeping requirement at 40 CFR 50.59b(d)(13). [40 CFR 60.39b(d)] &[40 CFR 62.14105(a)].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
72	SEMI-ANNUAL REPORT: The facility shall submit a semi-annual report which shall include the following: - Information recorded which indicates the average sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature or opacity data were above the applicable limits with reasons for such exceedances and a description of the corrective action taken. - A copy of the annual test report documenting the emissions level and the corrective action taken if the test report indicates any particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride or fugitive ash emission levels that were above applicable pollutant limits. - Identification of the calendar dates when the average hourly carbon feed rate was below the required feed rate with reasons for such occurrences and a description of corrective action taken. - Identification of the calendar dates when the average hourly carbon feed rate is not operational, with reasons for such occurrences and a description of corrective action taken. This is as stated at 40 CFR 60.59b(h). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is as stated at 40 CFR 50.59(h). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
73	SEMI-ANNUAL REPORT (continued): Upon issuance of the operating permit, the semi-annual report shall include the following: - A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emission levels achieved during performance tests - A list of the highest emission level recorded for sulfur dioxide, nitrogen dioxides, carbon monoxide, municipal waste combustor load level and particulate matter control device inlet temperature. - A list of the highest opacity level measured - The total number of days that the minimum number of hours of data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level and particulate matter control device inlet temperature were not obtained for the calculation of the average emissions concentrations or parameters. - The total number of hours that data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load and particulate matter control device inlet temperature were excluded from the calculation of average emissions concentrations or parameters. This is based on the requirements of 40 CFR 59b(g)(1). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requirments at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
74	SEMI-ANNUAL REPORT (continued): -The facility shall also provide a summary report with the same data specified in the semi-annual reports for the preceding year in order to provide the Administrator with a summary of the performance of the facility over a 2 year period. This summary report shall highlight any emission or parameter level that did not achieve the required emission or parameter limits. - The facility will also include a notification of intent to begin reduced dioxin/furan performance testing schedule as allowed in 40 CFR 60.58(g)(5)(iii), i.e. NSPS Subpart Eb. These are based on the requirements of 40 CFR 60.59b(g). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requrements at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]
75	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates when any of the average emission concentrations, percent reductions, operating parameters or opacity levels are above applicable limits, with reasons for such exceedances and a description of corrective action taken. This is as stated at 40 CFR 60.59b(d)(3). [40 CFR 60.39b(d)]& [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
76	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates for which the minimum number of hours of the data specified below have not been obtained and the reasons for not obtaining sufficient data and a description of the corrective action taken: - Sulfur Dioxide emissions data - Nitrogen Oxides emissions data - Carbon Monoxide emissions data - Municipal waste combustor unit load data - Particulate matter control device temperature data This is as stated at 40 CFR 60.59b(d)(6). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
77	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data or operational data (i.e. carbon monoxide emissions, unit load and particulate matter control device temperature) have been excluded from the calculation of average emission concentration or parameters, and the reasons for excluding the data. This is as stated at 40 CFR 60.59b(d)(7). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
78	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: The results of daily drift test and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides and carbon monoxide continuous emission monitoring systems as required under 40 CFR Part 60 Appendix F, Procedure 1. This is based on the requirements at 40 CFR 60.59b(d)(8). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
79	REPORTING/RECORDKEEPING OF ANNUAL PERFORMANCE TESTS: The facility shall maintain the following records for a period of at least five years: The test reports documenting the results of all annual performance tests shall be recorded along with supporting calculations specifically as follows: - The results of all annual performance tests conducted to determine compliance with particulate matter, opacity, cadmium, lead, dioxin/furans, hydrogen chloride and fugitive ash emission limits. - The maximum demonstrated municipal waste combustor unit load and maximum demonstrated particulate matter control device temperature during dioxin/furan performance tests. This condition is based on the requirements at 40 CFR 60.59b(d)(9). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records for a period of at least 5 years from the date of record. [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Emission Unit: **U1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS1 Operation of MWC #1 at Maximum Input (423 MMBtu/hr)**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
2	VOC (Total) <= 66 ppmvd @ 7% O2 [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
3	NOx (Total) <= 95 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. Three test runs must be conducted on each unit, with ammonia injection. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	NOx (Total): Recordkeeping by stack test results prior to permit expiration date. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
4	CO <= 126 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by stack emission testing prior to permit expiration date, based on each of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
5	CO <= 400 ppmvd @ 7% O2 , based on 1-hr average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
6	CO <= 100 ppmvd @ 7% O2 (96-hour rolling average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
7	SO2 <= 75.8 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
9	TSP <= 4.4 lb/hr based on 12 mg/dscm @ 7% O2. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
10	Particulate Emissions <= 12 mg/dscm @ 7% O2 , including when soot blowing is performed. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. One of the three test runs shall be performed when soot blowing is performed. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
11	PM-10 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
12	PM-2.5 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
13	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
14	Beryllium compounds <= 0.00025 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Beryllium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
15	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
16	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
17	Chromium compounds <= 0.012 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
18	HCl Emissions <= 21.6 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
19	Hydrogen fluoride <= 0.82 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen fluoride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
20	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
21	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
22	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm @ 7% O2. [40 CFR 52.21] and . [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
23	Nickel compounds <= 0.0033 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
24	Dioxins/Furans (Total) <= 0.000011 lb/hr , based on federal concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
25	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	TCDD Emissions (2,3,7,8-): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
26	Polycyclic organic matter <= 0.29 lb/hr (or Polycyclic aromatic hydrocarbons). [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Polycyclic organic matter: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
27	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
28	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
29	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
30	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
31	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
32	Ammonia <= 5.24 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
33	Ammonia <= 20 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
34	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The continuous opacity monitoring system shall conform to Perormance Specification 1 in 40 CFR 60, appendix B. This is as required at 40 CFR 60.58b(c)(8). [40 CFR 62.14109(b)]	Opacity: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 6-minute opacity levels shall be available for submittal or review onsite by an inspector, as required at 40 CFR 60.59b(d)(i)(A). [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
35	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by stack emission testing annually, based on the average of three 1-hour tests as required at 40 CFR 60.58b(c)(11). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Opacity: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
36	Particulate Emissions <= 25 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(1)(i)] &. [40 CFR 62.14103(a)(1)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 5. Minimum sample volume shall be 1.7 cubic meters. Monitoring is based on the requirements at 40 CFR 60.58b(c)9). . See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
37	Nitrogen oxides (NOx) <= 205 ppmvd @ 7% O2 , 24-hour daily arithmetic average (midnight to midnight) 40 CFR 60.33b(d) &. [40 CFR 62.14103(d)]	Nitrogen oxides (NOx): Monitored by continuous emission monitoring system continuously, based on a 1 hour block average. Monitor as specified at 40 CFR 60.58b(h)(5). EPA Reference Method 19, section 4.1, shall be used for determining the 24-hour daily arithmetic average nitrogen oxides emission concentration. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Nitrogen oxides (NOx): Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average nitrogen oxide concentrations shall be recorded and be available for submittal or review onsite by an inspector. This is as specified at 40 CFR 60.59b(d)(2)(i)(C). [40 CFR 60.39b] &. [40 CFR 62.15109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
38	CO <= 100 ppmvd @ 7% O2. [40 CFR 60.34b(a)] &. [40 CFR 62.14104(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average which shall be used to calcuate a 4-hour block average. The continuous emission monitoring system shall be operated according to Performance Specification 4A in 40 CFR 60, appendix B. Monitoring is as specified at 40 CFR 60.58b(i)(1), 40 CFR 60.58b(i)(3), and 40 CFR 60.58b(i)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average CO concentrations shall be recorded and available for submittal to the administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(i)(D). [40 CFR 60.39b] &. [40 CFR 62.14109(a)(1)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal The semi-annual report shall include the highest emission level recorded for CO and the total number of hours that data for CO was excluded from the calculation of average emission concentrations. This is as stated at 40 CFR 60.59b(g)(1)(ii) and 40 CFR 60.59b(g)(1)(v). [40 CFR 60.39b(d)]&. [N.J.A.C. 7:27-22.16(o)]
39	Lead Emissions <= 0.4 mg/dscm @ 7% O2 40 CFR 60.33b(a)(4) &. [40 CFR 62.14103(a)(2)]	Lead Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Lead Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
40	Cadmium Emissions <= 0.035 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(2)(i) &. [40 CFR 62.14103(a)(2)]	Cadmium Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Cadmium Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: Annually. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
41	Mercury Emissions <= 0.05 mg/dscm @ 7% O2 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7% oxygen, whichever is less stringent, [40 CFR 60.33b(a)(3)] &. [40 CFR 62.14103(a)(3)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 29. Monitoring is based on the requirements of 40 CFR 60.58b(d)(2). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Mercury Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
42	SO2 <= 29 ppmvd @ 7% O2 , or 25% of the potential sulfur dioxide emission concentration (75 percent reduction by weight or volume) whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean. [40 CFR 60.33b(b)(3)(i)] &. [40 CFR 62.14103(b)(1)]	SO2: Monitored by continuous emission monitoring system continuously, based on a daily average (a 24-hour daily geometric average), or a daily geometric average percent reduction using EPA Reference Method 19. This is based on the requirement at 40 CFR 60.58b(e)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. The owner or operator shall maintain records of all 1-hour average sulfur dioxide emission concentrations. This is as specified at 40 CFR 60.59b(d)(2)(i)(B). [40 CFR 60.39b] &. [40 CFR 61.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
43	HCl Emissions <= 29 ppmvd @ 7% O2 or 5% of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume) whichever is less stringent [40 CFR 60.33b(b)(3)(ii)] &. [40 CFR 62.14103(b)(2)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Method 26 or 26A in accordance with 40 CFR 60.58b(f). The minimum sample time shall be 1 hour. See stack testing requirements in OS Summary. [40 CFR 62.14109(b)]	HCl Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]
44	Dioxins/Furans (Total) <= 30 ng/dscm @ 7% O2. 40 CFR 60.33b(c)(iii) &. [40 CFR 62.14103(c)(2)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 23. Minimum sampling time shall be 4 hours per test run. Monitoring is as required at 40 CFR 60.58b(h), except as specified at 40 CFR 62.14109(d)(1). See stack testing requirements in OS Summary. [40 CFR 62.14109(b)] &. [40 CFR 62.14109(d)(1)]	Dioxins/Furans (Total): Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9)(i). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
45	Temperature >= 1,212 degrees F. The temperature one second downstream of secondary air injection at which the furnace must operate when waste is burned, must be no less than 1,212 degrees F based on a 1-hour block average as recorded by the permanent thermocouples located at the 116' 4" elevation. (This temperature is equivalent to 1600 degrees F or greater at the combustion chamber furnace location at 79'6" elevation.) The auxilliary burner shall be placed into position and operated during steady state operation as needed to maintain temperature one second downstream of secondary air injection in the furnace greater than 1,212 degrees F as recorded by the permanent thermocouples located at the 116' 4" elevation during the combustion of waste. (The facility may conduct a temperature profile study in the future to review temperature profiles.) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Temperature: Monitored by temperature instrument continuously, based on a 1 hour block average. [N.J.A.C. 7:27-22.16(o)]	Temperature: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Maintain Furnace Temperature Monitoring Test Report documentation (December 1990) that shows temperature correlations within the furnace combustion zone. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS2 Start-Up of MWC #1**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Start-up Period: commences when the affected incinerator begins the combustion of municipal waste, including continuous, semicontinuous, or batch feeding of municipal solid waste to the furnace. Continuous burning is the continuous, semicontinuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning. The number of start-up events (not including start-up events after emergency malfunctions) shall be limited to 20 per year and the duration of each start-up period shall not exceed 3 hours. This is based on the requirement at 40 CFR 60.58b(a)(1). The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during start-up periods. 40 CFR 60.39b(d) & [N.J.A.C. 7:27-22.16(a)]	None.	Start-up Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each startup event - end time, date which will be 3 hours after the start time - No. of startup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the start time of each start-up event when the boiler is flagged as online. Maintain calculations and basis of startup emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS3 Shut-Down of MWC #1**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Shutdown Period: commences when the feeding of municipal solid waste to the hopper is terminated as a result of a shutdown. The shutdown period ends when municipal solid waste is no longer combusting on the grate. The number of shutdown events (not including shutdowns as a result of emergency malfunctions) shall be limited to 20 per year and the duration of each shutdown period shall not exceed 3 hours. The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during the shut-down periods. [N.J.A.C. 7:27-22.16(e)]	None.	Shutdown Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each shutdown event - the end time, date of the shutdown event - No. of shutdown events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the end time of each shutdown event when the boiler is flagged as offline. Maintain calculations and basis of shutdown emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS4 Warm-Up of MWC #1**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Warm up period is when the incinerator combusts only auxiliary fuel (fuel oil) and no municipal solid waste is being combusted. The warmup period begins upon initiation of auxiliary fuel combustion in furnace. The number of warmup events (not including warmup events after emergency malfunctions) shall be limited to 20 per year and the duration of the warmup period shall not exceed 7 consecutive hours per warmup event. [N.J.A.C. 7:27-22.16(a)]	None.	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time,date of each warmup event - the end time, date of the warmup event - No. of warmup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Maintain calculations of warm up period emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	Particulate Emissions <= 15.7 lb/hr based on the Maximum Gross Heat input while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
3	NOx (Total) <= 18.7 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 3.9 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 0.166 lb/hr based on sulfur content in fuel. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	TSP <= 1.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	PM-10 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-2.5 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	Maximum Gross Heat Input <= 109 MMBTU/hr (HHV) while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain calculations contained in letter dated October 30, 2001. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Summary of Federal Rules applicable to this Emission Unit: NSPS 40 CFR Part 60 Subpart A (See GR1) NSPS 40 CFR Part 60 Subpart Cb NSPS 40 CFR Part 62 Subpart FFF PSD Regulations at 40 CFR 52 [None]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
2	STACK TESTING SUMMARY: The permittee shall conduct a stack test annually using a protocol approved by the Department to demonstrate compliance with emission limits for opacity, lead, cadmium, HCl, dioxins and furans, TSP, PM-10, PM-2.5 and mercury as specified in the compliance plan for OS Summary and OS1. For mercury, testing shall be performed at the inlet and outlet simultaneously. Conduct annual performance tests no less than 9 calendar months and no more than 15 calendar months following the previous performance test, and must complete 5 performance tests in each 5-year calendar period. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. [40 CFR 60.38b], [40 CFR 62.14109(a)] & [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s). Testing for Mercury shall be performed at the inlet and outlet simultaneously.[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 no later than 180 days prior to the testing due date or request from EMS, in writing, to use a previously approved protocol no later than 90 days prior to the testing due date. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT) that is downloaded at: http://www.epa.gov/ttnchie1/ert , unless another format is approved by EMS. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. The test shall be no less than 9 calendar months and no later than 15 months after the previous test. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. As indicated in 40 CFR 59b(g)(1), a list of the emission levels achieved during performance tests shall be included in the semi annual report submitted pursuant to 40 CFR 60.39b(d), 40 CFR 60.39b(f), and 40 CFR 14109(a). [N.J.A.C. 7:27-22.18(e) and. [N.J.A.C. 7:27-22.18(h)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	STACK TESTING SUMMARY: Conduct stack tests at least 18 months prior to the expiration of the renewed operating permit using an approved protocol to demonstrate compliance with emission limits for particulates, opacity, SO2, nitrogen oxides, SO3 + H2SO4 (as converted and expressed as H2SO4), Volatile Organic Compounds (VOC), Arsenic, Beryllium, Chromium, Nickel, Ammonia, TCDD (2,3,7,8-), polycyclic aromatic hydrocarbons (or polycyclic organic matter), Benzo (A) Pyrene, formaldehyde, Carbon tetrachloride, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, CO, HF and scrubber efficiency as specified in the compliance plan for OS Summary & OS1. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. The permittee may propose, in the stack test protocol, to use CEMS data to satisfy the stack testing requirements, for NOx, CO and/or SO2, with EMS approval. In order for EMS to approve using CEMS data at the time of the stack test, the CEMS must be certified and be in compliance with all daily, quarterly and annual quality assurance requirements. The CEMS shall monitor and record emissions in units identical to those required by the applicable stack testing conditions of this permit. CEMS data, if allowed by this permit, shall be taken at the same worst case conditions as described above. [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 at least 30 months prior to the expiration of the approved operating permit. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT), unless another format is approved by EMS. The ERT program can be downloaded at: http://www.epa.gov/ttnchie1/ert. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. [N.J.A.C. 7:27-22.18(e)] and . [N.J.A.C. 7:27-22.18(h)]

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4	Particulate Emissions <= 42.3 lb/hr based on the Maximum Gross Heat input. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
5	SO2 <= 2,000 ppmv at standard conditions. [N.J.A.C. 7:27- 7.2(b)1]	SO2: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
6	SO2 <= 1,100 lb/hr (in any 60-minute period). [N.J.A.C. 7:27- 7.2(b)2]	None.	None.	None.
7	SO2 <= 2,200 lb/hr for each MWC at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(b)2]	None.	None.	None.
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 10 mg/ft^3 at standard conditions. [N.J.A.C. 7:27-7.2(g)1]	None.	None.	None.
9	SO3 and H2SO4, as converted and expressed as H2SO4 <= 260 lb/hr in any 60-minute period. [N.J.A.C. 7:27- 7.2(g)2]	None.	None.	None.
10	SO3 and H2SO4, as converted and expressed as H2SO4 <= 520 lb/hr at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(g)2]	None.	None.	None.
11	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.

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12	SO2 <= 1.2 lb/MMBTU gross heat input determined as a 30-day rolling average. [N.J.A.C. 7:27-10.3(a)3]	SO2: Monitored by continuous emission monitoring system continuously. Compliance with the standard shall be determined in accordance with the provisions of 40 CFR Part 60 Subpart Da. [N.J.A.C. 7:27-10.3(b)]	SO2: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
13	Particulate Emissions <= 0.1 gr/dscf (grains including ash per cubic feet of dry flue gas at standard conditions) at 12% of CO2 excluding the contribution of auxiliary fuel. [40 CFR 52.21] and. [N.J.A.C. 7:27-11.3(a)4]	Particulate Emissions: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
14	Opacity <= 1 Ringelmann Smoke Chart , except, 1. Smoke emitted during the building of a new fire, the shade or appearance of which is not greater than Number 2 of the Ringelmann smoke chart for a period of three consecutive minutes; or ii. Emissions of such opacity within a stack or chimney to a degree greater than the emission designated as Number 2 of the Ringelmann smoke chart for a period not greater than three consecutive minutes. [N.J.A.C.7:27-11.3(b)2ii] and. [N.J.A.C. 7:27-11.3(b)3]	Opacity: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-11.3(e)] and. [N.J.A.C. 7:27-22.16(o)]	Opacity: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]
15	Particles of unburned waste or ash from the incinerator shall not be individually large enough to be visible while suspended in the atmosphere. [N.J.A.C. 7:27-11.3(c)]	None.	None.	None.
16	Odor: The incinerator operation shall not result in odors being detectable by sense of smell in any area of human use or occupancy. [N.J.A.C. 7:27-11.3(d)]	None.	None.	None.

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17	NOx (Total) <= 150 ppmvd @ 7% O2 based on a calendar day average. [N.J.A.C.7:27-22.16(a)] &. [N.J.A.C. 7:27-19.12(a)1]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously and calculating the average each calendar day. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
18	NOx (Total) <= 300 ppmvd @ 7% O2 based on a 1-hour average. [N.J.A.C.7:27-22.16(a)] &. [40 CFR 52.21]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
19	Opacity <= 10 % (6 minute average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The discrete block average will begin on the hour. [N.J.A.C. 7:27-22.16(e)]	Opacity: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(e)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
20	VOC (Total) <= 28 tons/yr. Total VOC emissions includes formaldehyde emissions. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
21	NOx (Total) <= 416 tons/yr. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22(16)o]	NOx (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
22	CO <= 176.3 tons/yr , based on 100 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
23	SO2 <= 326.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
24	SO3 and H2SO4, as converted and expressed as H2SO4 <= 17.5 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly an d12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
25	TSP <= 17.7 tons/yr , based on concentration limit of 12 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
26	PM-10 (Total) <= 67.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
27	PM-2.5 (Total) <= 67.7 tons/yr. PM-2.5 is assumed by the facility to be equal to PM-10. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
28	HAPs (Total) <= 100.2 tons/yr. [N.J.A.C. 7:27-22.16(a)]	HAPs (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HAPs (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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29	Arsenic compounds <= 0.0147 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
30	Beryllium compounds <= 0.001 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Beryllium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
31	Cadmium compounds <= 0.0147 tons/yr based on concentration limit of 10 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
32	Chromium compounds <= 0.0477 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
33	HCl Emissions <= 94.7 tons/yr. [N.J.A.C. 7:27-22.16(e)]	HCl Emissions: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
34	Hydrogen fluoride <= 3.6 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Hydrogen fluoride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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35	Lead compounds <= 0.147 tons/yr based on concentration limit of 100 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
36	Mercury compounds <= 0.04 tons/yr based on concentration limit of 28 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by calculations at the approved frequency using the following formula (using EPA F-Factor 14,389 dscf @ 7% O2): Hg (tons per year) = X times 1 m3/35.3 ft3 x 14389 dscf/MMBTU x 423 10E6 Btu/hr/unit x 8760 hrs/yr x (1 gram/10E6 ug) x (1 lb/454 grams) x 1 ton/2000 lb, where X equals the average of all stack test results for the calendar year expressed in ug/dscm. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system annually . [N.J.A.C. 7:27-22.16(o)]	None.
37	Nickel compounds <= 0.013 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
38	Polycyclic organic matter <= 1.27 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Polycyclic organic matter: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
39	Dioxins/Furans (Total) <= 0.0000433 tons/yr based on concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
40	TCDD Emissions (2,3,7,8-) <= 0.0000396 tons/yr. [N.J.A.C. 7:27-22.16(e)]	TCDD Emissions (2,3,7,8-): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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41	Formaldehyde <= 0.359 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
42	Carbon tetrachloride <= 0.03 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
43	Trichloroethylene <= 0.026 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
44	Vinyl chloride <= 0.012 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
45	Ammonia <= 23 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
46	Maximum Gross Heat Input <= 423 MMBTU/hr (HHV) while firing municipal solid waste (MSW) and <= 109 MMBTU/hr while firing No. 2 fuel oil. [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain initial calculations (contained in letter dated October 30, 2001). [N.J.A.C. 7:27-22.16(o)]	None.

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47	Steam production rate <= 247,500 pounds per hour at 650 psia and 752 degrees F (nominal). [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Monitored by integrated steam flow monitor continuously , based on a 4 hour block average. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	None.
48	The amount and types of solid waste accepted and incinerated at the facility shall be consistent with the requirements identified in the facility's approved Solid Waste Facility Permit issued by the Department's Solid and Hazardous Waste Management Program pursuant to N.J.A.C. 7:26. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
49	The owner or operator shall develop a QA/QC plan for all CEMS/COMS required by this permit prepared in accordance with the NJDEP Technical Manual 1005 posted on the AQPP webpage at http://www.state.nj.us/dep/aqpp. [N.J.A.C. 7:27-22.16(a)]	Other: The QA/QC coordinator shall be responsible for reviewing the QA/QC plan on an annual basis. [N.J.A.C. 7:27-22.16(o)].	Other: Maintain readily accessible records of the QA/QC plan including QA date and quarterly reports. [N.J.A.C. 7:27-22.16(o)].	None.
50	The permittee shall request approval from the Department's Emission Measurement Section (EMS) to allow continued use of the exisitng CEMS when a change to the units of measurement is made to a permit limit. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain readily accessible records of the Permittee's written request to EMS, and the response from EMS.[N.J.A.C. 7:27-22.16(o)].	None.
51	Oxygen: The average concentration of oxygen in the flue gas at the furnace's exit shall not be less than 3% by volume measured on a dry basis (3.5% by volume measured on a wet basis) for any five minute period. If the five (5) minute average oxygen concentration in the flue gas at any furnace's exit drops below 3.0% by volume on a dry basis (3.5% on a wet basis), for more than a thirty-minute period, waste charging to the affected furnace shall cease. [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Oxygen: Monitored by continuous emission monitor continuously based on any 5 minute averaging period. [N.J.A.C. 7:27-22.16(e)]	Oxygen: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Record and maintain the details and duration of any cessation of waste charging due to low oxygen content. [N.J.A.C. 7:27-22.16(e)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
52	The Permittee shall monitor incoming waste trucks to determine whether they contain large quantities of easily discernible yard wastes, such as grass clippings, leaves, tree trimmings, bushes and shrubs and prevent bulk quantity of these wastes from being charged to the incinerators. 40 CFR 52.21 and [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
53	The rate of carbon injection >= 17 lb/hr. The carbon injection system shall be operated and maintained in accordance with the facilitiy's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. Rate of Carbon Injection: The carbon feed auger speed for each consecutive three hour period (12 to 3, 3 to 6, etc) must be maintained at or above the speed that has been determined, by actual measurement during calibration, to deliver the minimum required carbon feed rate. If the auger or M-drive malfunctions where carbon is not being recorded by the DCS, hopper fills may be used to demonstrate compliance with continuous carbon feed. Quarterly Carbon Usage: The actual total quantity of carbon used at the facility must equal or exceed the minimum required quarterly carbon usage (Qmin = R, carbon pounds per hour, multiplied by the total hours of waste feed to all three units during a calendar quarter.) [N.J.A.C. 7:27-22.16(a)]	Other: Rate of Carbon Injection: Carbon feed auger shall be continuously monitored. In addition, Hopper Fill Cycle Rate shall be 2.0 hours or less and shall also be continuously monitored. The operation below the minimum allowable carbon feed rate as indicated by the auger speed must be corrected within three hours of the start of the condition that causes the excursion so that the proper rate is restored. If the problem is not corrected within 3 hours, the waste charging to the furnace's hopper must cease until carbon feed is again at the minimum allowable rate. As an alternate, hopper fills may be used to demonstrate that the minimum allowable carbon feed is being maintained. The total time of all such excursions for each unit in a calendar quarter must not exceed 2% of the total operating time for the quarter. Quarterly Carbon Usage: Monitored by material balance quarterly: once per quarter; quarters shall begin on January 1, April 1, July 1, and October 1 of each year. Material balance shall be based on bulk deliveries of carbon and storage silo inventories. As an alternative, hopper fills, which are recorded during each shift, may be used to determine quarterly carbon usage. [N.J.A.C. 7:27-22.16(o)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. Rate of Carbon Injection: Record and maintain all alarms indicating problems with auger operation and/or speed, or with Hopper Fill Cycle Rate, all excursions and corrective actions. Quarterly Carbon Usage: DAS or manually to include the total hours of waste feed to each unit, the total combined hours, total minimum combined quantity of carbon required, and total combined amount of carbon actually used per quarter. Hopper fills also may be recorded. [N.J.A.C. 7:27-22.16(o)]	Quarterly Carbon Usage: Submit a report: On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
54	During operation, the carbon injection system operating parameter(s) that are the primary indicator(s) of the carbon mass feed rate (e.g., screw feeder setting) must equal or exceed the level established during performance tests for mercury emissions. This is as required by 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)] & [40 CFR 62.14109(b)]	Other: Monitored by carbon feed rate, as required at 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)]&[40 CFR 62.14109(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously The facility shall record the average carbon mass feed rate (in kg/hr or lb/hr) estimated for each hour of operation. This is as required at 40 CFR 60.59b(d)(4)(iii). Also, as required at 40 CFR 60.59b(d)(15), the facility shall record the dates where the carbon feed rate is less than the levels established by the performance tests for mercury and dioxins/furans. [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.
55	SO2 <= 94 ppmvd , corrected to 7% O2 based on 1-hour block average or >= 70 percent reduction based on 1-hour block average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
56	Hydrogen chloride <= 47 ppmvd , corrected to 7% O2 based on stack emission tests or >= 90 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen chloride: Monitored by stack emission testing annually, based on the average of three 1-hour tests. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Hydrogen chloride: Recordkeeping by stack test results annually. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]
57	Operating Control Efficiency >= 70 % control. Permittee shall equip and operate the facility with a vapor control system that reduces the total acid gas emissions to the outdoor atmosphere by no less than 70 percent by weight. This equipment shall be in operation at any time waste is being charged to the combustor. [N.J.A.C. 7:27-22.16(a)]	Operating Control Efficiency: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Operating Control Efficiency: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
58	Scrubbing Medium Inlet Pressure <= 3,600 inches. Lime slurry shall be the scrubbing medium. The scrubber shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the Manufacturer recommendation. [N.J.A.C. 7:27-22.16(a)]	Scrubbing Medium Inlet Pressure: Monitored by pressure measurement device daily when in operation. [N.J.A.C. 7:27-22.16(o)]	Scrubbing Medium Inlet Pressure: Recordkeeping by manual logging of parameter or storing data in a computer data system daily. Records shall be kept in a logbook or in readily available computer files. [N.J.A.C. 7:27-22.16(o)]	None.
59	Particulates Control Efficiency >= 99 %. Applicable to the baghouse. Bag cleaning, maintenance and replacement shall be conducted on a schedule specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Other: Monitored by manufacturer speicifications and recommendations to maintain the required minimum baghouse efficiency.[N.J.A.C. 7:27-22.16(o)].	Particulates Control Efficiency: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record all maintenance information. Maintain baghouse construction/design documents showing minimum efficiency. [N.J.A.C. 7:27-22.16(o)]	None.
60	THERMAL DeNOx SYSTEM: The SNCR shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
61	Mercury Emissions <= 28 ug/m^3 corrected to 7% O2, based on stack emission tests, or >= 95 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-27.4(a)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Test frequency shall be reverted to quarterly in accordance with N.J.A.C.7:27-27.4(b) if any stack test results exceed the applicable limit. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-27.4(c)]	Mercury Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-27.4(b)] and. [N.J.A.C. 7:27-27.8(a)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
62	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(c) of NSPS Subpart Eb as follows: The temperature at the particulate control device inlet shall not exceed the maximum demonstrated particulate matter control device temperature as defined in 40 CFR 60.51b by more than 17 degrees Celsius (or 31 degrees Fahrenheit), except: (1) During the annual dioxin/furan performance test the 2 weeks preceding the annual dioxin/furan performance test, no particulate matter control device temperature limitations are applicable; (2) The particulate matter control device temperature limits may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluation system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of the-art for controlling facility emissions. [40 CFR 60.34b(b)], [40 CFR 60.39b(d)] & [40 CFR 62.14104(b)]	Monitored by temperature instrument continuously, based on a 1 hour block average which shall be used to calculate 4-hour block arthithmetic avarages, based on the requirement at 40 CFR 60.58b(i)(7). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(b)]	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 4-hour block arithmetic temperature averages shall be computed and recorded and be available for submittal to the Administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(ii). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
63	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(b) of NSPS Subpart Eb as follows: No owner or operator of an affected facility shall cause it to operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load as defined in 40 CFR 60.51b, except: (1) During he annual dioxin/furan performance test and the 2 weeks preceding that test, no municipal waste combustor unit load limit is applicable; (2)The municipal waste combustor unit load limit may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the art for controlling facility emissions. [40 CFR 34b(b)], [40 CFR 60.39b(d)]& [40 CFR 62.14104(b)]	Other: The owner or operator shall operate a steam or feedwater flow meter on a continuous basis, as required at 40 CFR 60.58(i)(6)(i). Steam (or feed water flow) flow calculations as required under 40 CFR 60.58(i)(6)(i) shall be in accordance with ASME PTC 4.1-1964 (Reaffirmed 1991), Power test codes : Test Code for Steam Generating Units (with 1968 and 1969 Addenda). For design, construction, installation, calibration, and use of nozzles and orifices required in 40 CFR 60.58(i)(6)(ii), proceed in accordance with the recommendations in ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971). Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed, as stipulated at 40 CFR 58b(i)(6)(iii). Also, as stipulated at 40 CFR 58b(i)(6)(iv), all signal conversion elements associated with steam (or feedwater flow) measurements must be calibrated according to the manufacturer's instructions before each dioxin/furan performance test, and at least once per year. [40 CFR 60.39b(d)] &[40 CFR 62.14104(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously based on the requirment at 40 CFR 60.58(i)(6)(i). [40 CFR 60.39b(d)] &. [40 CFR 62.14104(b)]	None.
64	The municipal waste combustor operator training and certification shall be at least as protective as those requirements lised in 40 CFR 60.54b of Subpart Eb. [40 CFR 60.35b]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
65	Each chief facility operator and shift supervisor must obtain and maintain a current provisional operator certification from either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. [40 CFR 60.35b, 40 CFR 60.39b(d), 40 CFR 60.54b] & [40 CFR 62.14105(a)]	None.	Other: The facility shall maintain the following records for a period of five years: Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have been fully certified or who are provisionally certified by the American Society of Mechanical Engineers (ASME) or an equivalent State approved certification program, including the dates of initial and renewal certifications and documentation of current certification. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have completed the EPA municipal waste combustor operator training course or a State approved equivalent course including documentation of training completion. This is based on the recordkeeping requirements at 40 CFR 60.59b(d)(12) [40 CFR 62.14105(a)].	None.
66	Each chief facility operator and shift supervisor must complete full certification or must have scheduled a full certification exam with either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. 40 CFR 60.39b(d)& [40 CFR 62.14105(b)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
67	The facility must not be operated unless one of the following persons is on duty: - a fully certified chief facility operator; - a provisionally certified chief facility operator who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF; - a fully certified shift supervisor; or - a provisionally certified shift supervisor who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF. If one of the persons listed above must leave the facility during their operating shift, a provisionally certified control room operator who is onsite may fulfill this requirement. [40 CFR 60.39b(d), 40 CFR 60.54b(i)] & [40 CFR 62.14105(c)]	None.	None.	None.
68	As further clarification to the preceding "Stand-in" Provisions, a provisionally certified control room operator can stand-in for a certified plant or shift supervisor when they are off site for periods of up to eight hours without notification of EPA, for periods up to two weeks if EPA is notified in writing, and case by case with enforcement discretion for periods longer than two weeks if EPA is notified in writing with adequate detail of the reasons for the situation and if the MWC owner demonstrates to EPA that a good faith effort is being made to correct the problem. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
69	Each chief facility operator, shift supervisor and control room operator at an affected facility must complete the EPA municipal waste combustor operator training course or the State municipal waste operator training course, except for chief facility operators, shift supervisors, and control room operators who have obtained full certification from the ASME on or before the effective date of 40 CFR 62 Subpart FFF. [40 CFR 60.39b(d), 40 CFR 60.54b] &. [40 CFR 62.14105(d)]	None.	None.	None.
70	OPERATING MANUAL: The facility must develop and update on a yearly basis a manual that must, at a minimum, address the following elements of municipal waste combustor unit operation: - A summary of the applicable standards of 40 CFR 62 Subpart FFF; - A description of basic combustion theory applicable to a MWC unit; - Procedures for receiving, handling and feeding MSW; - Procedures for MWC unit startup, shutdown and malfunction; - Procedures for maintaining proper combustion air supply levels; - Procedures for operating the MWC unit within the standards established under 40 CFR 62 Subpart FFF; - Procedures for responding to periodic upset or off-specification conditions; - Procedures for minimizing particulate matter carryover; - Procedures for handling ash; - Procedures for monitoring MWC unit emissions; - Reporting and Recordkeeping procedures. [40 CFR 60.39b(d), 40 CFR 60.54b(e)] & [40 CFR 62.14105(e)]	None.	Other: The operating manual and records of training must be available for inspection by USEPA or the Department upon request. [40 CFR 60.39b(d)] &[40 CFR 62.14105(g)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
71	TRAINING FOR OPERATING MANUAL REVIEW: - The facility must establish a training program to review the operating manual according to the schedule specified below with each person who has responsibilities affecting the operation of the facility, including but not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Each person undergoing the manual review training shall do so no later than the dates specified below, whichever is later: - The date prior to the day the person assumes responsibilities affecting MWC unit operation; or - The date 12 months after the effective date of 40 CFR 62 Subpart FFF; or - Annually following the initial review. ACCESS TO OPERATING MANUAL: The operating manual must be kept in a location readily accessible to each person required to undergo training. [40 CFR 60.39b(d), 40 CFR 60.54b(f) & (g)] & [40 CFR 62.14105(f)]	None.	Other: The facility shall maintain records showing the names of persons who have completed a review of the operating manual including the date of initial review and subsequent annual reviews. This is based on the recordkeeping requirement at 40 CFR 50.59b(d)(13). [40 CFR 60.39b(d)] &[40 CFR 62.14105(a)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
72	SEMI-ANNUAL REPORT: The facility shall submit a semi-annual report which shall include the following: - Information recorded which indicates the average sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature or opacity data were above the applicable limits with reasons for such exceedances and a description of the corrective action taken. - A copy of the annual test report documenting the emissions level and the corrective action taken if the test report indicates any particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride or fugitive ash emission levels that were above applicable pollutant limits. - Identification of the calendar dates when the average hourly carbon feed rate was below the required feed rate with reasons for such occurrences and a description of corrective action taken. - Identification of the calendar dates when the average hourly carbon feed rate is not operational, with reasons for such occurrences and a description of corrective action taken. This is as stated at 40 CFR 60.59b(h). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is as stated at 40 CFR 50.59(h). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
73	SEMI-ANNUAL REPORT (continued): Upon issuance of the operating permit, the semi-annual report shall include the following: - A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emission levels achieved during performance tests - A list of the highest emission level recorded for sulfur dioxide, nitrogen dioxides, carbon monoxide, municipal waste combustor load level and particulate matter control device inlet temperature. - A list of the highest opacity level measured - The total number of days that the minimum number of hours of data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level and particulate matter control device inlet temperature were not obtained for the calculation of the average emissions concentrations or parameters. - The total number of hours that data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load and particulate matter control device inlet temperature were excluded from the calculation of average emissions concentrations or parameters. This is based on the requirements of 40 CFR 59b(g)(1). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requirments at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
74	SEMI-ANNUAL REPORT (continued): -The facility shall also provide a summary report with the same data specified in the semi-annual reports for the preceding year in order to provide the Administrator with a summary of the performance of the facility over a 2 year period. This summary report shall highlight any emission or parameter level that did not achieve the required emission or parameter limits. - The facility will also include a notification of intent to begin reduced dioxin/furan performance testing schedule as allowed in 40 CFR 60.58(g)(5)(iii), i.e. NSPS Subpart Eb. These are based on the requirements of 40 CFR 60.59b(g). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requrements at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]
75	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates when any of the average emission concentrations, percent reductions, operating parameters or opacity levels are above applicable limits, with reasons for such exceedances and a description of corrective action taken. This is as stated at 40 CFR 60.59b(d)(3). [40 CFR 60.39b(d)]& [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
76	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates for which the minimum number of hours of the data specified below have not been obtained and the reasons for not obtaining sufficient data and a description of the corrective action taken: - Sulfur Dioxide emissions data - Nitrogen Oxides emissions data - Carbon Monoxide emissions data - Municipal waste combustor unit load data - Particulate matter control device temperature data This is as stated at 40 CFR 60.59b(d)(6). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
77	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data or operational data (i.e. carbon monoxide emissions, unit load and particulate matter control device temperature) have been excluded from the calculation of average emission concentration or parameters, and the reasons for excluding the data. This is as stated at 40 CFR 60.59b(d)(7). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
78	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: The results of daily drift test and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides and carbon monoxide continuous emission monitoring systems as required under 40 CFR Part 60 Appendix F, Procedure 1. This is based on the requirements at 40 CFR 60.59b(d)(8). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
79	REPORTING/RECORDKEEPING OF ANNUAL PERFORMANCE TESTS: The facility shall maintain the following records for a period of at least five years: The test reports documenting the results of all annual performance tests shall be recorded along with supporting calculations specifically as follows: - The results of all annual performance tests conducted to determine compliance with particulate matter, opacity, cadmium, lead, dioxin/furans, hydrogen chloride and fugitive ash emission limits. - The maximum demonstrated municipal waste combustor unit load and maximum demonstrated particulate matter control device temperature during dioxin/furan performance tests. This condition is based on the requirements at 40 CFR 60.59b(d)(9). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records for a period of at least 5 years from the date of record. [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Facility Specific Requirements

Emission Unit: **U2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS1 Operation of MWC #2 at Maximum Input (423 MMBtu/hr)**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
2	VOC (Total) <= 66 ppmvd @ 7% O2 [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
3	NOx (Total) <= 95 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. Three test runs must be conducted on each unit, with ammonia injection. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	NOx (Total): Recordkeeping by stack test results prior to permit expiration date. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
4	CO <= 126 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by stack emission testing prior to permit expiration date, based on each of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
5	CO <= 400 ppmvd @ 7% O2 , based on 1-hr average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

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6	CO <= 100 ppmvd @ 7% O2 (96-hour rolling average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
7	SO2 <= 75.8 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
9	TSP <= 4.4 lb/hr based on 12 mg/dscm @ 7% O2. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
10	Particulate Emissions <= 12 mg/dscm @ 7% O2 , including when soot blowing is performed. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. One of the three test runs shall be performed when soot blowing is performed. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
11	PM-10 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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12	PM-2.5 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
13	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
14	Beryllium compounds <= 0.00025 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Beryllium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
15	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
16	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
17	Chromium compounds <= 0.012 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
18	HCl Emissions <= 21.6 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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19	Hydrogen fluoride <= 0.82 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen fluoride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
20	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
21	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
22	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm @ 7% O2. [40 CFR 52.21] and . [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
23	Nickel compounds <= 0.0033 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
24	Dioxins/Furans (Total) <= 0.000011 lb/hr , based on federal concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
25	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	TCDD Emissions (2,3,7,8-): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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26	Polycyclic organic matter <= 0.29 lb/hr (or Polycyclic aromatic hydrocarbons). [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Polycyclic organic matter: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
27	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
28	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
29	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
30	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
31	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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32	Ammonia <= 5.24 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
33	Ammonia <= 20 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
34	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The continuous opacity monitoring system shall conform to Perormance Specification 1 in 40 CFR 60, appendix B. This is as required at 40 CFR 60.58b(c)(8). [40 CFR 62.14109(b)]	Opacity: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 6-minute opacity levels shall be available for submittal or review onsite by an inspector, as required at 40 CFR 60.59b(d)(i)(A). [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
35	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by stack emission testing annually, based on the average of three 1-hour tests as required at 40 CFR 60.58b(c)(11). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Opacity: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
36	Particulate Emissions <= 25 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(1)(i)] &. [40 CFR 62.14103(a)(1)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 5. Minimum sample volume shall be 1.7 cubic meters. Monitoring is based on the requirements at 40 CFR 60.58b(c)9). . See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
37	Nitrogen oxides (NOx) <= 205 ppmvd @ 7% O2 , 24-hour daily arithmetic average (midnight to midnight) 40 CFR 60.33b(d) &. [40 CFR 62.14103(d)]	Nitrogen oxides (NOx): Monitored by continuous emission monitoring system continuously, based on a 1 hour block average. Monitor as specified at 40 CFR 60.58b(h)(5). EPA Reference Method 19, section 4.1, shall be used for determining the 24-hour daily arithmetic average nitrogen oxides emission concentration. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Nitrogen oxides (NOx): Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average nitrogen oxide concentrations shall be recorded and be available for submittal or review onsite by an inspector. This is as specified at 40 CFR 60.59b(d)(2)(i)(C). [40 CFR 60.39b] &. [40 CFR 62.15109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
38	CO <= 100 ppmvd @ 7% O2. [40 CFR 60.34b(a)] &. [40 CFR 62.14104(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average which shall be used to calcuate a 4-hour block average. The continuous emission monitoring system shall be operated according to Performance Specification 4A in 40 CFR 60, appendix B. Monitoring is as specified at 40 CFR 60.58b(i)(1), 40 CFR 60.58b(i)(3), and 40 CFR 60.58b(i)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average CO concentrations shall be recorded and available for submittal to the administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(i)(D). [40 CFR 60.39b] &. [40 CFR 62.14109(a)(1)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal The semi-annual report shall include the highest emission level recorded for CO and the total number of hours that data for CO was excluded from the calculation of average emission concentrations. This is as stated at 40 CFR 60.59b(g)(1)(ii) and 40 CFR 60.59b(g)(1)(v). [40 CFR 60.39b(d)]&. [N.J.A.C. 7:27-22.16(o)]
39	Lead Emissions <= 0.4 mg/dscm @ 7% O2 40 CFR 60.33b(a)(4) &. [40 CFR 62.14103(a)(2)]	Lead Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Lead Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
40	Cadmium Emissions <= 0.035 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(2)(i) &. [40 CFR 62.14103(a)(2)]	Cadmium Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Cadmium Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: Annually. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
41	Mercury Emissions <= 0.05 mg/dscm @ 7% O2 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7% oxygen, whichever is less stringent, [40 CFR 60.33b(a)(3)] &. [40 CFR 62.14103(a)(3)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 29. Monitoring is based on the requirements of 40 CFR 60.58b(d)(2). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Mercury Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
42	SO2 <= 29 ppmvd @ 7% O2 , or 25% of the potential sulfur dioxide emission concentration (75 percent reduction by weight or volume) whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean. [40 CFR 60.33b(b)(3)(i)] &. [40 CFR 62.14103(b)(1)]	SO2: Monitored by continuous emission monitoring system continuously, based on a daily average (a 24-hour daily geometric average), or a daily geometric average percent reduction using EPA Reference Method 19. This is based on the requirement at 40 CFR 60.58b(e)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. The owner or operator shall maintain records of all 1-hour average sulfur dioxide emission concentrations. This is as specified at 40 CFR 60.59b(d)(2)(i)(B). [40 CFR 60.39b] &. [40 CFR 61.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
43	HCl Emissions <= 29 ppmvd @ 7% O2 or 5% of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume) whichever is less stringent [40 CFR 60.33b(b)(3)(ii)] &. [40 CFR 62.14103(b)(2)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Method 26 or 26A in accordance with 40 CFR 60.58b(f). The minimum sample time shall be 1 hour. See stack testing requirements in OS Summary. [40 CFR 62.14109(b)]	HCl Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]
44	Dioxins/Furans (Total) <= 30 ng/dscm @ 7% O2. 40 CFR 60.33b(c)(iii) &. [40 CFR 62.14103(c)(2)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 23. Minimum sampling time shall be 4 hours per test run. Monitoring is as required at 40 CFR 60.58b(h), except as specified at 40 CFR 62.14109(d)(1). See stack testing requirements in OS Summary. [40 CFR 62.14109(b)] &. [40 CFR 62.14109(d)(1)]	Dioxins/Furans (Total): Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9)(i). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
45	Temperature >= 1,212 degrees F. The temperature one second downstream of secondary air injection at which the furnace must operate when waste is burned, must be no less than 1,212 degrees F based on a 1-hour block average as recorded by the permanent thermocouples located at the 116' 4" elevation. (This temperature is equivalent to 1600 degrees F or greater at the combustion chamber furnace location at 79'6" elevation.) The auxilliary burner shall be placed into position and operated during steady state operation as needed to maintain temperature one second downstream of secondary air injection in the furnace greater than 1,212 degrees F as recorded by the permanent thermocouples located at the 116' 4" elevation during the combustion of waste. (The facility may conduct a temperature profile study in the future to review temperature profiles.) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Temperature: Monitored by temperature instrument continuously, based on a 1 hour block average. [N.J.A.C. 7:27-22.16(o)]	Temperature: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Maintain Furnace Temperature Monitoring Test Report documentation (December 1990) that shows temperature correlations within the furnace combustion zone. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS2 Start-Up of MWC #2**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Start-up Period: commences when the affected incinerator begins the combustion of municipal waste, including continuous, semicontinuous, or batch feeding of municipal solid waste to the furnace. Continuous burning is the continuous, semicontinuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning. The number of start-up events (not including start-up events after emergency malfunctions) shall be limited to 20 per year and the duration of each start-up period shall not exceed 3 hours. This is based on the requirement at 40 CFR 60.58b(a)(1). The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during start-up periods. 40 CFR 60.39b(d) & [N.J.A.C. 7:27-22.16(a)]	None.	Start-up Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each startup event - end time, date which will be 3 hours after the start time - No. of startup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the start time of each start-up event when the boiler is flagged as online. Maintain calculations and basis of startup emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS3 Shut-Down of MWC #2**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Shutdown Period: commences when the feeding of municipal solid waste to the hopper is terminated as a result of a shutdown. The shutdown period ends when municipal solid waste is no longer combusting on the grate. The number of shutdown events (not including shutdowns as a result of emergency malfunctions) shall be limited to 20 per year and the duration of each shutdown period shall not exceed 3 hours. The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during the shut-down periods. [N.J.A.C. 7:27-22.16(e)]	None.	Shutdown Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each shutdown event - the end time, date of the shutdown event - No. of shutdown events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the end time of each shutdown event when the boiler is flagged as offline. Maintain calculations and basis of shutdown emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS4 Warm-UP of MWC #2**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Warm up period is when the incinerator combusts only auxiliary fuel (fuel oil) and no municipal solid waste is being combusted. The warmup period begins upon initiation of auxiliary fuel combustion in furnace. The number of warmup events (not including warmup events after emergency malfunctions) shall be limited to 20 per year and the duration of the warmup period shall not exceed 7 consecutive hours per warmup event. [N.J.A.C. 7:27-22.16(a)]	None.	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time,date of each warmup event - the end time, date of the warmup event - No. of warmup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Maintain calculations of warm up period emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	Particulate Emissions <= 15.7 lb/hr based on the Maximum Gross Heat input while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
3	NOx (Total) <= 18.7 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 3.9 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 0.166 lb/hr based on sulfur content in fuel. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	TSP <= 1.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	PM-10 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-2.5 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	Maximum Gross Heat Input <= 109 MMBTU/hr (HHV) while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain calculations contained in letter dated October 30, 2001. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Summary of Federal Rules applicable to this Emission Unit: NSPS 40 CFR Part 60 Subpart A (See GR1) NSPS 40 CFR Part 60 Subpart Cb NSPS 40 CFR Part 62 Subpart FFF PSD Regulations at 40 CFR 52 [None]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
2	STACK TESTING SUMMARY: The permittee shall conduct a stack test annually using a protocol approved by the Department to demonstrate compliance with emission limits for opacity, lead, cadmium, HCl, dioxins and furans, TSP, PM-10, PM-2.5 and mercury as specified in the compliance plan for OS Summary and OS1. For mercury, testing shall be performed at the inlet and outlet simultaneously. Conduct annual performance tests no less than 9 calendar months and no more than 15 calendar months following the previous performance test, and must complete 5 performance tests in each 5-year calendar period. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. [40 CFR 60.38b], [40 CFR 62.14109(a)] & [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s). Testing for Mercury shall be performed at the inlet and outlet simultaneously.[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 no later than 180 days prior to the testing due date or request from EMS, in writing, to use a previously approved protocol no later than 90 days prior to the testing due date. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT) that is downloaded at: http://www.epa.gov/ttnchie1/ert , unless another format is approved by EMS. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. The test shall be no less than 9 calendar months and no later than 15 months after the previous test. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. As indicated in 40 CFR 59b(g)(1), a list of the emission levels achieved during performance tests shall be included in the semi annual report submitted pursuant to 40 CFR 60.39b(d), 40 CFR 60.39b(f), and 40 CFR 14109(a). [N.J.A.C. 7:27-22.18(e) and. [N.J.A.C. 7:27-22.18(h)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	STACK TESTING SUMMARY: Conduct stack tests at least 18 months prior to the expiration of the renewed operating permit using an approved protocol to demonstrate compliance with emission limits for particulates, opacity, SO2, nitrogen oxides, SO3 + H2SO4 (as converted and expressed as H2SO4), Volatile Organic Compounds (VOC), Arsenic, Beryllium, Chromium, Nickel, Ammonia, TCDD (2,3,7,8-), polycyclic aromatic hydrocarbons (or polycyclic organic matter), Benzo (A) Pyrene, formaldehyde, Carbon tetrachloride, Tetrachloroethylene, Trichloroethylene, Vinyl Chloride, CO, HF and scrubber efficiency as specified in the compliance plan for OS Summary & OS1. Testing must be conducted at worst-case permitted operating conditions with regard to meeting the applicable emission standards, but without creating an unsafe condition. The permittee may propose, in the stack test protocol, to use CEMS data to satisfy the stack testing requirements, for NOx, CO and/or SO2, with EMS approval. In order for EMS to approve using CEMS data at the time of the stack test, the CEMS must be certified and be in compliance with all daily, quarterly and annual quality assurance requirements. The CEMS shall monitor and record emissions in units identical to those required by the applicable stack testing conditions of this permit. CEMS data, if allowed by this permit, shall be taken at the same worst case conditions as described above. [N.J.A.C. 7:27-22.16(a)]	Other: Monitoring as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Other: Recordkeeping as required under the applicable operating scenario(s).[N.J.A.C. 7:27-22.16(o)].	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. Submit a stack test protocol to the Emission Measurement Section (EMS) at Mail Code: 09-01, PO Box 420, Trenton, NJ 08625 at least 30 months prior to the expiration of the approved operating permit. The protocol and test report must be prepared and submitted on a CD using the Electronic Reporting Tool (ERT), unless another format is approved by EMS. The ERT program can be downloaded at: http://www.epa.gov/ttnchie1/ert. Within 30 days of protocol approval or no less than 60 days prior to the testing deadline, whichever is later, the permittee must contact EMS at 609-984-3443 to schedule a mutually acceptable test date. A full stack test report must be submitted to EMS and a certified summary test report must be submitted to the Regional Enforcement Office within 60 days after performing the stack test pursuant to N.J.A.C. 7:27-22.19(d). The test results must be certified by a licensed professional engineer or certified industrial hygienist. [N.J.A.C. 7:27-22.18(e)] and . [N.J.A.C. 7:27-22.18(h)]

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4	Particulate Emissions <= 42.3 lb/hr based on the Maximum Gross Heat input. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
5	SO2 <= 2,000 ppmv at standard conditions. [N.J.A.C. 7:27- 7.2(b)1]	SO2: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
6	SO2 <= 1,100 lb/hr (in any 60-minute period). [N.J.A.C. 7:27- 7.2(b)2]	None.	None.	None.
7	SO2 <= 2,200 lb/hr for each MWC at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(b)2]	None.	None.	None.
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 10 mg/ft^3 at standard conditions. [N.J.A.C. 7:27-7.2(g)1]	None.	None.	None.
9	SO3 and H2SO4, as converted and expressed as H2SO4 <= 260 lb/hr in any 60-minute period. [N.J.A.C. 7:27- 7.2(g)2]	None.	None.	None.
10	SO3 and H2SO4, as converted and expressed as H2SO4 <= 520 lb/hr at any instant, based on the calculation procedure at N.J.A.C. 7:27-7.2(r). [N.J.A.C. 7:27-7.2(g)2]	None.	None.	None.
11	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.

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12	SO2 <= 1.2 lb/MMBTU gross heat input determined as a 30-day rolling average. [N.J.A.C. 7:27-10.3(a)3]	SO2: Monitored by continuous emission monitoring system continuously. Compliance with the standard shall be determined in accordance with the provisions of 40 CFR Part 60 Subpart Da. [N.J.A.C. 7:27-10.3(b)]	SO2: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
13	Particulate Emissions <= 0.1 gr/dscf (grains including ash per cubic feet of dry flue gas at standard conditions) at 12% of CO2 excluding the contribution of auxiliary fuel. [40 CFR 52.21] and. [N.J.A.C. 7:27-11.3(a)4]	Particulate Emissions: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
14	Opacity <= 1 Ringelmann Smoke Chart , except, 1. Smoke emitted during the building of a new fire, the shade or appearance of which is not greater than Number 2 of the Ringelmann smoke chart for a period of three consecutive minutes; or ii. Emissions of such opacity within a stack or chimney to a degree greater than the emission designated as Number 2 of the Ringelmann smoke chart for a period not greater than three consecutive minutes. [N.J.A.C.7:27-11.3(b)2ii] and. [N.J.A.C. 7:27-11.3(b)3]	Opacity: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-11.3(e)] and. [N.J.A.C. 7:27-22.16(o)]	Opacity: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-11.3]
15	Particles of unburned waste or ash from the incinerator shall not be individually large enough to be visible while suspended in the atmosphere. [N.J.A.C. 7:27-11.3(c)]	None.	None.	None.
16	Odor: The incinerator operation shall not result in odors being detectable by sense of smell in any area of human use or occupancy. [N.J.A.C. 7:27-11.3(d)]	None.	None.	None.

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17	NOx (Total) <= 150 ppmvd @ 7% O2 based on a calendar day average. [N.J.A.C.7:27-22.16(a)] &. [N.J.A.C. 7:27-19.12(a)1]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously and calculating the average each calendar day. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
18	NOx (Total) <= 300 ppmvd @ 7% O2 based on a 1-hour average. [N.J.A.C.7:27-22.16(a)] &. [40 CFR 52.21]	NOx (Total): Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-19.12(c)]	NOx (Total): Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
19	Opacity <= 10 % (6 minute average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The discrete block average will begin on the hour. [N.J.A.C. 7:27-22.16(e)]	Opacity: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(e)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
20	VOC (Total) <= 28 tons/yr. Total VOC emissions includes formaldehyde emissions. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
21	NOx (Total) <= 416 tons/yr. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22(16)o]	NOx (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
22	CO <= 176.3 tons/yr , based on 100 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
23	SO2 <= 326.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
24	SO3 and H2SO4, as converted and expressed as H2SO4 <= 17.5 tons/yr. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly an d12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
25	TSP <= 17.7 tons/yr , based on concentration limit of 12 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
26	PM-10 (Total) <= 67.7 tons/yr. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each week during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
27	PM-2.5 (Total) <= 67.7 tons/yr. PM-2.5 is assumed by the facility to be equal to PM-10. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
28	HAPs (Total) <= 100.2 tons/yr. [N.J.A.C. 7:27-22.16(a)]	HAPs (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HAPs (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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29	Arsenic compounds <= 0.0147 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
30	Beryllium compounds <= 0.001 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Beryllium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
31	Cadmium compounds <= 0.0147 tons/yr based on concentration limit of 10 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
32	Chromium compounds <= 0.0477 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
33	HCl Emissions <= 94.7 tons/yr. [N.J.A.C. 7:27-22.16(e)]	HCl Emissions: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
34	Hydrogen fluoride <= 3.6 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Hydrogen fluoride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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35	Lead compounds <= 0.147 tons/yr based on concentration limit of 100 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
36	Mercury compounds <= 0.04 tons/yr based on concentration limit of 28 ug/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by calculations at the approved frequency using the following formula (using EPA F-Factor 14,389 dscf @ 7% O2): Hg (tons per year) = X times 1 m3/35.3 ft3 x 14389 dscf/MMBTU x 423 10E6 Btu/hr/unit x 8760 hrs/yr x (1 gram/10E6 ug) x (1 lb/454 grams) x 1 ton/2000 lb, where X equals the average of all stack test results for the calendar year expressed in ug/dscm. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system annually . [N.J.A.C. 7:27-22.16(o)]	None.
37	Nickel compounds <= 0.013 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
38	Polycyclic organic matter <= 1.27 tons/yr. [N.J.A.C. 7:27-22.16(e)]	Polycyclic organic matter: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
39	Dioxins/Furans (Total) <= 0.0000433 tons/yr based on concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
40	TCDD Emissions (2,3,7,8-) <= 0.0000396 tons/yr. [N.J.A.C. 7:27-22.16(e)]	TCDD Emissions (2,3,7,8-): Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.

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41	Formaldehyde <= 0.359 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
42	Carbon tetrachloride <= 0.03 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
43	Trichloroethylene <= 0.026 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
44	Vinyl chloride <= 0.012 tons/yr based on stack test results. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
45	Ammonia <= 23 tons/yr. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by calculations each month during operation, based on a consecutive 12 month period (rolling 1 month basis). [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record monthly and 12-consecutive month emissions. [N.J.A.C. 7:27-22.16(o)]	None.
46	Maximum Gross Heat Input <= 423 MMBTU/hr (HHV) while firing municipal solid waste (MSW) and <= 109 MMBTU/hr while firing No. 2 fuel oil. [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain initial calculations (contained in letter dated October 30, 2001). [N.J.A.C. 7:27-22.16(o)]	None.

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47	Steam production rate <= 247,500 pounds per hour at 650 psia and 752 degrees F (nominal). [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Monitored by integrated steam flow monitor continuously , based on a 4 hour block average. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	None.
48	The amount and types of solid waste accepted and incinerated at the facility shall be consistent with the requirements identified in the facility's approved Solid Waste Facility Permit issued by the Department's Solid and Hazardous Waste Management Program pursuant to N.J.A.C. 7:26. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
49	The owner or operator shall develop a QA/QC plan for all CEMS/COMS required by this permit prepared in accordance with the NJDEP Technical Manual 1005 posted on the AQPP webpage at http://www.state.nj.us/dep/aqpp. [N.J.A.C. 7:27-22.16(a)]	Other: The QA/QC coordinator shall be responsible for reviewing the QA/QC plan on an annual basis. [N.J.A.C. 7:27-22.16(o)].	Other: Maintain readily accessible records of the QA/QC plan including QA date and quarterly reports. [N.J.A.C. 7:27-22.16(o)].	None.
50	The permittee shall request approval from the Department's Emission Measurement Section (EMS) to allow continued use of the exisitng CEMS when a change to the units of measurement is made to a permit limit. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain readily accessible records of the Permittee's written request to EMS, and the response from EMS.[N.J.A.C. 7:27-22.16(o)].	None.
51	Oxygen: The average concentration of oxygen in the flue gas at the furnace's exit shall not be less than 3% by volume measured on a dry basis (3.5% by volume measured on a wet basis) for any five minute period. If the five (5) minute average oxygen concentration in the flue gas at any furnace's exit drops below 3.0% by volume on a dry basis (3.5% on a wet basis), for more than a thirty-minute period, waste charging to the affected furnace shall cease. [40 CFR 52.21] and [N.J.A.C. 7:27-22.16(a)]	Oxygen: Monitored by continuous emission monitor continuously based on any 5 minute averaging period. [N.J.A.C. 7:27-22.16(e)]	Oxygen: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Record and maintain the details and duration of any cessation of waste charging due to low oxygen content. [N.J.A.C. 7:27-22.16(e)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
52	The Permittee shall monitor incoming waste trucks to determine whether they contain large quantities of easily discernible yard wastes, such as grass clippings, leaves, tree trimmings, bushes and shrubs and prevent bulk quantity of these wastes from being charged to the incinerators. 40 CFR 52.21 and [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
53	The rate of carbon injection >= 17 lb/hr. The carbon injection system shall be operated and maintained in accordance with the facilitiy's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. Rate of Carbon Injection: The carbon feed auger speed for each consecutive three hour period (12 to 3, 3 to 6, etc) must be maintained at or above the speed that has been determined, by actual measurement during calibration, to deliver the minimum required carbon feed rate. If the auger or M-drive malfunctions where carbon is not being recorded by the DCS, hopper fills may be used to demonstrate compliance with continuous carbon feed. Quarterly Carbon Usage: The actual total quantity of carbon used at the facility must equal or exceed the minimum required quarterly carbon usage (Qmin = R, carbon pounds per hour, multiplied by the total hours of waste feed to all three units during a calendar quarter.) [N.J.A.C. 7:27-22.16(a)]	Other: Rate of Carbon Injection: Carbon feed auger shall be continuously monitored. In addition, Hopper Fill Cycle Rate shall be 2.0 hours or less and shall also be continuously monitored. The operation below the minimum allowable carbon feed rate as indicated by the auger speed must be corrected within three hours of the start of the condition that causes the excursion so that the proper rate is restored. If the problem is not corrected within 3 hours, the waste charging to the furnace's hopper must cease until carbon feed is again at the minimum allowable rate. As an alternate, hopper fills may be used to demonstrate that the minimum allowable carbon feed is being maintained. The total time of all such excursions for each unit in a calendar quarter must not exceed 2% of the total operating time for the quarter. Quarterly Carbon Usage: Monitored by material balance quarterly: once per quarter; quarters shall begin on January 1, April 1, July 1, and October 1 of each year. Material balance shall be based on bulk deliveries of carbon and storage silo inventories. As an alternative, hopper fills, which are recorded during each shift, may be used to determine quarterly carbon usage. [N.J.A.C. 7:27-22.16(o)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. Rate of Carbon Injection: Record and maintain all alarms indicating problems with auger operation and/or speed, or with Hopper Fill Cycle Rate, all excursions and corrective actions. Quarterly Carbon Usage: DAS or manually to include the total hours of waste feed to each unit, the total combined hours, total minimum combined quantity of carbon required, and total combined amount of carbon actually used per quarter. Hopper fills also may be recorded. [N.J.A.C. 7:27-22.16(o)]	Quarterly Carbon Usage: Submit a report: On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
54	During operation, the carbon injection system operating parameter(s) that are the primary indicator(s) of the carbon mass feed rate (e.g., screw feeder setting) must equal or exceed the level established during performance tests for mercury emissions. This is as required by 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)] & [40 CFR 62.14109(b)]	Other: Monitored by carbon feed rate, as required at 40 CFR 60.58b(m)(2). [40 CFR 60.39b(d)]&[40 CFR 62.14109(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously The facility shall record the average carbon mass feed rate (in kg/hr or lb/hr) estimated for each hour of operation. This is as required at 40 CFR 60.59b(d)(4)(iii). Also, as required at 40 CFR 60.59b(d)(15), the facility shall record the dates where the carbon feed rate is less than the levels established by the performance tests for mercury and dioxins/furans. [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.
55	SO2 <= 94 ppmvd , corrected to 7% O2 based on 1-hour block average or >= 70 percent reduction based on 1-hour block average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
56	Hydrogen chloride <= 47 ppmvd , corrected to 7% O2 based on stack emission tests or >= 90 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen chloride: Monitored by stack emission testing annually, based on the average of three 1-hour tests. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Hydrogen chloride: Recordkeeping by stack test results annually. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in U1 OS0. [N.J.A.C. 7:27-22.16(o)]
57	Operating Control Efficiency >= 70 % control. Permittee shall equip and operate the facility with a vapor control system that reduces the total acid gas emissions to the outdoor atmosphere by no less than 70 percent by weight. This equipment shall be in operation at any time waste is being charged to the combustor. [N.J.A.C. 7:27-22.16(a)]	Operating Control Efficiency: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Operating Control Efficiency: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
58	Scrubbing Medium Inlet Pressure <= 3,600 inches. Lime slurry shall be the scrubbing medium. The scrubber shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the Manufacturer recommendation. [N.J.A.C. 7:27-22.16(a)]	Scrubbing Medium Inlet Pressure: Monitored by pressure measurement device daily when in operation. [N.J.A.C. 7:27-22.16(o)]	Scrubbing Medium Inlet Pressure: Recordkeeping by manual logging of parameter or storing data in a computer data system daily. Records shall be kept in a logbook or in readily available computer files. [N.J.A.C. 7:27-22.16(o)]	None.
59	Particulates Control Efficiency >= 99 %. Applicable to the baghouse. Bag cleaning, maintenance and replacement shall be conducted on a schedule specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Other: Monitored by manufacturer speicifications and recommendations to maintain the required minimum baghouse efficiency.[N.J.A.C. 7:27-22.16(o)].	Particulates Control Efficiency: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record all maintenance information. Maintain baghouse construction/design documents showing minimum efficiency. [N.J.A.C. 7:27-22.16(o)]	None.
60	THERMAL DeNOx SYSTEM: The SNCR shall be operated and maintained in accordance with the facility's Air Pollution Control Maintenance Plan and the manufacturer's recommendations. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
61	Mercury Emissions <= 28 ug/m^3 corrected to 7% O2, based on stack emission tests, or >= 95 percent reduction based on stack emission tests. [40 CFR 52.21] and. [N.J.A.C. 7:27-27.4(a)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Test frequency shall be reverted to quarterly in accordance with N.J.A.C.7:27-27.4(b) if any stack test results exceed the applicable limit. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-27.4(c)]	Mercury Emissions: Recordkeeping by stack test results upon occurrence of event. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See elsewhere in OS Summary for stack testing requirements. [N.J.A.C.7:27-27.4(b)] and. [N.J.A.C. 7:27-27.8(a)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
62	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(c) of NSPS Subpart Eb as follows: The temperature at the particulate control device inlet shall not exceed the maximum demonstrated particulate matter control device temperature as defined in 40 CFR 60.51b by more than 17 degrees Celsius (or 31 degrees Fahrenheit), except: (1) During the annual dioxin/furan performance test the 2 weeks preceding the annual dioxin/furan performance test, no particulate matter control device temperature limitations are applicable; (2) The particulate matter control device temperature limits may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluation system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of the-art for controlling facility emissions. [40 CFR 60.34b(b)], [40 CFR 60.39b(d)] & [40 CFR 62.14104(b)]	Monitored by temperature instrument continuously, based on a 1 hour block average which shall be used to calculate 4-hour block arthithmetic avarages, based on the requirement at 40 CFR 60.58b(i)(7). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(b)]	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 4-hour block arithmetic temperature averages shall be computed and recorded and be available for submittal to the Administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(ii). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
63	The operating practices shall be at least as protective as those requirements listed in 40 CFR 60.53b(b) of NSPS Subpart Eb as follows: No owner or operator of an affected facility shall cause it to operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load as defined in 40 CFR 60.51b, except: (1) During he annual dioxin/furan performance test and the 2 weeks preceding that test, no municipal waste combustor unit load limit is applicable; (2)The municipal waste combustor unit load limit may be waived in accordance with permission granted by the Administrator or delegated State regulatory authority for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the art for controlling facility emissions. [40 CFR 34b(b)], [40 CFR 60.39b(d)]& [40 CFR 62.14104(b)]	Other: The owner or operator shall operate a steam or feedwater flow meter on a continuous basis, as required at 40 CFR 60.58(i)(6)(i). Steam (or feed water flow) flow calculations as required under 40 CFR 60.58(i)(6)(i) shall be in accordance with ASME PTC 4.1-1964 (Reaffirmed 1991), Power test codes : Test Code for Steam Generating Units (with 1968 and 1969 Addenda). For design, construction, installation, calibration, and use of nozzles and orifices required in 40 CFR 60.58(i)(6)(ii), proceed in accordance with the recommendations in ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971). Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed, as stipulated at 40 CFR 58b(i)(6)(iii). Also, as stipulated at 40 CFR 58b(i)(6)(iv), all signal conversion elements associated with steam (or feedwater flow) measurements must be calibrated according to the manufacturer's instructions before each dioxin/furan performance test, and at least once per year. [40 CFR 60.39b(d)] &[40 CFR 62.14104(b)].	Recordkeeping by data acquisition system (DAS) / electronic data storage continuously based on the requirment at 40 CFR 60.58(i)(6)(i). [40 CFR 60.39b(d)] &. [40 CFR 62.14104(b)]	None.
64	The municipal waste combustor operator training and certification shall be at least as protective as those requirements lised in 40 CFR 60.54b of Subpart Eb. [40 CFR 60.35b]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
65	Each chief facility operator and shift supervisor must obtain and maintain a current provisional operator certification from either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. [40 CFR 60.35b, 40 CFR 60.39b(d), 40 CFR 60.54b] & [40 CFR 62.14105(a)]	None.	Other: The facility shall maintain the following records for a period of five years: Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have been fully certified or who are provisionally certified by the American Society of Mechanical Engineers (ASME) or an equivalent State approved certification program, including the dates of initial and renewal certifications and documentation of current certification. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors and control room operators who have completed the EPA municipal waste combustor operator training course or a State approved equivalent course including documentation of training completion. This is based on the recordkeeping requirements at 40 CFR 60.59b(d)(12) [40 CFR 62.14105(a)].	None.
66	Each chief facility operator and shift supervisor must complete full certification or must have scheduled a full certification exam with either the American Society of Mechanical Engineers (QRO-1-1994) or a State certification program. 40 CFR 60.39b(d)& [40 CFR 62.14105(b)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
67	The facility must not be operated unless one of the following persons is on duty: - a fully certified chief facility operator; - a provisionally certified chief facility operator who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF; - a fully certified shift supervisor; or - a provisionally certified shift supervisor who is scheduled to take the full certification exam no later than 12 months after the effective date of 40 CFR 62 Subpart FFF. If one of the persons listed above must leave the facility during their operating shift, a provisionally certified control room operator who is onsite may fulfill this requirement. [40 CFR 60.39b(d), 40 CFR 60.54b(i)] & [40 CFR 62.14105(c)]	None.	None.	None.
68	As further clarification to the preceding "Stand-in" Provisions, a provisionally certified control room operator can stand-in for a certified plant or shift supervisor when they are off site for periods of up to eight hours without notification of EPA, for periods up to two weeks if EPA is notified in writing, and case by case with enforcement discretion for periods longer than two weeks if EPA is notified in writing with adequate detail of the reasons for the situation and if the MWC owner demonstrates to EPA that a good faith effort is being made to correct the problem. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
69	Each chief facility operator, shift supervisor and control room operator at an affected facility must complete the EPA municipal waste combustor operator training course or the State municipal waste operator training course, except for chief facility operators, shift supervisors, and control room operators who have obtained full certification from the ASME on or before the effective date of 40 CFR 62 Subpart FFF. [40 CFR 60.39b(d), 40 CFR 60.54b] &. [40 CFR 62.14105(d)]	None.	None.	None.
70	OPERATING MANUAL: The facility must develop and update on a yearly basis a manual that must, at a minimum, address the following elements of municipal waste combustor unit operation: - A summary of the applicable standards of 40 CFR 62 Subpart FFF; - A description of basic combustion theory applicable to a MWC unit; - Procedures for receiving, handling and feeding MSW; - Procedures for MWC unit startup, shutdown and malfunction; - Procedures for maintaining proper combustion air supply levels; - Procedures for operating the MWC unit within the standards established under 40 CFR 62 Subpart FFF; - Procedures for responding to periodic upset or off-specification conditions; - Procedures for minimizing particulate matter carryover; - Procedures for handling ash; - Procedures for monitoring MWC unit emissions; - Reporting and Recordkeeping procedures. [40 CFR 60.39b(d), 40 CFR 60.54b(e)] & [40 CFR 62.14105(e)]	None.	Other: The operating manual and records of training must be available for inspection by USEPA or the Department upon request. [40 CFR 60.39b(d)] &[40 CFR 62.14105(g)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
71	TRAINING FOR OPERATING MANUAL REVIEW: - The facility must establish a training program to review the operating manual according to the schedule specified below with each person who has responsibilities affecting the operation of the facility, including but not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Each person undergoing the manual review training shall do so no later than the dates specified below, whichever is later: - The date prior to the day the person assumes responsibilities affecting MWC unit operation; or - The date 12 months after the effective date of 40 CFR 62 Subpart FFF; or - Annually following the initial review. ACCESS TO OPERATING MANUAL: The operating manual must be kept in a location readily accessible to each person required to undergo training. [40 CFR 60.39b(d), 40 CFR 60.54b(f) & (g)] & [40 CFR 62.14105(f)]	None.	Other: The facility shall maintain records showing the names of persons who have completed a review of the operating manual including the date of initial review and subsequent annual reviews. This is based on the recordkeeping requirement at 40 CFR 50.59b(d)(13). [40 CFR 60.39b(d)] &[40 CFR 62.14105(a)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
72	SEMI-ANNUAL REPORT: The facility shall submit a semi-annual report which shall include the following: - Information recorded which indicates the average sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature or opacity data were above the applicable limits with reasons for such exceedances and a description of the corrective action taken. - A copy of the annual test report documenting the emissions level and the corrective action taken if the test report indicates any particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride or fugitive ash emission levels that were above applicable pollutant limits. - Identification of the calendar dates when the average hourly carbon feed rate was below the required feed rate with reasons for such occurrences and a description of corrective action taken. - Identification of the calendar dates when the average hourly carbon feed rate is not operational, with reasons for such occurrences and a description of corrective action taken. This is as stated at 40 CFR 60.59b(h). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is as stated at 40 CFR 50.59(h). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
73	SEMI-ANNUAL REPORT (continued): Upon issuance of the operating permit, the semi-annual report shall include the following: - A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride and fugitive ash emission levels achieved during performance tests - A list of the highest emission level recorded for sulfur dioxide, nitrogen dioxides, carbon monoxide, municipal waste combustor load level and particulate matter control device inlet temperature. - A list of the highest opacity level measured - The total number of days that the minimum number of hours of data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level and particulate matter control device inlet temperature were not obtained for the calculation of the average emissions concentrations or parameters. - The total number of hours that data for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load and particulate matter control device inlet temperature were excluded from the calculation of average emissions concentrations or parameters. This is based on the requirements of 40 CFR 59b(g)(1). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requirments at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
74	SEMI-ANNUAL REPORT (continued): -The facility shall also provide a summary report with the same data specified in the semi-annual reports for the preceding year in order to provide the Administrator with a summary of the performance of the facility over a 2 year period. This summary report shall highlight any emission or parameter level that did not achieve the required emission or parameter limits. - The facility will also include a notification of intent to begin reduced dioxin/furan performance testing schedule as allowed in 40 CFR 60.58(g)(5)(iii), i.e. NSPS Subpart Eb. These are based on the requirements of 40 CFR 60.59b(g). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: All semi-annual reports must be maintained on site as a paper copy for a minimum of 5 years. This is as stated at 40 CFR 60.59b(j). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	Submit a report: As per the approved schedule that follows to EPA Region II and the appropriate Regional Enforcement Office of NJDEP. The report for the first half of the calendar year must be submitted by August 1 of the same year. The report for the second half of the calendar year must be submitted by February 1 of the following year. This is based on the requrements at 40 CFR 60.59b(g). [40 CFR 60.39b(d)] &. [40 CFR 62.14109(a)]
75	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates when any of the average emission concentrations, percent reductions, operating parameters or opacity levels are above applicable limits, with reasons for such exceedances and a description of corrective action taken. This is as stated at 40 CFR 60.59b(d)(3). [40 CFR 60.39b(d)]& [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109].	None.

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
76	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of the calendar dates for which the minimum number of hours of the data specified below have not been obtained and the reasons for not obtaining sufficient data and a description of the corrective action taken: - Sulfur Dioxide emissions data - Nitrogen Oxides emissions data - Carbon Monoxide emissions data - Municipal waste combustor unit load data - Particulate matter control device temperature data This is as stated at 40 CFR 60.59b(d)(6). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
77	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data or operational data (i.e. carbon monoxide emissions, unit load and particulate matter control device temperature) have been excluded from the calculation of average emission concentration or parameters, and the reasons for excluding the data. This is as stated at 40 CFR 60.59b(d)(7). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.
78	REPORTING/RECORDKEEPING: The facility shall maintain the following records for a period of at least five years: The results of daily drift test and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides and carbon monoxide continuous emission monitoring systems as required under 40 CFR Part 60 Appendix F, Procedure 1. This is based on the requirements at 40 CFR 60.59b(d)(8). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records on paper copy or a computer readable format for a period of at least 5 years from the date of record. This is as stated at 40 CFR 60.59b(d) and 40 CFR 60.59b(k). [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
79	REPORTING/RECORDKEEPING OF ANNUAL PERFORMANCE TESTS: The facility shall maintain the following records for a period of at least five years: The test reports documenting the results of all annual performance tests shall be recorded along with supporting calculations specifically as follows: - The results of all annual performance tests conducted to determine compliance with particulate matter, opacity, cadmium, lead, dioxin/furans, hydrogen chloride and fugitive ash emission limits. - The maximum demonstrated municipal waste combustor unit load and maximum demonstrated particulate matter control device temperature during dioxin/furan performance tests. This condition is based on the requirements at 40 CFR 60.59b(d)(9). [40 CFR 60.39b(d)] & [40 CFR 62.14109(a)]	None.	Other: Maintain records for a period of at least 5 years from the date of record. [40 CFR 60.39b(d)] &[40 CFR 62.14109(a)].	None.

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Facility Specific Requirements

Emission Unit: **U3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS1 Operation of MWC #3 at Maximum Input (423 MMBtu/hr)**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
2	VOC (Total) <= 66 ppmvd @ 7% O2 [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	VOC (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	VOC (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
3	NOx (Total) <= 95 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	NOx (Total): Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. Three test runs must be conducted on each unit, with ammonia injection. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	NOx (Total): Recordkeeping by stack test results prior to permit expiration date. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
4	CO <= 126 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by stack emission testing prior to permit expiration date, based on each of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
5	CO <= 400 ppmvd @ 7% O2 , based on 1-hr average. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average , beginning and ending on the hour. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]

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6	CO <= 100 ppmvd @ 7% O2 (96-hour rolling average) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	CO: Monitored by continuous emission monitoring system continuously. [N.J.A.C. 7:27-22.16(o)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. [N.J.A.C. 7:27-22.16(o)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding quarter year (the quarter years begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
7	SO2 <= 75.8 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO2: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO2: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
8	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	SO3 and H2SO4, as converted and expressed as H2SO4: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	SO3 and H2SO4, as converted and expressed as H2SO4: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
9	TSP <= 4.4 lb/hr based on 12 mg/dscm @ 7% O2. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	TSP: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TSP: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
10	Particulate Emissions <= 12 mg/dscm @ 7% O2 , including when soot blowing is performed. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. One of the three test runs shall be performed when soot blowing is performed. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
11	PM-10 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-10 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-10 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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12	PM-2.5 (Total) <= 17 lb/hr. N.J.A.C. 7:27-22.35 and. [N.J.A.C. 7:27-22.16(a)]	PM-2.5 (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	PM-2.5 (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: Upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
13	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Arsenic compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Arsenic compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
14	Beryllium compounds <= 0.00025 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Beryllium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Beryllium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
15	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
16	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Cadmium compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Cadmium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
17	Chromium compounds <= 0.012 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Chromium compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Chromium compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
18	HCl Emissions <= 21.6 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	HCl Emissions: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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19	Hydrogen fluoride <= 0.82 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Hydrogen fluoride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Hydrogen fluoride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
20	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack test requirements elsewhere in OS Summary. [N.J.A.C. 7:27-22.16(o)]
21	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Lead compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Lead compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
22	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm @ 7% O2. [40 CFR 52.21] and . [N.J.A.C. 7:27-22.16(a)]	Mercury compounds: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Mercury compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
23	Nickel compounds <= 0.0033 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Nickel compounds: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Nickel compounds: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
24	Dioxins/Furans (Total) <= 0.000011 lb/hr , based on federal concentration limit of 30 ng/dscm @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Dioxins/Furans (Total): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
25	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	TCDD Emissions (2,3,7,8-): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	TCDD Emissions (2,3,7,8-): Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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26	Polycyclic organic matter <= 0.29 lb/hr (or Polycyclic aromatic hydrocarbons). [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Polycyclic organic matter: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Polycyclic organic matter: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
27	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Formaldehyde: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Formaldehyde: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
28	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Carbon tetrachloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Carbon tetrachloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
29	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Trichloroethylene: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Trichloroethylene: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
30	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	Vinyl chloride: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Vinyl chloride: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
31	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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32	Ammonia <= 5.24 lb/hr [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
33	Ammonia <= 20 ppmvd @ 7% O2. [N.J.A.C. 7:27-22.16(a)]	Ammonia: Monitored by stack emission testing prior to permit expiration date, based on the average of three Department validated stack test runs. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Ammonia: Recordkeeping by stack test results upon occurrence of event. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
34	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by continuous opacity monitoring system continuously, based on 6 minute blocks. The continuous opacity monitoring system shall conform to Perormance Specification 1 in 40 CFR 60, appendix B. This is as required at 40 CFR 60.58b(c)(8). [40 CFR 62.14109(b)]	Opacity: Recordkeeping by data acquisition system (DAS) / electronic data storage continuously. All 6-minute opacity levels shall be available for submittal or review onsite by an inspector, as required at 40 CFR 60.59b(d)(i)(A). [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
35	Opacity <= 10 % (6-minute average). [40 CFR 60.33b(a)(1)(iii)] &. [40 CFR 62.14103(a)(1)]	Opacity: Monitored by stack emission testing annually, based on the average of three 1-hour tests as required at 40 CFR 60.58b(c)(11). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Opacity: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See OS Summary for stack testing requirements. [N.J.A.C. 7:27-22.16(o)]
36	Particulate Emissions <= 25 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(1)(i)] &. [40 CFR 62.14103(a)(1)]	Particulate Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 5. Minimum sample volume shall be 1.7 cubic meters. Monitoring is based on the requirements at 40 CFR 60.58b(c)9). . See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Particulate Emissions: Recordkeeping by stack test results upon occurrence of event as required at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

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Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
37	Nitrogen oxides (NOx) <= 205 ppmvd @ 7% O2 , 24-hour daily arithmetic average (midnight to midnight) 40 CFR 60.33b(d) &. [40 CFR 62.14103(d)]	Nitrogen oxides (NOx): Monitored by continuous emission monitoring system continuously, based on a 1 hour block average. Monitor as specified at 40 CFR 60.58b(h)(5). EPA Reference Method 19, section 4.1, shall be used for determining the 24-hour daily arithmetic average nitrogen oxides emission concentration. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Nitrogen oxides (NOx): Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average nitrogen oxide concentrations shall be recorded and be available for submittal or review onsite by an inspector. This is as specified at 40 CFR 60.59b(d)(2)(i)(C). [40 CFR 60.39b] &. [40 CFR 62.15109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
38	CO <= 100 ppmvd @ 7% O2. [40 CFR 60.34b(a)] &. [40 CFR 62.14104(a)]	CO: Monitored by continuous emission monitoring system continuously, based on a 1 hour block average which shall be used to calcuate a 4-hour block average. The continuous emission monitoring system shall be operated according to Performance Specification 4A in 40 CFR 60, appendix B. Monitoring is as specified at 40 CFR 60.58b(i)(1), 40 CFR 60.58b(i)(3), and 40 CFR 60.58b(i)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	CO: Recordkeeping by strip chart or data acquisition (DAS) system continuously. All 1-hour average CO concentrations shall be recorded and available for submittal to the administrator or review onsite by an inspector. This is as stated at 40 CFR 60.59b(d)(2)(i)(D). [40 CFR 60.39b] &. [40 CFR 62.14109(a)(1)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal The semi-annual report shall include the highest emission level recorded for CO and the total number of hours that data for CO was excluded from the calculation of average emission concentrations. This is as stated at 40 CFR 60.59b(g)(1)(ii) and 40 CFR 60.59b(g)(1)(v). [40 CFR 60.39b(d)]&. [N.J.A.C. 7:27-22.16(o)]
39	Lead Emissions <= 0.4 mg/dscm @ 7% O2 40 CFR 60.33b(a)(4) &. [40 CFR 62.14103(a)(2)]	Lead Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Lead Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
40	Cadmium Emissions <= 0.035 mg/dscm @ 7% O2 [40 CFR 60.33b(a)(2)(i) &. [40 CFR 62.14103(a)(2)]	Cadmium Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs. Use Method 29 in accordance with 40 CFR 60.58b(d)(1). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Cadmium Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: Annually. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
41	Mercury Emissions <= 0.05 mg/dscm @ 7% O2 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7% oxygen, whichever is less stringent, [40 CFR 60.33b(a)(3)] &. [40 CFR 62.14103(a)(3)]	Mercury Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 29. Monitoring is based on the requirements of 40 CFR 60.58b(d)(2). See stack testing requirements in OS Summary. [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	Mercury Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. See stack testing requirements in OS Summary. [N.J.A.C. 7:27-22.16(o)]
42	SO2 <= 29 ppmvd @ 7% O2 , or 25% of the potential sulfur dioxide emission concentration (75 percent reduction by weight or volume) whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean. [40 CFR 60.33b(b)(3)(i)] &. [40 CFR 62.14103(b)(1)]	SO2: Monitored by continuous emission monitoring system continuously, based on a daily average (a 24-hour daily geometric average), or a daily geometric average percent reduction using EPA Reference Method 19. This is based on the requirement at 40 CFR 60.58b(e)(4). [40 CFR 60.38b] &. [40 CFR 62.14109(b)]	SO2: Recordkeeping by strip chart or data acquisition (DAS) system continuously. The owner or operator shall maintain records of all 1-hour average sulfur dioxide emission concentrations. This is as specified at 40 CFR 60.59b(d)(2)(i)(B). [40 CFR 60.39b] &. [40 CFR 61.14109(a)]	Submit an Excess Emissions and Monitoring Systems Performance Report (EEMPR): On or before every April 30, July 30, October 30, and January 30 for the preceding calendar quarter (the calendar quarters begin on January 1, April 1, July 1, and October 1) electronically through the NJDEP online EEMPR web portal. [N.J.A.C. 7:27-22.16(o)]
43	HCl Emissions <= 29 ppmvd @ 7% O2 or 5% of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume) whichever is less stringent [40 CFR 60.33b(b)(3)(ii)] &. [40 CFR 62.14103(b)(2)]	HCl Emissions: Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Method 26 or 26A in accordance with 40 CFR 60.58b(f). The minimum sample time shall be 1 hour. See stack testing requirements in OS Summary. [40 CFR 62.14109(b)]	HCl Emissions: Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(2)(i)(B). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]
44	Dioxins/Furans (Total) <= 30 ng/dscm @ 7% O2. 40 CFR 60.33b(c)(iii) &. [40 CFR 62.14103(c)(2)]	Dioxins/Furans (Total): Monitored by stack emission testing annually, based on the average of three Department validated stack test runs using EPA Reference Method 23. Minimum sampling time shall be 4 hours per test run. Monitoring is as required at 40 CFR 60.58b(h), except as specified at 40 CFR 62.14109(d)(1). See stack testing requirements in OS Summary. [40 CFR 62.14109(b)] &. [40 CFR 62.14109(d)(1)]	Dioxins/Furans (Total): Recordkeeping by stack test results annually. Recordkeeping is based on the requirements at 40 CFR 60.59b(d)(9)(i). See stack testing requirements in OS Summary. [40 CFR 60.39b] &. [40 CFR 62.14109(a)]	Stack Test - Submit protocol, conduct test and submit results: As per the approved schedule. [N.J.A.C. 7:27-22.16(o)]

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
45	Temperature >= 1,212 degrees F. The temperature one second downstream of secondary air injection at which the furnace must operate when waste is burned, must be no less than 1,212 degrees F based on a 1-hour block average as recorded by the permanent thermocouples located at the 116' 4" elevation. (This temperature is equivalent to 1600 degrees F or greater at the combustion chamber furnace location at 79'6" elevation.) The auxilliary burner shall be placed into position and operated during steady state operation as needed to maintain temperature one second downstream of secondary air injection in the furnace greater than 1,212 degrees F as recorded by the permanent thermocouples located at the 116' 4" elevation during the combustion of waste. (The facility may conduct a temperature profile study in the future to review temperature profiles.) [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	Temperature: Monitored by temperature instrument continuously, based on a 1 hour block average. [N.J.A.C. 7:27-22.16(o)]	Temperature: Recordkeeping by strip chart or data acquisition (DAS) system continuously. Maintain Furnace Temperature Monitoring Test Report documentation (December 1990) that shows temperature correlations within the furnace combustion zone. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS2 Start-Up of MWC #3**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Start-up Period: commences when the affected incinerator begins the combustion of municipal waste, including continuous, semicontinuous, or batch feeding of municipal solid waste to the furnace. Continuous burning is the continuous, semicontinuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning. The number of start-up events (not including start-up events after emergency malfunctions) shall be limited to 20 per year and the duration of each start-up period shall not exceed 3 hours. This is based on the requirement at 40 CFR 60.58b(a)(1). The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during start-up periods. 40 CFR 60.39b(d) & [N.J.A.C. 7:27-22.16(a)]	None.	Start-up Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each startup event - end time, date which will be 3 hours after the start time - No. of startup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the start time of each start-up event when the boiler is flagged as online. Maintain calculations and basis of startup emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

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Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS3 Shut-down of MWC #3**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Shutdown Period: commences when the feeding of municipal solid waste to the hopper is terminated as a result of a shutdown. The shutdown period ends when municipal solid waste is no longer combusting on the grate. The number of shutdown events (not including shutdowns as a result of emergency malfunctions) shall be limited to 20 per year and the duration of each shutdown period shall not exceed 3 hours. The facility shall maintain the equipment, operate the equipment properly and take steps to minimize emissions during the shut-down periods. [N.J.A.C. 7:27-22.16(e)]	None.	Shutdown Period: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time, date of each shutdown event - the end time, date of the shutdown event - No. of shutdown events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Continuous emission monitoring data obtained from the data acquisition system (DAS) / electronic data storage may also be used to record the end time of each shutdown event when the boiler is flagged as offline. Maintain calculations and basis of shutdown emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	VOC (Total) <= 6.38 lb/hr. Total VOC emissions includes formaldehyde emissions. [40 CFR 52.21] and. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	NOx (Total) <= 184.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 156.9 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 75.8 lb/hr , based on 3 hour average. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	SO3 and H2SO4, as converted and expressed as H2SO4 <= 4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	TSP <= 4.4 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-10 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
9	PM-2.5 (Total) <= 17 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
10	Arsenic compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	Beryllium compounds <= 0.00025 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	Cadmium compounds <= 0.01 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
13	Cadmium compounds <= 0.0037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	Chromium compounds <= 0.012 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	HCl Emissions <= 21.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	Hydrogen fluoride <= 0.82 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
17	Lead compounds <= 0.1 mg/dscm @ 7% O2. [N.J.A.C. 7:27-22.35]	None.	None.	None.
18	Lead compounds <= 0.037 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
19	Mercury compounds <= 0.01 lb/hr based on concentration limit of 28 ug/dscm. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
20	Nickel compounds <= 0.0033 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
21	Dioxins/Furans (Total) <= 0.000011 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
22	TCDD Emissions (2,3,7,8-) <= 0.00001 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
23	Polycyclic aromatic hydrocarbons, or Polycyclic organic matter <= 0.29 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
24	Formaldehyde <= 0.082 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
25	Carbon tetrachloride <= 0.007 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
26	Trichloroethylene <= 0.006 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
27	Vinyl chloride <= 0.003 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
28	Emissions of benzo(a) pyrene and perchloroethylene (tetrachloroethylene) shall be below the reporting threshold. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
29	Ammonia <= 5.24 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF**
Operating Scenario: **OS4 Warm-up of MWC #3**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Warm up period is when the incinerator combusts only auxiliary fuel (fuel oil) and no municipal solid waste is being combusted. The warmup period begins upon initiation of auxiliary fuel combustion in furnace. The number of warmup events (not including warmup events after emergency malfunctions) shall be limited to 20 per year and the duration of the warmup period shall not exceed 7 consecutive hours per warmup event. [N.J.A.C. 7:27-22.16(a)]	None.	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record the following information: - start time,date of each warmup event - the end time, date of the warmup event - No. of warmup events that occurred during the 12 month period (rolling 1 month basis) - name of person recording information Maintain calculations of warm up period emissions limits. [N.J.A.C. 7:27-22.16(o)]	None.
2	Particulate Emissions <= 15.7 lb/hr based on the Maximum Gross Heat input while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
3	NOx (Total) <= 18.7 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	CO <= 3.9 lb/hr based on AP-42 emission factor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	SO2 <= 0.166 lb/hr based on sulfur content in fuel. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	TSP <= 1.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	PM-10 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
8	PM-2.5 (Total) <= 2.6 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
9	Maximum Gross Heat Input <= 109 MMBTU/hr (HHV) while firing auxiliary fuel (Ultra low sulfur diesel). [N.J.A.C. 7:27-22.16(a)]	None.	Maximum Gross Heat Input: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Maintain calculations contained in letter dated October 30, 2001. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U6 Lime Storage Silo A (E4) controlled by filter CD1013**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	No Visible Emissions, exclusive of condensed water vapor, except for no more than 3 minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination each month during operation. Conduct visual opacity inspections during daylight hours to identify if the stack has visible emissions, other than condensed water vapor. Select an observation position enabling clear view of emission point(s), minimum 15 feet away without sunlight shining directly into the eyes. Observe for a minimum duration of 30 minutes. Clock observation with two stopwatches starting the 1st watch at the commencement of the 30-minute observation period and starting and stopping the 2nd watch every time visible emissions are first seen and when they cease, and record the observation. If visible emissions are observed for more than 3 minutes in the 30-consecutive minutes: (1) Verify the equipment and/or control device causing visible emissions is operating according to manufacturer's specifications. If it is not operating properly, take corrective action immediately to eliminate the excess emissions. (2) If the opacity problem is not corrected within 24 hours, perform a check via a certified opacity reader, in accordance with N.J.A.C. 7:27B-2. Conduct such test each day until the opacity problem is successfully corrected. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record and retain the following: (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment: (4) Observed results and conclusions: (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) N.J.A.C. 7:27B-2 results if conducted; and ((8) Name of person(s) conducting inspection. [N.J.A.C. 7:27-22.16(o)]	None.
3	TSP <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	PM-10 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	PM-2.5 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	All emissions shall be exhausted through the dust collector. The permittee shall inspect and maintain the dust collector and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U6 Lime Storage Silo A (E4) controlled by filter CD1013**
Operating Scenario: **OS1 Silo A**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 0.02 grains per SCF. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
3	PM-10 (Total) <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
4	PM-2.5 (Total) <= 0.2 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U7 Lime Storage Silo B (E5) controlled by filter CD1014**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	No Visible Emissions, exclusive of condensed water vapor, except for no more than 3 minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination each month during operation. Conduct visual opacity inspections during daylight hours to identify if the stack has visible emissions, other than condensed water vapor. Select an observation position enabling clear view of emission point(s), minimum 15 feet away without sunlight shining directly into the eyes. Observe for a minimum duration of 30 minutes. Clock observation with two stopwatches starting the 1st watch at the commencement of the 30-minute observation period and starting and stopping the 2nd watch every time visible emissions are first seen and when they cease, and record the observation. If visible emissions are observed for more than 3 minutes in the 30-consecutive minutes: (1) Verify the equipment and/or control device causing visible emissions is operating according to manufacturer's specifications. If it is not operating properly, take corrective action immediately to eliminate the excess emissions. (2) If the opacity problem is not corrected within 24 hours, perform a check via a certified opacity reader, in accordance with N.J.A.C. 7:27B-2. Conduct such test each day until the opacity problem is successfully corrected. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record and retain the following: (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment: (4) Observed results and conclusions: (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) N.J.A.C. 7:27B-2 results if conducted; and ((8) Name of person(s) conducting inspection. [N.J.A.C. 7:27-22.16(o)]	None.
3	TSP <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	PM-10 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	PM-2.5 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	All emissions shall be exhausted through the dust collector. The permittee shall inspect and maintain the dust collector and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U7 Lime Storage Silo B (E5) controlled by filter CD1014**
Operating Scenario: **OS7 Silo B**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 0.02 grains per SCF. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
3	PM-10 (Total) <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
4	PM-2.5 (Total) <= 0.2 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U8 Lime Storage Silo C (E6) controlled by filter CD1015**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	No Visible Emissions, exclusive of condensed water vapor, except for no more than 3 minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination each month during operation. Conduct visual opacity inspections during daylight hours to identify if the stack has visible emissions, other than condensed water vapor. Select an observation position enabling clear view of emission point(s), minimum 15 feet away without sunlight shining directly into the eyes. Observe for a minimum duration of 30 minutes. Clock observation with two stopwatches starting the 1st watch at the commencement of the 30-minute observation period and starting and stopping the 2nd watch every time visible emissions are first seen and when they cease, and record the observation. If visible emissions are observed for more than 3 minutes in the 30-consecutive minutes: (1) Verify the equipment and/or control device causing visible emissions is operating according to manufacturer's specifications. If it is not operating properly, take corrective action immediately to eliminate the excess emissions. (2) If the opacity problem is not corrected within 24 hours, perform a check via a certified opacity reader, in accordance with N.J.A.C. 7:27B-2. Conduct such test each day until the opacity problem is successfully corrected. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record and retain the following: (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment: (4) Observed results and conclusions: (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) N.J.A.C. 7:27B-2 results if conducted; and ((8) Name of person(s) conducting inspection. [N.J.A.C. 7:27-22.16(o)]	None.
3	TSP <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	PM-10 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	PM-2.5 (Total) <= 0.876 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	All emissions shall be exhausted through the dust collector. The permittee shall inspect and maintain the dust collector and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U8 Lime Storage Silo C (E6) controlled by filter CD1015**
Operating Scenario: **OS8 Lime Storage Silo - C**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 0.02 grains per SCF. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
3	PM-10 (Total) <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
4	PM-2.5 (Total) <= 0.2 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U9 Lime Slaker Vent A (E9)**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	The permittee shall not use the equipment in a manner which will cause visible emissions, exclusive of condensed water vapor. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U9 Lime Slaker Vent A (E9)**
Operating Scenario: **OS9 Lime Slaker Vent A**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 0.02 grains per SCF. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.05 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U10 Lime Slaker Vent B (E10)**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	The permittee shall not use the equipment in a manner which will cause visible emissions, exclusive of condensed water vapor. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U10 Lime Slaker Vent B (E10)**
Operating Scenario: **OS10 Lime Slaker Vent B**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 0.02 grains per SCF. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.05 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U11 Activated Carbon Storage Silo (E14) controlled by filter CD1020**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 99% efficiency of collection as determined in the Table at N.J.A.C. 7:27-6.2(a). and. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	No Visible Emissions, exclusive of condensed water vapor, except for no more than 3 minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination each month during operation. Conduct visual opacity inspections during daylight hours to identify if the stack has visible emissions, other than condensed water vapor. Select an observation position enabling clear view of emission point(s), minimum 15 feet away without sunlight shining directly into the eyes. Observe for a minimum duration of 30 minutes. Clock observation with two stopwatches starting the 1st watch at the commencement of the 30-minute observation period and starting and stopping the 2nd watch every time visible emissions are first seen and when they cease, and record the observation. If visible emissions are observed for more than 3 minutes in the 30-consecutive minutes: (1) Verify the equipment and/or control device causing visible emissions is operating according to manufacturer's specifications. If it is not operating properly, take corrective action immediately to eliminate the excess emissions. (2) If the opacity problem is not corrected within 24 hours, perform a check via a certified opacity reader, in accordance with N.J.A.C. 7:27B-2. Conduct such test each day until the opacity problem is successfully corrected. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record and retain the following: (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment: (4) Observed results and conclusions: (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) N.J.A.C. 7:27B-2 results if conducted; and ((8) Name of person(s) conducting inspection. [N.J.A.C. 7:27-22.16(o)]	None.
4	TSP <= 0.9 tons/yr. [N.J.A.C. 7:27-22.16(e)]	None.	None.	None.
5	PM-10 (Total) <= 0.9 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	PM-2.5 (Total) <= 0.9 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
7	All particulate emissions from this emission unit shall be exhausted through a dust collector (CD1020). The permittee shall inspect and maintain the dust collector and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U11 Activated Carbon Storage Silo (E14) controlled by filter CD1020**
Operating Scenario: **OS11 Activated Carbon Storage Silo controlled by filter CD1020**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	TSP <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [40 CRR 52.21] and. [N.J.A.C. 7:27-22.16(e)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
2	PM-10 (Total) <= 0.2 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
3	PM-2.5 (Total) <= 0.2 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U12 Flyash Conditioning Room (E12, E13) controlled by filters CD1017, 1018 & 1019**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
2	No Visible Emissions, exclusive of condensed water vapor, except for no more than 3 minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination each month during operation. Conduct visual opacity inspections during daylight hours to identify if the stack has visible emissions, other than condensed water vapor. Select an observation position enabling clear view of emission point(s), minimum 15 feet away without sunlight shining directly into the eyes. Observe for a minimum duration of 30 minutes. Clock observation with two stopwatches starting the 1st watch at the commencement of the 30-minute observation period and starting and stopping the 2nd watch every time visible emissions are first seen and when they cease, and record the observation. If visible emissions are observed for more than 3 minutes in the 30-consecutive minutes: (1) Verify the equipment and/or control device causing visible emissions is operating according to manufacturer's specifications. If it is not operating properly, take corrective action immediately to eliminate the excess emissions. (2) If the opacity problem is not corrected within 24 hours, perform a check via a certified opacity reader, in accordance with N.J.A.C. 7:27B-2. Conduct such test each day until the opacity problem is successfully corrected. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. Record and retain the following: (1) Date and time of inspection; (2) Emission Point number; (3) Operational status of equipment: (4) Observed results and conclusions: (5) Description of corrective action taken if needed; (6) Date and time opacity problem was solved, if applicable; (7) N.J.A.C. 7:27B-2 results if conducted; and ((8) Name of person(s) conducting inspection. [N.J.A.C. 7:27-22.16(o)]	None.
3	TSP <= 1.13 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
4	PM-10 (Total) <= 1.13 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	PM-2.5 (Total) <= 1.13 tons/yr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	All particulate emissions from this emission unit shall be exhausted through dust collectors CD1017 or CD1018 and then exhaust the building through CD1019. The permittee shall inspect and maintain the dust collectors and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	Monitored by visual determination once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U12 Flyash Conditioning Room (E12, E13) controlled by filters CD1017, 1018 & 1019**

Operating Scenario: **OS12 Flyash Storage in Silo 1 (E12) controlled by filter CD1017, OS15 Flyash Storage in Silo 2 (E13) controlled by filter CD1018**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Particulate Emissions <= 0.5 lb/hr based on 99% efficiency of collection. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
2	TSP <= 0.257 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	Other: Maintain design documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
3	PM-10 (Total) <= 0.257 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	PM-10 (Total): Recordkeeping by documents on site.[N.J.A.C. 7:27-22.16(o)].	None.
4	PM-2.5 (Total) <= 0.257 lb/hr , based on dust collector design information and exhaust flow rates. [N.J.A.C. 7:27-22.16(a)]	None.	PM-2.5 (Total): Recordkeeping by documents on site.[N.J.A.C. 7:27-22.16(o)].	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U13 7.4 MMBtu/hr, 740 KW Diesel Engine-driven Emergency Generator (E7)**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of visible condensed water vapor, except for a period of not longer than 10 consecutive seconds. [N.J.A.C. 7:27- 3.5]	None.	None.	None.
2	Particulate Emissions <= 4.2 lb/hr. Particulate emission limit from the combustion of fuel based on rated heat input of source. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
3	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.
4	Fuel stored in New Jersey that met the applicable maximum sulfur content standard of Tables 1A or 1B of N.J.A.C. 7:27-9.2 at the time it was stored in New Jersey may be used in New Jersey after the operative date of the applicable standard in Table 1B. [N.J.A.C. 7:27- 9.2(b)]	None.	None.	None.
5	Generator fuel limited to # 2 fuel oil or diesel fuel. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
6	Each emergency generator shall be located at the facility and produce mechanical or thermal energy, or electrical power exclusively for use at the facility. This emergency generator shall be operated only: 1. During the performance of normal testing and maintenance procedures, as recommended in writing by the manufacturer and/or as required in writing by a Federal or State law or regulation, 2. When there is power outage or the primary source of mechanical or thermal energy fails because of an emergency, or when the power disruption resulted from construction, repair, or maintenance activity (CRM) at the facility. Operation of the emergency generator under construction, repair, or maintenance activity is limited to 30 days in any calendar year; 3. When there is a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu. [N.J.A.C. 7:27-19.1]	Monitored by hour/time monitor continuously In addition, the owner or operator shall monitor, once per month, the total operating time from the generator's hour meter; hours of operation for emergency use; hours of operation for testing and maintenance; hours of operation during power disruption resulted from construction, repair and maintenance activity (CRM) at the facility; and the total fuel usage calculated by the following: Fuel Usage (Gallons per month) = (Hours of operation per month) x (Maximum emergency generator fuel usage rate in gallons per hour). Hours of operation for emergency use (per month) = (The monthly total operating time from the generator's hour meter) - (The monthly total operating time for testing or maintenance) - (The monthly total operating time due to power disruption resulted from construction, repair, and maintenance activity). [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system at the approved frequency Record the following information: 1. Once per month, the total operating time from the generator's hour meter, the fuel usage (gallons per month), and the monthly hours of operation for emergency use and during power disruption from CRM. Document if the emergency use was due to internal or external loss of primary source of energy, or due to a fire or flood. If internal loss at the facility, document the emergency and/or CRM that occurred, the damages to the primary source of energy and the amount of time needed for repairs. 2. For each time the emergency generator is specifically operated for testing or maintenance: i. The reason for its operation; ii. The date(s) of operation and the start up and shut down time; iii. The total operating time for testing or maintenance based on the generator's hour meter; and iv. The name of the operator; and 3.. If a voltage reduction is the reason for the use of the emergency generator, a copy of the voltage reduction notification from PJM or other documentation of the voltage reduction. The owner or operator of shall maintain the above records for at least 5 years after the record was made and shall make the records readily available to the Department or the EPA. [N.J.A.C. 7:27-22.16(o)] and . [N.J.A.C. 7:27-19.11]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
7	This emergency generator shall not be used: 1. For normal testing and maintenance on days when the Department forecasts air quality anywhere in New Jersey to be "unhealthy for sensitive groups," "unhealthy," or "very unhealthy" as defined in the EPA's Air Quality Index at http://airnow.gov/, as supplemented or amended and incorporated herein by reference, unless required in writing by a Federal or State law or regulation. Procedures for determining the air quality forecasts for New Jersey are available at the Department's air quality permitting web site at http://www.state.nj.us/dep/aqpp/aqforecast; and 2. As a source of energy or power after the primary energy or power source has become operable again after emergency or after power disruption resulted from construction, repair, or maintenance activity. Operation of the emergency generator during construction, repair, or maintenance activity shall be limited to no more than 30 days of operation per calendar year. If the primary energy or power source is under the control of the owner or operator of the emergency generator, the owner or operator shall make a reasonable, timely effort to repair the primary energy or power source. [N.J.A.C. 7:27-19.2(d)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
8	Hours of Operation <= 100 hr/yr for testing and maintenance. The limit on the allowable hours for testing and maintenance in accordance with the documentation from manufacturer, the vendor, or the insurance company associated with the engine. [N.J.A.C. 7:27-22.16(a)]	Hours of Operation: Monitored by hour/time monitor continuously. [N.J.A.C. 7:27-22.16(o)]	Hours of Operation: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. The owner or operator shall maintain on site and record the following information: For each time the emergency generator is specifically operated for testing or maintenance: i. The reason for its operation; ii. The date(s) of operation and the start up and shut down time; iii. The total operating time for testing or maintenance based on the generator's hour meter; and iv. The name of the operator. [N.J.A.C. 7:27-19.11]	None.
9	Maximum Gross Heat Input <= 7.4 MMBTU/hr (HHV). [N.J.A.C. 7:27-22.16(a)]	Other: Engine Rated Capacity. [N.J.A.C. 7:27-22.16(o)].	Other: The owner or operator shall keep records of engine manufacturer data for the life of the equipment showing the rated Maximum Gross Heat Input, Maximum Engine Power, and Manufacture Date.[N.J.A.C. 7:27-22.16(o)].	None.
10	VOC (Total) <= 0.0366 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	NOx (Total) <= 1.306 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	CO <= 0.34 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
13	SO2 <= 0.0784 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
14	TSP <= 0.131 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
15	PM-10 (Total) <= 0.131 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	PM-2.5 (Total) <= 0.131 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U13 7.4 MMBtu/hr, 740 KW Diesel Engine-driven Emergency Generator (E7)**
Operating Scenario: **OS13 Emergency Diesl Generator**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 0.732 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
2	NOx (Total) <= 26.1 lb/hr . [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	CO <= 6.8 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	SO2 <= 1.57 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	TSP <= 2.64 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	PM-10 (Total) <= 2.64 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	PM-2.5 (Total) <= 2.64 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U14 1.59 MMBtu/hr, 240 BHP Diesel Engine-driven Emergency Fire Pump (E8)**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Opacity <= 20 % , exclusive of visible condensed water vapor, except for a period of not longer than 10 consecutive seconds. [N.J.A.C. 7:27- 3.5]	None.	None.	None.
2	Particulate Emissions <= 0.954 lb/hr. Particulate emission limit from the combustion of fuel based on rated heat input of source. [N.J.A.C. 7:27- 4.2(a)]	None.	None.	None.
3	Sulfur Content in Fuel <= 15 ppmw (0.0015% by weight). Effective July 1, 2016. [N.J.A.C. 7:27- 9.2(b)]	Sulfur Content in Fuel: Monitored by review of fuel delivery records per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	Sulfur Content in Fuel: Recordkeeping by invoices / bills of lading / certificate of analysis per delivery showing fuel sulfur content. [N.J.A.C. 7:27-22.16(o)]	None.
4	Fuel stored in New Jersey that met the applicable maximum sulfur content standard of Tables 1A or 1B of N.J.A.C. 7:27-9.2 at the time it was stored in New Jersey may be used in New Jersey after the operative date of the applicable standard in Table 1B. [N.J.A.C. 7:27- 9.2(b)]	None.	None.	None.
5	Generator fuel limited to # 2 fuel oil or diesel fuel. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
6	Each emergency generator shall be located at the facility and produce mechanical or thermal energy, or electrical power exclusively for use at the facility. This emergency generator shall be operated only: 1. During the performance of normal testing and maintenance procedures, including other fire protection equipment, as recommended in writing by the fire pump or fire protection system manufacturer and/or as required in writing by a Federal or State law or regulation, 2. When there is power outage or the primary source of mechanical or thermal energy fails because of an emergency, or 3. When there is a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu, or 4. To provide power to pump water for fire suppression or protection, or in case of flood, even if there is no power outage and primary source of mechanical energy has not failed. [N.J.A.C. 7:27-22.16(a)] and [N.J.A.C. 7:27-19.1]	Monitored by hour/time monitor continuously. In addition, the owner or operator shall monitor, once per month, the total operating time from the generator's hour meter; hours of operation for emergency use; hours of operation for testing and maintenance; and the total fuel usage calculated by the following: Fuel Usage (Gallons per month) = (Hours of operation per month) x (Maximum emergency generator fuel usage rate in gallons per hour). Hours of operation for emergency use (per month) = (The monthly total operating time from the generator's hour meter) - (The monthly total operating time for testing or maintenance) [N.J.A.C. 7:27-22.16(o)]	Recordkeeping by manual logging of parameter or storing data in a computer data system at the approved frequency. The owner or operator shall maintain on site and record the following information: 1. Once per month, the total operating time from the generator's hour meter, the fuel usage (gallons per month) and the hours of operation for emergency use (per month). Document if the emergency use was due to internal or external loss of primary source of energy, or due to a fire or flood. If internal loss at the facility, document the emergency that occurred, the damages to the primary source of energy and the amount of time needed for repairs. 2. For each time the emergency generator is specifically operated for testing or maintenance: i. The reason for its operation; ii. The date(s) of operation and the start up and shut down time; iii. The total operating time for testing or maintenance based on the generator's hour meter; and iv. The name of the operator; and 3. If a voltage reduction is the reason for the use of the emergency generator, a copy of the voltage reduction notification from PJM or other documentation of the voltage reduction. The owner or operator of an emergency generator shall maintain the above records for a period no less than 5 years after the record was made and shall make the records readily available to the Department or the EPA upon request. [N.J.A.C. 7:27-22.16(o)] and [N.J.A.C. 7:27-19.11]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
7	This emergency generator shall not be used: 1. For normal testing and maintenance on days when the Department forecasts air quality anywhere in New Jersey to be "unhealthy for sensitive groups," "unhealthy," or "very unhealthy" as defined in the EPA's Air Quality Index at http://airnow.gov/, as supplemented or amended and incorporated herein by reference, unless required in writing by a Federal or State law or regulation. Procedures for determining the air quality forecasts for New Jersey are available at the Department's air quality permitting web site at http://www.state.nj.us/dep/aqpp/aqforecast; and 2. As a source of energy or power after the primary energy or power source has become operable again. If the primary energy or power source is under the control of the owner or operator of the emergency generator, the owner or operator shall make a reasonable, timely effort to repair the primary energy or power source. [N.J.A.C. 7:27-19.2(d)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
8	Hours of Operation <= 50 hr/yr for testing and maintenance. The limit on the allowable hours for testing and maintenance in accordance with the documentation from manufacturer, the vendor, or the insurance company associated with the engine. [N.J.A.C. 7:27-22.16(a)]	Hours of Operation: Monitored by hour/time monitor continuously. [N.J.A.C. 7:27-22.16(o)]	Hours of Operation: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. The owner or operator shall maintain on site and record the following information: For each time the emergency generator is specifically operated for testing or maintenance: i. The reason for its operation; ii. The date(s) of operation and the start up and shut down time; iii. The total operating time for testing or maintenance based on the generator's hour meter; and iv. The name of the operator. [N.J.A.C. 7:27-19.11]	None.
9	Maximum Gross Heat Input <= 1.59 MMBTU/hr (HHV). [N.J.A.C. 7:27-22.16(a)]	Other: Engine Rated Capacity. [N.J.A.C. 7:27-22.16(o)].	None.	None.
10	VOC (Total) <= 0.0105 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
11	NOx (Total) <= 0.13 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
12	CO <= 0.0286 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
13	SO2 <= 0.0087 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
14	TSP <= 0.0094 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
15	PM-10 (Total) <= 0.0094 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
16	PM-2.5 (Total) <= 0.0094 tons/yr. Annual emission limit based on the permitted hours per year of operation. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U14 1.59 MMBtu/hr, 240 BHP Diesel Engine-driven Emergency Fire Pump (E8)**
Operating Scenario: **OS14 Emergency Diesel Fire Pump**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	VOC (Total) <= 0.42 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
2	NOx (Total) <= 5.2 lb/hr . [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
3	CO <= 1.14 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
4	SO2 <= 0.348 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	TSP <= 0.376 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	PM-10 (Total) <= 0.376 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
7	PM-2.5 (Total) <= 0.376 lb/hr. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Emission Unit: **U15 Ash and Metals Recovery System (E16, E17, E21-E30), controlled by particulate filter CD1022**
Operating Scenario: **OS Summary**

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
1	Summary of Federal Rules applicable to this Emission Unit: NSPS 40 CFR Part 60 Subpart A (See GR1) NSPS 40 CFR Part 60 Subpart Cb NSPS 40 CFR Part 62 Subpart FFF [None]	None.	None.	None.
2	Particulate Emissions < 0.5 lb/hr. Maximum allowable particulate emission rate from source emission point based on 99% efficiency of collection. [N.J.A.C. 7:27- 6.2(a)]	None.	None.	None.
3	Opacity <= 20 % , exclusive of condensed water vapor, for a period longer than three minutes in any consecutive 30-minute period. [N.J.A.C. 7:27-6.2(d)] and. [N.J.A.C. 7:27- 6.2(e)]	None.	None.	None.
4	The permittee shall not use the equipment in a manner which will cause visible emissions, exclusive of condensed water vapor. [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
5	TSP <= 0.05 lb/hr (from all scenarios combined.). [N.J.A.C. 7:27-22.16(a)]	None.	None.	None.
6	Total Material Transferred <= 25.5 tons/hr of bottom ash to metals recovery (Design capacity) for this scenario. This includes re-feed ash flow. Similarly, combined design capacity for both fly ash and bottom ash = 31 tons per hour. [N.J.A.C. 7:27-22.16(a)]	Total Material Transferred: Monitored by documentation of construction once initially. [N.J.A.C. 7:27-22.16(o)]	Total Material Transferred: Recordkeeping by manual logging of parameter or storing data in a computer data system once initially. Retain original design specifications and emission calculations in file. [N.J.A.C. 7:27-22.16(o)]	None.

New Jersey Department of Environmental Protection
Facility Specific Requirements

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
7	All particulate emissions from this emission unit shall be exhausted through dust collector CD1022. The permittee shall inspect and maintain the dust collectors and replace the filter media on a schedule necessary to achieve the required particulate control effeciency as specified by the manufacturer. [N.J.A.C. 7:27-22.16(a)]	None.	Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record each inspection and maintenance event. The filter will be maintained in accordance with manufacturer's recommendations. [N.J.A.C. 7:27-22.16(o)]	None.
8	Pressure Drop >= 1 and Pressure Drop <= 6 inches w.c. (across the filter.). [N.J.A.C. 7:27-22.16(a)]	Pressure Drop: Monitored by pressure drop instrument once every 2 weeks. [N.J.A.C. 7:27-22.16(o)]	Pressure Drop: Recordkeeping by manual logging of parameter or storing data in a computer data system upon occurrence of event. Record observed pressure drop. [N.J.A.C. 7:27-22.16(o)]	None.
9	FUGITIVE ASH EMISSIONS -The facility must not cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9-min. per 3-hour period), except during periods of startup, shutdown, and malfunction and as provided below. Startup, shutdown, and malfunction exception is specified by 40 CFR 62.14109(b) and 40 CFR 60.58b(a)(1). - The emission limit specified above does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit specified above does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems. - The provisions specified above do not apply during maintenance and repair of ash conveying systems. 40 CFR 60.39b(d)& [40 CFR 62.14106(a)]	Monitored by visual determination annually, based on the average of three tests. Compliance with fugitive ash emission limits shall be based on a series of three one hour observations, performed annually, using EPA Reference Method 22. This is based on the requirement at 40 CFR 60.58b(k). [40 CFR 60.39b(d)]&. [40 CFR 62.14106(a)]	Other: Maintain records of annual method 22 results along with all supporting calculations. This is as specified at 40 CFR 60.59b(d)(9). [40 CFR 60.39b(d)]&[40 CFR 62.14109(a)].	None.

COVANTA ESSEX CO (07736)
BOP170001

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): Covanta Essex Company

Facility ID (AIMS): 07736

Street Address: 183 RAYMOND BLVD
NEWARK NJ 07105
NEWARK, NJ 07105-4798

Mailing Address: 183 RAYMOND BLVD
NEWARK NJ 07105
NEWARK, NJ 07105-4798

State Plane Coordinates:

X-Coordinate:	574
Y-Coordinate:	4,510
Units:	UTM Zone 18N - Meters
Datum:	Unknown
Source Org.:	Other/Unknown
Source Type:	Other/Unknown

County: Essex

Location Description: Municipal Waste Combustion using mass-burn waterwall furnace and boiler that generates electricity.

Industry:

Primary SIC:	4953
Secondary SIC:	4939
NAICS:	562213

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Air Permit Information Contact

Organization: Covanta Essex Company
Org. Type: Partnership
Name: Patricia Earls
NJ EIN: 75611300000
Title: NJ Regional Environmental Manager
Phone: (973) 817-7322 x
Fax: (973) 344-4999 x
Other: (201) 621-1845 x
Type: Mobile
Email: pearls@covanta.com
Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

Contact Type: BOP - Operating Permits

Organization: Covanta Essex Company
Org. Type: Partnership
Name: Patricia Earls
NJ EIN: 75611300000
Title: NJ Regional Environmental Manager
Phone: (973) 817-7322 x
Fax: (973) 344-4999 x
Other: (201) 621-1845 x
Type: Mobile
Email: pearls@covanta.com
Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

Contact Type: Environmental Officer

Organization: Covanta Essex Company
Org. Type: Partnership
Name: Patricia Earls
NJ EIN: 75611300000
Title: NJ Regional Environmental Manager
Phone: (973) 817-7322 x
Fax: (973) 344-4999 x
Other: (201) 621-1845 x
Type: Mobile
Email: pearls@covanta.com
Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: Fees/Billing Contact

Organization: Covanta Essex Company
Name: Patricia Earls
Title: Environmental Engineer
Phone: (973) 817-7322 x
Fax: ( ) - x
Other: ( ) - x
Type:
Email: pearls@covantaenergy.com

Org. Type: Corporation
NJ EIN: 75611300000

Mailing Address: 183 Raymond Blvd
Newark, NJ 07105-4798

Contact Type: General Contact

Organization: Covanta Essex Company
Name: Patricia Earls
Title: NJ Regional Environmental Manager
Phone: (973) 817-7322 x
Fax: (973) 344-4999 x
Other: (201) 621-1845 x
Type: Mobile
Email: pearls@covanta.com

Org. Type: Partnership
NJ EIN: 75611300000

Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

Contact Type: On-Site Manager

Organization: Covanta Essex Company
Name: Carlos Ascencio
Title: Facility Manager
Phone: (973) 817-7228 x
Fax: (973) 344-4999 x
Other: (973) 722-3574 x
Type: Mobile
Email: cascencio@covanta.com

Org. Type: Partnership
NJ EIN: 75611300000

Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

COVANTA ESSEX CO (07736)
BOP170001

New Jersey Department of Environmental Protection
Facility Profile (General)

Contact Type: **Responsible Official**

Organization: Covanta Essex Company
Name: Carlos Ascencio
Title: Facility Manager
Phone: (973) 817-7228 x
Fax: (973) 344-4999 x
Other: (973) 722-3574 x
Type: Mobile
Email: cascencio@covanta.com

Org. Type: Partnership
NJ EIN: 75611300000

Mailing Address: 183 Raymond Boulevard
Newark, NJ 07105

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Insignificant Source Emissions

IS NJID	Source/Group Description	Equipment Type	Location Description	Estimate of Emissions (tpy)								
				VOC (Total)	NOx	CO	SO	TSP	PM-10	Pb	HAPS (Total)	Other (Total)
IS1	No. 2 Fuel Oil Tanks (<10,000 Gallons Capacity)	Storage Vessel										
IS2	Fuel Oil Tank (>10,000 Gallons Capacity)	Storage Vessel										
Total				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00000000	0.000

COVANTA ESSEX CO (07736) Date: 10/11/2019

BOP170001

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E1	1	MSW Boiler #1	Incinerator	PCP960005	11/3/1990	No	7/29/1997	
E2	2	MSW Boiler #2	Incinerator	PCP960005	11/26/1990	No	7/29/1997	
E3	3	MSW Boiler #3	Incinerator	PCP960005	12/17/1990	No	7/29/1997	
E4	4	Lime Silo A	Storage Vessel	PCP960001	11/1/1990	No		
E5	5	Lime Silo B	Storage Vessel	PCP960002	11/1/1990	No		
E6	6	Lime Silo C	Storage Vessel	PCP960003	11/1/1990	No		
E7	7	740 KW Diesel Generator	Emergency Generator	PCP960006	11/1/1990	No		
E8	8	240 BHP Diesel Fire Pump	Emergency Generator	PCP960007	11/1/1990	No		
E9	9	Lime Slaker Vent A	Manufacturing and Materials Handling Equipment	PCP960010	11/11/1991	No		
E10	10	Lime Slaker Vent B	Manufacturing and Materials Handling Equipment	PCP960013	11/11/1991	No		
E12	12	Flyash Silo 1	Manufacturing and Materials Handling Equipment	PCP960012	11/11/1991	No		
E13	13	Flyash Silo 2	Manufacturing and Materials Handling Equipment	PCP960012	11/11/1991	No		
E14	14	Carbon Silo	Storage Vessel	PCP960005	12/1/1995	No		
E16	16	Ash Conveyance Line "A" - CV500A & 502A	Manufacturing and Materials Handling Equipment	PCP960009	11/1/1990	No	11/1/1994	

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E17	17	Ash Conveyance Line "B" - CV500B & 502B	Manufacturing and Materials Handling Equipment	PCP960009	11/1/1990	No	11/1/1994	
E21	RH-136-CV	Vibratory Conveyor	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E22	RH-150-SC	Grizzly Scalper	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E23	RH-170-CV	Feeder	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E24	FE-200-MAG	Ferrous Magnet	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E25	RH-160-FD	Vibratory Conveyor	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E26	NF-230-SC	Screen	Manufacturing and Materials Handling Equipment	BOP170001	1/1/2019	No		
E27	NF-300-ECS	Eddy Current Separator (+3/8)	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E28	NF-400-MSB	Feeder	Manufacturing and Materials Handling Equipment	BOP170001	1/1/2019	No		

COVANTA ESSEX CO (07736) Date: 10/11/2019

BOP170001

New Jersey Department of Environmental Protection
Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E29	NF-410-ECS	Eddy Current Separator (-3/8)	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		
E30	E30	Conveyors	Manufacturing and Materials Handling Equipment	BOP120001	10/1/2012	No		

07736 COVANTA ESSEX CO BOP170001 E1 (Incinerator)
Print Date: 6/6/2019

Make:	
Manufacturer:	Foster Wheeler
Model:	
Unit Type:	
Description:	Municipal Solid Waste Incinerator
Waste Category:	Municipal Solid Waste
Description:	
Maximum Waste Processing Capacity:	
Units:	
Physical State of Waste being Incinerated:	Solid
Primary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	423
Primary Chamber Maximum Primary Air (acfm):	109000
Primary Chamber Maximum Gas Flow Rate (acfm):	505350
Primary Chamber Volume (ft3):	
Primary Chamber Minimum Design Operation Temperature (deg F):	
Primary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	
Secondary Chamber Maximum Primary Air (acfm):	
Secondary Chamber Maximum Gas Flow Rate (acfm):	
Secondary Chamber Volume (ft3):	

Secondary Chamber Minimum Design Operation Temperature (deg F):	
Secondary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Outlet Air Flow Rate (acfm):	
Secondary Chamber Minimum Outlet Temperature (deg F):	
Type of Plume Suppression:	
Do you have a Bypass Stack?	No
Have you attached a diagram showing the location and/or configuration of this equipment?	
Have you attached any manufacturer's data or specifications which may aid in the review of this application?	
Comments:	

Include Emission Rates on the Potential to Emit Screen for each Contaminant in ppmvd @ 7% O2, lbs/mmBTU, and grains/dscf (PM10 and TSP only) in addition to lbs/hr and tons/yr.

07736 COVANTA ESSEX CO BOP170001 E2 (Incinerator)
Print Date: 6/6/2019

Make:	
Manufacturer:	Foster Wheeler
Model:	
Unit Type:	
Description:	Municipal Solid Waste Incinerator
Waste Category:	Municipal Solid Waste
Description:	
Maximum Waste Processing Capacity:	
Units:	
Physical State of Waste being Incinerated:	Solid
Primary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	423
Primary Chamber Maximum Primary Air (acfm):	109000
Primary Chamber Maximum Gas Flow Rate (acfm):	505350
Primary Chamber Volume (ft3):	
Primary Chamber Minimum Design Operation Temperature (deg F):	
Primary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	
Secondary Chamber Maximum Primary Air (acfm):	
Secondary Chamber Maximum Gas Flow Rate (acfm):	
Secondary Chamber Volume (ft3):	

Secondary Chamber Minimum Design Operation Temperature (deg F):	
Secondary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Outlet Air Flow Rate (acfm):	
Secondary Chamber Minimum Outlet Temperature (deg F):	
Type of Plume Suppression:	
Do you have a Bypass Stack?	No
Have you attached a diagram showing the location and/or configuration of this equipment?	
Have you attached any manufacturer's data or specifications which may aid in the review of this application?	
Comments:	

Include Emission Rates on the Potential to Emit Screen for each Contaminant in ppmvd @ 7% O2, lbs/mmBTU, and grains/dscf (PM10 and TSP only) in addition to lbs/hr and tons/yr.

07736 COVANTA ESSEX CO BOP170001 E3 (Incinerator)
Print Date: 6/6/2019

Make:	
Manufacturer:	Foster Wheeler
Model:	
Unit Type:	
Description:	Municipal Solid Waste Incinerator
Waste Category:	Municipal Solid Waste
Description:	
Maximum Waste Processing Capacity:	
Units:	
Physical State of Waste being Incinerated:	Solid
Primary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	423
Primary Chamber Maximum Primary Air (acfm):	109000
Primary Chamber Maximum Gas Flow Rate (acfm):	505350
Primary Chamber Volume (ft3):	
Primary Chamber Minimum Design Operation Temperature (deg F):	
Primary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Gross Heat Input from Fuel (MMBtu/hr, HHV):	
Secondary Chamber Maximum Primary Air (acfm):	
Secondary Chamber Maximum Gas Flow Rate (acfm):	
Secondary Chamber Volume (ft3):	

Secondary Chamber Minimum Design Operation Temperature (deg F):	
Secondary Chamber Minimum Gas Residence Time (sec):	
Secondary Chamber Maximum Outlet Air Flow Rate (acfm):	
Secondary Chamber Minimum Outlet Temperature (deg F):	
Type of Plume Suppression:	
Do you have a Bypass Stack?	No
Have you attached a diagram showing the location and/or configuration of this equipment?	
Have you attached any manufacturer's data or specifications which may aid in the review of this application?	
Comments:	

Include Emission Rates on the Potential to Emit Screen for each Contaminant in ppmvd @ 7% O2, lbs/mmBTU, and grains/dscf (PM10 and TSP only) in addition to lbs/hr and tons/yr.

07736 COVANTA ESSEX CO BOP170001 E4 (Storage Vessel)
Print Date: 6/6/2019

What type of contents is this storage vessel equipped to contain by design?	Solids Only
Storage Vessel Type:	Silo
Design Capacity:	5,250
Units:	ft^3
Ground Location:	Above Ground
Is the Shell of the Equipment Exposed to Sunlight?	
Shell Color:	
Description (if other):	
Shell Condition:	
Paint Condition:	
Shell Construction:	
Is the Shell Insulated?	
Type of Insulation:	
Insulation Thickess (in):	
Thermal Conductivity of Insulation [(BTU)(in)(hr)(ft2)(deg F)]:	
Shape of Storage Vessel:	Cylindrical
Shell Height (From Ground to Roof Bottom) (ft):	65.00
Length (ft):	
Width (ft):	
Diameter (ft):	12.00
Other Dimension	
Description:	
Value:	
Units:	
Fill Method:	Top Pipe
Description (if other):	
Maximum Design Fill Rate:	
Units:	ft^3/min
Does the storage vessel have a roof or an open top?	Roof
Roof Type:	Vertical fixed roof tank
Roof Height (From Roof Bottom to Roof Top) (ft):	
Roof Construction:	
Primary Seal Type:	
Secondary Seal Type:	
Total Number of Seals:	
Roof Support:	
Does the storage vessel have a Vapor Return Loop?	

07736 COVANTA ESSEX CO BOP170001 E4 (Storage Vessel)
Print Date: 6/6/2019

Does the storage vessel have a Conservation Vent?

Have you attached a diagram showing the location and/or the configuration of this equipment?

Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?

Comments:

07736 COVANTA ESSEX CO BOP170001 E5 (Storage Vessel)
Print Date: 6/6/2019

What type of contents is this storage vessel equipped to contain by design?	Solids Only
Storage Vessel Type:	Silo
Design Capacity:	5,250
Units:	ft^3
Ground Location:	Above Ground
Is the Shell of the Equipment Exposed to Sunlight?	
Shell Color:	
Description (if other):	
Shell Condition:	
Paint Condition:	
Shell Construction:	
Is the Shell Insulated?	
Type of Insulation:	
Insulation Thickess (in):	
Thermal Conductivity of Insulation [(BTU)(in)(hr)(ft2)(deg F)]:	
Shape of Storage Vessel:	Cylindrical
Shell Height (From Ground to Roof Bottom) (ft):	65.00
Length (ft):	
Width (ft):	
Diameter (ft):	12.00
Other Dimension	
Description:	
Value:	
Units:	
Fill Method:	Top Pipe
Description (if other):	
Maximum Design Fill Rate:	
Units:	ft^3/min
Does the storage vessel have a roof or an open top?	Roof
Roof Type:	Vertical fixed roof tank
Roof Height (From Roof Bottom to Roof Top) (ft):	
Roof Construction:	
Primary Seal Type:	
Secondary Seal Type:	
Total Number of Seals:	
Roof Support:	
Does the storage vessel have a Vapor Return Loop?	

07736 COVANTA ESSEX CO BOP170001 E5 (Storage Vessel)
Print Date: 6/6/2019

Does the storage vessel have a Conservation Vent?

Have you attached a diagram showing the location and/or the configuration of this equipment?

Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?

Comments:

07736 COVANTA ESSEX CO BOP170001 E6 (Storage Vessel)
Print Date: 6/6/2019

What type of contents is this storage vessel equipped to contain by design?	Solids Only
Storage Vessel Type:	Silo
Design Capacity:	5,250
Units:	ft^3
Ground Location:	Above Ground
Is the Shell of the Equipment Exposed to Sunlight?	
Shell Color:	
Description (if other):	
Shell Condition:	
Paint Condition:	
Shell Construction:	
Is the Shell Insulated?	
Type of Insulation:	
Insulation Thickess (in):	
Thermal Conductivity of Insulation [(BTU)(in)(hr)(ft2)(deg F)]:	
Shape of Storage Vessel:	Cylindrical
Shell Height (From Ground to Roof Bottom) (ft):	65.00
Length (ft):	
Width (ft):	
Diameter (ft):	12.00
Other Dimension	
Description:	
Value:	
Units:	
Fill Method:	Top Pipe
Description (if other):	
Maximum Design Fill Rate:	
Units:	ft^3/min
Does the storage vessel have a roof or an open top?	Roof
Roof Type:	Vertical fixed roof tank
Roof Height (From Roof Bottom to Roof Top) (ft):	
Roof Construction:	
Primary Seal Type:	
Secondary Seal Type:	
Total Number of Seals:	
Roof Support:	
Does the storage vessel have a Vapor Return Loop?	

07736 COVANTA ESSEX CO BOP170001 E6 (Storage Vessel)
Print Date: 6/6/2019

Does the storage vessel have a Conservation Vent?

Have you attached a diagram showing the location and/or the configuration of this equipment?

Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?

Comments:

07736 COVANTA ESSEX CO BOP170001 E7 (Emergency Generator)
Print Date: 6/6/2019

Make:	
Manufacturer:	Cummins
Model:	
Maximum Rated Gross Heat Input (MMBtu/hr):	7
Will the equipment be used in excess of 500 hours per year?	No
Have you attached a diagram showing the location and/or configuration of this equipment?	Yes
Have you attached any manufacturer's data or specifications which may aid in the review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E8 (Emergency Generator)
Print Date: 6/6/2019

Make:	
Manufacturer:	Peerless
Model:	4000
Maximum Rated Gross Heat Input (MMBtu/hr):	1.6
Will the equipment be used in excess of 500 hours per year?	No
Have you attached a diagram showing the location and/or configuration of this equipment?	Yes
Have you attached any manufacturer's data or specifications which may aid in the review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E9 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Lime Slaker Vent A
Capacity:	
Units:	
Description (if other):	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E10 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Lime Slaker Vent B
Capacity:	
Units:	
Description (if other):	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E12 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Flyash System A
Capacity:	
Units:	
Description (if other):	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E13 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Flyash System B
Capacity:	
Units:	
Description (if other):	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E14 (Storage Vessel)
Print Date: 6/6/2019

What type of contents is this storage vessel equipped to contain by design?	Solids Only
Storage Vessel Type:	Silo
Design Capacity:	2,700
Units:	ft^3
Ground Location:	Above Ground
Is the Shell of the Equipment Exposed to Sunlight?	
Shell Color:	
Description (if other):	
Shell Condition:	
Paint Condition:	
Shell Construction:	
Is the Shell Insulated?	
Type of Insulation:	
Insulation Thickess (in):	
Thermal Conductivity of Insulation [(BTU)(in)(hr)(ft2)(deg F)]:	
Shape of Storage Vessel:	Cylindrical
Shell Height (From Ground to Roof Bottom) (ft):	14.50
Length (ft):	
Width (ft):	
Diameter (ft):	13.92
Other Dimension	
Description:	
Value:	
Units:	
Fill Method:	Top Pipe
Description (if other):	
Maximum Design Fill Rate:	
Units:	ft^3/min
Does the storage vessel have a roof or an open top?	Roof
Roof Type:	Vertical fixed roof tank
Roof Height (From Roof Bottom to Roof Top) (ft):	
Roof Construction:	
Primary Seal Type:	
Secondary Seal Type:	
Total Number of Seals:	
Roof Support:	
Does the storage vessel have a Vapor Return Loop?	
Does the storage vessel	

07736 COVANTA ESSEX CO BOP170001 E14 (Storage Vessel)
Print Date: 6/6/2019

Does the storage vessel have a Conservation Vent?

Have you attached a diagram showing the location and/or the configuration of this equipment?

Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?

Comments:

07736 COVANTA ESSEX CO BOP170001 E16 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Flyash Building Baghouse & Flyash System A I
Capacity:	8.50E+03
Units:	other units
Description (if other):	lbs/hr
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E17 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Flyash Building Baghouse & Flyash System B
Capacity:	
Units:	
Description (if other):	
Have you attached a diagram showing the location and/or the configuration of this equipment?	Yes
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	

07736 COVANTA ESSEX CO BOP170001 E21 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Conveyor
Capacity:	2.25E+01
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E22 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Grizzly Scalper
Capacity:	2.25E+01
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E23 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Feeder
Capacity:	2.01E+01
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E24 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Ferrous Magnet
Capacity:	3.68E+00
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E25 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Conveyor
Capacity:	2.40E+00
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E26 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	Joest
Model:	
Type of Manufacturing and Materials Handling Equipment:	Screen
Capacity:	1.64E+01
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E27 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	Steinert or equivalent
Model:	NES 150-220-5009 or equivalent
Type of Manufacturing and Materials Handling Equipment:	Eddy Current Separator
Capacity:	6.59E+00
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E28 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	Joest
Model:	
Type of Manufacturing and Materials Handling Equipment:	Feeder
Capacity:	9.83E+00
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E29 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	Steinert or equivalent
Model:	NES 150-210-E6119 or equivalent
Type of Manufacturing and Materials Handling Equipment:	Eddy Current Separator
Capacity:	9.83E+00
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

07736 COVANTA ESSEX CO BOP170001 E30 (Manufacturing and Materials Handling Equipment)
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Type of Manufacturing and Materials Handling Equipment:	Conveyors
Capacity:	2.80E+01
Units:	other units
Description (if other):	tons/hour
Have you attached a diagram showing the location and/or the configuration of this equipment?	No
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	No
Comments:	To be located in current ash/ferrous area

COVANTA ESSEX CO (07736) Date: 10/11/2019

BOP170001

New Jersey Department of Environmental Protection
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD1001	1001	Acid Gas Scrubber - Boiler #1	Scrubber (Other)	11/1/1990	No		
CD1002	1002	Acid Gas Scrubber - Boiler #2	Scrubber (Other)	11/1/1990	No		
CD1003	1003	Acid Gas Scrubber - Boiler #3	Scrubber (Other)	11/1/1990	No		
CD1007	1007	Thermal DeNOx - Boiler #1	Selective Non-Catalytic Reduction	11/1/1994	No	7/29/1997	
CD1008	1008	Thermal DeNOx - Boiler #2	Selective Non-Catalytic Reduction	11/1/1994	No	7/29/1997	
CD1009	1009	Thermal DeNOx - Boiler #3	Selective Non-Catalytic Reduction	11/1/1994	No	7/29/1997	
CD1010	1010	Carbon Injection for Mercury Control - Boiler #1	Adsorber	12/1/1995	No	6/21/1996	
CD1011	1011	Carbon Injection for Mercury Control - Boiler #2	Adsorber	12/1/1995	No	6/21/1996	
CD1012	1012	Carbon Injection for Mercury Control - Boiler #3	Adsorber	12/1/1995	No	6/21/1996	
CD1013	1013	Lime Silo A Baghouse	Particulate Filter (Baghouse)	11/1/1990	No		
CD1014	1014	Lime Silo B Baghouse	Particulate Filter (Baghouse)	11/1/1990	No		
CD1015	1015	Lime Silo C Baghouse	Particulate Filter (Baghouse)	11/1/1990	No		
CD1017	1017	Flyash Silo A Baghouse	Particulate Filter (Baghouse)	11/11/1991	No		

COVANTA ESSEX CO (07736) Date: 10/11/2019

BOP170001

New Jersey Department of Environmental Protection
Control Device Inventory

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD1018	1018	Flyash Silo B Baghouse	Particulate Filter (Baghouse)	11/11/1991	No		
CD1019	1019	Flyash Building Baghose	Particulate Filter (Baghouse)	3/27/2019	No		
CD1020	1020	Carbon Silo Baghouse	Particulate Filter (Baghouse)	12/1/1995	No		
CD1022	Ash Area Ven	Ash Area Vent Filter	Particulate Filter (Cartridge)	10/1/2012	No		
CD1023	1023	MSW Boiler #1 Baghouse	Particulate Filter (Baghouse)	11/6/2016	No		
CD1024	1024	MSW Boiler #2 Baghouse	Particulate Filter (Baghouse)	5/24/2016	No		
CD1025	1025	MSW Boiler #3 Baghouse	Particulate Filter (Baghouse)	11/1/2015	No		

07736 COVANTA ESSEX CO BOP170001 CD1001 (Scrubber (Other))
Print Date: 6/6/2019

Make:	
Manufacturer:	Belco
Model:	
Scrubber Type:	Other
Description:	Spray Dryer Absorber System - Lime Scrubber
Is the Scrubber Used for Particulate Control?	○ Yes ● No
Is the Scrubber Used for Gas Control?	● Yes ○ No
Is the Scrubber Equipped with a Mist Eliminator?	○ Yes ● No
Minimum Pump Discharge Pressure (in. H20):	
Maximum Pump Discharge Pressure (in. H20):	
Method of Monitoring Pump Discharge Pressure:	
Minimum Pump Current (amps):	
Maximum Pump Current (amps):	50.00
Method of Monitoring Pump Current:	
Minimum Scrubber Medium Inlet Pressure (in. H20):	
Minimum Operating Liquid Flow Rate (gpm):	
Maximum Operating Liquid Flow Rate (gpm):	30.00
Method of Monitoring Liquid Flow Rate:	Bailey Net 90 Control System
Minimum Operating Gas Flow Rate (acfm):	
Maximum Operating Gas Flow Rate (acfm):	
Method of Monitoring Gas Flow Rate:	
Minimum Operating Pressure Drop (in. H20):	5.50
Maximum Operating Pressure Drop (in. H20):	6.00
Method of Monitoring Pressure Drop:	Manometer
Relative Direction of the Gas-Liquid Flow:	Co-Current
Description:	
Number of Plates:	
Type of Plates:	
Spacing between Plates (in.):	
Maximum Inlet Gas Temperature (°F):	491.0
Maximum Outlet Gas Temperature (°F):	302.0
Inlet Particle Grain Loading (gr/dscf):	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	SO2 monitor
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No

○ Yes ● No

Have you attached a diagram showing the location and/or configuration of this control apparatus?

○ Yes ● No

Comments:

07736 COVANTA ESSEX CO BOP170001 CD1002 (Scrubber (Other))
Print Date: 6/6/2019

Make:	
Manufacturer:	Belco
Model:	
Scrubber Type:	Spray Dryer Absorber System
Description:	Lime Scrubber
Is the Scrubber used for Particulate Control?	No
Is the Scrubber used for Gas Control?	Yes
Is the Scrubber Equipped with a Mist Eliminator?	No
Minimum Pump Discharge Pressure (in. H2O):	0
Maximum Pump Discharge Pressure (in. H2O):	3600
Method of Monitoring Pump Discharge Pressure:	
Minimum Pump Current (amps):	0
Maximum Pump Current (amps):	50
Method of Monitoring Pump Current:	
Minimum Scrubber Medium Inlet Pressure (in. H2O):	>=6
Minimum Operating Liquid Flow Rate (gpm):	0
Maximum Operating Liquid Flow Rate (gpm):	30
Method of Monitoring Liquid Flow Rate:	Bailey Net 90 Control System
Minimum Operating Gas Flow Rate (acfm):	215000
Maximum Operating Gas Flow Rate (acfm):	315000
Method of Monitoring Gas Flow Rate:	

07736 COVANTA ESSEX CO BOP170001 CD1002 (Scrubber (Other))
Print Date: 6/6/2019

Minimum Operating Pressure Drop (in. H2O):	5.5
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	Manometer
Relative Direction of the Gas-Liquid Flow:	Co - Current
Number of Plates:	
Type of Plates:	
Spacing Between Plates (in.):	11 13/16
Maximum Inlet Gas Temperature (deg F):	491
Maximum Outlet Gas Temperature (deg F):	302
Inlet Particle Grain Loading (gr/dscf):	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	SO2 monitor
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	no
Have you attached a diagram showing the location and/or configuration of this control apparatus?	No
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	70
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1003 (Scrubber (Other))
Print Date: 6/6/2019

Make:	
Manufacturer:	Belco
Model:	
Scrubber Type:	Spray Dryer Absorber System
Description:	Lime Scrubber
Is the Scrubber used for Particulate Control?	No
Is the Scrubber used for Gas Control?	Yes
Is the Scrubber Equipped with a Mist Eliminator?	No
Minimum Pump Discharge Pressure (in. H2O):	0
Maximum Pump Discharge Pressure (in. H2O):	3600
Method of Monitoring Pump Discharge Pressure:	
Minimum Pump Current (amps):	0
Maximum Pump Current (amps):	50
Method of Monitoring Pump Current:	
Minimum Scrubber Medium Inlet Pressure (in. H2O):	>=6
Minimum Operating Liquid Flow Rate (gpm):	0
Maximum Operating Liquid Flow Rate (gpm):	30
Method of Monitoring Liquid Flow Rate:	Bailey Net 90 Control System
Minimum Operating Gas Flow Rate (acfm):	215000
Maximum Operating Gas Flow Rate (acfm):	315000
Method of Monitoring Gas Flow Rate:	

07736 COVANTA ESSEX CO BOP170001 CD1003 (Scrubber (Other))
Print Date: 6/6/2019

Minimum Operating Pressure Drop (in. H2O):	5.5
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	Manometer
Relative Direction of the Gas-Liquid Flow:	Co - Current
Number of Plates:	
Type of Plates:	
Spacing Between Plates (in.):	11 13/16
Maximum Inlet Gas Temperature (deg F):	491
Maximum Outlet Gas Temperature (deg F):	302
Inlet Particle Grain Loading (gr/dscf):	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	SO2 monitor
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	no
Have you attached a diagram showing the location and/or configuration of this control apparatus?	No
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	70
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1007 (Selective Non-Catalytic Reduction)
Print Date: 6/6/2019

Make:	Sierra Environmental
Manufacturer:	Sierra Environmental
Model:	
Minimum Temperature at Reagent Injection Point (deg F):	1600-1700 F
Maximum Temperature at Reagent Injection Point (deg F):	1800-1900 F
Type of Reagent:	Ammonium Hydroxide
Description:	
Minimum Concentration of Reagent in Solution (% Volume):	19
Minimum Reagent Charge Rate (gpm):	0.2
Maximum Reagent Charge Rate (gpm):	7
Maximum NOx to Reagent Mole Ratio:	0.8
Number of Reagent Injectors:	54
Location of Reagent Injectors:	First Pass of Boiler (Injection nozzles located at 84', 95' and 113'
Reagent Injection Method:	Injection Nozzles (18 per boiler level)
Maximum Anticipated Ammonia Slip (ppm):	Less than 50 ppm
Description of Feedback System which Controls the Amount of Reagent Charged to the Control Apparatus:	NOx monitor
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	1

Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	No
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	50
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1008 (Selective Non-Catalytic Reduction)
Print Date: 6/6/2019

Make:	Sierra Environmental
Manufacturer:	Sierra Environmental
Model:	
Minimum Temperature at Reagent Injection Point (deg F):	1600-1700 F
Maximum Temperature at Reagent Injection Point (deg F):	1800-1900 F
Type of Reagent:	Ammonium Hydroxide
Description:	
Minimum Concentration of Reagent in Solution (% Volume):	19
Minimum Reagent Charge Rate (gpm):	0.2
Maximum Reagent Charge Rate (gpm):	7
Maximum NOx to Reagent Mole Ratio:	0.8
Number of Reagent Injectors:	54
Location of Reagent Injectors:	First Pass of Boiler (Injection nozzles located at 84', 95' and 113'
Reagent Injection Method:	Injection Nozzles (18 per boiler level)
Maximum Anticipated Ammonia Slip (ppm):	Less than 50 ppm
Description of Feedback System which Controls the Amount of Reagent Charged to the Control Apparatus:	NOx monitor
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	1

Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	No
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	50
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1009 (Selective Non-Catalytic Reduction)
Print Date: 6/6/2019

Make:	Sierra Environmental
Manufacturer:	Sierra Environmental
Model:	
Minimum Temperature at Reagent Injection Point (deg F):	1600-1700 F
Maximum Temperature at Reagent Injection Point (deg F):	1800-1900 F
Type of Reagent:	Ammonium Hydroxide
Description:	
Minimum Concentration of Reagent in Solution (% Volume):	19
Minimum Reagent Charge Rate (gpm):	0.2
Maximum Reagent Charge Rate (gpm):	7
Maximum NOx to Reagent Mole Ratio:	0.8
Number of Reagent Injectors:	54
Location of Reagent Injectors:	First Pass of Boiler (Injection nozzles located at 84', 95' and 113'
Reagent Injection Method:	Injection Nozzles (18 per boiler level)
Maximum Anticipated Ammonia Slip (ppm):	Less than 50 ppm
Description of Feedback System which Controls the Amount of Reagent Charged to the Control Apparatus:	NOx monitor
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	1

Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	No
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	50
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1010 (Adsorber)
Print Date: 6/6/2019

Make:	
Manufacturer:	Norit Americas, Inc.
Model:	
Adsorber Type:	Carbon Injection
Description:	Mercury removal by adsorption onto carbon
Maximum Gas Flow Rate to Adsorber (acfm):	
Maximum Temperature of Vapor Stream to Adsorber (deg F):	491
Minimum Temperature of Vapor Stream to Adsorber (deg F):	
Minimum Moisture Content of Vapor Stream to Adsorber (%):	15 to 20%
Type of Adsorbant:	Carbon (Lignite, DARCO FGD, or equiv.)
Bed Height:	NA
Bed Length:	NA
Bed Width:	NA
Units:	Injection rate: 0 - 100 pounds per hour
Other Bed Dimension:	
Value:	
Units:	
Minimum Pressure Drop Across Adsorber (In H20):	NA
Maximum Pressure Drop Across Adsorber (In H20):	NA
Total Weight of Adsorbant (lbs):	
Total Weight of Adsorbant When Saturated (lbs):	
Maximum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Minimum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Set-up Type:	

07736 COVANTA ESSEX CO BOP170001 CD1010 (Adsorber)
Print Date: 6/6/2019

Method of Determining Breakthrough:

Continuous Emissions Monitor (CEM)	
Replacement By Weight	Once - Through
Periodic Testing	
Sampling Frequency	
Sampling Device	
Other	
Description:	
Minimum Concentration at Breakthrough (ppmvd):	
Handling Method of Saturated Adsorbant:	Ash Disposal
Method of Regeneration:	NA
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	Yes
Comments:	Carbon injected into boiler exit ductwork.

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	
Mercury	80

07736 COVANTA ESSEX CO BOP170001 CD1011 (Adsorber)
Print Date: 6/6/2019

Make:	
Manufacturer:	Norit Americas, Inc.
Model:	
Adsorber Type:	Carbon Injection
Description:	Mercury removal by adsorption onto carbon
Maximum Gas Flow Rate to Adsorber (acfm):	
Maximum Temperature of Vapor Stream to Adsorber (deg F):	491
Minimum Temperature of Vapor Stream to Adsorber (deg F):	
Minimum Moisture Content of Vapor Stream to Adsorber (%):	15 to 20%
Type of Adsorbant:	Carbon (Lignite, DARCO FGD, or equiv.)
Bed Height:	NA
Bed Length:	NA
Bed Width:	NA
Units:	Injection rate: 0 - 100 pounds per hour
Other Bed Dimension:	
Value:	
Units:	
Minimum Pressure Drop Across Adsorber (In H20):	NA
Maximum Pressure Drop Across Adsorber (In H20):	NA
Total Weight of Adsorbant (lbs):	
Total Weight of Adsorbant When Saturated (lbs):	
Maximum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Minimum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Set-up Type:	

07736 COVANTA ESSEX CO BOP170001 CD1011 (Adsorber)
Print Date: 6/6/2019

Method of Determining Breakthrough:

Continuous Emissions Monitor (CEM)	
Replacement By Weight	Once - Through
Periodic Testing	
Sampling Frequency	
Sampling Device	
Other	
Description:	
Minimum Concentration at Breakthrough (ppmvd):	
Handling Method of Saturated Adsorbant:	Ash Disposal
Method of Regeneration:	NA
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	Yes
Comments:	Carbon injected into boiler exit ductwork.

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	
Mercury	80

07736 COVANTA ESSEX CO BOP170001 CD1012 (Adsorber)
Print Date: 6/6/2019

Make:	
Manufacturer:	Norit Americas, Inc.
Model:	
Adsorber Type:	Carbon Injection
Description:	Mercury removal by adsorption onto carbon
Maximum Gas Flow Rate to Adsorber (acfm):	
Maximum Temperature of Vapor Stream to Adsorber (deg F):	491
Minimum Temperature of Vapor Stream to Adsorber (deg F):	
Minimum Moisture Content of Vapor Stream to Adsorber (%):	15 to 20%
Type of Adsorbant:	Carbon (Lignite, DARCO FGD, or equiv.)
Bed Height:	NA
Bed Length:	NA
Bed Width:	NA
Units:	Injection rate: 0 - 100 pounds per hour
Other Bed Dimension:	
Value:	
Units:	
Minimum Pressure Drop Across Adsorber (In H20):	NA
Maximum Pressure Drop Across Adsorber (In H20):	NA
Total Weight of Adsorbant (lbs):	
Total Weight of Adsorbant When Saturated (lbs):	
Maximum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Minimum Adsorbant Capacity (lbs Adsorbate/lbs Adsorbant):	
Set-up Type:	

07736 COVANTA ESSEX CO BOP170001 CD1012 (Adsorber)
Print Date: 6/6/2019

Method of Determining Breakthrough:

Continuous Emissions Monitor (CEM)	
Replacement By Weight	Once - Through
Periodic Testing	
Sampling Frequency	
Sampling Device	
Other	
Description:	
Minimum Concentration at Breakthrough (ppmvd):	
Handling Method of Saturated Adsorbant:	Ash Disposal
Method of Regeneration:	NA
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	Yes
Comments:	Carbon injected into boiler exit ductwork.

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	
Mercury	80

07736 COVANTA ESSEX CO BOP170001 CD1013 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	Griffen
Model:	DF44
Number of Bags:	54
Size of Bags (ft2):	7.6
Total Bag Area (ft2):	375
Bag Fabric:	Polypropylene
Fabric Weight (oz/ft):	16 oz/ sq yd.
Fabric Weave:	non - woven
Fabric Finish:	plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	1300
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.28:1 @ 340 ACFM
Minimum Operating Pressure Drop (in. H2O):	4
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	800
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative Maintenance Schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Mechanical shaking
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1014 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	Griffen
Model:	DF44
Number of Bags:	54
Size of Bags (ft2):	7.6
Total Bag Area (ft2):	375
Bag Fabric:	Polypropylene
Fabric Weight (oz/ft):	16 oz/ sq yd.
Fabric Weave:	non - woven
Fabric Finish:	plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	1300
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.28:1 @ 340 ACFM
Minimum Operating Pressure Drop (in. H2O):	4
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	800
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative Maintenance Schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Mechanical Shaking
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1015 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	Griffen
Model:	DF44
Number of Bags:	54
Size of Bags (ft2):	7.6
Total Bag Area (ft2):	375
Bag Fabric:	Polypropylene
Fabric Weight (oz/ft):	16 oz/ sq yd.
Fabric Weave:	non - woven
Fabric Finish:	plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	1300
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.28:1 @ 340 ACFM
Minimum Operating Pressure Drop (in. H2O):	4
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	800
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative Maintenance Schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Mechanical Shaking
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1017 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Number of Bags:	9
Size of Bags (ft2):	7.2
Total Bag Area (ft2):	65
Bag Fabric:	Polyester Felt
Fabric Weight (oz/ft):	16
Fabric Weave:	Non - Woven
Fabric Finish:	Plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	400
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.2:1 @ 340 acfm
Minimum Operating Pressure Drop (in. H2O):	3
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	190
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	Saturated @ 190 degrees F
Maximum Operating Exhaust Gas Flow Rate (acfm):	400
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative maintenance Schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Pulse Jet
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	99.8
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1018 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Number of Bags:	9
Size of Bags (ft2):	7.2
Total Bag Area (ft2):	65
Bag Fabric:	Polyester Felt
Fabric Weight (oz/ft):	16
Fabric Weave:	Non - Woven
Fabric Finish:	Plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	400
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.2:1 @ 340 acfm
Minimum Operating Pressure Drop (in. H2O):	3
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	190
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	Saturated @ 190 degrees F
Maximum Operating Exhaust Gas Flow Rate (acfm):	400
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative maintenance Schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Pulse Jet
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	99.8
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1019 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Number of Bags:	36
Size of Bags (ft2):	10.6
Total Bag Area (ft2):	382
Bag Fabric:	Polypropylene
Fabric Weight (oz/ft):	16
Fabric Weave:	Felt
Fabric Finish:	Plain
Maximum Design Temperature Capability (deg F):	180
Maximum Design Air Flow Rate (acfm):	2000
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	5.24:1 @ 2000 ACFM
Minimum Operating Pressure Drop (in. H2O):	3
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	110
Minimum Inlet Temperature (deg F):	40
Dew Point of Gas Stream (deg F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	2000
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is Done on a Preventative maintenance schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Pulse Jet
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	99
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1020 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	
Manufacturer:	
Model:	
Number of Bags:	25
Size of Bags (ft2):	10.6
Total Bag Area (ft2):	265
Bag Fabric:	Polyester felt
Fabric Weight (oz/ft):	16
Fabric Weave:	Felt
Fabric Finish:	Plain
Maximum Design Temperature Capability (deg F):	250
Maximum Design Air Flow Rate (acfm):	1000
Draft Type:	
Maximum Air Flow Rate to Cloth Area Ratio:	1:01
Minimum Operating Pressure Drop (in. H2O):	4
Maximum Operating Pressure Drop (in. H2O):	6
Method of Monitoring Pressure Drop:	
Maximum Inlet Temperature (deg F):	
Minimum Inlet Temperature (deg F):	
Dew Point of Gas Stream (deg F):	
Maximum Operating Exhaust Gas Flow Rate (acfm):	1000
Maximum Inlet Gas Stream Moisture Content (%):	

Method for Determining When Bag Replacement is Required:	Replacement is done on a preventative maintenance schedule.
Method for Determining When Cleaning is Required:	
Method of Bag Cleaning:	Pulse Jet
Is Bag Cleaning Conducted On-Line?	
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	No
Have you attached data from recent performance testing?	No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	Yes
Comments:	

Control Device Design Efficiency Table

Pollutant Category	Design Efficiency (%)
PM-10	
TSP	
VOC	
NOx	
SO2	
CO	
Pb	
HAPs (Total)	
Other (Total)	
Individual HAPs/Other (speciate below)	

07736 COVANTA ESSEX CO BOP170001 CD1022 (Particulate Filter (Cartridge))
Print Date: 6/6/2019

Make:	Donaldson DownFlo OVAL
Manufacturer:	Donaldson Company, Inc.
Model:	DFO 4-16
Number of Cartridges:	16
Size of Cartridges (ft²):	190.00
Total Cartridge Area (ft²):	3,040.00
Maximum Design Temperature Capability (°F):	150.0
Maximum Design Air Flow Rate (acfm):	10,000.0
Maximum Air Flow Rate to Filter Area Ratio:	3.28
Minimum Operating Pressure Drop (in. H2O):	1.00
Maximum Operating Pressure Drop (in. H2O):	6.00
Maximum Inlet Temperature (°F):	150.0
Maximum Operating Exhuast Gas Flow Rate (acfm):	10,000.0
Method for Determining When Cartridge Replacement is Required:	Preventative maintenance schedule based on manufacturer's recommendations.
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	
Have you attached a Particle Size Distribution Analysis?	○ Yes ● No
Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	● Yes ○ No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	○ Yes ● No
Comments:	Minimum 99% control efficiency (MERV 13 rating)

07736 COVANTA ESSEX CO BOP170001 CD1023 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Number of Bags:	
Size of Bags (ft²):	
Total Bag Area (ft²):	0.0
Bag Fabric:	PPS
Fabric Weight (oz/ft²):	
Fabric Weave:	Felt
Fabric Finish:	PTFE
Maximum Design Temperature Capability (°F):	375.0
Maximum Design Air Flow Rate (acfm):	240,000.0
Draft Type:	Balanced
Maximum Air Flow Rate to Cloth Area Ratio:	2.70
Minimum Operating Pressure Drop (in. H2O):	2.00
Maximum Operating Pressure Drop (in. H2O):	12.00
Method of Monitoring Pressure Drop:	Pressure Drop Transmitter
Maximum Inlet Temperature (°F):	375.0
Minimum Inlet Temperature (°F):	290.0
Dew Point of Gas Stream Maximum Inlet Temperature (°F):	262
Maximum Operating Exhuast Gas Flow Rate (acfm):	234,000.0
Maximum Inlet Gas Stream Moisture Content (%):	21.00
Method for Determining When Bag Replacement is Required:	A change in opacity level signifies that bag replacement is required.
Method for Determining When Cleaning is Required:	Cleaning cycle is initiated based upon differential pressure across the baghouse and operating time.
Method of Bag Cleaning:	Pulse Jet
Description:	
Is Bag Cleaning Conducted On-Line?	(●) Yes ( ) No
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	Continuous opacity monitoring and annual emissions testing are used to demonstrate that the control apparatus is functioning properly.
Have you attached a Particle Size Distribution Analysis?	( ) Yes (●) No

07736 COVANTA ESSEX CO BOP170001 CD1023 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	● Yes ○ No
Comments:	Number of bags, size of bags, total bag area, and fabric weight will be provided upon vendor selection. Total bag area is listed as 0.0 due to a RADIUS error. Maximum Air Flow Rate to Cloth Area Ratio is 2.4 at MCR and 2.7 at 110% MCR.

07736 COVANTA ESSEX CO BOP170001 CD1024 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Number of Bags:	
Size of Bags (ft²):	
Total Bag Area (ft²):	0.0
Bag Fabric:	PPS
Fabric Weight (oz/ft²):	
Fabric Weave:	Felt
Fabric Finish:	PTFE
Maximum Design Temperature Capability (°F):	375.0
Maximum Design Air Flow Rate (acfm):	240,000.0
Draft Type:	Balanced
Maximum Air Flow Rate to Cloth Area Ratio:	2.70
Minimum Operating Pressure Drop (in. H2O):	2.00
Maximum Operating Pressure Drop (in. H2O):	12.00
Method of Monitoring Pressure Drop:	Pressure Drop Transmitter
Maximum Inlet Temperature (°F):	375.0
Minimum Inlet Temperature (°F):	290.0
Dew Point of Gas Stream Maximum Inlet Temperature (°F):	262
Maximum Operating Exhuast Gas Flow Rate (acfm):	234,000.0
Maximum Inlet Gas Stream Moisture Content (%):	21.00
Method for Determining When Bag Replacement is Required:	A change in opacity level signifies that bag replacement is required.
Method for Determining When Cleaning is Required:	Cleaning cycle is initiated based upon differential pressure across the baghouse and operating time.
Method of Bag Cleaning:	Pulse Jet
Description:	
Is Bag Cleaning Conducted On-Line?	(●) Yes ( ) No
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	Continuous opacity monitoring and annual emissions testing are used to demonstrate that the control apparatus is functioning properly.
Have you attached a Particle Size Distribution Analysis?	( ) Yes (●) No

07736 COVANTA ESSEX CO BOP170001 CD1024 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	● Yes ○ No
Comments:	Number of bags, size of bags, total bag area, and fabric weight will be provided upon vendor selection. Total bag area is listed as 0.0 due to a RADIUS error. Maximum Air Flow Rate to Cloth Area Ratio is 2.4 at MCR and 2.7 at 110% MCR.

07736 COVANTA ESSEX CO BOP170001 CD1025 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Make:	TBD
Manufacturer:	TBD
Model:	TBD
Number of Bags:	
Size of Bags (ft²):	
Total Bag Area (ft²):	0.0
Bag Fabric:	PPS
Fabric Weight (oz/ft²):	
Fabric Weave:	Felt
Fabric Finish:	PTFE
Maximum Design Temperature Capability (°F):	375.0
Maximum Design Air Flow Rate (acfm):	240,000.0
Draft Type:	Balanced
Maximum Air Flow Rate to Cloth Area Ratio:	2.70
Minimum Operating Pressure Drop (in. H2O):	2.00
Maximum Operating Pressure Drop (in. H2O):	12.00
Method of Monitoring Pressure Drop:	Pressure Drop Transmitter
Maximum Inlet Temperature (°F):	375.0
Minimum Inlet Temperature (°F):	290.0
Dew Point of Gas Stream Maximum Inlet Temperature (°F):	262
Maximum Operating Exhuast Gas Flow Rate (acfm):	234,000.0
Maximum Inlet Gas Stream Moisture Content (%):	21.00
Method for Determining When Bag Replacement is Required:	A change in opacity level signifies that bag replacement is required.
Method for Determining When Cleaning is Required:	Cleaning cycle is initiated based upon differential pressure across the baghouse and operating time.
Method of Bag Cleaning:	Pulse Jet
Description:	
Is Bag Cleaning Conducted On-Line?	(●) Yes ( ) No
Maximum Number of Sources Using this Apparatus as a Control Device (Include Permitted and Non-Permitted Sources):	1
Alternative Method to Demonstrate Control Apparatus is Operating Properly:	Continuous opacity monitoring and annual emissions testing are used to demonstrate that the control apparatus is functioning properly.
Have you attached a Particle Size Distribution Analysis?	( ) Yes (●) No

07736 COVANTA ESSEX CO BOP170001 CD1025 (Particulate Filter (Baghouse))
Print Date: 6/6/2019

Have you attached data from recent performance testing?	○ Yes ● No
Have you attached any manufacturer's data or specifications in support of the feasibility and/or effectiveness of this control apparatus?	○ Yes ● No
Have you attached a diagram showing the location and/or configuration of this control apparatus?	● Yes ○ No
Comments:	Number of bags, size of bags, total bag area, and fabric weight will be provided upon vendor selection. Total bag area is listed as 0.0 due to a RADIUS error. Maximum Air Flow Rate to Cloth Area Ratio is 2.4 at MCR and 2.7 at 110% MCR.

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT1	U0001	MSW BOILER #1	Round	91	279	230	295.0	270.0	485.0	212,000.0	140,000.0	234,000.0	Up	
PT2	U0002	MSW BOILER #2	Round	91	279	230	295.0	270.0	485.0	212,000.0	140,000.0	234,000.0	Up	
PT3	U0003	MSW BOILER #3	Round	91	279	230	295.0	270.0	485.0	212,000.0	140,000.0	234,000.0	Up	
PT4	U0006	LIME SILO A	Rectangle	12	72	375	60.0	-10.0	100.0	1,176.0	1,176.0	1,176.0	Horizontal	
PT5	U0007	LIME SILO B	Rectangle	12	72	375	60.0	-10.0	100.0	1,176.0	1,176.0	1,176.0	Horizontal	
PT6	U0008	LIME SILO C	Rectangle	12	72	375	60.0	-10.0	100.0	1,176.0	1,176.0	1,176.0	Horizontal	
PT7	U0013	DIESEL GENERATOR	Round	12	43	360	915.0	915.0	915.0	6,915.0	6,915.0	6,915.0	Horizontal	
PT8	U0014	DIESEL FIRE PUMP	Round	8	39	125	983.0	982.0	982.0	1,200.0	1,200.0	1,200.0	Horizontal	
PT9	U0009	LIME SLAKER VENT A	Round	6	20	250	85.0	60.0	140.0	37.0	37.0	37.0	Horizontal	
PT10	U0010	LIME SLAKER VENT B	Round	6	20	250	85.0	60.0	140.0	37.0	37.0	37.0	Horizontal	
PT12	U0012	FLY ASH CONDITIONING ROOM	Rectangle	8	71	376	80.0	40.0	110.0	2,000.0	2,000.0	2,000.0	Horizontal	
PT14	U0011	CARBON SILO	Round	12	35	375	60.0	-10.0	100.0	1,200.0	100.0	1,200.0	Horizontal	
PT15	U0015	Ash Conveyance	Square	42	8	376	60.0	40.0	90.0	6,000.0	0.0	10,000.0	Horizontal	

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 1 MWC #1 Municipal Waste Combustor E1 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS1	MWC 1	Operation of MWC #1 at Maximum Input (423 MMBtu/hr)	Normal - Steady State	E1	CD1001 (T) CD1007 (P) CD1010 (S) CD1023 (T)	PT1	5-03-001-12	0.0	8,760.0		140,000.0	233,500.0	200.0	300.0
OS2	MWC 1	Start-Up of MWC #1	Startup	E1		PT1								
OS3	MWC 1	Shut-Down of MWC #1	Shutdown	E1		PT1								
OS4	MWC 1	Warm-Up of MWC #1	Startup	E1		PT1								

U 2 MWC#2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS1	MWC 2	Operation of MWC #2 at Maximum Input (423 MMBtu/hr)	Normal - Steady State	E2	CD1002 (P) CD1008 (P) CD1011 (S) CD1024 (P)	PT2	5-03-001-12	0.0	8,760.0		140,000.0	233,500.0	200.0	300.0
OS2	MWC 2	Start-Up of MWC #2	Startup	E2										
OS3	MWC 2	Shut-Down of MWC #2	Shutdown	E2										

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 2 MWC#2 Municipal Waste Combustor E2 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS4	MWC 2	Warm-UP of MWC #2	Startup	E2										

U 3 MWC#3 Municipal Waste Combustor E3 - Subject to NSPS Subparts Cb and 40 CFR 62 Subpart FFF

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS1	MWC 3	Operation of MWC #3 at Maximum Input (423 MMBtu/hr)	Normal - Steady State	E3	CD1003 (P) CD1009 (P) CD1012 (S) CD1025 (P)	PT3	5-03-001-12	0.0	8,760.0		140,000.0	233,500.0	200.0	300.0
OS2	MWC 3	Start-Up of MWC #3	Startup	E3										
OS3	MWC 3	Shut-down of MWC #3	Shutdown	E3										
OS4	MWC 3	Warm-up of MWC #3	Startup	E3										

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 6 Lime Silo A Lime Storage Silo A (E4) controlled by filter CD1013

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS1	Silo A	Silo A	Normal - Steady State	E4	CD1013 (P)	PT4		2,920.0	8,760.0		1,176.0	1,176.0	-10.0	110.0

U 7 Lime Silo B Lime Storage Silo B (E5) controlled by filter CD1014

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS7	Silo B	Silo B	Normal - Steady State	E5	CD1014 (P)	PT5		2,920.0	8,760.0		1,176.0	1,176.0	-10.0	110.0

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 8 Lime Silo C Lime Storage Silo C (E6) controlled by filter CD1015

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS8	OS 008	Lime Storage Silo - C	Normal - Steady State	E6	CD1015 (P)	PT6		2,920.0	8,760.0		1,176.0	1,176.0	-10.0	110.0

U 9 Slaker A Lime Slaker Vent A (E9)

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS9	Slaker A	Lime Slaker Vent A	Normal - Steady State	E9		PT9		4,380.0	8,760.0		37.0	37.0	60.0	140.0

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 10 Slaker B Lime Slaker Vent B (E10)

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS10	Slaker B	Lime Slaker Vent B	Normal - Steady State	E10		PT10		4,380.0	8,760.0		37.0	37.0	60.0	140.0

U 11 Carbon Silo Activated Carbon Storage Silo (E14) controlled by filter CD1020

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS11	Carbon Silo	Activated Carbon Storage Silo controlled by filter CD1020	Normal - Steady State	E14	CD1020 (P)	PT14		8,760.0	8,760.0		1,200.0	1,200.0	-10.0	110.0

U 12 Flyash Cond Flyash Conditioning Room (E12, E13) controlled by filters CD1017, 1018 & 1019

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS12	Silo 1	Flyash Storage in Silo 1 (E12) controlled by filter CD1017	Normal - Steady State	E12	CD1017 (P) CD1019 (S)	PT12		8,760.0	8,760.0		2,000.0	2,000.0	40.0	110.0

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 12 Flyash Cond Flyash Conditioning Room (E12, E13) controlled by filters CD1017, 1018 & 1019

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS15	Silo 2	Flyash Storage in Silo 2 (E13) controlled by filter CD1018	Normal - Steady State	E13	CD1018 (P) CD1019 (S)	PT12		8,760.0	8,760.0		2,000.0	2,000.0	40.0	110.0

U 13 Em Generator 7.4 MMBtu/hr, 740 KW Diesel Engine-driven Emergency Generator (E7)

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS13	Generator	Emergency Diesl Generator	Normal - Steady State	E7		PT7					6,915.0	6,915.0	915.0	915.0

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 14 Em FW Pump 1.59 MMBtu/hr, 240 BHP Diesel Engine-driven Emergency Fire Pump (E8)

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS14	Fire Pump	Emergency Diesel Fire Pump	Standby	E8		PT8		250.0	250.0		1,200.0	1,200.0	982.0	982.0

U 15 Ash Convey Ash and Metals Recovery System (E16, E17, E21-E30), controlled by particulate filter CD1022

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours Min.	Annual Oper. Hours Max.	VOC Range	Flow (acfm) Min.	Flow (acfm) Max.	Temp. (deg F) Min.	Temp. (deg F) Max.
OS16	Ash Convey A	Ash conveyance line A controlled by filter CD1017	Normal - Steady State	E16	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS17	Ash Convey B	Ash conveyance line B controlled by filter CD1018	Normal - Steady State	E17	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS21	RH-136-CV	Vibratory Conveyor E21 transporting ash to Grizzly Scalper	Normal - Steady State	E21	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS22	RH-150-SC	Grizzly Scalper E22 separating large pieces of ferrous metal for recovery	Normal - Steady State	E22	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS23	RH-160-CV	Vibratory Conveyor E25 transporting bulky ferrous to load out bunker.	Normal - Steady State	E23	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS24	FE-200-FD	Feeder E23 transporting ash to ferrous recovery magnet	Normal - Steady State	E24	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0

COVANTA ESSEX CO (07736)
BOP170001

Date: 10/11/2019

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 15 Ash Convey Ash and Metals Recovery System (E16, E17, E21-E30), controlled by particulate filter CD1022

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours		VOC Range	Flow (acfm)		Temp. (deg F)	
								Min.	Max.		Min.	Max.	Min.	Max.
OS25	FE-210-MAG	Ferrous material separation by Drum Magnet E24	Normal - Steady State	E25	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS26	NF-240-SC	Screen E26 separating remainder of ash into large & small	Normal - Steady State	E26	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS27	NF-300-ECS	Eddy Current Separator (+3/8) E27 separating larger non-ferrous metal.	Normal - Steady State	E27	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS28	NF-400-FD	Feeder E28 transporting ash to non-ferrous recovery	Normal - Steady State	E28	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS29	NF-410-ECS	Eddy Current Separator (-3/8) E29 separating smaller non-ferrous metal.	Normal - Steady State	E29	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0
OS30	E30	Conveyors E30 transporting to and from metals recovery systems	Normal - Steady State	E30	CD1022 (P)	PT15		4,380.0	8,760.0		0.0	10,000.0	40.0	110.0

Date: 10/11/2019

New Jersey Department of Environmental Protection
Subject Item Group Inventory

Group NJID: GR1 NSPS Sub A

Members:

Type	ID	OS	Step
U	U 1	OS0 Summary	
U	U 15	OS0 Summary	
U	U 2	OS0 Summary	
U	U 3	OS0 Summary	

Formal Reason(s) for Group/Cap:

☑ Other

Other (explain): Showing NSPS Subpart A requirements applicable to emission units (U1, U2, U3 & U15

Condition/Requirements that will be complied with or are no longer applicable as a result of this Group:

Operating Circumstances:

Solid Waste Authority of Palm Beach County

Palm Beach Renewable Energy Park (PBREP)

Facility ID No. 0990234
Palm Beach County

Title V Air Operation Permit Renewal

Permit No. 0990234-037-AV

(Renewal of Title V Air Operation Permit No. 0990234-020-AV)

Permitting Authority:

State of Florida
Department of Environmental Protection
Division of Air Resource Management
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2600 Blair Stone Road

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State of Florida
Department of Environmental Protection
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Title V Air Operation Permit Renewal

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Appendix 40 CFR 60 Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors (version dated 03/24/2010).
Appendix 40 CFR 60 Subpart Eb, NSPS for Large Municipal Waste Combustors (version dated 04/21/2008).
Appendix 40 CFR 60 Subpart IIII "Generally Applicable Requirements," Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (version dated 07/11/2006).
Appendix 40 CFR 60 Subpart WWW, NSPS for Municipal Solid Waste Landfills (version dated 08/06/2009).

Appendix 40 CFR 61 Subpart A, NESHAP General Provisions (version dated 05/06/2004).
Appendix 40 CFR 61 Subpart E, NESHAP for Mercury (version dated 03/20/2003).
Appendix 40 CFR 61 Subpart M "Set A," NESHAP for Asbestos (version dated 08/19/2004).

Appendix 40 CFR 63 Subpart A, NESHAP General Provisions.
Appendix 40 CFR 63 Subpart AAAA, NESHAP for Municipal Solid Waste Landfills (version dated 08/06/2009).
Appendix 40 CFR 63 Subpart ZZZZ "Generally Applicable Requirements," National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

Appendix A, Abbreviations, Acronyms, Citations and Identification Numbers.
Appendix ATP, U.S. EPA Alternative Test Procedure Approval dated June 3, 2004.
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Appendix CAM, Compliance Assurance Monitoring Plan.
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Appendix TV, Title V General Conditions.
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DEP approval dated October 25, 2005 regarding Landfill Higher Wellhead Operating Temperature.
DEP approval dated December 13, 2005 regarding Landfill Gas Well Inactivation Plan.

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U.S. EPA letter dated July 7, 1999 regarding CAM applicability for MWCs.
U.S. EPA letter dated April 6, 2000 regarding Beryllium Containing Wastes.
U.S. EPA approval letter dated June 7, 2002 regarding Reduction in Frequency of Surface Monitoring of Methane Gas Emissions.
U.S. EPA e-mail dated January 22, 2009 regarding Testing Schedule for Fugitive Ash and HCl Emissions.

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PERMITTEE:
Solid Waste Authority of Palm Beach County
7501 North Jog Road
West Palm Beach, FL 33412

Permit No. 0990234-037-AV
Palm Beach Renewable Energy Park (PBREP)
Facility ID No. 0990234
Project: Title V Air Operation Permit Renewal

The purpose of this permit is to renew the Title V air operation permit for the above referenced facility. This existing facility is located in Palm Beach County at 7501 North Jog Road, West Palm Beach, Florida; UTM Coordinates are: Zone 17, 585.82 km East and 2960.474 km North; Latitude: 26° 45' 53" North and Longitude: 80° 08' 12" West.

This Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210 and 62-213. The above named permittee is hereby authorized to operate the facility in accordance with the terms and conditions of this permit.

Effective Date: September 1, 2016
Renewal Application Due Date: January 19, 2021
Expiration Date: September 1, 2021

For:

Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

SA/dlr/sms

Subsection A. Facility Description.

The Palm Beach Renewable Energy Park is located in Palm Beach County at 7501 North Jog Road, West Palm Beach, Florida.

The Palm Beach Renewable Energy Park (PBREP) consists of two renewable energy facilities ("Palm Beach Renewable Energy Facility No. 1" and "Palm Beach Renewable Energy Facility No. 2") also known as waste-to-energy (WTE) facilities. Each individual facility, the Palm Beach Renewable Energy Facility No. 1 ("PBREF-1") and the Palm Beach Renewable Energy Facility No. 2 ("PBREF-2") are further described below.

The existing PBREF-1 facility is a municipal waste combustor plant designed to process 2,000 tons per day (TPD) of municipal solid waste (MSW). The facility burns processed MSW that is called "refuse derived fuel" (RDF). The RDF plant is equipped with three MSW processing lines, any two of which can handle the 2,000 TPD of incoming MSW. The boiler plant includes two Babcock & Wilcox (B&W) boilers (Nos. 1 and 2) with auxiliary burners. Each boiler was designed with a maximum heat input of 427.5 MMBtu/hr and a maximum steam production rating of 324,000 lbs/hour. At a reference heating value of 5,700 Btu/lb, this is equivalent to 900 TPD of RDF per boiler. The gross nominal electric generating capacity of the facility is 62 megawatts (MW). These emissions units are referred to as the Palm Beach Renewable Energy Facility Number 1 ("PBREF-1").

The recently constructed PBREF-2 facility consists of three 1,000 TPD mass-burn MWC units, each with a maximum steam production rate of 320,100 pounds per hour (lb/hr) on a 4-hour average block basis. The supporting equipment for the new units include a 90 to 100 MW steam turbine generator (STG); two lime storage silos; one carbon storage silo; two diesel engine-driven fire pumps; one emergency generator; and one ash handling system and building. The new equipment is collectively referred to as the Palm Beach Renewable Energy Facility Number 2 ("PBREF-2").

Two landfills, a Class I Landfill and a Class III Landfill, each with its own gas collection system and flare, are also located at the facility.

A biosolids pelletization facility (BPF) is located adjacent to the existing landfill.

Additional activities at the facility include: material processing systems, a metals recovery system, storage and handling systems for RDF; lime storage and processing facilities; storage and handling systems for ash and ash treatment; and, cooling towers.

Also included in this permit are miscellaneous unregulated/insignificant emission units and/or activities.

The total capacity of this existing facility is 5,000 tons/day (TPD) of municipal solid waste fuel. The nominal (i.e., generator nameplate) electric generating capacity of the facility is 162 megawatts (MW), which is sold to the local utility company. The facility is owned and currently operated by the Solid Waste Authority of Palm Beach County.

Subsection B. Summary of Emissions Units.

E.U. ID No.	Brief Description
Regulated Emissions Units	
Palm Beach Renewable Energy Facility No. 1 (PBREF-1)	
	Municipal Waste Combustors
001	Municipal Solid Waste Boiler No. 1
002	Municipal Solid Waste Boiler No. 2
019	Ash Building and Handling System
Palm Beach Renewable Energy Facility No. 2 (PBREF-2)	

	Municipal Waste Combustor
024	Municipal Waste Combustor - Unit No. 3
025	Municipal Waste Combustor - Unit No. 4
026	Municipal Waste Combustor - Unit No. 5
027	Lime Storage Silo A
028	Lime Storage Silo B
030	Activated Carbon Storage Silo
034	Ash Handling System and Building
Landfills and Flares	
004	Class III Landfill and Flare (1,800 scfm, manufactured by LFG Specialties, model number PCF820I8)
008	Class I Landfill and Flare (3,500 scfm, manufactured by Shaw LFG Specialties, model number CF1238I10)
Biosolids Pelletization Facility (BPF)	
010	BPF Sludge Dryer Train #1
011	BPF Sludge Dryer Train #2
012	BPF Recycle Material Bin for Sludge Dryer Train #1
014	BPF Recycle Material Bin for Sludge Dryer Train #2
045	Pellet Storage Silo for Sludge Dryer Trains #1 & 2
Engines	
016	Emergency Generator - Biosolids Pelletization Facility (BPF) (EPA Tier 3 certified)
021	Emergency Generator - Operations Building (EPA Tier 3 certified)
031	Emergency Firewater Pump Engine A (351 HP) - PBREF No. 2 (EPA Tier 3 certified)
032	Emergency Firewater Pump Engine B (351 HP) - PBREF No. 2 (EPA Tier 3 certified)
033	Emergency Generator - PBREF No. 2 (EPA Tier 2 certified)
035	PBREF No. 1 Emergency Generator
036	PBREF No. 1 Emergency Fire Water Pump
037	Emergency Generator - Scalehouse (EPA Tier 3 certified)
038	Emergency Generator - Utilities Facility
042	Emergency Generator - Administration
043	Emergency Generator - Materials Recovery Facility (MRF) (EPA Tier 2 certified) (SWA of PBC ID# MRF-E1)
046	Emergency Generator - Landfill Scalehouse E2 (EPA Tier 3 certified)
047	Emergency Generator - MIS (EPA Tier 3 certified)

Unregulated Emissions Units and/or Activities	
005	RDF Storage
006	RDF Processing Lines
007	Oversized Bulk Waste Processing Line
018	Cooling Towers (3) at PBREF No. 1 {The cooling towers do no not use chromium-based water treatment chemicals.}

Subsection C. Applicable Requirements.

Based on the Title V air operation permit renewal application received on February 19, 2016, this facility is a major source of hazardous air pollutants (HAP). This facility is classified as a Prevention of Significant Deterioration (PSD) major facility. A summary of important applicable requirements is shown in the following table.

Applicable Requirement	**E.U. ID No(s).**
Palm Beach Renewable Energy Facility No. 1 (PBREF-1) *Municipal Waste Combustors*	
40 CFR 60, Subpart A, Standards of Performance for New Stationary Sources (NSPS) General Provisions	001, 002 & 019
40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors *{Permitting note(s): The EG 40 CFR 60, Subpart Cb, cross references applicable requirements that are contained in the NSPS 40 CFR 60, Subparts A and Eb.}*	001, 002 & 019
Rule 62-296.416, F.A.C., Waste-to-Energy Facilities	001 & 002
Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD)	001, 002 & 019
Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT)	001, 002 & 019
Palm Beach Renewable Energy Facility No. 2 (PBREF-2) *Municipal Waste Combustors & Auxiliary Burners*	
40 CFR 60, Subpart A, Standards of Performance for New Stationary Sources (NSPS) General Provisions	024, 025, 026 & 034
40 CFR 60, Subpart Eb, NSPS for Large Municipal Waste Combustors	024, 025, 026 & 034
Rule 62-296.416, F.A.C., Waste-to-Energy Facilities	024, 025 & 026
Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD)	024, 025, 026, 027, 028, 030 & 034
Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT)	024, 025, 026, 027, 028, 030 & 034
Landfills and Flares	

40 CFR 60, Subpart A, Standards of Performance for New Stationary Sources (NSPS) General Provisions	004 & 008
40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills	004 & 008
40 CFR 61, Subpart A, General Provisions	004 & 008
40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Asbestos	004 & 008
40 CFR 63, Subpart A, General Provisions	004 & 008
40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills	004 & 008
Biosolids Pelletization Facility (BPF)	
40 CFR 61, Subpart A, General Provisions	010 & 011
40 CFR 61, Subpart E, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Mercury	010 & 011
40 CFR 64, Compliance Assurance Monitoring (CAM)	010 & 011
Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD)	010, 011, 012 & 014
Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT)	010, 011, 012 & 014
Engines	
40 CFR 60, Subpart A, Standards of Performance for New Stationary Sources (NSPS) General Provisions	016, 021, 031, 032, 033, 037, 042, 043, 046 & 047
40 CFR 60, Subpart IIII, NSPS for Compression Ignition Internal Combustion Engines (CI-ICE)	016, 021, 031, 032, 033, 037, 042, 043, 046 & 047
40 CFR 63, Subpart A, General Provisions	016, 021, 031, 032, 033, 035-038, 042, 043, 046 & 047
40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE)	016, 021, 031, 032, 033, 035-038, 042, 043, 046 & 047
Unregulated Emissions Units and/or Activities	
Rule 62-210.300, F.A.C., Permits Required	005, 006, 007 & 018

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The following conditions apply facility-wide to all emission units and activities:

FW1. Appendices. The permittee shall comply with all documents identified in Section IV., Appendices, listed in the Table of Contents. Each document is an enforceable part of this permit unless otherwise indicated. [Rule 62-213.440, F.A.C.]

Emissions and Controls

FW2. Not federally enforceable. Objectionable Odor Prohibited. No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) & 62-210.200 (Definitions), F.A.C.]

FW3. General Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1)(a), F.A.C.]

{Permitting note: Nothing is deemed necessary and ordered at this time.}

FW4. General Visible Emissions. No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. EPA Method 9 is the method of compliance pursuant to Chapter 62-297, F.A.C. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b), F.A.C.]

FW5. Unconfined Particulate Matter. No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction; alteration; demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions.
Reasonable precautions to prevent emissions of unconfined particulate matter at this facility include:

a. Chemical or water application to unpaved road and unpaved yard and landfill areas;
b. Paving and maintenance of roads, parking areas and yards;
c. Landscaping or planting of vegetation;
d. Confining abrasive blasting where possible and appropriate;
e. Unpaved roads and active unpaved areas are sprayed with a water truck;
f. Landfill areas that are closed are promptly re-vegetated;
g. Ash is quenched with water prior to landfilling;
h. Waste transfer trucks are tarped;
i. Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities;
j. Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulates from becoming airborne;
k. Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter;
l. Enclosure or covering of conveyor systems; and,
m. Tipping floor at PBREF No. 2 is maintained under negative pressure during active periods.

[Rule 62-296.320(4)(c), F.A.C.; Permit No. 0990234-032-AC/PSD-FL-413C; and, proposed by applicant in the Title V air operation permit renewal application received on February 19, 2016.]

Annual Reports and Fees

See Appendix RR, Facility-wide Reporting Requirements, for additional details.

FW6. Electronic Annual Operating Report (EAOR) and Title V Annual Emissions Fees. The information required by the Annual Operating Report for Air Pollutant Emitting Facility [Including Title V Source

Emissions Fee Calculation] (DEP Form No. 62-210.900(5)) shall be submitted by April 1st of each year, for the previous calendar year, to the Department of Environmental Protection's Division of Air Resource Management. Each Title V source shall submit the annual operating report using the DEP's Electronic Annual Operating Report (EAOR) software, unless the Title V source claims a technical or financial hardship by submitting DEP Form No. 62-210.900(5) to the DEP's Division of Air Resource Management instead of using the reporting software. Emissions shall be computed in accordance with the provisions of Rule 62-210.370(2), F.A.C. Each Title V source must pay between January 15th and April 1st of each year an annual emissions fee in an amount determined as set forth in Rule 62-213.205(1), F.A.C. The annual fee shall only apply to those regulated pollutants, except carbon monoxide and greenhouse gases, for which an allowable numeric emission-limiting standard is specified in the source's most recent construction permit or operation permit. Upon completing the required EAOR entries, the EAOR Title V Fee Invoice can be printed by the source showing which of the reported emissions are subject to the fee and the total Title V Annual Emissions Fee that is due. The submission of the annual Title V emissions fee payment is also due (postmarked) by April 1st of each year. A copy of the system-generated EAOR Title V Annual Emissions Fee Invoice and the indicated total fee shall be submitted to: **Major Air Pollution Source Annual Emissions Fee, P.O. Box 3070, Tallahassee, Florida. 32315-3070**. Additional information is available by accessing the Title V Annual Emissions Fee On-line Information Center at the following Internet web site: http://www.dep.state.fl.us/air/emission/tvfee.htm. [Rules 62-210.370(3), 62-210.900 & 62-213.205, F.A.C.; and, Section 403.0872(11), Florida Statutes (2013)]

{Permitting notes:

If the permittee chooses to use the EAOR software, instructions provided with the system should be followed.

Resources to help complete the AOR are available on the website at: http://www.dep.state.fl.us/air/emission/eaor. If you have questions or need assistance after reviewing the information posted on the EAOR website, please contact the Department by phone at (850) 717-9000 or email at eaor@dep.state.fl.us.

Also, the Title V Annual Emissions Fee form (DEP Form No. 62-213.900(1)) was repealed; a separate Annual Emissions Fee form is no longer required to be submitted by March 1st each year.}

FW7. Annual Statement of Compliance. The permittee shall submit an annual statement of compliance to the compliance authority at the address shown on the cover of this permit and to the U.S. EPA at the address shown below within 60 days after the end of each calendar year during which the Title V air operation permit was effective. (See also Appendix RR, Conditions RR1 and RR7.) [Rules 62-213.440(3)(a)2. & 3. and (b), F.A.C.]

U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303
Attn: Air Enforcement Branch

{Permitting note: As specified in Specific Condition RR7 of Appendix RR, the permittee shall use DEP Form No. 62-213.900(7) to comply with this requirement.}

FW8. Prevention of Accidental Releases (Section 112(r) of CAA). If and when the facility becomes subject to 112(r), the permittee shall:

a. Submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent electronically through EPA's Central Data Exchange system at the following address: https://cdx.epa.gov. Information on electronically submitting risk management plans using the Central Data Exchange system is available at: http://www2.epa.gov/rmp. The RMP Reporting Center can be contacted at: RMP Reporting Center, Post Office Box 10162, Fairfax, VA 22038, Telephone: 703/227-7650.

b. Submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C.

[40 CFR 68.]

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The specific conditions in this section apply to the following emissions unit(s):

E.U. ID No.	Brief Description
Palm Beach Renewable Energy Facility No. 1 (PBREF-1)	
	Municipal Waste Combustors
001	Municipal Solid Waste Boiler No. 1
002	Municipal Solid Waste Boiler No. 2
019	Ash Building and Handling System

Description: Units 1 and 2 are identical Babcock & Wilcox MSWC units that began commercial operation on November 15, 1989. The following descriptions include the changes being made in this permit.

Boiler Type: The boiler use a moving grate to burn the RDF fuel.

Fuel: RDF.

Supplementary Fuel: Natural gas is used for startup, shutdown and during combustion of low Btu waste to maintain combustor temperature.

Capacity: The permitted capacity is 324,000 pounds per hour of steam (4-hour block average) based on a unit design capacity of 900 tons per day of RDF.

Generator Nameplate Rating: 62 Megawatts (MW).

Spray Dryer Absorber (SDA): Each unit uses lime injection to control acid gas emissions.

Fabric Filter System: Each unit uses a fabric filter system to control particulate matter (PM) emissions.

Combustion Control System and OFA System: Each unit optimizes furnace conditions with an automated control system and OFA system for proper combustion while minimizing carbon monoxide (CO), nitrogen oxides (NOx) and volatile organic compounds (VOC).

SNCR System: Each unit injects urea with an SNCR system to control NOx emissions.

ACI System: Each unit injects activated carbon to adsorb metal and dioxin/furan emissions, which are then collected by the fabric filter system.

Continuous Monitors: Each unit uses the following equipment to continuously monitor the following pollutants and parameters: continuous emissions monitoring systems (CEMS) for CO, carbon dioxide (CO_2), NOx and sulfur dioxide (SO_2); continuous opacity monitoring system (COMS) for opacity; and continuous monitoring systems (CMS) for the temperature of the flue gas stream at the fabric filter inlet, the steam production rate and urea injection rate.

Stack Parameters: Units 1 and 2 each have a stack that is 250 feet tall with a diameter of 8 feet and are both surrounded by a single stack shell. The volumetric flow rates of each MSWC at permitted capacity are approximately 191,494 actual cubic feet per minute (acfm) and 116,274 dry standard cubic feet per minute (dscfm) @ 7% oxygen (O_2).

Exit Temperature: Approximately 310 ^oF, as measured downstream of the SDA.

Emissions Unit ID No. 019 is the Ash Building and Handling System. Fly ash from the fabric filter system is wetted to control the dust and minimize fugitive emissions. Bottom ash from the RDF boilers is combined with the fly ash prior to going to the landfill. Emissions from the building are uncontrolled.

{Permitting notes: These emissions units are regulated under 40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors (MWC) adopted and incorporated by reference in Rule 62-204.800(9)(b), F.A.C.; Rule 62-296.416, F.A.C., Waste-to-Energy Facilities; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) [PSD-FL-108, as amended]; Rule 62-212.400(6),

F.A.C., Best Available Control Technology (BACT); and, Florida Electrical Power Plant Site Certifications [PA84-20].}

Essential Potential to Emit (PTE) Parameters

A.1. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE)), F.A.C.; and, Permit No. 0990234-015-AC/PSD-FL-108H.]

A.2. Capacity. The following maximum values (capacities) shall not be exceeded:

a. 324,000 lbs/hr individual MWC unit steam production on a 4-hour block arithmetic average.

The MWC units shall not be loaded in excess of their maximum operating capacity, equivalent to 2,000 TPD of mixed MSW. See 40 CFR 60.31b of Appendix 40 CFR 60, Subpart Cb and 40 CFR 60.58b(j) of Appendix 40 CFR 60, Subpart Eb for additional restrictions on capacity. [Rules 62-4.160(2) & 62-210.200 (PTE), F.A.C.; 40 CFR 60.31b & 40 CFR 60.58b(j); and, Permit No. 0990234-015-AC/PSD-FL-108H.]

A.3. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. See the "maximum demonstrated municipal waste combustor unit load" provisions of 40 CFR 60.34b(b) and 40 CFR 60.51b for additional restrictions on operating rate. [Rule 62-297.310(2), F.A.C.; and, 40 CFR 60.34b(b) & 40 CFR 60.51b.]

A.4. MWCs - Fuels. The open storage of solid waste outside of a building is prohibited. [PSD-FL-108A, specific condition 10.]

A.5. MWCs - Methods of Operation - Fuels.

a. *Allowable Fuels.*

(1) The only fuels allowed to be burned in the MWCs is RDF from mixed municipal solid waste (MSW), with natural gas as an auxiliary fuel. Other fuels or wastes, not specifically listed herein, shall not be burned without written prior approval from the Department. Fuels or wastes specifically authorized herein do not require prior Department approval before combustion.

(2) The primary fuel for the facility is RDF from mixed municipal solid waste (MSW), including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (2010). The following items and materials fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (2010):

(a) Residue from the Recycling of Construction & Demolition (C&D) Debris. This residue is the combustible material that is removed from typical C&D debris at a recycling facility. This residue may contain some incidental amounts of non-combustibles.

(b) Residue from Processing Recovered Materials. Recovered Materials are defined in Section 403.703, Florida Statutes, as metal, paper, glass, plastic, textile, or rubber materials that have been diverted and source separated from the solid waste stream. These materials are collected from residential and commercial customers and then processed at a Recovered Materials Processing Facility ("RMPF"). The residue generated at the RMPF includes non-recyclable materials (e.g., food waste) and recyclable materials that were missed or rejected on the sorting line at the RMPF.

(c) Residue from Processing Recyclables at a Dirty MRF or a Single Stream MRF. Materials Recovery Facilities ("MRFs") generate various residues from the processing of MSW and recyclable materials. At a "dirty" MRF, MSW is delivered and recyclable materials are extracted from the solid waste. At a "single stream" MRF, recyclable materials that are collected at curbside are delivered in a "single stream" (i.e., all of the customer's recyclable materials are placed into one container and then collected together in a single, comingled load). The residues from dirty and single stream MRFs are materials that are rejected from the processing lines inside the MRFs (e.g., items that are removed from the sorting lines because they are unsuitable for recycling) and materials that simply escaped processing.

b. *Unauthorized Fuels.* Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW, which are described in **d.** - **f.**, below. However, the facility
   (1) shall not burn:
      (a) those materials that are prohibited by state or federal law;
      (b) those materials that are prohibited by this permit;
      (c) lead acid batteries;
      (d) hazardous waste;
      (e) nuclear waste;
      (f) radioactive waste;
      (g) sewage sludge;
      (h) sewage sludge from sewage treatment plants [1];
      (i) explosives;
      (j) beryllium-containing waste, as defined in 40 CFR 61, Subpart C. *{The U.S. EPA letter dated April 6, 2000 (see attached), on 40 CFR 61, Subpart C further addresses the applicability of this federal regulation with regard to beryllium-containing waste(s).}*
   (2) and shall not knowingly burn:
      (a) untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from other similar generators (or sources). See the attached Appendix BW, Biomedical Waste Definitions, for definitions of what constitutes biomedical waste;
      (b) segregated loads of biological waste.

c. *Fuel Handling.* The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be well mixed with MSW. For the purposes of this permit, a segregated load is defined to mean a container or truck that is almost completely or exclusively filled with a single item or homogeneous composition of waste material, as determined by visual observation.

d. *Other Solid Waste.* Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:
   (1) Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
   (2) Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
   (3) Wood pallets, clean wood, and land clearing debris;
   (4) Packaging materials and containers;
   (5) Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
   (6) Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

e. *Waste Tires.* Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis.

f. *Non-MSW Material.* Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e., the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis.

(1) Construction and demolition debris.
(2) Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
(3) Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
(4) Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.
(5) Waste materials that:
  (a) are generated in the manufacture of items in categories **f.(3)** or **f.(4)**, above and are functionally or commercially useless (expired, rejected or spent); or
  (b) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
(6) Waste materials that contain oil from:
  (a) the routine cleanup of industrial or commercial establishments and machinery; or
  (b) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.
(7) Used oil and used oil filters. Used oil containing a polychlorinated biphenyls (PCB) concentration equal or greater than 50 parts per million (ppm) shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).
(8) Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW, subject to written prior approval of the Department.

[Rules 62-4.070(1), (3), 62-213.410 & 62-213.440, F.A.C.; [1] PSD-FL-108A, specific condition 11.; and, Applicant Request.]

{Permitting note: At RDF plants, the 3% (or 5%) restriction applies to the municipal solid waste received. On-site processing of material at the facility is not included in this restriction. Exceedance of this percentage requires prior department approval.}

A.6. Auxiliary Burners - Methods of Operation - Fuels. Auxiliary burners for each MWC shall be fired only with natural gas. Natural gas may be used as a supplemental fuel during startups, shutdowns, and at other times when necessary and consistent with good combustion practices. [Rules 62-4.160(2), 62-210.200 (PTE), 62-213.410, & 62-213.440, F.A.C.; and, PSD-FL-108A.]

A.7. Auxiliary Gas Burner Operations.

a. During boiler startup, the auxiliary gas burners shall be operating at their maximum capacity prior to the introduction of RDF to the boilers, and shall remain in operation until the lime spray dryer absorbers and particulate matter emissions control device (fabric filter system) are fully operational.
b. During normal, non-emergency boiler shutdown, the auxiliary gas burners shall be operated at their maximum capacity until all RDF has been combusted.
[Rules 62-4.160(2), 62-210.200 (PTE), 62-213.410, & 62-213.440, F.A.C.; 0992034-015-AC/PSD-FL-108H; and, PSD-FL-108A, specific conditions 7. & 8.]

Air Pollution Control Technologies and Measures

A.8. Carbon Usage Rate. The carbon injection rate operating standard and monitoring requirements set forth in 40 CFR 60.58b(m) of 40 CFR 60, Subpart Eb, incorporated by reference in Rule 62-204.800, F.A.C., shall apply. See Appendix 40 CFR 60, Subpart Eb. [Rule 62-296.416(5), F.A.C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Specific Conditions **A.9. - A.19.** are based on the specified averaging time of the applicable test method.

{Permitting note: The May 10, 2006 amendments to 40 CFR 60 Subpart Cb changed some of the emission standards and limitations for Unit Nos. 1 & 2. Five (5) air pollutant standards/limitations were lowered under the amendments: PM, cadmium (Cd), Hg, Pb and dioxin/furan (D/F).}

Stack Emissions

A.9. Particulate Matter (PM) Emissions. The emission limit for particulate matter (PM) contained in the gases discharged to the atmosphere is 25 milligrams (mg) per dry standard cubic meter, corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)3.a., F.A.C.; 40 CFR 60.33b(a)(1)(i); and, PSD-FL-108A, specific condition 3.a.]

A.10. Opacity. As determined by the continuous opacity monitoring system (COMS) or EPA Method 9, the emission limit for opacity exhibited by the gases discharged to the atmosphere is 10 percent (6-minute average). [Rule 62-204.800(9)(b)3.b., F.A.C.; 40 CFR 60.33b(a)(1)(iii); and, PSD-FL-108A, specific condition 3.k. & Permit No. 0990234-015-AC/PSD-FL-108H, specific condition 17.e.]

A.11. Cadmium. The emission limit for cadmium (Cd) contained in the gases discharged to the atmosphere is 35 micrograms (ug) per dry standard cubic meter, corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)3.c., F.A.C. and 40 CFR 60.33b(a)(2)(i).]

A.12. Mercury. The emission limit for mercury (Hg) contained in the gases discharged to the atmosphere is 50 micrograms per dry standard cubic meter or 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7 percent oxygen, whichever is less stringent. [Rule 62-204.800(9)(b)3.d., F.A.C.; 40 CFR 60.33b(a)(3); and, PSD-FL-108A, specific condition 3.e.]

A.13. Lead. The emission limit for lead (Pb) contained in the gases discharged to the atmosphere is 400 micrograms per dry standard cubic meter, corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)3.c., F.A.C.; 40 CFR 60.33b(a)(4); and, PSD-FL-108A, specific condition 3.d.]

A.14. Sulfur Dioxide. As determined by the continuous emissions monitoring system (CEMS), the emission limit for sulfur dioxide (SO_2) contained in the gases discharged to the atmosphere is 29 parts per million by volume (ppmv) or 25 percent of the potential sulfur dioxide emission concentration (75-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean. [Rule 62-204.800(9)(b)3.e., F.A.C.; 40 CFR 60.33b(b)(3)(i); and, PSD-FL-108A, specific condition 3.i. & Permit No. 0990234-015-AC/PSD-FL-108H, specific condition 17.d.]

A.15. Hydrogen Chloride. The emission limit for hydrogen chloride (HCl) contained in the gases discharged to the atmosphere is 25 parts per million by volume or 5 percent of the potential hydrogen chloride emission concentration (95-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. [Rule 62-204.800(9)(b)3.f., F.A.C.; 40 CFR 60.33b(b)(3)(ii); and, PSD-FL-108A, specific condition 3.j.]

A.16. Dioxin/Furan. The emission limit for dioxin/furan (D/F) contained in the gases discharged to the atmosphere from designated facilities that do not employ an electrostatic precipitator-based emission control system is 30 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)3.g., F.A.C.; 40 CFR 60.33b(c)(1)(iii); and, 0990234-021-AC/PSD-FL-108J]

A.17. Nitrogen Oxides. As determined by the CEMS, the emission limit for nitrogen oxides (NOx) contained in the gases discharged to the atmosphere from a refuse derived fuel type municipal waste combustor technology is 250 parts per million by volume, corrected to 7 percent oxygen, dry basis. Compliance with this emission

limit is based on the 24-hour daily arithmetic average of the hourly emission concentrations using continuous emission monitoring system outlet data. Emissions averaging pursuant to 40 CFR 60.33b(d)(1) shall be allowed. 40 CFR 60.33b(d)(2) shall not apply. [Rule 62-204.800(9)(b)3.h., F.A.C.; 40 CFR 60.33b(d); and, PSD-FL-108A, specific condition 3.b. & Permit No. 0990234-015-AC/PSD-FL-108H, specific condition 17.d.]

A.18. Carbon Monoxide. As determined by the CEMS:

a. the emission limit for carbon monoxide (CO) contained in the gases discharged to the atmosphere from a refuse derived fuel stoker type municipal waste combustor technology is 200 parts per million by volume (ppmvd), measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7 percent oxygen, dry basis, and calculated on a 24-hour block average. Calculated as an arithmetic average. [Rule 62-204.800(9)(b)3.i., F.A.C.; 40 CFR 60.34b(a); and, Permit No. 0990234-015-AC/PSD-FL-108H, specific condition 17.d.]
b. CO emissions shall not exceed 400 ppmvd, corrected to 7 percent oxygen, dry basis, and calculated on a 4-hour block average. [Permit No. 0990234-015-AC/PSD-FL-108H, specific conditions 3.c. & 17.d.]

A.19. Volatile Organic Compounds. Volatile organic compound (VOC) emissions shall not exceed 1.6×10^{-2} lb/MMBtu. [PSD-FL-108A, specific condition 3.h.]

Fugitive Ash Emissions

A.20. (This condition only applies to the ash conveying systems of E.U. ID No. 019.) Fugitive Ash Emissions.

a. No owner or operator of an affected facility shall cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22 observations as specified in 40 CFR 60.58b(k), except as provided in paragraphs b. and c.
b. The emission limit specified in paragraph a. does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit specified in paragraph a. does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.
c. The provisions of paragraph a. do not apply during maintenance and repair of ash conveying systems.

[Rule 62-204.800(9)(b)6., F.A.C.; and, 40 CFR 60.36b and 40 CFR 60.55b.]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any requirement of an EG, NSPS or NESHAP provision.

A.21. Excess Emissions Allowed - Startup, Shutdown or Malfunction. Excess emissions resulting from startup, shutdown or malfunction shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. The Department authorizes three hours per occurrence in any 24-hour period for these emissions units. A malfunction means any unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. [Rules 62-210.700(1) & (5), F.A.C. and PSD-FL-108A, specific condition 15.]

A.22. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

A.23. Carbon Monoxide. For the purpose of compliance with the carbon monoxide emission limits in 40 CFR 60.53b(a), if a loss of boiler water level control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence. [40 CFR 60.38b & 40 CFR 60.58b(a)(1)iii.]

Continuous Monitoring Requirements

{Permitting note: The following continuous monitors are installed on these emissions units: steam flow, urea injection rate, ACI rate, inlet temperature to the fabric filter, opacity, SO_2, NOx, CO and carbon dioxide (CO_2).}

A.24. Steam Flow Meter. The owner or operator shall calibrate, maintain, and operate a steam flow meter or a feedwater flow meter; to measure steam (or feedwater) flow in kilograms per hour (or lbs/hour) on a continuous basis; and record the output of the monitor. Steam (or feedwater) flow shall be calculated in 4-hour block arithmetic averages. [Rule 62-213.440, F.A.C.; 40 CFR 60.34b, 40 CFR 60.53b & 40 CFR 60.58b(i)(6); and, PSD-FL-108A.]

A.25. Urea Injection Rate. The permittee shall calibrate, operate and maintain a CMS to continuously monitor and record the urea injection rate of each SNCR system. [0990234-015-AC/PSD-FL-108H]

A.26. ACI Rate. The permittee shall calibrate, operate and maintain a CMS to continuously monitor and record the ACI injection rate of each ACI system. [0990234-015-AC/PSD-FL-108H]

A.27. Inlet Temperature to Particulate Matter Control Device. The owner or operator shall calibrate, maintain, and operate a device for measuring on a continuous basis the temperature of the flue gas stream at the inlet to each particulate matter control device utilized. Temperature shall be calculated in 4-hour block arithmetic averages. [Rule 62-213.440, F.A.C.; 40 CFR 60.34b, 40 CFR 60.53b & 40 CFR 60.58b(i)(7); and, 0990234-015-AC/PSD-FL-108H]

A.28. Continuous Emissions Monitoring Systems (CEMS) Required. The owner or operator shall calibrate, operate and maintain continuous emissions monitoring systems (CEMS) for monitoring opacity, sulfur dioxide (SO_2), nitrogen oxides (NOx) and carbon monoxide (CO). [Rule 62-213.440, F.A.C.; and, 40 CFR 60.38b; 40 CFR 60.58b(c)(8) (opacity); 40 CFR 60.58b(e)(5) (SO_2); 40 CFR 60.58b(h)(4) (NOx) & 40 CFR 60.58b(i)(3) (CO).]

A.29. Oxygen (O_2) or Carbon Dioxide (CO_2) CEMS. The owner or operator shall calibrate, maintain, and operate a continuous emission monitoring system (CEMS) for measuring the oxygen or carbon dioxide content of the flue gas at each location where carbon monoxide, sulfur dioxide, or nitrogen oxides emissions are monitored and record the output of the system. [Rule 62-213.440, F.A.C. and 40 CFR 60.38b, & 40 CFR 60.58b(b).]

Test Methods and Procedures

A.30. Test Methods. Required tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
EPA Methods 1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
EPA Methods 5	Methods for Determining PM Emissions
EPA Methods 6, 6A, 6C or 8	Methods for Determining SO_2 Emissions
EPA Method 7, 7A, 7B, 7C, 7D or 7E	Determination of NOx Emissions
EPA Method 9	Visual Determination of the Opacity of Emissions (VE)
EPA Method 10, 10A or 10B	Determination of CO Emissions
EPA Method 12	Determination of Pb Emissions
EPA Method 19	Determination of "F" factors used in determining heating value of RDF

Method(s)	Description of Method(s) and Comment(s)
EPA Method 22	Visual Determination of Fugitive Emissions from Material Sources
EPA Method 23	Measurement of D/F Emissions. Authorized to omit methylene chloride rinse.[1]
EPA Method 25 or 25A	Determination of VOC Emissions
EPA Method 26 or 26A	Determination of HCl Emissions from Stationary Sources. Changes were approved to the EPA Method 26 testing methodology.[2]
EPA Method 29	Determination of Metal (e.g., Cd, Hg and Pb) Emissions from Stationary Sources
EPA Method 101A	Determination of Hg Emissions

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Chapter 62-297, F.A.C.; Rule 62-204.800(9)(b)7., F.A.C.; PSD-FL-108A; [1] Appendix ATP, U.S. EPA Alternative Test Procedure Approval dated June 3, 2004; and, [2] Permit No. 0990234-019-AC/PSD-FL-108I.]

A.31. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

A.32. Annual Compliance Test. The owner or operator shall conduct a performance test for PM, opacity, Cd, Hg, Pb and D/F emissions on a calendar year basis (no less than 9 calendar months and no more than 15 calendar months following the previous performance test; and must complete five performance tests in each 5-year calendar period). For each required cadmium, dioxin/furan, lead, mercury, and PM test run, the permittee shall also record and report the actual ACI rate, lime injection rate, and temperature data for the fabric filter system. The owner or operator shall conduct a performance test for HCl emissions on an annual basis. For each required hydrochloric acid test run, the permittee shall also record and report the actual lime injection rate. [Rule 62-297.310(8), F.A.C. [Rules 62-297.310(7) & 62-204.800(9)(b)7., F.A.C. and PSD-FL-108A, specific condition 4. and PSD-FL-108H.]

A.33. VOC Emission Testing. Compliance with the VOC limit shall be demonstrated by compliance with both Carbon Monoxide limits in lieu of stack testing, but should the Department feel the VOC limit is not being met, a special compliance test could be required. [Permit No. 0990234-021-AC/PSD-FL-108J.]

A.34. Dioxins/Furans. The alternative performance testing schedule for dioxins/furans (D/F) specified in 40 CFR 60.58b(g)(5)(iii) (See Appendix 40 CFR 60, Subpart Eb) shall apply to municipal waste combustor plants that achieve a dioxin/furan emission level less than or equal to **15** nanograms per dry standard cubic meter, corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)7.b, F.A.C.]

A.35. HCl Emission Testing. EPA Method 26 shall be used for the determination of hydrochloric acid concentration or other methods approved by DEP and EPA. The permittee may modify the EPA Method 26 sampling train as follows: full-size (Greenburg-Smith design) impingers may be used in lieu of midget impingers; and, the two sodium hydroxide (NaOH) impingers may be replaced with one empty impinger. [Permit No. 0990234-019-AC/PSD-FL-108I, specific condition 4.i.]

A.36. Mercury Testing Frequency. The Department's Order Granting Variance dated August 25, 1997, is a part of this permit. The variance allows the facility to test mercury emissions annually provided each future annual test demonstrates compliance. The order contains additional terms. If compliance is not demonstrated

by each annual test, the Department retains the right to reinstate quarterly testing. The variance does not apply to any other new or existing state or federal rule which may require more frequent mercury testing. [Rule 62-296.416(3)(a)3., F.A.C.; and, Order Granting Variance dated August 25, 1997.]

{Permitting note: 40 CFR 60, Subpart Cb requires annual Hg testing.}

A.37. RDF Analysis. During compliance stack tests, the RDF shall be analyzed by at least two separate labs, approved by the Department, using split samples for the Btu and moisture contents. [PSD-FL-108A, specific condition 12.]

Recordkeeping and Reporting Requirements

A.38. Reporting Schedule. The following reports shall be submitted to the Compliance Authority:

Report	Reporting Deadlines	Related Conditions
Excess Emissions from Malfunctions, if requested by the Compliance Authority	Every 3 months (quarter)	**A.39.**
NSPS Excess Emissions and Monitoring System Performance	Every 6 months (semi-annual), except when more frequent reporting is specifically required	**A.49.**
EG Cb (Eb) Annual Report	Every 6 months (semi-annual)	**A.47** & **48.** Appendix Cb/Appendix Eb - 40 CFR 60.59b(g)
EG Cb (Eb) Semi-Annual Report	Every 6 months (semi-annual)	**A.47** & **48.** Appendix Cb/Appendix Eb - 40 CFR 60.59b(h)

[Rule 62-210.700(6), F.A.C.; 40 CFR 60, Subparts A, Cb & Eb.]

A.39. Excess Emissions from Malfunctions. In the case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Compliance Authority. [Rule 62-210.700(6), F.A.C.]

A.40. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440, F.A.C.]

A.41. Records of Non-MSW. The facility owner or operator shall prepare and maintain records concerning the description and quantities of all segregated loads of non-MSW material which are received and used as fuel at the facility, and subject to a percentage weight limitation (see Specific Conditions **A.5.e.** and **A.5.f.**). The following records shall be prepared and maintained to demonstrate compliance with the segregated non-MSW percentage limitations:

a. *Segregated Loads of non-MSW Materials*. Each segregated load of non-MSW materials, that is subject to the percentage weight limitations (see Specific Conditions **A.5.e.** and **A.5.f.**), which is received for processing shall be documented as to the description and weight of the waste. The weight of all waste materials received for processing shall be measured using the facility truck scale and recorded.

b. *Waste Tires*. Each day the total weight of segregated tires received shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of tires shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied

by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 3% limitation.

c *Non-MSW Material.* Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of segregated non-MSW materials subject to the 5% restriction shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitation.

[Rules 62-4.070(1), (3), 62-213.410 & 62-213.440, F.A.C.]

A.42. Daily Waste Logs Required. The permittee shall maintain a daily log of the municipal solid waste received. Such a log must record, at a minimum, the amount of waste, the time, and the type of waste received. [PSD-FL-108A, specific condition 18. and Rule 62-213.440, F.A.C.]

A.43. Reporting and Recordkeeping. The reporting and recordkeeping requirements applicable to each municipal waste combustor unit subject to Rule 62-204.800(9)(b), F.A.C., shall be the same as set forth in 40 CFR 60.59b, except for the siting requirements under 40 CFR 60.59b(a), (b)(5) and (d)(11). See Appendix 40 CFR 60, Subpart Eb. [Rule 62-204.800(9)(b)7.b, F.A.C.]

Operator Practices, Training and Certification

A.44. Operating Practices. The owner or operator shall comply with the operating practices as set forth in 40 CFR 60.53b(b) and (c). [Rule 62-204.800(9)(b)4., F.A.C.; and, 40 CFR 60.34b & 40 CFR 60.53b.]

A.45. Operator Training and Certification. The owner or operator shall comply with the operator training and certification requirements of 40 CFR 60.54b. Compliance with these requirements shall be conducted according to the schedule specified in 40 CFR 60.39b(c)(4). [Rule 62-204.800(9)(b)5., F.A.C.; and, 40 CFR 60.35b & 40 CFR 60.54b.]

EG 40 CFR 60, Subpart Cb Requirements

A.46. EG Requirements - General Applicability and Definitions. These emissions units shall comply with all applicable requirements of 40 CFR 60, Emission Guidelines and Compliance Times which have been adopted by reference in Rule 62-204.800(9), F.A.C., except that the term "Administrator," when used in any provision of 40 CFR 60 that is delegated to the Department by the U.S. Environmental Protection Agency, shall mean the Secretary or the Secretary's designee. [Rule 62-204.800(9)(a), F.A.C.]

{Permitting note: Pursuant to Rule 62-204.800(9)(a)1., F.A.C., the Emission Guidelines for Existing Sources shall be controlling over other standards in the air pollution rules of the Department except that any emissions limiting standard contained in or determined pursuant to the air pollution rules of the Department which is more stringent than one contained in an Emission Guideline, or which regulates emissions of pollutants or emissions units not regulated by an applicable Emission Guideline, shall apply.}

A.47. EG Requirements - Subpart Cb. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors, which have been adopted and incorporated by reference in Rule 62-204.800(9), F.A.C. These emissions units shall comply with Appendix 40 CFR 60 Subpart Cb included with this permit. [Rule 62-204.800(9)(b), F.A.C.]

NSPS 40 CFR 60, Subpart A & Eb Requirements

{Permitting notes: The EG 40 CFR 60, Subpart Cb, cross references conditions (applicable requirements) that are contained in the NSPS 40 CFR 60, Subparts A and Eb.}

A.48. NSPS Requirements - Subpart Eb. Except as otherwise provided in this permit, these emissions units shall comply with all applicable provisions of 40 CFR 60, Subpart Eb, Large Municipal Waste Combustors, adopted and incorporated by reference in Rule 62-204.800(8)(b), F.A.C.; except that the Secretary is not the Administrator for purposes of the authorities cited at 40 CFR 60.50b(n). These emissions units shall comply with all applicable provisions of Appendix 40 CFR 60 Subpart Eb included with this permit. [Rule 62-204.800(8)(b)7., F.A.C.]

A.49. NSPS Requirements - Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. This emissions unit shall comply with all applicable provisions of Appendix 40 CFR 60 Subpart A included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

Other Requirements

A.50. Acid Rain Part Application. For any unit which is a solid waste incinerator, burning less than 20 percent fossil fuel as described in 40 CFR 72.6(b)(7), adopted and incorporated by reference at Rule 62-204.800, F.A.C., the designated representative of the source containing the unit shall submit a complete Acid Rain Part application governing such unit to the Department before March 1st of the year following the three calendar year period in which the incinerator consumed 20 percent or more fossil fuel on a British thermal unit (BTU) basis. [Rule 62-214.320(1)(g), F.A.C.]

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Subsection B. Emission Units 024, 025, 026, 027, 028, 030, 034
PBREF-2: Municipal Waste Combustor - Unit Nos. 3, 4, 5, Lime Storage Silos A & B, Activated Carbon Storage Silo, and Ash Handling System and Building

The specific conditions in this section apply to the following emissions unit(s):

E.U. ID No.	Brief Description
Palm Beach Renewable Energy Facility No. 2 (PBREF-2)	
	Municipal Waste Combustors
024	Municipal Waste Combustor - Unit No. 3
025	Municipal Waste Combustor - Unit No. 4
026	Municipal Waste Combustor - Unit No. 5
027	Lime Storage Silo A
028	Lime Storage Silo B
030	Activated Carbon Storage Silo
034	Ash Handling System and Building

Municipal Waste Combustor Nos. 3, 4 & 5 are collectively referred to as the Palm Beach Renewable Energy Facility No. 2 (PBREF-2) and are described below:

Description: Emission unit ID Nos. 024, 025 and 026 are each a 1,000 TPD mass burn municipal waste combustor (MWC) unit, each with a fossil fuel fired auxiliary burner system. The natural gas-fired burner systems are used as needed during periods of startup, shutdown and for flame stabilization. Each MWC unit produces high pressure, high temperature (HPHT) steam that is used in a single steam turbine generator (STG) to generate 90 to 100 MW of electrical power.

Fuels: The primary boiler fuel for each MWC unit is municipal solid waste (MSW) and the other fuels as specified in this subsection. Natural gas is used as a startup, shutdown and flame stabilization fuel in the auxiliary burner system.

Steam Capacity: The maximum steam production limit per unit on a 4-hour block average basis is 320,100 lb steam/hr.

Heat Input: The heat input required to generate the maximum steam capacity is approximately 458 million British thermal units per hour (MMBtu/hr). The maximum heat input limit for the natural gas burner system for each MWC unit is 167 MMBtu/hr during periods of startup, shutdown and for flame stabilization.

Controls for each MWC: The air pollution control systems consist of good combustion practices (GCP), spray dryer (SD), Fabric Filter (FF), carbon injection (CI), selective catalytic reduction (SCR) and use of inherently clean natural gas as a startup, shutdown and flame stabilization fuel in the MWC.

Stack Parameters for each MWC: Each of the MWC units have a separate exhaust flue. The exhaust flues are co-located and contained in a common outer stack. Each stack flue is approximately 8.1 feet in diameter (maximum) and 310 feet tall (minimum). Exhaust from each flue exits the stack at the following approximate conditions: an exit temperature of 285 °F and a volumetric flow rate of 184,310 actual cubic feet per minute (acfm).

Continuous emissions and opacity monitoring systems (CEMS, COMS): Emissions of carbon monoxide (CO), nitrogen oxides (NOx), and sulfur dioxide (SO_2) from each MWC unit and mercury (Hg) from one of the MWC units will be monitored and recorded by CEMS. Opacity (VE) from each unit will be monitored and recorded by a COMS.

Applicability of 40 CFR Subpart Eb (NSPS Subpart Eb): Each MWC unit is subject to NSPS Subpart Eb - Standards of Performance for Large Municipal Waste Combustors.

{Permitting Note: These emission units are subject to BACT determinations for NOx, CO, SO_2, PM, VOC, MWC

acid gases as SO_2+hydrogen chlorides (HCl), MWC organics as dioxin/furans (D/F), and MWC metals as PM, as implemented in Permit No. 0990234-032-AC/PSD-FL-413C. E.U. ID No. 024 commenced initial operation on 02/24/2015, E.U. ID No. 025 commenced initial operation on 03/21/2015, and E.U. ID No. 026 commenced initial operation on 04/12/2015.}

{Permitting Note: Unless otherwise specified in a specific condition of this subsection, the descriptions above under Description and Steam Capacity are not operating limitations.}

Equipment

B.1. MWC Units. The permittee is authorized to operate three MWC stoker boiler units, each with a natural gas burner system, overfire air ports, steam drum, superheater, economizer, air heater, ash hoppers, ducts, fuel feeding equipment, dry cooling towers, air pollution control equipment and other associated equipment. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.2. Aqueous Ammonia or Urea Storage Tank. The permittee is authorized to operate a nominal 30,000 gallon or smaller tank to store aqueous ammonia or urea for the SCR systems. In accordance with 40 CFR 68.130, the storage of aqueous ammonia or urea shall comply with all applicable requirements of the Chemical Accident Prevention Provisions in 40 CFR 68. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Essential Potential to Emit (PTE) Parameters

B.3. Permitted Capacity.

a. *Heat Input from Fossil Fuels.* The maximum heat input capacity from natural gas for each MWC unit on a steady state basis during boiler startup, shutdown and flame stabilization shall be limited to 167 MMBtu/hr.

b. *Steam Production Limits*. For each MWC unit, the maximum allowable steam production rate is 320,100 lb/hr (4 hour block average basis).

c. *Maximum Demonstrated MWC Unit Load.* The maximum demonstrated MWC unit load shall be determined during the initial performance test for D/F and each subsequent performance test during which compliance with the D/F emission limit is achieved. The maximum demonstrated MWC unit load shall be the highest 4-hour arithmetic average load based on steam production achieved during four consecutive hours during the most recent test during which compliance with the dioxin/furan emission limit was achieved. Unit load means the steam load of the MWC measured as specified in 40 CFR 60.58b(I)(6). Each unit shall not operate at a load level greater than the steam production rate given in paragraph b. of this condition or, if it is less, 110% of the unit's "maximum demonstrated unit load". Higher loads, within the limit in paragraph b. of this condition, are allowed for testing purposes as specified in 40 CFR 60.53b(b).

See 40 CFR 60.58b(j) of Appendix 40 CFR 60, Subpart Eb for additional restrictions on capacity.

[40 CFR 60.34b(b), 60.51b, 60.53b(b) & 60.58b(i)(6); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.4. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. See the "maximum demonstrated municipal waste combustor unit load" provisions of 40 CFR 60.51b for additional restrictions on operating rate. [Rule 62-297.310(2), F.A.C.; and, 40 CFR 60.51b.]

B.5. Methods of Operation - MWC Boiler Unit Fuels. Each MWC boiler unit is authorized to combust MSW and other fuels authorized in Specific Condition **B.7.** of this subsection. In addition, each MWC unit is authorized to combust natural gas as a startup, shutdown and flame stabilization fuel. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.6. Prohibited Fuels.

a. The facility shall not burn:

(1) Those materials that are prohibited by state or federal law;

(2) Those materials that are prohibited by this permit;
(3) Lead acid batteries;
(4) Hazardous waste;
(5) Nuclear waste;
(6) Radioactive waste;
(7) Sewage sludge;
(8) Explosives; and
(9) Beryllium-containing waste, as defined in 40 CFR 61, Subpart C. *{The U.S. EPA letter dated April 6, 2000 (see attached), on 40 CFR 61, Subpart C further addresses the applicability of this federal regulation with regard to beryllium-containing waste(s).}*

b. Further, the facility shall not knowingly burn:
(1) Nickel-cadmium batteries pursuant to Section 403.7192 (3);
(2) Mercury containing devices and lamps pursuant to Sections 403.7186(2), and (3);
(3) Untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from similar generators (or sources);
(4) Segregated loads of biological waste; and
(5) Copper Chromated Arsenate (CCA) treated wood.

[Permit No. 0990234-032-AC/PSD-FL-413C.]

B.7. Authorized Fuels. The primary fuel for the facility is MSW, including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), F.S. (1995). Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described below. Fuels or wastes specifically authorized herein do not require prior Department approval before combustion.

a. Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:
(1) Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
(2) Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
(3) Wood pallets, clean wood, and land clearing debris;
(4) Packaging materials and containers;
(5) Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
(6) Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

b. Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in accordance with Specific Condition **B.34.** of this subsection.

c. Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e. the following are authorized fuels that are non-MSW material). The total (cumulative) quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 20%, by weight, of the facility's total fuel and, except as specifically provided below, none of the following materials individually shall exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis in

accordance with Specific Condition **B.34.** of this subsection. The Department's prior approval is not required to use the following materials as fuel, subject to the conditions and limitations contained in this permit.

(1) Construction and demolition debris.

(2) Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.

(3) Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.

(4) Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.

(5) Waste materials that:
   (a) are generated in the manufacture of items in paragraphs c.(3) or c.(4), above and are functionally or commercially useless (expired, rejected or spent); or
   (b) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.

(6) Waste materials that contain oil from:
   (a) the routine cleanup of industrial or commercial establishments and machinery; or
   (b) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.

(7) Used oil and used oil filters. Used oil containing a polychlorinated biphenyls (PCB) concentration equal or greater than 50 parts per million (ppm) shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).

(8) Materials for witnessed destruction. These materials consist of the products and goods that are identified in paragraphs c.(3), c.(4) and c.(5), above.

(9) Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW.

(10) Biosolids. Biosolids are defined in 62-640.200(6), F.A.C., to mean the residues generated from the treatment of domestic wastewater at domestic wastewater treatment facilities. Note that "liquid biosolids" as defined in 62-640.200(28), F.A.C., (i.e. biosolids that are less than 12% solids by weight, or that are determined to contain free liquids as defined by Methods 9095B (Paint Filter Liquids Test)) are not authorized fuels.

(11) Livestock waste as a maximum quantity not to exceed 10%, by weight, of the facility's total fuel. Livestock waste means the material that has been used for livestock bedding and sanitary purposes in barns and stables. Livestock waste typically is comprised of straw, wood shavings (sawdust), hay, waste animal feed, and similar materials. Such waste contains the excreta of animals.

(12) Waste processing residue from ethanol production. Such material contains the undigested organics, lignins, celluloses, and plastics remaining from the anaerobic digestion treatment processes used on various waste streams including MSW, vegetative and woody waste, and biosolids.

(13) Waste gasification process residue. Such material is the "char" or carbonaceous material remaining from the low- to medium-temperature processes used to gasify various waste streams including MSW, vegetative and woody waste, and biosolids.

d. The following materials are also authorized fuels at the facility.

(1) The combustible residue generated when recycling construction and demolition debris. Such materials include wood, plastic, paper, packaging materials, and similar combustible materials, but may also include incidental amounts of noncombustible material (e.g. concrete).

(2) The residue generated when processing MSW to make refuse-derived fuel.
(3) The residue generated when processing recovered materials in a recovered materials processing facility, as those terms are defined in Rules 62-701.200(95) and (96), F.A.C., respectively.
(4) The residue generated when processing recyclable materials at a materials recovery facility, as those terms are defined in Rules 62-701.200(98) and (71), F.A.C., respectively.
[Permit No. 0990234-032-AC/PSD-FL-413C.]

B.8. Segregated Loads. The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is a segregated non-MSW material, the fuel shall be either:
a. well mixed with MSW in the refuse pit; or
b. alternately charged with MSW in the hopper.
[Permit No. 0990234-032-AC/PSD-FL-413C.]

B.9. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Permit No. 0990234-032-AC/PSD-FL-413C.]

Control Technology

B.10. Air Pollution Control Equipment. The permittee shall have installed and shall maintain and operate the following add-on air pollution control equipment on each MWC unit:
a. *SD/FF Baghouse System*. The permittee shall design, install, operate and maintain a SD/FF baghouse system. The SD/FF baghouse system shall be brought on line in accordance with the manufacturer's procedures and guidelines and will be utilized whenever the MWC unit is in operation and burning MSW.
b. *SCR System*. The permittee shall design, install, operate, and maintain an ammonia (NH_3) or urea based SCR system including reagent storage tank, pumps, metering system, injection grid, reactor and catalyst to reduce NOx emissions in the flue gas exhaust and achieve the NO_X emissions limit specified in this subsection. The SCR shall be brought on line in accordance with the SCR manufacturer's procedures and guidelines and shall be utilized whenever the MWC unit is in operation and burning MSW. The SCR system also represents BACT for D/F emissions.
c. *SNCR System*. The permittee may install, operate, and maintain an NH_3 or urea based SNCR system including reagent storage tank, pumps, metering system and injection equipment to reduce NOx in the furnace prior to further downstream treatment by the SCR system.
d. *Activated CI System and FF Baghouse.* The permittee shall install, operate and maintain an activated CI system and FF baghouse (same baghouse used for SD) to capture the spent carbon. The CI system and FF baghouse shall be designed, constructed and operated to achieve the Hg and other metals emission limits specified in this subsection. The CI system shall be brought on line in accordance with the manufacturer's procedures and guidelines and will be utilized whenever the MWC unit is in operation and burning MSW.
e. *Circumvention*. The permittee shall not circumvent the air pollution control equipment or allow the emissions of air pollutants without this equipment operating properly.
[Rule 62-210.650, F.A.C.; 40 CFR 60, Subpart Db and Permit No. 0990234-032-AC/PSD-FL-413C.]

B.11. Combustion Practices. To ensure that the facility's fuel does not adversely affect the facility's combustion process or emissions, the facility operator shall:
a. Comply with good combustion operating practices in accordance with 40 CFR 60.53b;
b. Operate and maintain CEMS for oxygen, CO, SO_2, NO_X and temperature in accordance with 40 CFR 60.58b; and,
c. Record and maintain the CEMS data in accordance with 40 CFR 60.59b.
These steps shall be used to ensure and verify continuous compliance with the emissions limitations in this permit. Natural gas may be used as fuel during boiler startup, shutdown and flame stabilization, and at other

times when necessary and consistent with good combustion practices. [Permit No. 0990234-032-AC/PSD-FL-413C.]

NSPS Applicability

B.12. NSPS Subparts Eb & A Applicability. Each MWC unit, including the shared steam turbine generator (STG), are subject to all applicable requirements of 40 CFR 60, Subpart Eb, which applies to Large Municipal Waste Combustors and Subpart A, General Provisions. The applicable conditions are given in Appendices A and Eb of this permit. [Rule 62-204.800(7)(b); 40 CFR 60, Subparts A & Eb; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Specific Condition **B.13.** are based on the specified averaging time of the applicable test method.

B.13. Emissions from each MWC unit (E.U. ID Nos. 024, 025 & 026) shall not exceed the following standards/limits:

Air Pollutant	Emission Standard/Limit [1]	lb/hour [2]	Basis
NOx	50 ppmvd - 24 hour block arithmetic mean	37.4	BACT
	45 ppmvd - 12 month rolling average		BACT
CO	100 ppmvd - 4 hr block arithmetic mean	45.5	Subpart Eb
	80 ppmvd - 30-day rolling average		BACT
SO_2	24 ppmvd - 24 hour geometric mean	25.0	BACT
HCl [3]	20 ppmvd	11.9	BACT
VOC (as propane)	7 ppmvd	5.0	BACT
$PM/PM_{10}/PM_{2.5}$	12.0 mg/dscm	4.7	BACT
Lead (Pb)	125 µg/dscm	0.049	Avoid PSD
Hg [4]	N/A [5]	37.7 lbs/yr [6]	Avoid PSD
	25 µg/dscm	0.0098	Applicant Request
Cadmium (Cd)	10 µg/dscm	$3.91E^{-03}$	Subpart Eb
D/F [7]	13.0 ng/dscm		Subpart Eb
	10 ng/dscm until completion of initial D/F performance tests		Initial Test
	0.75 to 10 ng/dscm after completion of initial D/F performance tests		BACT
Opacity	10 % – 6 minute average	N/A	BACT Subpart Eb
Ammonia Slip	10 ppmvd	2.76	PM, Opacity

1 All concentration values are corrected to 7% O_2: µg/dscm = micrograms per dry standard cubic meter; mg/dscm = milligrams per dry standard cubic meter; ng/dscm = nanograms per dry standard cubic meter; and ppmvd = part per million dry volume.

2 Mass emission limits reflect maximum values calculated at 110% of 24 hour steam production limit of 291,000 lb steam/hr for each MWC. The 110% steam limit is 320,100 lb steam/hr for each MWC.

3 HCl is not a BACT pollutant. However, it must be limited together with SO_2 because they both comprise MWC-Acid Gases which has its own PSD threshold.

Air Pollutant	Emission Standard/Limit [1]	lb/hour [2]	Basis

4 Within 60 days after achieving the maximum production rate, but not later than 180 days after the initial startup, PBREF-2 shall commence quarterly performance Hg stack test events for the first two years of operation for each MWC exhaust flue to show compliance with the 25 µg/dscm emission limit. The 25 µg/dscm quarterly stack based standard is based on the applicant's request. After the first two years of operation, the stack testing frequency can be reduced to annually to show compliance with the 25 µg/dscm emission limit. By meeting the stack test standard, PBREF-2 will show compliance with Subpart Eb Hg emission standard of 50 µg/dscm.

5 N/A = not applicable.

6 The 37.7 lbs/yr emission limit is equivalent to a 12-month average concentration of 12 µg/dscm (conservatively assuming continuous operation 8,760 hours per year). Compliance with this annual limit shall be demonstrated based on quarterly stack testing during the first two years of operation and annually thereafter. The Hg CEMS is required for monitoring Hg emissions from one of the MWC units and must become operational within 60 days after PBREF-2 achieves its maximum production rate, but not later than 180 days after the initial startup. During the first four quarters of Hg CEMS availability, the CEMS must achieve an 80% data availability rate. Subsequently, an 85% data availability rate is required.

7 Dioxins/furans: Total tetra through octa-chlorinated dibenzo-p-dioxins and dibenzofurans. Until the completion of initial performance tests for D/F described in Specific Condition **B.31.** of this subsection, the 10 ng/dscm limit applies. Subsequently, the To Be Determined (TBD) limit will be determined by the Department based on initial performance and efficiency tests at the inlet and outlet of the SCR as per Specific Condition **B.31.** of this subsection. Based on these tests a D/F limit between 10 ng/dscm and 0.75 ng/dscm will be selected by the Department. The pound per hour limit will correspond to TBD ng/dscm limit.

[Permit No. 0990234-032-AC/PSD-FL-413C.]

Excess Emissions

Specific Conditions **B.14., B.15.** and **B.16.** apply to the State Implementation Plan (SIP)-based emissions standards specified in Specific Condition **B.13.** of this subsection. Rule 62-210.700, F.A.C. (Excess Emissions) cannot vary or supersede any federal provision of an NSPS or Acid Rain programs.

B.14. Excess Emissions Prohibited. Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C. and Permit No. 0990234-032-AC/PSD-FL-413C.]

B.15. Emission Limit Compliance and Excess Emissions. Because of the long-term nature of the 12-month NO_X concentration limit as part of PSD and the associated BACT determination, all emissions data for this pollutant/averaging time, including periods of startup, shutdown and malfunction, shall be included in compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C. and Permit No. 0990234-032-AC/PSD-FL-413C.]

B.16. Excess Emissions Allowed - BACT Limits. The following provisions apply to the NOx and CO emissions limits given in Specific Condition **B.13.** of this subsection that were specified pursuant to BACT. As specified in this condition, excess emissions resulting from startup, shutdown and documented malfunctions are allowed for the 24-hour NOx and 30-day CO rolling concentration and mass limit provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. NOx and CO emission data exclusions resulting from startup, shutdown, or documented malfunctions shall not exceed three hours in any 24-hour period. A "documented malfunction" means a

malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.17. Regulations Pursuant to 40 CFR 60, Subpart Eb. The following provisions apply to the emissions limits given in Specific Condition **B.13.** of this subsection that were specified pursuant to 40 CFR 60, Subpart Eb.

a. *The opacity standards* set forth in 40 CFR 60 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard. [40 CFR 60.11(c).]

b. *Startup, Shutdown and Malfunction.* Except as provided by 40 CFR 60.56b, the standards under 40 CFR 60, Subpart Eb, as incorporated in Rule 62-204.800(8)(b), F.A.C., apply at all times except during periods of startup, shutdown, or malfunction. Duration of startup or shutdown periods are limited to 3 hours per occurrence, except as provided in 40 CFR 60.58b(a)(1)(iii). During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7).

(1) The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warm-up period when the affected facility is combusting fossil fuel or other non-municipal solid waste fuel, and no municipal solid waste is being fed to the combustor.

(2) Continuous burning is the continuous, semi-continuous, or batch feeding of municipal solid waste for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of municipal solid waste solely to provide thermal protection of the grate or hearth during the startup period when municipal solid waste is not being fed to the grate is not considered to be continuous burning.

[40 CFR 60.58b(a).]

c. *Special Provisions for CO*. For the purpose of compliance with the carbon monoxide emission limits in 40 CFR 60.53b(a), if a loss of boiler water level control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence. [40 CFR 60.58b(a)(1)(iii).]

[Permit No. 0990234-032-AC/PSD-FL-413C.]

Monitoring of Operations

B.18. Pressure Drop. The permittee shall maintain and calibrate a device which continuously measures and records the pressure drop across each baghouse controlling the PM, sorbent and powdered activated carbon (PAC) emissions for each MWC unit. Records shall be maintained on site and made available upon request. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.19. Bag Leak Detection. The permittee shall maintain continuous operation of bag leak detection systems on each baghouse for each MWC unit including keeping records of the systems measurements. Baghouse leak detection records shall be kept on site and made available upon request. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.20. SCR NH_3 or Urea Injection. In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain a flow meter to measure and record the NH_3 or urea injection rate for the SCR system on each MWC unit. The permittee shall document the general range of NH_3 or urea flow rates required to meet the NOx standard over the range of load conditions by comparing NOx emissions with NH_3 or urea flow rates. During NOx CEMS downtimes or malfunctions, the permittee shall operate at an NH_3 or urea flow rate that is consistent with the documented flow rate for the given load condition. Records shall be maintained on site and made available upon request. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.21. Activated CI. In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain a mass flow meter or Department approved device to measure and record the activated CI rate (lb/hour) for each MWC unit. The permittee shall document the general range of activated CI mass

flow rates required to meet the Hg standard over the range of load conditions by comparing Hg emissions with activated CI mass flow rates. Records shall be maintained on site and made available upon request. [40 CFR 60.58(m)(2); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

Continuous Emissions Monitoring Requirements

{Permitting Note: The following continuous monitors are installed on these emissions units: steam flow, inlet temperature to baghouse, opacity, SO_2, NOx, CO and CO_2 or O_2.}

B.22. Steam Parameters. In accordance with the manufacturer's recommendations, the permittee shall calibrate, operate and maintain continuous monitoring and recording devices for the following parameters on each MWC unit: steam temperature (°F), steam pressure (psig) and steam production rate (lb/hour). Records shall be maintained on site and made available upon request. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.23. Steam Monitoring. MWC unit load means the steam load of the MWC unit measured as specified in 40 CFR 60.58b(i)(6). The owner or operator shall install, calibrate, maintain, and operate a steam flow meter, shall measure steam flow in pounds of steam per hour on a continuous basis, and record the output of the monitor (in accordance with the ASME method described in 40 CFR 60.58b(i)(6)). Steam flow shall be calculated in a 4-hour block arithmetic average. For each MWC unit, the maximum steam production limit corresponding to maximum demonstrated unit load is 320,100 lb/hr (4 hour block average basis). Higher unit loads are allowed for testing purposes pursuant to 40 CFR 60.53b(b). [Rules 62-204.800(8), F.A.C.; 40 CFR 60.53b(a) & 60.58b(i); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.24. CEMS. The permittee shall calibrate, maintain, and operate CEMS to measure and record the emissions of CO, NOx, and SO_2 from each MWC unit in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards given in Specific Condition **B.13.** of this subsection. The permittee shall also install, calibrate, maintain and operate a single CEMS to measure and record Hg emissions from one of the three MWC units.

a. *CO CEMS.* CO CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

b. *NOx CEMS.* NO_X CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The required RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR 60. The monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

c. *SO_2 CEMS.* SO_2 CEMS shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2 and shall comply with all requirements of 40 CFR 60.58b. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 6C in Appendix A of 40 CFR 60. The SO_2 monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

d. *Hg CEMS.* Hg CEMS shall be certified pursuant to the requirements in Performance Specification 12A (PS-12A), "Specifications and Test Procedures for Total Vapor Phase Mercury Continuous Monitoring Systems in Stationary Sources," or that has passed verification tests conducted under the auspices of the U.S. Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) Program. The owner or operator shall adhere to the calibration drift and quarterly performance evaluation

procedures and ongoing data quality assurance procedures in 40 CFR Part 60, Appendix F or 40 CFR Part 75, Appendix B. If the calibration system associated with Hg CEMS is not able to conform to the above referenced data quality assurance procedures, then the owner or operator shall propose alternate quality assurance procedures in a CEMS Operation Plan specifically for the Hg CEMS. The CEMS may be used as the method of demonstrating compliance with the annual mass emission rate.

e. *Diluent Monitor:* A continuous emission monitoring system for measuring either the oxygen content or the carbon dioxide content of the flue gas at each location where carbon monoxide, sulfur dioxide, nitrogen oxides emissions are monitored shall be installed, calibrated, maintained, and operated in accordance with the requirements of 40 CFR 60.58b.

[Permit Nos. 0990234-032-AC/PSD-FL-413C and 0990234-034-AC (PSD-FL-413D).]

B.25. Inlet Temperature to Particulate Matter Control Device. The owner or operator shall calibrate, maintain, and operate a device for measuring on a continuous basis the temperature of the flue gas stream at the inlet to each particulate matter control device utilized. Temperature shall be calculated in 4-hour block arithmetic averages. [Rule 62-213.440, F.A.C.; and, 40 CFR 60.34b, 40 CFR 60.53b & 40 CFR 60.58b(i)(7).]

B.26. COMS. A continuous opacity monitoring system (COMS) shall be installed, calibrated, operated, and maintained in exhaust flue of each MWC unit in a manner sufficient to demonstrate continuous compliance with the opacity standard specified in this section. Opacity shall be based on a 6-minute block average computed from at least one observation (measurement) every 15 seconds. For the COMS, the 6-minute block averages shall begin at the top of each hour. The COMS shall meet the applicable requirements of 40 CFR 60.58b(c)(8). [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.27. Continuous Flow Monitor: A continuous flow monitor shall be installed to determine the stack exhaust flow rate to be used in determining mass emission rates. The flow monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 6. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Test Methods and Procedures

B.28. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

EPA Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
6C	Determination of SO_2 Emissions (Instrumental - note: data from CEMS certified in accordance with 40 CFR 60, Appendix B may be used in lieu of stack tests).
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
8	Measurement of Sulfuric Acid Mist
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
13A or 13B	Measurement of Fluoride Emissions
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
23	Measurement of Dioxin/Furan Emissions. Authorized to omit methylene chloride rinse.[1]

EPA Method	Description of Method and Comments
26 or 26A	Determination of Hydrogen Chloride Emissions. The permittee may modify the EPA Method 26 sampling train as follows: full-size (Greenburg-Smith design) impingers may be used in lieu of midget impingers and the two sodium hydroxide (NaOH) impingers may be replaced with one empty impinger.
29	Determination of Metals Emissions from Stationary Sources (Hg, Cd, Pb)
CTM-027	Conditional EPA Test Method 027, Measurement of Ammonia Slip (or equivalent method)

Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "http://www.epa.gov/ttn/emc/ctm.html". The other methods are specified in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. Tests shall be conducted in accordance with the appropriate test method and the applicable requirements specified in this permit, and NSPS Subpart A in 40 CFR 60. [Permit No. 0990234-032-AC/PSD-FL-413C; and, [1]Appendix ATP, U.S. EPA Alternative Test Procedure Approval dated June 3, 2004.]

B.29. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

B.30. Annual Compliance Testing. Annual stack tests for each MWC units exhaust flue gas shall be conducted for VOC, HCl, PM/PM_{10}/$PM_{2.5,}$ Pb, Cd, Hg (quarterly during the first two years of operation and annually thereafter), D/F (quarterly during the first one to two years of operation at the inlet and outlet of the SCR and stack flue exhaust and annually thereafter at the stack flue exhaust only), VE and ammonia slip during each calendar year (January 1st to December 31st) to show compliance with the emission limits given in Specific Condition **B.13.** of this subsection. Data collected from the reference method during the required RATA tests for CO, NOx, SO_2 and Hg (one quarter of four) may be used to satisfy the annual testing requirement provided the notification requirements and emission testing requirements for performance and compliance tests of this permit are satisfied. [Rules 62-296.416, 62-297.310(8)(a) & (b), F.A.C., 40 CFR 60.8 & 60.58b; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.31. Emissions Limit Subject to Revision D/F. D/F emissions from each MWC shall not exceed the limitation stated in Specific Condition **B.13.** of this subsection. Stack acceptance testing and SCR inlet/outlet D/F destruction testing shall be performed quarterly on each MWC exhaust flue gas during the first one to two years of operation. The permittee shall provide a protocol for the SCR efficiency testing for review and approval by the Department ninety days prior to the commencement of testing. The permittee shall provide the results to the Department within 45 days of completion of the four to eight D/F destruction efficiency and stack tests so that the Department can set a numerical BACT D/F limit based on the performance of the SCR technology.

The D/F emission limit standard will be between a maximum value of 10 ng/dscm and a minimum value of 0.75 ng/dscm. Between these upper and lower limit values, the limit will be ten times the average of the four to eight quarterly D/F SCR efficiency and stack test results conducted during the first one to two years of PBREF-2 operation. For example, if the average of these tests is 0.50 ng/dscm then the limit will be set by the Department at 5.0 ng/dscm, while if the average of the stack tests is 1.2 ng/dscm then the limit will be set at the upper limit value of 10.0 ng/dscm. A single D/F limit will be established for all three MWC units.

If the D/F average emissions based on the SCR efficiency and stack tests is 0.05 ng/dscm or less, then the D/F emission limit shall be set at 0.74 ng/dscm as a non-PSD/BACT limit.

After the first four quarterly stack tests are completed, the permittee may request the Department to set the D/F emission limit based on the results of the first four tests. If the permittee makes this request, the

Department shall review the test results and decide whether additional testing is necessary to establish a sufficient database for setting the D/F emission limit. Based on its review of the test data, the Department may authorize the permittee to terminate the quarterly testing after the first four quarters, or the Department may require the permittee to conduct a second year of quarterly stack tests for D/F. The Department will notify the permittee of the subsequent D/F emissions limit once it has been determined.

{In accordance with Specific Condition ***B.3.c.*** *of this subsection NSPS Subpart Eb, only the annual D/F compliance test and not the additional SCR efficiency tests will be used to re-set the maximum demonstrated MWC unit load or other operating parameter levels.}*

[40 CFR 60.52b(c); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.32. Continuous Compliance: The permittee shall demonstrate continuous compliance with the CO, NO_X and SO_2 concentration and mass emission standards based on data collected by the certified CEMS. The permittee shall demonstrate continuous compliance with the opacity limit based on data collected by the required COMS. [Rule 62-210.200 (BACT), F.A.C.; 40 CFR 60, Subpart Eb; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

Recordkeeping and Reporting Requirements

B.33. Reporting Schedule. The following report shall be submitted to the Compliance Authority:

Report	Reporting Deadline(s)	Related Condition(s)
Excess Emissions	Every 3 months (quarter)	**B.35.**
NSPS Excess Emissions and Monitoring System Performance	Every 6 months (semi-annual), except when more frequent reporting is specifically required	**B.39.** & **B.40.**
Eb Semi-Annual Report	Every 6 months (semi-annual)	**B.39.** & **B.40.** Appendix Eb - 40 CFR 60.59b(g)&(h)

[Rule 62-210.700(6), F.A.C.; 40 CFR 60, Subparts A & Eb.]

B.34. Segregated Solid Waste Record Keeping. The following records shall be made and kept to demonstrate compliance with the segregated non-MSW percentage limitations of Specific Condition **B.7.** of this subsection**:**

a. Each segregated load of non-MSW materials, subject to the percentage weight limitations of Specific Condition **B.7.** of this subsection**,** which is received for processing, shall be documented as to waste description and weight. The weight of all waste materials received for processing shall be measured and recorded using the facility truck scale.

b. Each day the total weight of segregated tires received shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of tires shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitation.

c. Each day the total weight of segregated non-MSW materials received that are subject to the 20% restriction shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of segregated non-MSW materials subject to the 20% restriction shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 20% limitation.

d. Each day the weight of each load of segregated non-MSW material received that is subject to a 5% or 10% individual material restriction shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of each type of segregated load of non-MSW material subject to a 5% or 10% restriction shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% or 10% limitation.

[Permit No. 0990234-032-AC/PSD-FL-413C.]

B.35. SIP Quarterly Permit Limits Excess Emissions Report. Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of CO and NOx emissions in excess of the BACT permit standards and the amounts of authorized data excluded following the Figure 1 format from NSPS 40 CFR 60, Subpart A. Periods of startup, shutdown and malfunction shall be monitored and recorded at all times. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.36. Annual Operating Report (AOR): The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. After the first two years of operation of all 3 MWCs, the permittee shall report the quantity in lbs/year/unit and the total lbs/year from all 3 MWC units in the AOR report. Annual operating reports shall be submitted to the Compliance Authority by April 1st of each year. [Rule 62-210.370, F.A.C. & 62-212.400(12) (Source Obligation, escape PSD BACT for Hg emissions), F.A.C.; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.37. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

Operator Practices, Training and Certification

B.38. Operator Training and Certification. The owner or operator shall comply with the operator training and certification requirements of 40 CFR 60.54b of 40 CFR 60, Subpart Eb. Compliance with these requirements shall be conducted according to the schedule specified in 40 CFR 60.39b(c)(4) of 40 CFR 60, Subpart Cb. [Rule 62-204.800(9)(b)5., F.A.C.; and, 40 CFR 60.35b & 40 CFR 60.54b.]

NSPS 40 CFR 60 Requirements

B.39. NSPS Requirements - Subpart Eb. Except as otherwise provided in this permit, these emissions units shall comply with all applicable provisions of 40 CFR 60, Subpart Eb, Large Municipal Waste Combustors, adopted and incorporated by reference in Rule 62-204.800(8)(b), F.A.C.; except that the Secretary is not the Administrator for purposes of the authorities cited at 40 CFR 60.50b(n). These emissions units shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart Eb** included with this permit. [Rule 62-204.800(8)(b)7., F.A.C.]

B.40. NSPS Requirements - Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR

60.13(g), (i) and (j)(2), and 40 CFR 60.16. This emissions unit shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart A** included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

Other Requirements

B.41. Acid Rain Part Application. For any unit which is a solid waste incinerator, burning less than 20 percent fossil fuel as described in 40 CFR 72.6(b)(7), adopted and incorporated by reference at Rule 62-204.800, F.A.C., the designated representative of the source containing the unit shall submit a complete Acid Rain Part application governing such unit to the Department before March 1st of the year following the three calendar year period in which the incinerator consumed 20 percent or more fossil fuel on a British thermal unit (BTU) basis. [Rule 62-214.320(1) (g) , F.A.C.]

E.U. ID No.	Brief Description
Palm Beach Renewable Energy Facility No. 2 (PBREF-2)	
027	Lime Storage Silo A
028	Lime Storage Silo B
030	Activated Carbon Storage Silo

Emission Units 027 and 028 are identical lime storage silos manufactured by Chemco (model No.CECDC300) used to provide the storage of lime for use in the spray dryer absorber control device to reduce acid gas emissions in the flue gas streams from the MWC units.

Emissions Unit 030 is a storage silo manufactured by Mac Process, LLC (model No. 72ST36) for storing activated carbon which is used to provide storage of carbon which is injected into the flue gas streams from the MWC units for control of mercury emissions. Each silo has a storage capacity of 4,000 to 5,000 cubic feet and is equipped with its own low temperature (<180°F) fabric filter baghouse to control particulate matter (PM) emissions. Each baghouse was designed, and is operated and maintained, to achieve a PM mass emission rate of 0.01 grains per dry standard cubic foot (gr/dscf) or less and shall be operated during all silo filling operations.

{Permitting note: During the filling of the lime storage silos, the displaced air is forced through the fabric filter baghouses and discharged through individual stacks that are 118 feet in height and 4.875 feet in diameter at a flow rate of approximately 760 actual cubic feet per minute and at ambient temperature. During the filling of the carbon storage silo, the displaced air is forced through the fabric filter baghouse and discharged through a stack that is 82 feet in height and 9.6 feet in diameter at a flow rate of approximately 910 actual cubic feet per minute and at ambient temperature. All three storage silos commenced initial operation in February of 2015. These storage silos are subject to regulation pursuant to permit No. 0990234-032-AC/PSD-FL-413C, which revised and replaced previous permit Nos. 0990234-017-AC (PSD-FL-413), 0990234-023-AC (PSD-FL-413A) and 0990234-028-AC (/PSD-FL-413B).}

Essential Potential to Emit (PTE) Parameters

B.42. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Permit No. 0990234-032-AC/PSD-FL-413C.]

Control Technology

B.43. Fabric Filter (FF) Baghouses. Each storage silo is equipped with its own FF baghouse to control PM emissions. Each baghouse shall be designed, operated and maintained to achieve a PM mass emission rate of 0.01 grains per dry standard cubic foot (gr/dscf) or less. The baghouses shall be operated during all silo filling operations. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Specific Conditions **B.44. - B.46.** are based on the specified averaging time of the applicable test method.

B.44. FF Baghouse PM Emission Standard. Particulate matter emissions from each storage silo baghouse shall not exceed 0.010 gr/dscf. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.45. FF Baghouse PM Standard by Opacity Measurement. A visible emission reading of 5% opacity or less may be used to demonstrate compliance with the FF baghouse PM emission standard, above**.** A visible emission reading greater than 5% opacity will require the permittee to perform a PM emissions stack test within 60 days to show compliance with the PM standard. [Permit No. 0990234-032-AC/PSD-FL-413C ; and Rules 62-297.620(1)-(3) & 62-297.620(4), F.A.C.]

{Permitting Note: The baghouses are designed to control PM emissions to 0.010 gr/dscf. The 5% opacity limitation is consistent with this design and provides reasonable assurance that annual emissions of $PM/PM_{10}/PM_{2.5}$ for emission units will be less than 0.1 TPY.}

B.46. Fugitive Emissions Limits. Fugitive emissions are limited to 10% opacity from any emissions point not controlled by a FF baghouse. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.47. Best Management Practices to Control Unconfined Emissions of PM. To ensure the emission standards with regard to opacity and PM of this subsection are complied with, the procedures set forth in Specific Condition **FW5.** of Section II. of this permit, "Unconfined Emissions of Particulate Matter," shall be adhered to where practical and cost effective. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C. cannot vary any requirement of an EG, NSPS or NESHAP provision.

B.48. Excess Emissions Allowed. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

B.49. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

Test Methods and Procedures

B.50. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rule 62-204.800, F.A.C.; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.51. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

B.52. Annual Compliance Demonstrations. Each emission point shall be tested to demonstrate compliance with the visible emission limits for each emission point during each calendar year (January 1st to December 31st). As specified in Specific Condition **B.45.** of this subsection, a PM test must be conducted on a FF baghouse of a storage silo within 60 days of its failure in meeting the VE standard. [Permit No. 0990234-032-AC/PSD-FL-413C; Rule 62-297.310(8), F.A.C.]

Recordkeeping and Reporting Requirements

B.53. Baghouse O&M Log. For each baghouse the permittee shall maintain an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. [Permit No. 0990234-032-AC/PSD-FL-413C.]

E.U. ID No.	Brief Description
Palm Beach Renewable Energy Facility No. 2 (PBREF-2)	
034	Ash Handling System and Building

This emissions unit is the ash handling system and building for handling bottom ash from the municipal waste combustor (MWC) units and fly ash from the fabric filter (FF) baghouses. The system includes an enclosed conveyor system to transport collected ash from the boiler and air pollution control buildings to the ash management building. Included inside the ash handling building is an ash processing equipment consisting of ferrous and non-ferrous metal recovery systems. To minimize particulate matter emissions from the ash handling equipment, the permittee operates a wet scrubber through which air from the ash handling building is routed prior to discharge to the atmosphere. To minimize fugitive particulate matter emissions from the ash handling equipment, ash (bottom and fly) is wetted to a moisture content of approximate of 20 to 25 percent.

{Permitting Note: This emissions unit is regulated pursuant to Permit No. 0990234-032-AC/PSD-FL-413C. This emissions unit commenced initial operation in February of 2015. Emissions from the wet scrubber are exhausted to the atmosphere through a horizontal duct with an exit diameter of 10.8 feet and at a height of 40 feet above grade.}

Essential Potential to Emit (PTE) Parameters

B.54. Permitted Capacity. The ash handling system is authorized to handle all of the bottom and fly ash generated on-site. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.55. Hours of Operation. This emissions unit may operate continuously (8,760 hours/year). [Rule 62-210.200(PTE), F.A.C.]

Control Technology

B.56. Wet Scrubber. To minimize particulate matter emissions from the ash handling equipment, the permittee shall operate and maintain a wet scrubber through which air from the ash handling building will be routed to prior to discharge to the atmosphere. *{Permitting Note: To minimize fugitive particulate matter emissions from the ash handling equipment, ash (bottom and fly) will be wetted to a moisture content of approximate of 20 to 25 percent.}* [Permit No. 0990234-032-AC/PSD-FL-413C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Specific Conditions **B.59.** - **B.62.** are based on the specified averaging time of the applicable test method.

B.57. Fugitive Ash Emissions.

a. On and after the date on which the initial performance test is completed or is required to be completed under 40 CFR 60.8 of Subpart A, no owner or operator of an affected facility shall cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22 observations as specified in 40 CFR 60.58b(k), except as provided in paragraphs b. and c., below.

b. The emission limit specified in a., above, does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit specified in a., above, does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.

c. The provisions of a., above, do not apply during maintenance and repair of ash conveying systems.

[40 CFR 60.55b; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.58. Testing for Fugitive Ash Emissions. The procedures specified in a. through b. below shall be used for determining compliance with the fugitive ash emission limit under 40 CFR 60.55b.

a. The EPA Reference Method 22 shall be used for determining compliance with the fugitive ash emission limit under 40 CFR 60.55b. The minimum observation time shall be a series of three 1-hour observations. The observation period shall include times when the facility is transferring ash from the municipal waste combustor unit to the area where ash is stored or loaded into containers or trucks.

b. The average duration of visible emissions per hour shall be calculated from the three 1-hour observations. The average shall be used to determine compliance with 40 CFR 60.55b.

c. The owner or operator of an affected facility shall conduct an initial performance test for fugitive ash emissions as required under 40 CFR 60.8.

d. Following the date that the initial performance test for fugitive ash emissions is completed or is required to be completed under 40 CFR 60.8 for an affected facility, the owner or operator shall conduct a performance test for fugitive ash emissions on an annual basis (no more than 12 calendar months following the previous performance test).

[40 CFR 60.58b(k) ; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.59. Ash Handling Wet Scrubber PM Emission Standard. PM emissions from the wet scrubber of the ash handling building shall not exceed 0.010 gr/dscf. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.60. Wet Scrubber PM Standard by Opacity Measurement. A visible emission reading of 5% opacity or less may be used to demonstrate compliance with the wet scrubber's PM emission standard. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C. cannot vary any requirement of an NSPS, NESHAP or Acid Rain program provision.

B.61. Excess Emissions Allowed. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

B.62. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

Monitoring of Operations

B.63. Wet Scrubber O&M Plan and Monitoring. For the wet scrubber, the permittee shall maintain an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Wet scrubber inspections and maintenance activities shall be recorded in a written log. The wet scrubber shall be operated in accordance with the manufacturer's recommendations for the given operating conditions. The permittee shall take corrective actions as necessary when the water level alarm activates. [Permit No. 0990234-032-AC/PSD-FL-413C.]

Test Methods and Procedures

B.64. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
22	Fugitive Opacity

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rule 62-204.800, F.A.C.; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

B.65. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

B.66. Annual Compliance Tests. During each calendar year (January 1st to December 31st), the bottom and fly ash conveyors, transfer points, drop points, hoppers, chutes and dust collectors associated with this emission unit shall be tested to demonstrate compliance with the VE emission standards specified in Specific Condition **B.59.** of this subsection. During each calendar year (January 1st to December 31st), the ash handling building wet scrubber shall be tested to demonstrate compliance with its VE emission standard emission standard specified in Specific Condition **B.63.** of this subsection. [Permit No. 0990234-032-AC/PSD-FL-413C.]

B.67. Ash Handling Building Wet Scrubber PM Compliance Testing. The annual VE tests in Specific Condition **B.68.** of this subsection with regard to the ash handling building wet scrubber shall serve as a surrogate for PM emissions testing. If the Department has reason to believe that any particulate matter limitation is not being met, it shall require compliance be demonstrated by conducting a particulate matter test in accordance with EPA Method 5 specified at 40 CFR 60 Appendix A. [Rule 62-297.620(1)-(3) &(4), F.A.C.; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

Recordkeeping and Reporting Requirements

B.68. Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for reporting requirements. [Rule 62-213.440(1)(b), F.A.C.; and, Permit No. 0990234-032-AC/PSD-FL-413C.]

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Subsection C. Emission Units 004 & 008
Landfills and Flares

The specific conditions in this section apply to the following emissions unit(s):

E.U. ID No.	Brief Description
	Landfills and Flares
004	*Class III Landfill and Flare (1,800 scfm, manufactured by LFG Specialties, model number PCF820I8)*
008	*Class I Landfill and Flare (3,500 scfm, manufactured by Shaw LFG Specialties, model number CF1238I10)*

The facility currently has two contiguous landfills, a Class I landfill and a Class III landfill, each with its own gas collection system and flare.

Both landfills have a design capacity greater than 2.5 million megagrams (Mg) by mass or 2.5 million cubic meters by volume. The design capacity of the Class I landfill is 33,212,516 Mg by mass and the Class III landfill is 5,723,708 Mg by mass. The landfills commenced construction in August 1988. A minor modification was requested and approved in 1994, expanding the landfills and changing the slopes. The Class I landfill started receiving waste in August 1989 and the Class III landfill started receiving waste in April 1990. The yearly waste acceptance at the Class I and Class III landfills in fiscal year (FY) 2004 was 643,501 and 203,470 Mg/yr, respectively. The Class I landfill currently accepts both municipal solid waste and ash from the resource recovery facility. The Class III landfill accepts predominately construction and demolition (C&D) debris. The Class I landfill received asbestos from 1989-1993. In 1993, asbestos disposal was transferred to the Class III landfill, which continues to receive the material.

Non-methane organic compound (NMOC) emissions from each landfill were calculated to be greater than 50 Mg per year, therefore, gas collection and control systems were required. Collection and control of landfill gas emissions began in February 1996 for both landfills.

The facility has two flares with one located at each landfill. The flares are used to control emissions from the landfills. The gas flow rates from the Class I and Class III landfill flares are 1,839.6 million ft^3/year and 946.08 million ft^3/year, respectively. Each flare is rated based on a maximum heat content of 550 Btu/scfm. The Class I landfill flare, a 3,500 scfm flare (Emissions Unit ID No. 008) was manufactured by Shaw LFG Specialties, model number CF1238I10 and began operations on May 15, 2008. The Class III landfill flare, a 1,800 scfm flare (Emissions Unit ID No. 004) was manufactured by LFG Specialties, model number PCF820I8 and began operations in 1999.

The landfills are collocated with a major source of HAP; however, individually they are not major sources of HAP. The landfills do not contain bioreactors.

The Class III landfill is expected to close around 2020 and the Class I landfill around 2049.

{Permitting note(s): These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required; 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills adopted by reference in Rule 62-204.800(8)(b), F.A.C.; 40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills adopted by reference in Rule 62-204.800(11)(b)59., F.A.C.; and, 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Asbestos adopted by reference in Rule 62-204.800(10)(b), F.A.C. The flares are regulated under the NSPS 40 CFR 60, Subpart A, General Provisions, specifically at 40 CFR 60.18(b), adopted by reference in Rule 62-204.800(8)(d), F.A.C.}

Essential Potential to Emit (PTE) Parameters

C.1. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C. and Permit No. 0990234-002-AC/PSD-FL-108D.]

C.2. Flares - Landfill Gas Flow Rate. The owner or operator shall not allow more than 3,500 scfm of landfill gas to be directed to the Class I flare and 1,800 scfm of landfill gas to be directed to the Class III flare. [Rule 62-4.070(3), F.A.C., and Permit No. 0990234-002-AC/PSD FL-108D, specific condition 3.]

Landfills - Collection and Control System Design Plan

C.3. Landfills - Collection and Control System Design Plan. As an amendment to the gas collection and control plan, the owner requested and received approval from the Department for alternative provisions to inactivate gas wells. The owner or operator shall inactivate gas wells in accordance with the plan approved by the Department. [Rule 62-204.800(8)(b)75., F.A.C.; 40 CFR 60.752(b)(2)(i) & 40 CFR 60.753(b); Class I and Class III Landfill Gas Well Inactivation Plan received September 19, 2005; and, DEP approval dated December 13, 2005.]

Landfills - Collection System Temperature, Oxygen and Nitrogen Requirements

C.4. Landfills - Collection System Temperature, Oxygen and Nitrogen Requirements. The permittee requested and received approval from the Department to establish a higher landfill gas temperature of 82.2º C for the interior wellhead in the gas collection system. The owner or operator shall operate each interior wellhead in the collection system with a landfill gas temperature less than 82.2º C. [Rule 62-204.800(8)(b)75., F.A.C.; 40 CFR 60.753(c); and, DEP approval dated October 25, 2005.]

Landfills - Surface Methane Requirements

C.5. Landfills - Surface Methane Requirements. The permittee requested and received approval from the USEPA to reduce the frequency of surface monitoring of methane gas emissions. The frequency of surface monitoring of methane gas emissions shall be annual for the Class III Landfill, provided that the methane concentration level remains below 250 parts per million (ppm). If the methane concentration equals or exceeds 250 ppm, then the surface monitoring shall revert back to a quarterly monitoring frequency. If no readings of 250 ppm or greater are detected in three consecutive subsequent quarterly samples, the frequency shall again become annual. Note that although quarterly monitoring shall be required if the methane concentration equals or exceeds 250 ppm, corrective action measures, as required by 40 CFR 60.755(c)(4), shall only be required when the concentration level equals or exceeds 500 ppm or more above background at any location. [Rule 62-204.800(7)(b), F.A.C.; 40 CFR 60.755(c)(1); USEPA approval dated June 7, 2002; and, Permit No. 0990234-005-AC/PSD-FL-108E, specific condition 2.]

Flares - General Control Device Requirements

C.6. Flares - Operation. The flares shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). [Rule 62-204.800(8)(d), F.A.C.; and, 40 CFR 60.18(c)(2)]

C.7. Flares - Exit Velocity. The flares shall be operated with an exit velocity, in accordance with 40 CFR 60.18(c)(4) and (5), as determined by the methods specified in 40 CFR 60.18(f)(4) and (f)(6). [Rule 62-204.800(8)(d), F.A.C.; and, 40 CFR 60.18(c)(4) & (5)]

C.8. Flares - Actual Exit Velocity. The owner or operator shall annually determine the actual exit velocity of each flare. [Permit No. 0990234-002-AC/PSD FL-108D, specific condition 5.]

C.9. Flares - Operation. Flares used to comply with provisions of 40 CFR 60, Subpart A shall be operated at all times when emissions may be vented to them. [Rule 62-204.800(8)(d), F.A.C.; and, 40 CFR 60.18(e)]

Emission Limitations and Standards

C.10. Flares - Visible Emissions. The flares shall be operated with no visible emissions (VE), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [Rule 62-204.800(8)(d), F.A.C.; and, 40 CFR 60.18(c)(1).]

Monitoring Requirements

{Permitting note: TABLE L-1. SUMMARY OF MONITORING REQUIREMENTS FOR MSW LANDFILLS under 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

C.11. Flares - Landfill Gas Flow Rate. Total landfill gas flow to the flares shall be continuously measured and recorded. [Rules 62-4.160(2) & 62-4.070(3), F.A.C.; and, Permit No. 0990234-012-AC, specific condition 2.]

C.12. Flares - Landfill Gas Flow Rate. The actual flow rate shall be determined for each flare on a monthly average basis by dividing the measured flow by the hours that each flare was operated each month. Compliance with this limitation shall be by measuring landfill gas flows to each flare and recording flows with a totalizing meter. Records of the totalizing meter values shall be recorded in an operators log monthly, or whenever the meter is reset for any purpose, whichever is more frequent. The owner or operator shall maintain a strip chart recorder to record the flow rate to each flare as a backup device in the event that the totalizer meter is not functioning; the strip chart recorder shall also be used in conjunction with an operators log to document the hours each month that each flare was operated. [Rule 62-4.070(3), F.A.C., and Permit No. 0990234-002-AC/PSD FL-108D, specific condition 3.]

C.13. Sampling & Analysis of Sulfur Content of Landfill Gas. The sulfur content of each landfill's gas shall be sampled annually, analyzed and the results provided to the compliance authority with a copy to the Bureau of Air Regulation. The sulfur content of each landfill's gas shall be analyzed at the inlet to the flare. Based on the sampling results and Rule 62-297.310(7)(b), F.A.C., the Department may request additional gas sampling and analyses. [Rules 62-4.070(3) and 62-297.310, F.A.C.; Permit No. 0990234-012-AC, specific condition 7.; and, Permit No. 0990234-002-AC/PSD FL-108D, specific condition 5.]

C.14. Startup, Shutdown and Malfunction Plan under NESHAP 40 CFR 63, Subpart AAAA. The owner or operator shall follow the written startup, shutdown and malfunction plan (SSM Plan). A copy of the SSM Plan must be maintained on site. [Rule 62-204.800(11)(d)1., F.A.C. and 40 CFR 63.1960.]

Test Methods and Procedures

C.15. Flares - Test Methods. Required tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
ASTM Method D1072-90, or later method	Sulfur Content Analysis of Landfill Gas
ASTM D1945-03 [1]	Alternative Method of Determining Net Heating Value of Landfill Gas
In-place Calibrated Flow Meter [1]	Determining Flare Gas Exit Velocity
EPA Method 22	Visual Determination of Smoke Emissions from Flares

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Chapter 62-297, F.A.C. & Rule 62-204.800(9)(b)7., F.A.C.; Permit No. 0990234-002-AC/PSD FL-108D, specific condition 5.; and, [1] USEPA approval dated August 10, 2005.]

C.16. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

C.17. Annual Compliance Test. During each calendar year (January 1st to December 31st), the flares shall be tested to demonstrate compliance with the emission limitations for VE. [Rule 62-297.310(7), F.A.C.]

C.18. Flares - Determining Net Heating Value of Landfill Gas. The owner or operator requested and received approval from USEPA for an alternative method of determining the net heating value of the gas being combusted in the flares. ASTM D1945-03 shall be used in place of EPA Method 18. A minimum collection of three (3)-thirty (30) minute samples is required. The requirement to test for hydrogen with ASTM D1946 is waived due to the low levels of hydrogen in the landfill gas. [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(f)(3); and, USEPA approval dated August 10, 2005.]

C.19. Flares - Determining Flare Gas Exit Velocity. The owner or operator requested and received approval from USEPA for an alternative method of determining the flare gas exit velocity. The in-place calibrated flow meter shall be used in place of EPA Methods 2, 2A, 2C, or 2D. [Rule 62-204.800(8)(d), F.A.C.; 40 CFR 60.18(f)(4); and, USEPA approval dated August 10, 2005.]

C.20. Flares - Visible Emission Test Method. EPA Method 22 shall be used to determine the compliance with the visible emission limit for the flares. The observation period is 2 hours and shall be used according to EPA Method 22. [Rule 62-204.800(8)(d), F.A.C.; and, 40 CFR 60.18(f)(1).]

C.21. Flares - Sulfur Content of Landfill Gas. The owner or operator shall annually analyze the sulfur content of the landfill gas directed to each flare using ASTM Method D1072-90, or later method. [Permit No. 0990234-002-AC/PSD FL-108D, specific condition 5.]

Recordkeeping and Reporting Requirements

{Permitting note: TABLE L-2. SUMMARY OF RECORDKEEPING REQUIREMENTS FOR MSW LANDFILLS under 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

{Permitting note: TABLE L-3. SUMMARY OF COMPLIANCE REPORTING REQUIREMENTS FOR MSW LANDFILLS under 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA, summarizes information for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

C.22. Reporting Schedule. The following reports shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition
Semi-Annual Compliance Reports	Every 6 months, due March 1st and September 1st	**C.24.**

[Rule 62-213.440, F.A.C.]

C.23. Flares - Reporting Requirements. The owner or operator shall annually report the actual exit velocity of each flare and the sulfur content of the landfill gas directed to each flare. The actual exit velocity shall be reported to the Department as an attachment to the facility's annual operating report (AOR). The sulfur content along with SO_2 emissions in tons per year (TPY) for each flare shall also be included with the AOR. [Permit No. 0990234-002-AC/PSD FL-108D, specific condition 5.]

C.24. Landfills - Semi-Annual Compliance Reports under NESHAP 40 CFR 63, Subpart AAAA. The owner or operator shall submit semi-annual compliance reports. The semi-annual compliance reports shall be due March 1st and September 1st. [Rule 62-204.800(11)(d)1., F.A.C.; 40 CFR 63.1980(a); and, Applicant's Request.]

C.25. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440, F.A.C.]

NSPS 40 CFR 60, Subpart A & WWW Requirements

C.26. NSPS Requirements - Subpart WWW. Except as otherwise provided in this permit, these emissions units shall comply with all applicable provisions of 40 CFR 60, Subpart WWW, Municipal Solid Waste Landfills, adopted by reference in Rule 62-204.800(8)(b), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.754(a)(5). These emissions units shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart WWW** included with this permit. [Rule 62-204.800(8)(b)75., F.A.C.]

C.27. NSPS Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. These emissions units shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart A** included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

NESHAP 40 CFR 61, Subpart A & M - Asbestos Disposal Site Standards

C.28. NESHAP 40 CFR 61 Requirements - Subpart M [Set A]. The asbestos waste disposal sites shall comply with all applicable requirements of 40 CFR 61, Subpart M, National Emission Standard for Asbestos, which have been adopted by reference in Rule 62-204.800(10)(b), F.A.C.; except that the Secretary is not the Administrator for the purposes of 40 CFR 61.149(c)(2), 40 CFR 61.150(a)(4), 40 CFR 61.151(c), 40 CFR 61.152(b)(3), 40 CFR 61.154(d), and 40 CFR 61.155(a). These emissions units shall comply with all applicable provisions of **Appendix 40 CFR 61, Subpart M "Set A,"** included with this permit. [Rule 62-204.800(10)(b)8., F.A.C.]

C.29. NESHAP 40 CFR 61 Requirements - Subpart A. The asbestos waste disposal sites shall comply with all applicable requirements of 40 CFR 61, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(10)(d), F.A.C.; except for 40 CFR 61.08 and except that the Secretary is not the Administrator for the purposes of 40 CFR 61.04, 40 CFR 61.11, and 40 CFR 61.18. In lieu of the process set forth in 40 CFR 61.08, the Department will follow the permit processing procedures of Rule 62-4.055, F.A.C. The asbestos waste disposal sites shall comply with all applicable provisions of **Appendix 40 CFR 61 Subpart A - General Provisions** included with this permit. [Rule 62-204.800(10)(d), F.A.C.]

NESHAP (MACT) 40 CFR 63, Subpart A & AAAA Requirements

*{Permitting note: Most of the requirements of NESHAP 40 CFR 63, Subpart AAAA cross references conditions (applicable requirements) that are contained in NSPS 40 CFR 60, Subpart WWW. However, NESHAP 40 CFR 63, Subpart AAAA does include several additional requirements, most importantly the requirement to develop and implement a written startup, shutdown and malfunction plan (SSM Plan) (see 40 CFR 63.1960 in **Appendix 40 CFR 63 Subpart AAAA**, and 40 CFR 63.6(e)(3) in **Appendix 40 CFR 63 Subpart A**), and the requirement for submittal of a semi-annual compliance report (see 40 CFR 60.757(f) in **Appendix 40 CFR 60 Subpart WWW** and 40 CFR 63.1980 in **Appendix 40 CFR 63 Subpart AAAA**).)}*

C.30. 40 CFR 63 Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 63, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(11)(d)1., F.A.C., except that the Secretary is not the Administrator for purposes of 40 CFR 63.5(e), 40 CFR 63.5(f), 40 CFR 63.6(g), 40 CFR 63.6(h)(9), 40 CFR 63.6(j), 40 CFR 63.13, and 40 CFR

63.14. These emissions units shall comply with **Appendix 40 CFR 63 Subpart A** included with this permit. [Rule 62-204.800(11)(d)1., F.A.C.]

C.31. 40 CFR 63 Requirements - Subpart AAAA. These emissions units shall comply with all applicable requirements of 40 CFR 63, Subpart AAAA, Municipal Solid Waste Landfills, which have been adopted by reference in Rule 62-204.800(11)(b)59., F.A.C., except that the Secretary is not the Administrator for purposes of the authorities cited at 40 CFR 63.1985(c). These emissions units shall comply with **Appendix 40 CFR 63 Subpart AAAA** included with this permit. [Rule 62-204.800(11)(b)59., F.A.C.]

Odor Remediation Plan

C.32. Not Federally Enforceable. Odor Remediation Plan. The facility shall be operated to control objectionable odors in accordance with subsection 62-296.320(2), F.A.C. After being notified by the Department that objectionable odors have been confirmed beyond the landfill property boundary, the owner or operator shall:

a. Immediately take steps to reduce the objectionable odors. Such steps may include applying or increasing initial cover, reducing the size of the working face, and ceasing operations in the areas where odors have been detected;
b. Submit to the Department for approval an odor remediation plan for the gas releases. The plan shall describe the nature and extent of the problem and the proposed long-term remedy. The remedy shall be initiated within 30 days of approval.
c. Implement a routine odor monitoring program to determine the timing and extent of any off-site odors, and to evaluate the effectiveness of the odor remediation plan.

[Rule 62-701.530(3)(b), F.A.C.]

C.33. Pin Wells and Surface Collectors for Odor Control. The permittee is authorized to install and remove pin wells and surface collectors for odor control at the Class III Landfill (E.U. ID No. 004) and the Class I Landfill (E.U. ID No. 008). The permittee is allowed to operate these devices for odor control at its discretion and is not required to operate them according to requirements of 40 CFR 60.753(c). [Applicant Request/DEP approval dated November 6, 2011.]

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Subsection D. Emission Units 010, 011, 012, 014 & 045
Biosolids Pelletization Facility

The specific conditions in this section apply to the following emissions unit(s):

E.U. ID No.	Brief Description
	Biosolids Pelletization Facility (BPF)
010	BPF Sludge Dryer Train #1
011	BPF Sludge Dryer Train #2
012	BPF Recycle Material Bin for Sludge Dryer Train #1
014	BPF Recycle Material Bin for Sludge Dryer Train #2
045	Pellet Storage Silo for Sludge Dryer Trains #1 & 2

The BPF has two 337.5 wet tons per day (wtpd) {67.5 dry tpd} sludge drying trains, Dryer Train #1 and #2, and related appurtenances. The sludge dryer trains were manufactured by Baker Rullman Drum Assembly, Model No. SD-125-42. Each dryer train at the BPF combusts landfill gas generated from the nearby landfill and/or natural gas in a rotary drum dryer to dry sewage sludge and then screens the dried sludge into marketable fertilizer pellets. Each dryer has a rated capacity of 40 MMBtu/hour heat input (natural gas or landfill gas) plus an additional 2 MMBtu/ hour heat input from each regenerative thermal oxidizer (RTO) for a total rated capacity of 84 MMBtu/ hour heat input from the dryers and the RTOs.

Dry low NOx burners and acid addition in the tray/condenser scrubber are used to control NOx emissions from each dryer's exhaust. A tray/condenser scrubber and a venturi scrubber are used to control PM emissions from each dryer's exhaust. The BPF uses a regenerative thermal oxidizer (RTO) on each dryer exhaust to control VOC emissions with an efficiency of 98%. The RTO also minimizes odors. VOCs are also combusted in the dryer burners with an estimated efficiency of 98%. CO emissions are controlled by good combustion in the dryer and in the RTO.

Each dryer RTO train has its own flue within a shared single stack. The stack parameters are: height, 138 feet; diameter, 2.5 feet; exit temperature, 194 degrees F; and, actual stack gas flow rate, 15,000 acfm. The sludge dryer trains began operation on May 22, 2009.

Each biosolids dryer train also has the following: a recycle material bin and pellet storage silo, and a cooling tower. Dusty air from both silo filling operations is ducted to a product silo dust collector. Each recycle material bin baghouse vents through a building odor scrubber which exhausts through an approximately 0.5 feet diameter outlet at about 50 feet above grade. Emissions from the cooling towers are uncontrolled.

{Permitting note(s): The sludge drying trains are regulated under 40 CFR 61, Subpart E, National Emission Standards for Hazardous Air Pollutants for Mercury, adopted and incorporated by reference in Rule 62-204.800(10)(b)3., F.A.C. and 40 CFR 64, Compliance Assurance Monitoring (CAM). The sludge drying trains are not regulated under 40 CFR 60, Subpart LLLL, Standards of Performance for New Stationary Sources: Sewage Sludge Incineration Units and 40 CFR 60, Subpart MMMM, Emission Guidelines for Existing Sources: Sewage Sludge Incineration Units pursuant to the specific exemptions at 40 CFR 60.4780 and 40 CFR 60.5065. Some of these emissions units are regulated under Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) [PSD-FL-108F, G & I and, Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT).}

Essential Potential to Emit (PTE) Parameters

D.1. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.2. Permitted Capacity. The maximum process rate for each dryer train is 337.5 wet tons of sludge per day (wtpd, at 20% solids) or 67.5 dry tpd. The maximum process rate for the Biosolids Pelletization Facility

(BPF) is 675 wet tons of sludge per day (wtpd, at 20% solids) or 135 dry tpd. The maximum heat input rate for each dryer and RTO are as follows:

E.U. ID No.	Brief Description	Max. Heat Input (Natural or Landfill Gas)
010	BPF Sludge Dryer Train #1	42 MMBtu/hour
011	BPF Sludge Dryer Train #2	42 MMBtu/hour

[Rules 62-4.160(2) & 62-210 (PTE), F.A.C. and Permit Nos. 0990234-006-AC/PSD-FL-108F & 0990234-019-AC/PSD-FL-108I.]

D.3. Methods of Operation - Fuels. The dryers may be fired with natural gas and/or landfill gas. [Rules 62-4.160(2) & 62-210.200 (PTE), F.A.C. and Permit Nos. 0990234-006-AC/PSD-FL-108F & 0990234-019-AC/PSD-FL-108I.]

D.4. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. [Rule 62-297.310(2), F.A.C.]

Monitoring of Operations

D.5. Sludge Process Rate. The owner or operator shall monitor and record daily the sludge process rate for each dryer train. [Rule 62-4.070(1) & (3), F.A.C.; and, Permit No. 0990234-006-AC/PSD-FL-108F.]

Operation and Maintenance of Air Pollution Control Technologies

D.6. Operation and Maintenance of Air Pollution Control Technologies. The owner or operator shall operate and maintain the selected air pollution control technologies, e.g., dry low NOx burners, exhaust gas recirculation system, tray scrubber/condenser scrubber, venturi scrubbers and RTOs. [BACT Determination and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.7. Operation and Maintenance of Fabric Filters. The owner or operator shall operate and maintain fabric filters on each material recycle bin exhaust to control PM emissions from the material recycle bin and the pellet storage silo. [BACT Determination and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.8. Operation and Maintenance Manuals. The owner or operator shall follow the manufacturers' Operation and Maintenance Manuals for the selected air pollution control technologies, e.g., dry low NOx burners, exhaust gas recirculation system, tray scrubber/condenser scrubber, venturi scrubber, RTOs and fabric filters. [BACT Determination and Permit No. 0990234-006-AC/PSD-FL-108F.]

Emission Limitations and Standards

Unless otherwise specified, the averaging times for Specific Conditions **D.9.** - **D.17.** are based on the specified averaging time of the applicable test method.

D.9. Nitrogen Oxides. NOx emissions from each sludge dryer RTO train shall not exceed 5.60 lbs/hour and 24.55 tons/year. [BACT Determination and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.10. Particulate Matter. PM/PM_{10} emissions from each sludge dryer RTO train shall not exceed 2.42 lbs/hour and 10.6 tons/year. [BACT Determination and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.11. Visible Emission. VE from each sludge dryer RTO train shall not exceed 5% opacity, except 20% opacity is allowed for up to 3 minutes in 1 hour. [BACT Determination and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.12. Particulate Matter. PM/PM_{10} emissions from each recycle material bin and the pellet storage silo baghouse shall not exceed 0.010 gr/dscf. [BACT Determination and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.13. Visible Emission. VE from each recycle material bin and the pellet storage silo baghouse shall not exceed 5% opacity. [BACT Determination and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.14. Sulfur Dioxide. SO_2 emissions from each sludge dryer RTO train shall not exceed 4.45 lbs/hour and 19.5 tons/year. [Rules 62-212.400(12) (Source Obligation, escape PSD), 62-4.070(1), & (3), F.A.C., and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.15. Carbon Monoxide. CO emissions from each sludge dryer RTO train shall not exceed 3.37 lbs/hour and 14.75 tons/year. [Rules 62-212.400(12) (Source Obligation, escape PSD), 62-4.070(1), & (3), F.A.C., and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.16. Volatile Organic Compound. VOC emissions from each sludge dryer RTO train shall not exceed 1 lbs/hour and 4.4 tons/year. [Rules 62-212.400(12) (Source Obligation, escape PSD), 62-4.070(1), & (3), F.A.C., and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.17. Mercury. Hg emissions from each sludge dryer RTO train shall not exceed 2.2 E-02 lb/24-hour period. {The Hg emissions standard under the NESHAP is 3.2 kg (7.1 lb)/24-hour period. The applicant proposed a limit which is much lower than the NESHAP standard.} [Rules 62-212.400(12) (Source Obligation, escape PSD), 62-4.070(1), & (3), F.A.C., and Table AP-1 from Permit No. 0990234-006-AC/PSD-FL-108F.]

D.18. Unconfined Particulate Matter Emissions at BPF. Pursuant to Rules 62-296.320(4)(c)1., 3. and 4., F.A.C., reasonable precautions to prevent emissions of unconfined particulate matter at the BPF include the following requirements consistent with current practices by the Solid Waste Authority:

a. Pave all parking lots and permanent drives;
b. Street sweep paved areas on a regular basis; and,
c. Use a water truck to spray water on unpaved roads and active unpaved areas.

[Rule 62-296.320(4)(c)2., F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any requirement of a NESHAP provision.

D.19. Excess Emissions Allowed. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

D.20. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

Monitoring Requirements

D.21. Compliance Assurance Monitoring (CAM) Requirements. Each sludge dryer RTO train is subject to the CAM requirements contained in the attached Appendix CAM. Failure to adhere to the monitoring requirements specified does not necessarily indicate an exceedance of a specific emissions limitation; however, it may constitute good reason to require compliance testing pursuant to Rule 62-297.310(7)(b), F.A.C. [40 CFR 64; and, Rules 62-204.800 & 62-213.440(1)(b)1.a., F.A.C.]

{Permitting note: The excursion level specified in the approved CAM Plan was established based upon the initial PM test data (September 2009) and the manufacturer's recommendations. The excursion level shall be re-evaluated at the time of permit renewal based upon the new most recent test data and the manufacturer's recommendations.}

Test Methods and Procedures

D.22. Test Methods. Required tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
EPA Methods 1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
EPA Method 5	Methods for Determining Particulate Matter (PM) Emissions
EPA Method 6C	Method for Determining Sulfur Dioxide (SO_2) Emissions
EPA Method 7 or 7E	Method for Determining Nitrogen Oxides (NOx) Emissions
EPA Method 9	Visual Determination of the Opacity of Emissions (VE)
EPA Method 10	Method for Determining Carbon Monoxide (CO) Emissions
EPA Method 25 or 25A	Methods for Determining Volatile Organic Compound (VOC) Emissions
EPA Method 101A or EPA Method 105	Method for Determining Particulate and Gaseous Mercury (Hg) Emissions from Sewage Sludge Incinerators or Method for Determining Mercury (Hg) in Wastewater Treatment Plant Sewage Sludge The specific testing and sampling conditions as outlined in 40 CFR 61.53 and 61.54 shall be followed as described.

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Chapter 62-297, F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.23. Annual Compliance Test. Except as specified in Specific Condition **D.26.**, during each calendar year (January 1st to December 31st), Emissions Unit ID Nos. 010 and 011 (Sludge Dryer Train #1 and #2) and 012 & 014 (Recycle Material Bins & Pellet Storage Silos for Sludge Dryer Train #1 and #2) and Pellet Storage Silo for Sludge Dryer Trains #1 & 2 shall be tested to demonstrate compliance with the emission limitations for VE. Compliance with the visible emissions limit for the recycle bin fabric filter exhaust is determined at the building odor control scrubber exhaust. [Rule 62-297.310(7), F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.24. Compliance Test Prior To Renewal. Prior to permit renewal, Emissions Unit ID Nos. 010 and 011 (Sludge Dryer Train #1 and #2) shall be tested to demonstrate compliance with the emission limitations for NOx, PM/PM_{10}, SO_2, and Hg. [Rule 62-297.310(7)(a)3., F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.25. Compliance Testing - CO and VOC Emissions. The testing frequency for CO and VOC emissions was an initial demonstration only; no subsequent testing is required for CO and VOC because the lb/hour emission rates stated in Table AP-1 were achieved in the initial test. In lieu of frequent testing for CO and VOC emissions, the owner or operator shall follow the Operation and Maintenance Manuals for the dry low NOx burners and the RTOs. [Permit No. 0990234-006-AC/PSD-FL-108F and Rule 62-297.310(7)(a)4., F.A.C.]

D.26. Minor PM Source Testing. The recycle material bins and pellet storage silos are minor sources of particulate matter. Because of the expense and complexity of conducting a stack test on minor sources of particulate matter, and because these sources are equipped with baghouses, the Department pursuant to the authority granted under Rule 62-297.620(4), F.A.C., hereby establishes a visible emission limitation not to exceed an opacity of 5% in lieu of a particulate matter stack test. In accordance with Rule 62-297.620(4), minor particulate matter sources equipped with baghouses with visible emissions that are greater than or equal to 5 percent opacity may result in the permittee being required to perform a stack test in accordance with

approved methods to verify compliance with the gr/dscf emission limits. The visible emissions test shall be conducted by a certified observer using Method 9 and the procedures in 40 CFR. 60.11 and Rule 62-297.320, F.A.C. [Rule 62-297.620(1)-(4), F.A.C. and Permit No. 0990234-006-AC/PSD-FL-108F.]

D.27. Common Testing Requirements. Unless otherwise specified above, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

Recordkeeping and Reporting Requirements

D.28. Reporting Schedule. The following report shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition
Excess Emissions from Malfunctions, if requested by the Compliance Authority	Every 3 months (quarter)	**D.29.**

[Rule 62-210.700(6), F.A.C.]

D.29. Excess Emissions from Malfunctions. In the case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Compliance Authority. [Rule 62-210.700(6), F.A.C.]

D.30. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440, F.A.C.]

NESHAP 40 CFR 61, Subparts A & E Requirements

D.31. NESHAP 40 CFR 61 Requirements - Subpart A. The dryers shall comply with all applicable requirements of 40 CFR 61, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(10)(d), F.A.C., except for 40 CFR 61.08 and except that the Secretary is not the Administrator for the purposes of 40 CFR 61.04, 40 CFR 61.11, and 40 CFR 61.18. In lieu of the process set forth in 40 CFR 61.08, the Department will follow the permit processing procedures of Rule 62-4.055, F.A.C. The dryers shall comply with all applicable provisions of Appendix 40 CFR 61 Subpart A - General Provisions included with this permit. [Rule 62-204.800(10)(d), F.A.C.]

D.32. NESHAP 40 CFR 61 Requirements - Subpart E. The dryers shall comply with all applicable requirements of 40 CFR 61, Subpart E, National Emission Standards for Hazardous Air Pollutants for Mercury, which have been adopted by reference in Rule 62-204.800(10)(b)3., F.A.C., except that the term "Administrator," when used in any provision of 40 CFR Part 61 that is delegated to the Department by the U.S. Environmental Protection Agency, shall mean the Secretary or the Secretary's designee. The dryers shall comply with all applicable provisions of Appendix 40 CFR 61 Subpart E - NESHAP for Mercury included with this permit. [Rule 62-204.800(10)(a) & (b)3., F.A.C.]

D.33. Biosolids Pelletization Facility (BPF) - Product Silo Dust Collector Project under Permit No. 0990234-036-AC. The project under Permit No. 0990234-036-AC was not completed at the time of the renewal permit's issuance. Therefore, a mini-compliance plan (schedule for completion of construction/modification activities) is therefore included in the renewed permit. The following requirements apply as part of the plan:

- The permittee shall notify the Compliance Authority when the project is done; and,
- Within 60 days of completion of the construction/modification the Pellet Storage Silo for Sludge Dryer Trains #1 & 2 shall be tested to demonstrate compliance with the emission limitations for VE.

[62-213.440(1) & (2), F.A.C.]

Engines in this subsection are grouped by similar engine type as regulated by EPA. Each group number is followed by a very brief explanation of the engine type as described in the EPA regulations/tables.

	Group 1: *"Existing" stationary CI RICE less than or equal to 500 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.1. - E.10. & E.101. - E.104.**
035	PBREF No. 1 Emergency Generator - Palm Beach Renewable Energy Park (PBREP) (SWA of PBC ID# WTE-E2)	
036	PBREF No. 1 Fire Water Pump - PBREP (SWA of PBC ID# WTE-E1)	
	Group 2: *"Existing" stationary CI RICE greater than 500 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.11. - E.12. & E.101. - E.104.**
038	Emergency Generator - Utilities Facility (SWA of PBC ID# U-E5)	
	Group 4: *"New" stationary CI RICE greater than or equal to 175 HP and less than or equal to 500 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.37. - E.52. & E.101. - E.104.**
021	Emergency Generator - Operations Building (EPA Tier 3 certified) (SWA of PBC ID# OPS-E1)	
	Group 5: *"New" stationary CI RICE greater than 500 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.53. - E.69. & E.101. - E.104.**
016	Emergency Generator - Biosolids Pelletization Facility (BPF) (EPA Tier 3 certified) (SWA of PBC ID# BPF-E1)	
033	Emergency Generator - PBREF No. 2 (EPA Tier 2 certified)	
042	Emergency Generator - Administration (EPA Tier 1 certified) (SWA of PBC ID# A-E1)	
043	Emergency Generator - Materials Recovery Facility (MRF) (EPA Tier 2 certified) (SWA of PBC ID# MRF-E1)	
	Group 6: *"New" stationary CI RICE less than 175 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.70. - E.85. & E.101. - E.104.**
037	Emergency Generator - PBREP Scalehouse (EPA Tier 3 certified) (SWA of PBC ID# WTES-E1)	

046	Emergency Generator - Landfill Scalehouse E2 (EPA Tier 3 certified)	
047	Emergency Generator - MIS (EPA Tier 3 certified)	
	Group 7: *"New" stationary CI RICE fire pumps greater than or equal to 175 HP and less than or equal to 500 HP*	**See Specific Conditions**
E.U. ID No.	**Brief Description**	**E.86. - E.100. & E.101. - E.104.**
031	Emergency Firewater Pump Engine A (351 HP) - PBREF No. 2 (EPA Tier 3 certified)	
032	Emergency Firewater Pump Engine B (351 HP) - PBREF No. 2 (EPA Tier 3 certified)	

This subsection of the permit is comprised of compression ignition (CI) type engines, some of which are emergency generators. Air pollutant emissions from these engines are uncontrolled.

{Permitting notes: These emissions units, engines, are regulated under 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE) adopted in Rule 62-204.800(11)(b), F.A.C. The permittee identified numerous other non-road engines (portable) located at the facility; these engines are not regulated under 40 CFR 63, Subpart ZZZZ. The "new" engines must meet 40 CFR 60, Subpart IIII, NSPS for Compression Ignition Internal Combustion Engines (CI ICE).}

Each part of this subsection includes unit-specific applicable requirements for each group of engines which were customized from the entire 40 CFR 63, Subpart ZZZZ and/or 40 CFR 60, Subpart IIII.

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 1: *"Existing" stationary CI RICE less than or equal to 500 HP*
E.U. ID No.	**Brief Description**
035	PBREF No. 1 Emergency Generator - Palm Beach Renewable Energy Park (PBREP) (SWA of PBC ID# WTE-E2)
036	PBREF No. 1 Fire Water Pump - PBREP (SWA of PBC ID# WTE-E1)

{Permitting note: This part of the subsection addresses "existing" stationary CI RICE less than or equal to 500 horsepower (HP) that are located at a major source of HAP and that have not been modified or reconstructed after 6/12/2006. Unless the RICE is modified or reconstructed after 7/11/2005, NSPS 40 CFR 60, Subpart IIII, will not apply.}

The following table provides important details for these emissions units:

E.U. ID No.	Engine Brake HP	Date of Construction	Model Year	Primary Fuel	Type of Engine	Displacement liters/cylinder (l/c)	Manufacturer / Model # / Engine Serial #
035	356	1989	-	Diesel	Emergency	1.73	Caterpillar® / 3306 / 85Z04092

036	273	1994	-	Diesel	Emergency	1.75	Caterpillar® 3306D 6AF15B

Essential Potential to Emit (PTE) Parameters

E.1. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 63.6640(f)(1)]

b. *Maintenance and Testing*. Each RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. [40 CFR 63.6640(f)(1)]

c. *Non-emergency Situations*. Each RICE is authorized to operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. [40 CFR 63.6640(f)(1)]

d. *Other Situations*. Each RICE cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph, as long as the power provided by the financial arrangement is limited to emergency power. [40 CFR 63.6640(f)(1)]

e. *Engine Startup*. During periods of startup the owner or operator must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for the appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR 63.6625(h)]

Emission Limitations and Operating Requirements

{Permitting note: These "existing" stationary CI engines with ≤ 500 HP do not have specific numerical emission limitations and standards.}

E.2. Work or Management Practice Standards.

a. *Oil*. Change oil and filter every 500 hours of operation or annually, whichever comes first. [40 CFR 63 Table 2c(1)(a)]

b. *Air Cleaner*. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first. [40 CFR 63 Table 2c(1)(b)]

c. *Hoses and Belts*. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63 Table 2c(1)(c)]

d. *Operation and Maintenance*. Operate and maintain the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions or develop and follow your own maintenance plan which must provide, to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution, control practice for minimizing emissions. [40 CFR 63.6625(e)]

e. *Oil Analysis*. The owner or operator has the option of using oil analysis to extend the change requirement. The oil analysis must be performed at the same frequency specified for changing the oil. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent of water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent of water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63.6625(i)]

Monitoring of Operations

E.3. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]

Compliance Requirements

E.4. Continuous Compliance. Each unit shall be in compliance with the emission limitations and operating standards in this section at all times. [40 CFR 63.6605(a)]

E.5. Operation and Maintenance of Equipment. At all times the owner or operator must operate and maintain, any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the compliance authority which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.6605(b)]

Recordkeeping Requirements

E.6. Notification, Performance and Compliance Records.

a. A copy of each notification and report that the owner or operator submitted to comply with this section, including all documentation supporting any Initial Notification or Notification of Compliance Status that the owner or operator submitted.
b. The owner or operator must keep the records required in 40 CFR 63.6625(e) of this section to show continuous compliance with each emission limitation or operating requirement.
c. The owner or operator must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

[40 CFR 63.6655]

E.7. Malfunction Records.

a. Records of the occurrence and duration of each malfunction of operation (i.e. process equipment) or the air pollution control and monitoring equipment.

b. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b) of this section including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

[40 CFR 63.6655]

E.8. Maintenance Records.

a. Records of all required maintenance performed on the air pollution control and monitoring equipment.
b. The owner or operator must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the stationary RICE and after-treatment control device (if any) are operated and maintained according to its own maintenance plan.

[40 CFR 63.6655]

E.9. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.
b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

Reporting Requirements

E.10. Emergency Situation. If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required of this section, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable. [40 CFR 63.6602 Table 2c, footnote 1]

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 2: *"Existing" stationary CI RICE greater than 500 HP*
E.U. ID No.	**Brief Description**
038	Emergency Generator - Utilities Facility (SWA of PBC ID# U-E5)

{Permitting note: This part of the subsection addresses "existing" stationary CI RICE greater than 500 HP that are located at a major source of HAP and that have not been modified or reconstructed after 12/19/2002. Unless the RICE is modified or reconstructed after 7/11/2005, NSPS 40 CFR 60, Subpart IIII, will not apply. This RICE is not used as a fire pump.}

The following table provides important details for this emissions unit:

E.U. ID No.	Engine Brake HP	Date of Construction	Model Year	Primary Fuel	Type of Engine	Displacement liters/cylinder (l/c)	Manufacturer Model # Engine Serial #
038	3,164	5/7/2002	-	Diesel	Emergency	4.3	Caterpillar® 3516B 1HZ02187

Essential Potential to Emit (PTE) Parameters

E.11. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 63.6640(f)(2)]

b. *Maintenance and Testing*. Each RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit for routine testing and maintenance. [40 CFR 63.6640(f)(2)]

c. *Non-emergency situations*. Each RICE is authorized to operate for an additional 50 hours per year in non-emergency situations. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 63.6640(f)(2)]

d. *Engine Startup*. During periods of startup the owner or operator must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for the appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR 63.6625(h)]

Emission Limitations and Operating Requirements

{Permitting note: This "existing" stationary CI engine with > 500 HP does not have a specific numerical emission limitations and standards.}

Recordkeeping Requirements

E.12. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.

b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. [40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 4: *"New" stationary CI RICE greater than or equal to 175 HP and less than or equal to 500 HP*
E.U. ID No.	**Brief Description**
021	Emergency Generator - Operations Building (EPA Tier 3 certified) (SWA of PBC ID# OPS-E1)

{Permitting note: This part of the subsection addresses "new" stationary CI RICE greater than or equal to 175 HP and less than or equal to 500 HP, with a displacement less than 10 liters per cylinder, that are located at a major source of HAP and that have been modified, reconstructed or commenced construction on or after 6/12/2006 and have a 2007 or later model year. This RICE is not used as a fire pump.}

The following table provides important details for this emissions unit:

E.U. ID No.	Engine Brake HP	Date of Construction	Model Year	Primary Fuel	Type of Engine	Displacement liters/cylinder (l/c)	Manufacturer Model # Engine Serial #
021	250	2008	-	Diesel	Emergency	1.115	Cummings/Onan® DSGAB

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Applicability

E.13. Applicability. Pursuant to 40 CFR 63.6590(c), these engines must comply with 40 CFR 63, Subpart ZZZZ by meeting the requirements of NSPS 40 CFR 60, Subpart IIII. Pursuant to 40 CFR 63.6590(c), no further requirements apply to the engine under 40 CFR 63, Subpart ZZZZ. [Rules 62-204.800(11) & (8), F.A.C.; and, 40 CFR 63.6590(c)]

Essential Potential to Emit (PTE) Parameters

E.14. Allowable Fuel. The stationary RICE must use diesel fuel that meets the following requirements for non-road diesel fuel:

a. *Sulfur Content*. The sulfur content shall not exceed 15 ppm (0.0015% by weight) for non-road diesel fuel.

b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b) and 40 CFR 80.510(b)]

E.15. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 60.4211(e)]

b. *Maintenance and Testing.* Each RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. [40 CFR 60.4211(e)]

c. *Other Situations*. Each RICE cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4219]

Emission Standards and Limitations

E.16. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 4.0 g/KW-hr {equivalent to: 3.2 lbs/hour (OPS-E1)}. [40 CFR 60.4205(b)]

E.17. CO Emissions. Carbon monoxide emissions shall not exceed 3.5 g/KW-hr {equivalent to: 1.4 lbs/hour (OPS-E1)}. [40 CFR 60.4205(b)]

E.18. PM Emissions. Particulate matter emissions shall not exceed 0.2 g/KW-hr {equivalent to: 4.3 lbs/hour (OPS-E1)}. [40 CFR 60.4205(b)]

E.19. Operation and Maintenance. The owner or operator must operate and maintain the stationary CI internal combustion engine according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. The owner or operator must meet the requirements of 40 CFR 89, 94 and/or 1068, as they apply. [40 CFR 60.4211(a)]

Monitoring of Operations

E.20. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

Compliance Requirements

E.21. Compliance Requirements. Owner or operator must demonstrate compliance according to one of the methods below:

c. *Certification.* Have purchased an engine certified according to 40 CFR 89 or 94, as applicable, for the same model year and maximum engine power.

d. *Manufacturer Data*. Keep records of engine manufacturer data indicating compliance with the standards.
e. *Vendor Data*. Keep records of control device vendor data indicating compliance with the standards.
f. *Performance Test*. Conduct an initial performance test to demonstrate compliance with the emission standards according to the testing requirements in this section.
g. *Similar Engine Tests*. Keep records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

[40 CFR 60.4211(b)]

Testing Requirements

E.22. Performance Test. Performance test must be conducted according to the in-use testing procedures in 40 CFR 1039, Subpart F. [40 CFR 60.4212]

E.23. Engine Manufacturer's Recommendations and Instructions. If the owner/operator does not install, configure, operate, and maintain the engine according to the manufacturer's recommendations and instructions, any required testing shall be completed in accordance with 40 CFR 60, Subpart IIII. [40 CFR 60.4212.]

E.24. Not to exceed (NTE) Standards. Exhaust emissions from stationary CI ICE that are complying with the emission standards must not exceed the not to exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation: NTE = (1.25) x (Standard). [40 CFR 60.4212]

Recordkeeping Requirements

E.25. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

E.26. Record Retention.
a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.
b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

NSPS 40 CFR 60, Subpart A & IIII Requirements

E.27. NSPS Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. The applicable 40 CFR 60, Subpart A, General Provisions to which these emissions are subject to are found at 40 CFR 63.4218 and are included in **Appendix 40 CFR 60 Subpart A**. [Rule 62-204.800(8)(d), F.A.C.]

E.28. 40 CFR 60 Requirements - Subpart IIII [Generally Applicable Requirements]. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which have been adopted by reference in Rule 62-204.800(8), F.A.C. These emissions units shall comply with **Appendix 40 CFR 60 Subpart IIII "Generally Applicable Requirements," ** included with this permit, which includes applicable requirements that apply in general to all engines regulated under 40 CFR 60, Subpart IIII. This appendix also contains useful information like definitions (see 40 CFR 60.4219) that are specific to engines regulated under 40 CFR 60 Subpart IIII. [Rule 62-204.800(8), F.A.C.]

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 5: *"New" stationary CI RICE greater than 500 HP*
E.U. ID No.	**Brief Description**
016	Emergency Generator - Biosolids Pelletization Facility (BPF) (EPA Tier 3 certified) (SWA of PBC ID# BPF-E1)
033	Emergency Generator - PBREF No. 2 (EPA Tier 2 certified)
042	Emergency Generator - Administration (EPA Tier 1 certified) (SWA of PBC ID# A-E1)
043	Emergency Generator - Materials Recovery Facility (MRF) (EPA Tier 2 certified) (SWA of PBC ID# MRF-E1)

Emissions from E.U. ID No. 033 are exhausted through a vertical stack with weather cap that is 16 feet in height, has an exit diameter of 0.83 feet, an exit flow rate of approximately 18,908 acfm, and an exit temperature of 853°F. This engine is also regulated pursuant to Permit No. 0990234-032-AC/PSD-FL-413C.

{Permitting note: This part of the subsection addresses "new" stationary CI RICE greater than 500 HP, with a displacement less than 10 liters per cylinder, that are located at a major source of HAP and that have been modified, reconstructed or commenced construction on or after 12/19/2002 and have a pre-2007 or 2007 & later model year. These RICE are not used as fire pumps.}

The following table provides important details for these emissions units:

E.U. ID No.	**Engine Brake HP**	**Date of Construction**	**Model Year**	**Primary Fuel**	**Type of Engine**	**Displacement liters/cylinder (l/c)**	**Manufacturer** / **Model #** / **Engine Serial #**
016	550	2009	2007	Diesel	Emergency	2.33	Kohler® / 350REOZDD / 2180993
033	3,705	2013	-	Diesel	Emergency	78 l/c, 18 cyl.	Cummings® / QSK78-G12 / -
042	913	5/2/2006	2001	Diesel	Emergency	2.25	Caterpillar® / 3412

							BPG00204
043	775	2009	-	Diesel	Emergency	2.48	Cummings/Onan® DFEG 60 Hz -

Applicability

E.29. Applicability. Pursuant to 40 CFR 63.6590(c), these engines must comply with 40 CFR 63, Subpart ZZZZ by meeting the requirements of NSPS 40 CFR 60, Subpart IIII. Pursuant to 40 CFR 63.6590(c), no further requirements apply to the engine under 40 CFR 63, Subpart ZZZZ. [Rules 62-204.800(11) & (8), F.A.C.; and, 40 CFR 63.6590(c)]

Essential Potential to Emit (PTE) Parameters

E.30. Allowable Fuel. The stationary RICE must use diesel fuel that meets the following requirements for non-road diesel fuel:

a. *Sulfur Content*. The sulfur content shall not exceed 15 ppm (0.0015% by weight) for non-road diesel fuel.

b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b) and 40 CFR 80.510(b)]

E.31. Hours of Operation. The E.U. ID No. 033 emergency generator may operate up to 100 hours per year for maintenance and testing purposes. [Permit No. 0990234-032-AC/PSD-FL-413C; and, Rules 62-210.200 (PTE) and 62-212.400 (BACT), F.A.C.]

E.32. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 60.4211(e)]

b. *Maintenance and Testing.* Each RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. [40 CFR 60.4211(e)]

c. *Other Situations*. Each RICE cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4219]

Emission Standards and Limitations

E.33. The following emission standards and limitations apply to E.U. ID No. 016, Emergency Generator - Biosolids Pelletization Facility (BPF) (EPA Tier 3 certified):

a. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 4.0 g/KW-hr {equivalent to: 3.62 lbs/hour}. [40 CFR 60.4205(b)]

b. CO Emissions. Carbon monoxide emissions shall not exceed 3.5 g/KW-hr {equivalent to: 3.17 lbs/hour}. [40 CFR 60.4205(b)]

c. PM emissions. Particulate matter emissions shall not exceed 0.2 g/KW-hr{equivalent to: 0.18 lbs/hour}. [40 CFR 60.4205(b)]

E.34. The following emission standards and limitations apply to E.U. ID No. 033, Emergency Generator - PBREF No. 2 (EPA Tier 2 certified):

a. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 6.4 g/KW-hr {equivalent to: 39.0 lbs/hour}. [40 CFR 60.4205(b)]

b. CO Emissions. Carbon monoxide emissions shall not exceed 3.5 g/KW-hr {equivalent to: 21.3 lbs/hour}. [40 CFR 60.4205(b)]
c. PM emissions. Particulate matter emissions shall not exceed 0.2 g/KW-hr {equivalent to: 0.2 lbs/hour}. [40 CFR 60.4205(b)]

[Permit No. 0990234-032-AC/PSD-FL-413C.]

E.35. The following emission standards and limitations apply to E.U. ID No. 042, Emergency Generator - Administration (EPA Tier 1 certified):
a. HC Emissions. Hydrocarbon emissions shall not exceed 1.3 g/KW-hr or 1.0 g/HP-hr {equivalent to: 1.9 lbs/hour}. [40 CFR 60.4205(a)]
b. NOx Emissions. Nitrogen oxide emissions shall not exceed 9.2 g/KW-hr or 6.9 g/HP-hr {equivalent to: 13.8 lbs/hour}. [40 CFR 60.4205(a)]
c. CO Emissions. Carbon monoxide emissions shall not exceed 11.4 g/KW-hr or 8.5 g/HP-hr {equivalent to: 17.1 lbs/hour}. [40 CFR 60.4205(a)]
d. PM emissions. Particulate matter emissions shall not exceed 0.54 g/KW-hr or 0.40 g/HP-hr {equivalent to: 0.8 lbs/hour}. [40 CFR 60.4205(a)]

E.36. The following emission standards and limitations apply to E.U. ID No. 043, Emergency Generator - Materials Recovery Facility (MRF) (EPA Tier 2 certified):
a. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 6.4 g/KW-hr {equivalent to: 7.95 lbs/hour}. [40 CFR 60.4205(b)]
b. CO Emissions. Carbon monoxide emissions shall not exceed 3.5 g/KW-hr {equivalent to: 4.35 lbs/hour}. [40 CFR 60.4205(b)]
c. PM emissions. Particulate matter emissions shall not exceed 0.2 g/KW-hr {equivalent to: 0.25 lbs/hour}. [40 CFR 60.4205(b)]

E.37. Operation and Maintenance. The owner or operator must operate and maintain the stationary CI internal combustion engine according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. The owner or operator must meet the requirements of 40 CFR 89, 94 and/or 1068, as they apply. [40 CFR 60.4211(a)]

Monitoring of Operations

E.38. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

Compliance Requirements

E.39. Compliance Requirements. Owner or operator must demonstrate compliance according to one of the methods below:
a. *Certification.* Have purchased an engine certified according to 40 CFR 89 or 94, as applicable, for the same model year and maximum engine power.
b. *Manufacturer Data*. Keep records of engine manufacturer data indicating compliance with the standards.
c. *Vendor Data*. Keep records of control device vendor data indicating compliance with the standards.
d. *Performance Test*. Conduct an initial performance test to demonstrate compliance with the emission standards according to the testing requirements in this section.
e. *Similar Engine Tests*. Keep records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

[40 CFR 60.4211(b)]

Testing Requirements

E.40. Performance Test. Performance test must be conducted according to the in-use testing procedures in 40 CFR 1039, Subpart F. [40 CFR 60.4212]

E.41. Engine Manufacturer's Recommendations and Instructions. If the owner/operator does not install, configure, operate, and maintain the engine according to the manufacturer's recommendations and instructions, any required testing shall be completed in accordance with 40 CFR 60, Subpart IIII. [40 CFR 60.4212.]

E.42. Not to exceed (NTE) Standards. Exhaust emissions from stationary CI ICE that are complying with the emission standards must not exceed the not to exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation: NTE = (1.25) x (Standard). [40 CFR 60.4212]

Recordkeeping Requirements

E.43. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

E.44. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.
b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

NSPS 40 CFR 60, Subpart A & IIII Requirements

E.45. NSPS Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. The applicable 40 CFR 60, Subpart A, General Provisions to which these emissions are subject to are found at 40 CFR 63.4218 and are included in **Appendix 40 CFR 60 Subpart A**. [Rule 62-204.800(8)(d), F.A.C.]

E.46. 40 CFR 60 Requirements - Subpart IIII [Generally Applicable Requirements]. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which have been adopted by reference in Rule 62-204.800(8), F.A.C. These emissions units shall comply with **Appendix 40 CFR 60 Subpart IIII "Generally Applicable Requirements**,**"** included with this permit, which includes applicable requirements that apply in general to all engines regulated under 40 CFR 60, Subpart IIII. This appendix also contains useful information like definitions (see 40 CFR 60.4219) that are specific to engines regulated under 40 CFR 60 Subpart IIII. [Rule 62-204.800(8), F.A.C.]

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 6: *"New" stationary CI RICE less than 175 HP*
E.U. ID No.	**Brief Description**
037	Emergency Generator - PBREP Scalehouse (EPA Tier 3 certified) (SWA of PBC ID# WTES-E1)
046	Emergency Generator - Landfill Scalehouse E2
047	Emergency Generator - MIS

{Permitting note: This part of the subsection addresses "new" stationary CI RICE less than 175 HP, with a displacement less than 10 liters per cylinder, that are located at a major source of HAP and that have been modified, reconstructed or commenced construction on or after 6/12/2006 and have a 2007 or later model year. This RICE is not used as a fire pump.}

The following table provides important details for this emissions unit:

E.U. ID No.	**Engine Brake HP**	**Date of Construction**	**Model Year**	**Primary Fuel**	**Type of Engine**	**Displacement liters/cylinder (l/c)**	**Manufacturer** **Model #** **Engine Serial #**
037	88.5	-[1]	-	Diesel	Emergency	1.1 (est.)	Caterpillar® D60-8S -
046	97.6	-[1]	-	Diesel	Emergency	4.4	Perkins® 1104D.E44TG1 T3 -
047	97.6	-[1]	-	Diesel	Emergency	4.4	Perkins® 1104D.E44TG1 T3 -

[1] Compliance Plan. These units were in the process of being purchased at the time the permit application had been submitted. The permittee shall notify the compliance office of the date when the unit was placed in service and when the readiness testing was completed. [Rule 62-213.440(2), F.A.C.; and, Applicant Request.]

Applicability

E.47. Applicability. Pursuant to 40 CFR 63.6590(c), these engines must comply with 40 CFR 63, Subpart ZZZZ by meeting the requirements of NSPS 40 CFR 60, Subpart IIII. Pursuant to 40 CFR 63.6590(c), no further requirements apply to the engine under 40 CFR 63, Subpart ZZZZ. [Rules 62-204.800(11) & (8), F.A.C.; and, 40 CFR 63.6590(c)]

Essential Potential to Emit (PTE) Parameters

E.48. Allowable Fuel. The stationary RICE must use diesel fuel that meets the following requirements for non-road diesel fuel:

a. *Sulfur Content*. The sulfur content shall not exceed 15 ppm (0.0015% by weight) for non-road diesel fuel. {equivalent to: 0.0006 lb SO_2/hour}

b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b) and 40 CFR 80.510(b)]

E.49. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 60.4211(f)(1)]

b. *Maintenance and Testing.* Each RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. [40 CFR 60.4211(f)(2)]

c. *Other Situations.* Each RICE cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. Each RICE may be operated for up to 50 hours per calendar year in non-emergency situations. [40 CFR 60.4211(f)(3)]

Emission Standards and Limitations

E.50. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 4.7 g/KW-hr {for E.U. ID No. 037 equivalent to: 0.22 + 0.68 lb/hour; for E.U. ID Nos. 046 & 047 equivalent to: 0.8 lb/hour}. [40 CFR 60.4205(b)]

E.51. CO Emissions. Carbon monoxide emissions shall not exceed 5.0 g/KW-hr {for E.U. ID No. 037 equivalent to: 0.73 lb/hour; for E.U. ID Nos. 046 & 047 equivalent to: 0.8 lb/hour}. [40 CFR 60.4205(b)]]

E.52. PM Emissions. Particulate matter emissions shall not exceed 0.40 g/KW-hr {for E.U. ID No. 037 equivalent to: 0.06 lb/hour; for E.U. ID Nos. 046 & 047 equivalent to: 0.1 lb/hour}. [40 CFR 60.4205(b)]

E.53. Operation and Maintenance. The owner or operator must operate and maintain the stationary CI internal combustion engine according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. The owner or operator must meet the requirements of 40 CFR 89, 94 and/or 1068, as they apply. [40 CFR 60.4211(a)]

Monitoring of Operations

E.54. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

Compliance Requirements

E.55. Compliance Requirements. Owner or operator must demonstrate compliance according to one of the methods below:

a. *Certification.* Have purchased an engine certified according to 40 CFR 89 or 94, as applicable, for the same model year and maximum engine power.

b. *Manufacturer Data*. Keep records of engine manufacturer data indicating compliance with the standards.

c. *Vendor Data*. Keep records of control device vendor data indicating compliance with the standards.

d. *Performance Test*. Conduct an initial performance test to demonstrate compliance with the emission standards according to the testing requirements in this section.

e. *Similar Engine Tests*. Keep records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

[40 CFR 60.4211(b)]

Testing Requirements

E.56. Performance Tests. Any performance tests conducted pursuant to 40 CFR 60, Subpart IIII must be according to the in-use testing procedures in 40 CFR 1039, Subpart F. [40 CFR 60.4212]

E.57. Engine Manufacturer's Recommendations and Instructions. If the owner/operator does not install, configure, operate, and maintain the engine according to the manufacturer's recommendations and instructions, any required testing shall be completed in accordance with 40 CFR 60, Subpart IIII. [40 CFR 60.4212.]

E.58. Not to exceed (NTE) Standards. Exhaust emissions from stationary CI ICE that are complying with the emission standards must not exceed the not to exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation: NTE = (1.25) x (Standard). [40 CFR 60.4212]

Recordkeeping Requirements

E.59. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

E.60. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.
b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

NSPS 40 CFR 60, Subpart A & IIII Requirements

E.61. NSPS Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. The applicable 40 CFR 60, Subpart A, General Provisions to which these emissions are subject to are found at 40 CFR 63.4218 and are included in **Appendix 40 CFR 60 Subpart A**. [Rule 62-204.800(8)(d), F.A.C.]

E.62. 40 CFR 60 Requirements - Subpart IIII [Generally Applicable Requirements]. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which have been adopted by reference in Rule 62-204.800(8), F.A.C. These emissions units shall comply with **Appendix 40 CFR 60 Subpart IIII "Generally Applicable Requirements**,**"** included with this permit, which includes applicable requirements that apply in general to all engines regulated under 40 CFR 60, Subpart IIII. This appendix also contains useful information like definitions (see 40 CFR 60.4219) that are specific to engines regulated under 40 CFR 60 Subpart IIII. [Rule 62-204.800(8), F.A.C.]

The specific conditions in this part of the subsection apply to the following group of emissions units:

	Group 7: *"New" stationary CI RICE fire pumps greater than or equal to 175 HP and less than or equal to 500 HP*
E.U. ID No.	**Brief Description**
031	Emergency Firewater Pump Engine A (351 HP) - PBREF No. 2 (EPA Tier 3 certified)
032	Emergency Firewater Pump Engine B (351 HP) - PBREF No. 2 (EPA Tier 3 certified)

These units are emergency fire pumps that provide emergency fire protection for the plant. The compression ignition reciprocating internal combustion engines used to power these fire pumps are fired on ultra-low sulfur diesel fuel.

These fire pumps are also regulated pursuant to Permit No. 0990234-032-AC/PSD-FL-413C.

Emissions from these engines are exhausted through vertical stacks with weather caps that are 12 feet in height, have an exit diameter of 6 inches, an exit flow rate of approximately 1,878 acfm, and an exit temperature of 817°F.

{Permitting note: This part of the subsection addresses "new" stationary CI RICE fire pumps greater than or equal to 175 HP and less than or equal to 500 HP, with a displacement less than 10 liters per cylinder, that are located at a major source of HAP and that have been modified, reconstructed or commenced construction on or after 6/12/2006 and have a 2007 or later model year. This RICE is used as a fire pump.}

The following table provides important details for these emission units:

E.U. ID No.	Engine Brake HP	Date of Construction	Model Year	Primary Fuel	Type of Engine	Displacement liters/cylinder (l/c)	Manufacturer Model # Engine Serial #
031	351	2011	2011	Diesel	Emergency	1.5	John Deere/Clarke ® JW6H-UFADD0 -
032	351	2011	2011	Diesel	Emergency	1.5	John Deere/Clarke ® JW6H-UFADD0 -

Applicability

E.63. Applicability. Pursuant to 40 CFR 63.6590(c), these engines must comply with 40 CFR 63, Subpart ZZZZ by meeting the requirements of NSPS 40 CFR 60, Subpart IIII. Pursuant to 40 CFR 63.6590(c), no further requirements apply to the engine under 40 CFR 63, Subpart ZZZZ. [Rules 62-204.800(11) & (8), F.A.C.; and, 40 CFR 63.6590(c)]

Essential Potential to Emit (PTE) Parameters

E.64. Allowable Fuel. The stationary RICE must use diesel fuel that meets the following requirements for non-road diesel fuel:

a. *Sulfur Content*. The sulfur content shall not exceed 15 ppm (0.0015% by weight) for non-road diesel fuel.
b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.
c. *Use of Existing Fuel.* Any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

[40 CFR 60.4207(b) and 40 CFR 80.510(c)]

E.65. Hours of Operation.
a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations.
b. *Maintenance and Testing.* These engines are authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year.
c. *Non-emergency Situations*. This engine may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing.

[40 CFR 60.4211(f)]

Emission Standards and Limitations

(apply to each fire pump)

E.66. NMHC + NOx Emissions. Non-methane hydrocarbons and nitrogen oxide emissions shall not exceed 4.0 g/KW-hr {equivalent to: 2.3 lbs/hour}. [40 CFR 60.4205(c); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

E.67. CO Emissions. Carbon monoxide emissions shall not exceed 3.5 g/KW-hr {equivalent to: 2.0 lbs/hour}. [40 CFR 60.4205(c); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

E.68. PM Emissions. Particulate matter emissions shall not exceed 0.2 g/KW-hr {equivalent to: 0.12 lbs/hour}. [40 CFR 60.4205(c); and, Permit No. 0990234-032-AC/PSD-FL-413C.]

E.69. Operation and Maintenance. The owner or operator must operate and maintain the stationary CI internal combustion engines according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. This RICE must be maintained and operated to meet the emission standards over the entire life of the engine. [40 CFR 60.4206, 4211(a)(1), (2) & (3)]

Monitoring of Operations

E.70. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 60.4209(a)]

Compliance Requirements

E.71. Engine Certification Requirements. The owner or operator must comply with the emissions standards specified above by having purchased an engine certified by the manufacturer to meet those limits. The engine must have been installed and configured according to the manufacturer's emission-related specifications. [40 CFR 60.4211(c)]

E.72. Compliance Requirements Due to Loss of Certification. If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.

In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. [40 CFR 60.4211(g)(2)]

Testing Requirements

E.73. Performance Test. Performance test must be conducted according to the in-use testing procedures in 40 CFR 1039, Subpart F. [40 CFR 60.4212]

Recordkeeping Requirements

E.74. Required Records. Owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214]

E.75. Maintenance Records.

a. Records of all required maintenance performed on the air pollution control and monitoring equipment.
b. The owner or operator must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the stationary RICE and after-treatment control device (if any) are operated and maintained according to its own maintenance plan.

[40 CFR 63.6655]

E.76. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.
b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

NSPS 40 CFR 60, Subpart A & IIII Requirements

E.77. NSPS Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. The applicable 40 CFR 60, Subpart A, General Provisions to which these emissions are subject to are found at 40 CFR 63.4218 and are included in **Appendix 40 CFR 60 Subpart A**. [Rule 62-204.800(8)(d), F.A.C.]

E.78. 40 CFR 60 Requirements - Subpart IIII [Generally Applicable Requirements]. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which have been adopted by reference in Rule 62-204.800(8), F.A.C. These emissions units shall comply with **Appendix 40 CFR 60 Subpart IIII "Generally Applicable Requirements**,**"** included with this permit, which includes applicable requirements that apply in general to all engines regulated under 40 CFR 60, Subpart IIII. This appendix also contains

useful information like definitions (see 40 CFR 60.4219) that are specific to engines regulated under 40 CFR 60 Subpart IIII. [Rule 62-204.800(8), F.A.C.]

THE FOLLOWING SPECIFIC CONDITIONS APPLY TO ALL GROUPS OF EMISSIONS UNITS

Operation and Maintenance Requirements

{Permitting note: TABLE E-1. SUMMARY OF MAINTENANCE REQUIREMENTS FOR ENGINES, summarizes maintenance requirements under 40 CFR 63, Subpart ZZZZ for convenience purposes only. This table does not supersede any of the terms or conditions of this permit.}

Test Methods and Procedures

E.79. Common Testing Requirements. Any tests, if required, shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

Recordkeeping and Reporting Requirements

E.80. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440, F.A.C.]

NESHAP 40 CFR 63, Subpart A & ZZZZ Requirements

E.81. 40 CFR 63 Requirements - Subpart A. These emissions units shall comply with all applicable requirements of 40 CFR 63, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(11)(d)1., F.A.C., except that the Secretary is not the Administrator for purposes of 40 CFR 63.5(e), 40 CFR 63.5(f), 40 CFR 63.6(g), 40 CFR 63.6(h)(9), 40 CFR 63.6(j), 40 CFR 63.13, and 40 CFR 63.14. The applicable 40 CFR 63, Subpart A, General Provisions to which these emissions are subject to are found at 40 CFR 63.6665 and are included in **Appendix 40 CFR 63 Subpart A**. [Rule 62-204.800(11)(d)1., F.A.C.]

E.82. 40 CFR 63 Requirements - Subpart ZZZZ [Generally Applicable Requirements]. These emissions units shall comply with all applicable requirements of 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE), which have been adopted by reference in Rule 62-204.800(11)(b), F.A.C. These emissions units shall comply with **Appendix 40 CFR 63 Subpart ZZZZ "Generally Applicable Requirements,"** included with this permit, which includes applicable requirements that apply in general to all engines regulated under 40 CFR 63 Subpart ZZZZ. This appendix also contains useful information like provisions that are not delegated to state or local agencies (see 40 CFR 63.6670) and contains definitions (see 40 CFR 63.6675) that are specific to engines regulated under 40 CFR 63 Subpart ZZZZ. [Rule 62-204.800(11)(b), F.A.C.]

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Exhibit 5

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Technical Support Document

For Final-Form Rulemaking
Environmental Quality Board
[25 Pa. Code Chs. 121 and 129]
Additional RACT requirements for Major Sources of NO_x and VOCs for the 2015 ozone NAAQS
(RACT III)

April 2022

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I. Introduction

The U.S. Environmental Protection Agency (EPA) is responsible for establishing National Ambient Air Quality Standards (NAAQS), which are maximum allowable concentrations in the ambient air for the following six pollutants: ground-level ozone; particulate matter; nitrogen dioxide (NO_2); carbon monoxide (CO); sulfur dioxide; and lead. These pollutants are identified as criteria pollutants by the EPA and are considered harmful to public health and welfare, including the environment. Section 109 of the Clean Air Act (CAA) (42 U.S.C.A. § 7409) established two types of NAAQS: primary standards, which are limits set to protect public health; and secondary standards, which are limits set to protect public welfare and the environment, including protection against visibility impairment and from damage to animals, crops, vegetation and buildings. The EPA established primary and secondary ground-level ozone NAAQS to protect public health and welfare.

Ground-level ozone is formed in the atmosphere by photochemical reactions between volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) in the presence of sunlight. In order to reduce ground-level ozone concentrations, the CAA (42 U.S.C.A. §§ 7401—7671q) requires control of sources of VOC and NO_x emissions to achieve emission reductions in nonattainment areas classified as "moderate" or higher. Among effective control measures, reasonably available control technology (RACT) air pollution controls significantly reduce VOC and NO_x emissions from major stationary sources. The CAA NO_X RACT requirements are described by the EPA in the "NO_x Supplement" notice titled, "State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble; Clean Air Act Amendments of 1990 Implementation of Title I; Proposed Rule." See 57 FR 55620, 55624 (November 25, 1992). In the NO_x Supplement notice, the EPA defined RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." *Id.* at 55624; See also 44 FR 53761, 53762 (September 17, 1979).

Section 110(a)(1) of the CAA (42 U.S.C.A. § 7410(a)) requires states to submit, within 3 years after the EPA's promulgation of a new or revised standard, a state implementation plan (SIP) revision meeting the applicable requirements of section 110(a)(2). Re-evaluation of RACT is required each time a revised ozone NAAQS is promulgated for nonattainment areas. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)), requires states to develop nonattainment plan provisions "as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at minimum of [RACT]) to provide for the attainment of the [NAAQS]."

A major source in an ozone nonattainment area is defined as any stationary source that emits or has the potential to emit (PTE) NO_x or VOC emissions above a certain applicability threshold that is based on the ozone nonattainment classification of the area: marginal, moderate, serious, or severe. Sections 182(b)(2) and 182(f)(1) of the CAA (42 U.S.C.A. §§ 7511a(b)(2) and 7511a(f)(1)) require states with moderate, or worse, ozone nonattainment areas to implement RACT controls on all stationary sources and source categories covered by a control techniques guidelines (CTG) document issued by the EPA, and on all major sources of VOC and NO_x emissions located in the nonattainment area. The EPA's CTGs establish presumptive RACT

control recommendations for various VOC source categories. Presumptive RACT limits are category-wide requirements that are based on capabilities that are general to an emission source category. The CTGs typically identify a particular control level that the EPA recommends as RACT. In some cases, the EPA has issued Alternative Control Technique (ACT) guidelines primarily for NO_x source categories, which in contrast to the CTGs, only present a range for possible control options but do not identify any particular option as the presumptive norm for what is RACT. States are required to implement RACT for the source categories covered by CTGs through a SIP. States may opt to require alternative controls rather than following the recommendations in a CTG. See *NRDC v. EPA*, 571 F.3d 1245, 1254 (D.C. Cir. 2009).

The CAA amendments of 1990 introduced the requirement for existing major stationary sources of NO_x in nonattainment areas to install and operate NO_x RACT. Specifically, section 182(b)(2) of the CAA requires states to adopt RACT provisions for all major sources of VOC in ozone nonattainment areas and section 182(f) requires states to adopt RACT provisions for major stationary sources of NO_x.

Section 302 of the CAA (42 U.S.C.A. § 7602), defines a major stationary source as any facility which has the PTE 100 tons per year (TPY) of any air pollutant. For serious ozone nonattainment areas, a major source is defined by section 182(c) of the CAA as a source that has the PTE 50 TPY of NO_x. For severe ozone nonattainment areas, a major source is defined by section 182(d) of the CAA as a source that has the PTE 25 TPY of any pollutant.

The Ozone Transport Region (OTR) has special provisions for major sources because section 184(a) of the CAA (42 U.S.C.A. § 7511c(a)) requires areas in the OTR to be treated as moderate (or higher) ozone nonattainment. Therefore, in marginal and moderate nonattainment areas and attainment areas in the OTR, a major NO_x source is one with the PTE 100 TPY or more of NO_x. Because the entire Commonwealth is in the OTR and is treated as a moderate nonattainment area, RACT is applicable to major sources of NO_x emissions or VOC emissions, or both, Statewide.

II. 1971 Photochemical Oxidants NAAQS - 0.08 ppm and 1979 and 1993 Ozone NAAQS – 0.12 ppm, averaged over 1 hour (RACT I)

On April 30, 1971, the EPA promulgated primary and secondary NAAQS for photochemical oxidants under section 109 of the CAA. See 36 FR 8186 (April 30, 1971). These standards set an hourly average of 0.08 parts per million (ppm) total photochemical oxidants not to be exceeded more than 1 hour per year. On February 8, 1979, the EPA announced a revision to the then-current 1-hour standard. The EPA's final rulemaking revised the level of the primary 1-hour ozone standard from 0.08 ppm to 0.12 ppm and set the secondary standard identical to the primary standard. See 44 FR 8202 (February 8, 1979). This revised 1-hour standard was reaffirmed on March 9, 1993. See 58 FR 13008 (March 9, 1993).

Section 110(a) of the CAA gives states the primary responsibility for achieving the NAAQS. Section 110(a) of the CAA provides that each state must adopt and submit to the EPA a plan to implement measures (a SIP) to enforce the NAAQS or a revision to the NAAQS promulgated under section 109(b) of the CAA. A SIP includes the regulatory programs, actions and

commitments a state will carry out to implement its responsibilities under the CAA. Once a component is approved by the EPA as a revision to the SIP, the SIP component is legally enforceable under both Federal and State law.

Section 182 of the CAA requires that, for areas that exceed the NAAQS for ozone, states must develop and implement a program that mandates that certain major stationary sources develop and implement a RACT program. Under sections 182(f)(1) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in Pennsylvania that emit or have a PTE greater than 100 TPY of NO_x. Under sections 182(b)(2) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in Pennsylvania that emit or have a PTE greater than 50 TPY of VOCs. NO_x and VOC controls are required Statewide because of the Commonwealth's inclusion in the OTR established by Congress under section 184(a) of the CAA. Additionally, because the five-county Philadelphia area was designated as severe ozone nonattainment for the 1-hour standard in 1979, sources of greater than 25 TPY of either pollutant were required to implement RACT under section 182(d) of the CAA.

Section 182(b)(2) of the CAA provides that for moderate ozone nonattainment areas, a state must revise its SIP to include RACT for sources of VOC emissions covered by a CTG issued by the EPA prior to the area's date of attainment; sources of VOC emissions covered by a CTG issued prior to November 15, 1990; and all other major stationary sources of VOC emissions located in the area. The EPA has issued RACT recommendations in the form of CTGs for approximately 25 to 30 classes of VOC sources. The CTGs cover many types of source categories, including large graphic arts facilities, industrial surface coating operations, petroleum refineries and gasoline marketing terminals. Over the years, the Department has established regulatory requirements consistent with the RACT recommendations of these CTGs, including establishment of source-specific emission limitations. These regulations include §§ 129.52—129.52e, 129.54—129.69, 129.71—129.75, 129.77, 129.101—129.107 and 129.301—129.310.

The Commonwealth's RACT regulations under §§ 129.91—129.95 (relating to stationary sources of NO_x and VOCs) (RACT I) were implemented Statewide in January 1994 for the 1979 and 1993 1-hour ozone standard. See 24 Pa.B. 467 (January 15, 1994). These regulations imposed a requirement that the owners and operators of sources and facilities emitting VOCs and NO_x determine if they are a major stationary source of VOCs or NO_x, or both. If a facility is a major stationary source for either or both of these pollutants, the owner and operator shall develop and submit a RACT proposal to the Department and to the EPA for approval. Sources subject to the EPA's New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) are required to comply with all applicable requirements including requirements and emission limitations that are more stringent than RACT requirements and RACT emission limitations.

Under § 129.92, owners and operators of certain major stationary source categories of NO_x, VOCs, or both, were required to perform a case-by-case RACT analysis using descending order of control effectiveness [top-down RACT analysis]. A top-down RACT analysis ranks the technically feasible air pollution control technologies from most effective control to least effective control. Each technically feasible air pollution control technology is then analyzed for economic feasibility (cost analysis). The highest ranking technically feasible air pollution control

technology that is economically feasible is the air pollution control technology that is selected for installation and operation on the source. As an alternative, the final amendments under § 129.93 provided the option for owners and operators of certain specified categories of major NO_x emitting facilities to implement presumptive NO_x RACT requirements. The owners and operators of small industrial boilers were required to make appropriate adjustments to the combustion process to minimize NO_x emissions. The owners and operators of small combustion units and certain other classes of fossil fuel-burning equipment (<20 million Btu/hour) were required to operate the source in accordance with the manufacturer's specifications. The owners and operators of larger combustion units (equal to or greater than 20 million Btu/hour to < 50 million Btu/hour) were required to perform an annual tune-up and make adjustments to provide for a low NO_x emitting operation; and the owners and operators of very large coal-fired combustion units (equal to or greater than 100 million Btu/hour) were required to install a low NO_x burner system with separated overfire air (LNB-SOFA). See § 129.93. An additional alternative was provided under § 129.94 for the owners and operators of major NO_x emitting facilities to submit an averaging plan proposal instead of a case-by-case proposal for an alternative RACT requirement or RACT emission limitation to meet RACT I.

On February 1, 1994, the Department developed guidance for submitting RACT proposals for major NO_x sources which were required to determine the RACT for NO_x emissions on a case-by-case basis (Appendix 1). The guidance recommends that the RACT analysis should include a ranking of all applicable and available control technologies for the affected sources in descending order of control effectiveness. The applicant should examine the most stringent or "top" alternative. If the applicant could show that this top level of control for the source under review is technically or economically infeasible based on the EPA's Office of Air Quality Planning and Standards (OAQPS) Control Cost Manual, then the next most stringent level of control is determined and similarly evaluated. The analysis continues until the RACT level under consideration cannot be eliminated by any substantial or unique technical or economical objection.

In this guidance document, the Department indicated that most states have included presumptive limits for NO_x emissions in their regulations and control measures available to achieve these levels show a range of cost-effectiveness from about $570—1,500 per ton of NO_x emissions reduced. The guidance document also indicated that technologies available to meet the EPA's preliminary presumptive RACT levels for electric utility boilers show a range of cost-effectiveness from about $160—1,300 per ton of NO_x emissions reduced. The EPA document "Evaluation and Costing of NO_x Controls for Existing Utility Boilers in the NESCAUM Region," [EPA 453/R-92-010] shows that the control costs for LNB-SOFA vary from $270—1,590 per ton of NO_x emissions reduced depending on site-specific factors (such as the type of boiler, size of the boiler and the amount of use) (Appendix 2). The control measures available to achieve the levels established as presumptive RACT for utility boilers by other states show a range of cost-effectiveness from about $570—1,500 per ton of NO_x emissions reduced. Two NO_x RACT proposals, discussed in the guidance document (Appendix 1), using LNB-SOFA document costs of $1,222 and $1,298 per ton of NO_x emissions reduced.

Based on the above information, the Department used $1,500 per ton of NO_x emissions reduced as the benchmark cost at which consider the NO_x emissions control option to be cost-effective.

The Department suggested using $1,500 as the benchmark for NO_x emissions control options because it was comparable to but lower than the control cost for sources of VOCs (the other major ozone precursor) to comply with existing RACT regulations based on the EPA's guidelines. For VOCs, the cost-effectiveness benchmark of $3,000 per ton of VOC emissions reduced was used.

Under §§ 129.91—129.95, case-by-case RACT determinations for approximately 600 facilities were made for attaining and maintaining the 1-hour ozone standard and were submitted to the EPA as RACT SIP revisions. The case-by-case analysis process began in 1995 and was not completed until 2006 due to the need for EPA approval of SIP submittals for the case-by-case RACT determinations. Many facility owners and operators had to hire consultants or additional staff to complete their case-by-case RACT analyses and proposals and handle the permitting requirements. The Department has added more presumptive requirements and emissions limitations under §§ 129.96—129.100 and §§ 129.111—129.115 to provide the subject owners and operators with options to comply without going through the resource intensive and sometimes costly case-by-case process.

III. 1997 Ozone NAAQS – 0.08 ppm and 2008 Ozone NAAQS - 0.075 ppm, averaged over 8 hours (RACT II)

On July 18, 1997, the EPA concluded that revisions to the then-current 1-hour ozone primary standard to provide increased public health protection were appropriate at this time to protect public health with an adequate margin of safety. Further, the EPA determined that it was appropriate to establish a primary standard of 0.08 ppm averaged over 8 hours. The EPA also established a secondary standard equal to the primary standard. See 62 FR 38856 (July 18, 1997). In 2004, the EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS. See 69 FR 23858, 23931 (April 30, 2004).

On March 27, 2008, the EPA lowered the primary and secondary 8-hour ozone standards from 0.08 ppm to 0.075 ppm. See 73 FR 16436 (March 27, 2008). The EPA made designations for the 2008 8-hour ozone standards on April 30, 2012, with an effective date of July 20, 2012. The EPA designated all or portions of Allegheny, Armstrong, Beaver, Berks, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland counties as nonattainment for the 2008 8-hour ozone NAAQS, with the rest of this Commonwealth designated as unclassifiable/attainment. See 77 FR 30088, 30143 (May 21, 2012). The EPA's 2008 ozone implementation rule required the Department to submit a SIP revision that met the RACT requirements of section 184(b)(2) of the CAA for the entire Commonwealth. See 40 CFR 51.1112 and 51.1116.

The Commonwealth's RACT regulations under §§ 129.96—129.100 (relating to additional RACT requirements for major sources of NO_x and VOCs) (RACT II) were implemented in April 2016, for the 1997 and 2008 8-hour ozone standards. See 46 Pa.B. 2036 (April 23, 2016). The Department's final-form rulemaking established requirements for the implementation of specified RACT control measures for the nine identified source types for attaining and maintaining the 1997 and 2008 8-hour ozone standards. The Department used a top-down

approach to determine presumptive NO_x and VOC RACT emissions limits for various source categories. This included searching for and identifying the best methodology, technique, technology or other means for reducing NO_x or VOC emissions while factoring environmental, energy and economic considerations into the analysis. The Department contacted various vendors and reviewed the EPA's CTG and ACT documents. The Department also identified controls installed on existing air contaminant sources in this Commonwealth and identical air contaminant sources in other states. The Department estimated the capital, installation and annual operating costs using the EPA's OAQPS and Control Cost Manual (Sixth edition) and vendor's quotes, as well as input from independent entities such as the PJM Interconnection.

The Department used a specific dollar value per ton of NO_x or VOC emissions reduced as a benchmark to consider a specific control technology's cost-effectiveness. In the absence of guidance for cost-effectiveness benchmark cut-off limits during the RACT II development, the Department determined the cost-effectiveness benchmark number based on the EPA's approved cost-effectiveness benchmark values in the 1990 RACT implementation guidance and used the United States Bureau of Labor Statistics Consumer Price Index (CPI) to calculate the new cost-effectiveness benchmarks. The Department evaluated various NO_x and VOC control technologies for technical and economical feasibility. The Department did not establish a bright-line cost-effectiveness threshold to determine the economic feasibility for implementation of the RACT II requirements. See 57 FR 18074 (April 28, 1992). The Department had used cost-effectiveness benchmarks of $1,500 and $3,000 per ton of NO_x and VOC emissions reduced, respectively, in 1990 dollars, for the implementation of the RACT I requirements for the 1979 1-hour ozone NAAQS in §§ 129.91—129.95. The Department used the CPI and adjusted the $1,500 in 1990 dollars to $2,754 in 2014 dollars. The Department used a NO_x emission control cost-effectiveness upper bound of $2,800 per ton of NO_x emissions reduced and $5,500 per ton of VOC emissions reduced.

Based on the uncontrolled emission rates and control efficiency of technically and economically feasible control options, the Department determined the presumptive RACT II emission limits for NO_x and VOCs. The RACT II final-form rulemaking also incorporated operational flexibility, including the option to request approval to use facility-wide or system-wide NO_X emissions averaging, a source-specific NO_x or VOC emission limitation, or a source-specific NO_x RACT or VOC RACT requirement as alternative methods of compliance. See 25 Pa. Code §§ 129.98—129.99.

The Department determined that certain add-on control technologies represented RACT for the 1997 and 2008 8-hour ozone NAAQS for nine existing source categories that did not have presumptive RACT requirements or emission limitations specified elsewhere in Chapter 129. These nine source categories included combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors (MWCs); cement kilns; and certain other sources that were not regulated elsewhere under Chapter 129. The RACT II final-form rulemaking amended Chapter 129 to adopt presumptive RACT requirements and RACT emission limitations for certain major stationary NO_x and VOC emissions that were subject to § 129.96. See 25 Pa. Code § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule).

IV. 2015 Ozone NAAQS - 0.070 ppm averaged over 8 hours (RACT III)

On October 26, 2015, the EPA lowered the primary and secondary 8-hour ozone standards from 0.075 ppm to 0.070 ppm. See 80 FR 65292 (October 26, 2015). The EPA issued the 2015 ozone implementation rule on December 6, 2018 (83 FR 62998). See 40 CFR 51.1306—51.1318. The EPA's 2015 ozone implementation rule requires the Department to submit a SIP revision that meets the RACT requirements of section 184(b)(2) of the CAA for the entire Commonwealth. See 40 CFR 51.1312 and 51.1316.

On *******, 2022 [Date of publication], the Environmental Quality Board amended Chapters 121 and 129 (relating to general provisions; and standards for sources) with additional RACT requirements for major sources of NO_X and VOCs for the 2015 ozone NAAQS. See _ Pa.B. _. The amendments to § 121.1 and the substantive provisions in §§ 129.111—129.115 implement RACT requirements for the 2015 8-hour ozone NAAQS.

(A) Applicability:

The RACT III regulations established in §§ 129.111—129.115 are applicable to the owner and operator of a "major NO_x emitting facility" or a "major VOC emitting facility," or both, in this Commonwealth, that commenced operation on or before August 3, 2018. The owner and operator of a source or facility that commenced operation on or before August 3, 2018, that was not a major NO_x emitting facility or a major VOC emitting facility, but installed a source after August 3, 2018, or made a modification after August 3, 2018, to a source that commenced operation on or before August 3, 2018, that results in the source or the facility meeting the definition of a major NO_x emitting facility or a major VOC emitting facility is also subject to the RACT III regulations.

The owner and operator of a facility that commenced operation on or before August 3, 2018, that is not a major NO_x emitting facility or a major VOC emitting facility on or before December 31, 2022, is not subject to §§ 129.111—129.115. See § 129.111(d). However, if the owner or operator of a facility that complied with § 129.111(d) meets the definition of a major NO_x emitting facility or a major VOC emitting facility after December 31, 2022, then the owner and operator shall comply with the applicable requirements of §§ 129.111—129.115.

Owners and operators of facilities that are major facilities solely for NO_x emissions are only subject to the NO_x RACT requirements. Likewise, owners and operators of facilities that are major facilities solely for VOC emissions are only subject to the VOC RACT requirements. The Statewide RACT III applicability thresholds for NO_x and VOC are 100 and 50 TPY, respectively, and 25 TPY, respectively, for major facilities located in Bucks, Chester, Delaware, Montgomery or Philadelphia County.

The RACT III regulations do not apply to sources that have a PTE less than 1 ton of NO_x or 1 ton of VOC, or both, as applicable, on a 12-month rolling basis. [25 Pa. Code § 129.111].

(B) Presumptive RACT source categories and determination of RACT for the 2015 8-hour ozone NAAQS (RACT III):

It is not possible to provide a precise presumptive RACT NO_x or VOC emission limit for each individual source, or estimate the control costs that may be incurred by the owner or operator, due to the wide range of source types, their size, type of fuel burned and operating characteristics located in this Commonwealth. Therefore, the Department has categorized the existing and affected sources into various source categories to evaluate, analyze and determine the presumptive RACT NO_x or VOC, or both, emissions limitations and requirements. These categories include combustion units and process heaters; municipal solid waste landfills; MWCs; turbines; stationary internal combustion engines; cement kilns; glass melting furnaces; lime kilns; direct-fired heaters, furnaces, ovens and other combustion sources; and other sources that are not regulated elsewhere under Chapter 129.

The Department used a top-down approach in determining presumptive NO_x or VOC, or both, RACT emissions limitations for various source categories. This approach included searching and identifying the reasonably available controls, methodology, techniques, technologies or other means for reducing NO_x or VOC emissions, while factoring technical and economic feasibility considerations into the analysis. The Department reviewed the 2015 ozone implementation rule and EPA guidance documents about air pollution control technologies and associated costs, contacted various vendors for estimated costs for specific technologies, and engaged with neighboring states to learn about their RACT III regulations.

The Department evaluated NO_x control technologies such as Low NO_x Burner (LNB), Dry Low NO_x Combustor (DLNC), Low Emission Combustion (LEC), Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), and Non-Selective Catalytic Reduction (NSCR) as well as Oxidation Catalyst VOC control technology.

LNB technology reduces NO_x emission by accomplishing the combustion process in stages. Staging partially delays the combustion process, resulting in a cooler flame which suppresses thermal NO_x formation. The two most common types of LNB technology applied to natural gas-fired boilers are staged air burners and staged fuel burners. LNB retrofits typically achieve NO_x emissions reductions in the range of 50%.

DLNC technology involves increasing the air-to-fuel ratio of the mixture so that the peak and average temperatures within the combustor will be less than that of the stoichiometric mixture, thus suppressing thermal NO_x formation. Introducing excess air not only creates a leaner mixture but it also can reduce residence time at peak temperatures. NO_x emissions reductions of up to 30% are achieved using lean primary zone combustion, without increasing CO emissions.

LEC technology achieves lower NO_x emissions by providing sufficient excess air to reduce the maximum combustion temperature and minimize NO_x formation. NO_x emissions from natural gas combustion are formed from nitrogen and oxygen in the combustion air and emissions of NO_x increase significantly at higher combustion temperatures. Engine manufacturers and regulatory agencies use the term “LEC” broadly and a number of technology approaches can be used depending on the type of engine and the NO_x emissions limitation. In many cases, multiple

LEC-related technologies may be required (for example, additional air through new or upgraded turbocharging, higher energy ignition/pre-combustion chambers, and enhanced mixing). NO_x emissions reductions of 30—50% are achieved using lean primary zone combustion without increasing CO emissions.

SCR systems selectively reduce NO_x emissions by injecting ammonia (NH_3) into the exhaust gas stream upstream of a catalyst. NO_x, NH_3 and oxygen (O_2) react on the surface of the catalyst to form nitrogen (N_2) and water (H_2O). The exhaust gas must contain a minimum amount of O_2 and be within a particular temperature range (typically 450°F to 850°F) in order for the SCR system to operate properly. The temperature range is dictated by the catalyst material which is typically made from noble metals, including base metal oxides such as vanadium and titanium, or zeolite-based material. The removal efficiency of an SCR system in good working order is typically from 65—90%. Exhaust gas temperatures greater than the upper limit (850°F) cause NO_x and NH_3 to pass through the catalyst unreacted. Ammonia emissions, called NH_3 slip, may be a consideration when specifying an SCR system.

SNCR technology is a post combustion emissions control technology for reducing NO_x by injecting ammonia or urea into the furnace at a properly determined location without the need of a catalyst. Combustion units with furnace exit temperatures of 1550—1950°F, residence times of greater than 1 second, and high levels of uncontrolled NO_x are required for higher control efficiencies. SNCR technology reduction efficiencies vary over a wide range. Temperature, residence time, type of NO_x reducing reagent, reagent injection rate, uncontrolled NO_x level, distribution of the reagent in the flue gas, and CO and O_2 concentrations all affect the reduction efficiency of the SNCR technology. The median (as a measure of average) reductions for urea-based SNCR systems in various industry source categories range from 25—60%, while median reductions for ammonia-based SNCR systems range from 61—65%.

NSCR technology uses the residual hydrocarbons and CO in the rich-burn engine exhaust as a reducing agent for NO_x. In an NSCR system, hydrocarbons and CO are oxidized by O_2 and NO_x. The excess hydrocarbons, CO, and NO_x pass over a catalyst (usually a noble metal such as platinum, rhodium, or palladium) that oxidizes the excess hydrocarbons and CO to H_2O and CO_2, while reducing NO_x to N_2. NO_x reduction efficiencies are usually greater than 90%, while CO reduction efficiencies are approximately 90%. The NSCR technology is effectively limited to engines with normal exhaust O_2 levels of 4% or less. This includes 4-stroke rich-burn naturally aspirated engines and some 4-stroke rich-burn turbocharged engines. Engines operating with NSCR systems require tight air-to-fuel control to maintain high NO_x emissions reduction effectiveness without high hydrocarbon emissions. To achieve effective NO_x emissions reduction performance, the engine may need to be run with a richer fuel adjustment than normal. This exhaust excess O_2 level would probably be closer to 1%. Lean-burn engines cannot be retrofitted with NSCR technology because of the reduced exhaust temperatures.

Oxidation catalysts (or two-way catalytic converters) are used to reduce hydrocarbon and CO emissions. Specifically, oxidation catalysts are effective for the control of CO, non-methane hydrocarbons, VOCs, and formaldehyde and other hazardous air pollutants. Oxidation catalysts consist of a substrate made up of thousands of small channels. Each channel is coated with a highly porous layer containing precious metal catalysts, such as platinum or palladium. As

exhaust gas travels down the channel, hydrocarbons and CO react with O_2 within the porous catalyst layer to form CO_2 and water vapor. The resulting gases then exit the channels and flow through the rest of the exhaust system. Use of an oxidation catalyst can reduce VOC emissions by 50—60%.

After gathering this data, the Department ranked all available control technologies in the order of their control effectiveness. After finding the most effective controls in the list, the Department evaluated the most stringent control for technical and economic feasibility. The Department eliminated the most stringent control and analyzed the second-most stringent control in the list if the most stringent control was determined to be technically infeasible or economically cost-prohibitive. The Department then reviewed the existing allowable NO_x or VOC emissions limitations and actual emissions monitoring test data to establish a baseline emission level to determine economic feasibility for emission controls for this final-form RACT III rulemaking.

After ranking the available control technologies and establishing the baseline emission levels, the Department conducted a generic cost analysis for sources in each source category subject to presumptive NO_x or VOC, or both, RACT emissions limitations to determine if additional NO_x or VOC, or both, controls would represent RACT for the 2015 8-hour ozone NAAQS. The Department performed cost analyses using guidance provided in the EPA Air Pollution Control Cost Manual, EPA/452/B-02- 001, 6th edition, January 2002 and the 7th edition, issued beginning in 2019, vendor's quotes, and cost data compiled from previous installations inside and outside of the Commonwealth. The cost analyses include the total capital investment of the add-on control equipment, the annual operating costs of the add-on control, and the cost-effectiveness of the control in reducing emissions from the source. Capital investments include costs associated with purchased equipment, installation, monitoring equipment, delivery, start-up and initial testing and taxes. Direct annual costs include the costs of electricity or fuel to operate the add-on control and the monitoring equipment, if needed, maintenance and repair costs. Indirect annual costs include overhead, administrative cost, property taxes, insurance and capital recovery cost. In accordance with the EPA's guidance in the Control Cost Manual, 7th edition (revised in 2019), the Department used equipment life for SCR at 30 years, for SNCR and other control equipment at 20 years and an annual interest rate of 5.5% to calculate the capital cost recovery factor. The capital cost recovery factor is added to the annual cost to determine annualized cost. The cost-effectiveness of the control is calculated by dividing the annualized costs of the add-on control by the amount of emissions reductions achieved annually from operation of the add-on control.

The Department adjusted the RACT II cost benchmarks of $2,800 and $5,500 per ton of NO_x or VOC emissions reduced, respectively, by multiplying by the CPI differential between 2014 and 2020 to arrive at benchmarks of $3,000 and $6,000 per ton of NO_x or VOC emissions reduced, respectively, for RACT III. The Department further adjusted the cost-effectiveness benchmarks to $3,750 per ton of NO_x emission reduced and $7,500 per ton of VOC emissions reduced to ensure the implementation of RACT-level controls similar to what was done for RACT II. See 46 Pa.B. 2044 (April 23, 2016). The Department determined that the presumptive RACT limitations included in this RACT III final-form rulemaking are reasonable as they reflect control levels achieved by the application and consideration of available control technologies, after considering both the technological and economic circumstances of certain source categories in

this Commonwealth. Using these cost-effectiveness benchmarks as a guide, the Department evaluated technically feasible emissions controls for the regulated sources for cost-effectiveness and economic feasibility. The Department additionally considered the RACT guidance on economic feasibility from the EPA, which stated in part that, "*economic feasibility for RACT purposes is largely determined by evidence that other sources in a source category have in fact applied the control technology in question*." And also, "*States may give substantial weight to cost effectiveness in evaluating the economic feasibility of an emission reduction technology*." See 57 FR 18074 (April 28, 1992).

Using the uncontrolled emissions rates of the subject major source categories and the control efficiency of technically and economically feasible control options, the Department determined the presumptive RACT emissions limitations for certain major stationary source categories of NO_x and VOC emissions. The Department also compared these presumptive RACT emissions limitations to presumptive RACT emissions limitations established by other states for similar major stationary source categories.

Compliance costs may vary for the owner and operator of each source or facility depending on the source size, type, operation limitation and which control option is selected by the owner and operator of the affected source or facility. Memorandum from Roger Strelow, Assistant Administrator for Air and Waste, USEPA, to Regional Administrators I-X, "Guidance for determining Acceptability of SIP Regulations in Non-Attainment Areas" (December 9, 1976) at 2, available at: https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19761209_strelow_ract.pdf; see 57 FR 18070, 18073—18074 (April 28, 1992) and 44 FR 53761, 53762—53763 (September 17, 1979); see also *Nat'l Steel Corp., Great Lakes Steel Div. v. Gorsuch*, 700 F.2d 314, 322–323 (6th Cir. 1983). An owner or operator of an affected source that cannot meet the applicable presumptive RACT emissions limitation may participate in either a facility-wide or system-wide NO_x emissions averaging program under final-form § 129.113 or propose an alternative NO_x or VOC emissions limitation or requirement, or both, on a case-by-case basis under final-form § 129.114.

(C) RACT analysis and proposed NO_x and VOC RACT emission limitations for small source categories:

Combustion units or process heaters with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour:

The Department evaluated LNB technology for NO_x emissions reduction and oxidation catalyst technology for VOC emission reduction for combustion units or process heaters with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. The Department determined that the cost-effectiveness of LNB technology ranges from approximately $3,536—8,841 per ton of NO_x emissions reduced and from approximately $260,750—651,876 per ton of VOC emissions reduced. See Appendix 3. The Department determined that the installation and operation of LNB and oxidation catalyst control technology options on these combustion units and process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced and $7,500 per ton of VOC emissions reduced. The benchmark is not a hard bright-line number. In

this case, the very low end of the range dips slightly under the benchmark. The Department has used its discretion to determine that the installation and operation of LNB and oxidation catalyst control technology on these combustion units and process heaters is not cost-effective.

Therefore, the Department has established in this final-form rulemaking that the existing biennial tune-up requirements in accordance with 40 CFR Part 63, Subpart 63.11223, established in 25 Pa. Code § 129.97(b)(1) continue to represent RACT for combustion units or process heaters with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. [25 Pa. Code § 129.112(b)(1)(i)].

Insignificant NO_x and VOC emitting source categories:

The Department evaluated LNB, SCR and SNCR technologies for NO_x emissions reduction and oxidation catalyst technology for VOC emission reduction for insignificant NO_x and VOC emitting source categories.

The Department performed a cost-effectiveness analysis for a 50 million Btu/hour combustion unit with an uncontrolled NO_x emissions rate of 5.0 TPY using reference cost data for LNB technology and determined the cost-effectiveness to be approximately $30,981 per ton of NO_x emissions reduced. The Department also performed a cost-effectiveness analysis for a 50 million Btu/hour combustion unit with an uncontrolled VOC emissions rate of 2.7 TPY using reference cost data for oxidation catalyst technology and determined the cost-effectiveness to be approximately $76,139 per ton of VOC emissions reduced. See Appendix 4. The Department determined that the installation and operation of LNB and oxidation catalyst control technology options on these combustion units and process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced and $7,500 per ton of VOC emissions reduced.

Using the results of the above cost analysis, the Department determined that operation of NO_x and VOC emitting sources with PTE less than 5 TPY of NO_x and less than 2.7 TPY of VOC, respectively, with no add-on or inherent NO_x or VOC controls as established in 25 Pa. Code § 129.97(c)(1) and (2) remains RACT for these sources for the 2015 8-hour ozone NAAQS.

Therefore, the Department has established in this final-form rulemaking that the owners and operators of subject units in the source categories below shall continue to comply with the presumptive RACT requirements established in 25 Pa. Code § 129.97(c)(1) and (2) of installation, maintenance, and operation of the source in accordance with the manufacturer's specifications and with good operating practices, as listed below. [25 Pa. Code § 129.112(c)(1)—(11)].

- A NO_x air contamination source that has the potential to emit less than 5 TPY of NO_x
- A VOC air contamination source that has the potential to emit less than 2.7 TPY of VOC
- A natural gas compression and transmission facility fugitive VOC air contamination source that has the potential to emit less than 2.7 TPY of VOC
- A boiler or other combustion source with an individual rated gross heat input less than 20 million Btu/hour

- A combustion turbine with a rated output less than 1,000 bhp
- A lean burn stationary internal combustion engine rated at less than 500 bhp (gross)
- A rich burn stationary internal combustion engine rated at less than 100 bhp (gross)
- An incinerator, thermal oxidizer, catalytic oxidizer or flare used primarily for air pollution control
- A fuel-burning unit with an annual capacity factor of less than 5%
- An emergency standby engine operating less than 500 hours in a 12-month rolling period
- An electric arc furnace

The Department has also established in this final-form rulemaking that the owners and operators of subject units in the source categories below shall comply with the presumptive RACT requirements of installation, maintenance, and operation of the source in accordance with the manufacturer's specifications and with good operating practices for control of the VOC emissions from the combustion unit or combustion source, as listed below. [25 Pa. Code § 129.112(d)].

- combustion unit
- brick kiln
- cement kiln
- lime kiln
- glass melting furnace
- combustion source

(D) Municipal Solid Waste (MSW) Landfills:

The Department has established in this final-form rulemaking that the owner and operator of a MSW landfill constructed, reconstructed or modified on or before July 17, 2014, and have not been modified or reconstructed since July 17, 2014, shall comply with the Federal Plan for Municipal Solid Waste Landfills in 40 CFR Part 62, Subpart OOO. The Federal Plan specifies control of collected MSW landfill emissions through the use of control devices meeting at least one of the following provisions: (1) A non-enclosed flare designed and operated in accordance with the parameters established in § 60.18; or (2) A control system designed and operated to reduce nonmethane organic carbon emissions (NMOC) by 98% by weight; or (3) An enclosed combustor designed and operated to reduce the outlet NMOC concentration to 20 ppm as hexane by volume, dry basis at 3% oxygen, or less. These control requirements are consistent with § 60.752 and § 60.33f. Therefore, the existing requirements continue to represent RACT. [25 Pa. Code § 129.112(e)(1)].

The Department has also established in this final-form rulemaking that the owner and operator of a MSW landfill constructed, reconstructed or modified on or after July 18, 2014, shall comply with the New Source Performance Standards in 40 CFR Part 60, Subpart XXX (relating to standards of performance for municipal solid waste landfills). The control of collected MSW landfill emissions through the use of control devices meeting at least one of the following provisions: (1) An open flare designed and operated in accordance with the parameters established in § 60.18; or (2) A control system designed and operated to reduce NMOC by 98% by weight; or (3) An enclosed combustor designed and operated to reduce the outlet NMOC

concentration to 20 ppm as hexane by volume, dry basis at 3% oxygen, or less. These control requirements are consistent with § 60.762 and are adopted and incorporated by reference in § 122.3. [25 Pa. Code § 129.112(e)(2)].

The EPA issues guidance, in the form of a CTG, in place of regulations where the guidelines will be "substantially as effective as regulations" in reducing VOC emissions from a product or source category in ozone nonattainment areas. On October 27, 2016, the EPA issued the Control Techniques Guidelines for the Oil and Natural Gas Industry (EPA 453/B–16–001) (O&G CTG) which provided information to assist states in determining what constitutes RACT for VOC emissions from select oil and natural gas industry emission sources. See 81 FR 74798 (October 27, 2016). The EPA requires the owner or operator of a subject source to reduce VOC emissions by 95.0% by weight or greater by routing emissions to a control device such as a flare. This final-form rulemaking requires VOC emissions to be routed to a flare or other control device that achieves reductions of VOC emissions of at least 98% by weight, which is greater than the 95.0% by weight control that the EPA identified in the O&G CTG as consistent with section 111 of the CAA.

(E) Municipal Waste Combustors:

The Department studied several references to evaluate various NO_x control technologies and permitted NO_x emissions rates for existing MWCs. The study included various permitted MWCs in other states and also a June 2021 "Municipal Waste Combustor Workgroup Report" prepared by the Ozone Transport Commission (OTC) Stationary and Area Sources (SAS) Committee (OTC SAS Report).

Appendix A of the OTC SAS Report, regarding "OTR Large MWC Actual and Proposed Emissions," lists NO_x emissions limits in parts per million by volume, dry basis (ppmvd) for various large size MWCs operating in various OTR states as follows:

State	Permit NO_x limit range (ppmvd)
CT	120 - 150
MD	140 - 150
MA	146-150
ME	180 - 230
NH	205
NJ	150
NY	150 - 205
PA	135 - 180
VA	110

Several OTR states have proposed or revised NO_x RACT emission rate standards for large MWCs. New Jersey adopted a regulation that established a NO_x RACT emission rate of 150 ppmvd as determined on a calendar day average. Massachusetts and Maryland established a NO_x RACT emissions rate of 150 ppmvd for large MWCs. Connecticut adopted a 150 ppmvd limit for mass burn waterwall combustors on a 24-hour daily average.

The Department evaluated SCR technology for combustors firing municipal waste and found that performance of SCR can be detrimentally affected if the catalyst becomes de-activated due to poisoning or masking. Catalyst poisoning can occur if the catalyst is exposed to sufficient amounts of certain heavy metals that are present in the flue gas as a result of MSW combustion. Catalyst masking can occur when the catalyst surface becomes coated with a foreign material, preventing the flue gas from physically coming into contact with the catalyst. The Department also evaluated whether any existing MWCs in the OTR are equipped with SCR, but could not identify any. Therefore, the Department determined that adding SCR NO_x emissions control technology would likely not be considered RACT because of its technical infeasibility.

Appendices 5 and 6 provide an analysis of cost to control NO_x emissions from MWCs based on the Department's review of cost data for a reference MWC in Olmstead, Minnesota and of emissions monitoring data from calendar years 2018 and 2019 for the 19 MWCs located in this Commonwealth. Ten MWCs in this Commonwealth are equipped with SNCR controls and these ten MWCs are permitted with an allowable NO_x emissions rate between 135—180 ppmvd @ 7% oxygen. Nine MWCs in this Commonwealth are operating without SNCR controls and are permitted with an allowable NO_x emissions rate of 180 ppmvd @ 7% oxygen.

The Department evaluated the cost-effectiveness for operating SNCR controls on uncontrolled MWCs using an estimated throughput of 500 tons per day (tpd) of municipal waste and year 2007 control cost data adjusted to 2020 dollars from the reference MWC located in Olmstead, Minnesota. The Department found that the cost-effectiveness to retrofit uncontrolled MWCs with SNCR controls operating with 40% NO_x emissions reduction efficiency to a limitation of 110 ppmvd @ 7% oxygen is approximately $2,465 per ton of NO_x emissions reduced and, therefore is an economically feasible option for MWCs located in this Commonwealth compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced. See Appendix 5.

The Department analyzed Continuous Emission Monitoring System (CEMS) data from the years 2018 and 2019 for NO_x emissions from the 19 MWCs located in this Commonwealth. The Department determined that MWCs equipped with SNCR controls are capable of achieving an emissions rate limitation of 110 ppmvd NO_x @ 7% oxygen using a daily average. See Appendix 6.

The Department also reviewed the June 2021 OTC SAS Report. The OTC SAS workgroup performed a cost analysis for installation and operation of LNB technology on an MWC controlled with SNCR with a baseline NO_x emissions rate of 180 ppmvd. The OTC SAS workgroup estimated the cost-effectiveness for installation and operation of LNB technology in conjunction with the SNCR at $3,204 per ton of NO_x emissions reduced with a post-control NO_x emissions rate of 110 ppmvd. The OTC SAS workgroup concluded that based on the workgroup's cost analysis for LNB technology and its review of engineering studies of similar MWCs in the OTR, a control level of 110 ppmvd on a 24-hour averaging period is likely achievable for most large MWCs in the OTR. The Department's cost-effectiveness result of approximately $2,465 per ton of NO_x emissions reduced for operating SNCR controls compares favorably with the OTC SAS workgroup's cost-effectiveness result of $3,204 per ton of NO_x emissions reduced for the installation of LNB technology. The Department's analysis of CEMS

data and the OTC SAS workgoup's review of engineering studies both support the conclusion that a control level of 110 ppmvd @ 7% oxygen using a daily average basis is achievable for the large MWCs located in this Commonwealth.

Based on the Department's review of NO_x emissions data from the MWCs located in this Commonwealth, the Department's independent cost-effectiveness analysis, and the information contained in the OTC SAS workgroup's report, the Department has established in this final-form rulemaking that the owner and operator of an MWC subject to § 129.111 shall comply with the presumptive RACT emission limitation of 110 ppmvd NO_x @ 7% oxygen. [25 Pa. Code § 129.112(f)]. The owners and operators of MWCs equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average will be considered valid if it contains at least 18 valid hourly averages reported at any time during the calendar day as required in the Quality Assurance Section of the Department's Continuous Source Monitoring Manual. [25 Pa. Code § 129.115(b)(3)].

(F) Combustion Units or Process Heaters:

Presumptive NO_x RACT requirements for a natural gas-fired, propane-fired or liquid petroleum gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour:

Most natural gas-fired, propane-fired or liquid petroleum gas-fired combustion units or process heaters with a rated heat input equal to or greater than 50 million Btu/hour are equipped with LNB technology. The Department analyzed stack test data for combustion units or process heaters in this size range that demonstrate NO_x emission rates as high as 0.99 lb NO_x/million Btu heat input. The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $8,905—18,334 per ton of NO_x emissions reduced. See Appendix 7. The Department determined the installation and operation of SCR control technology on these combustion units and process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas-fired, propane-fired or liquid petroleum gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour shall continue to comply with the existing presumptive RACT emission limitation of 0.10 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(i)]. The owners and operators of subject combustion units and process heaters equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive NO_x RACT requirements for a distillate oil-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour:

Most oil-fired combustion units or process heaters located in this Commonwealth with a rated heat input equal to or greater than 50 million Btu/hour units are equipped with LNB technology. The Department analyzed stack test data for distillate oil-fired combustion units or process heaters in this size range that demonstrate NO_x emission rates as high as 0.11 lb NO_x/million Btu heat input. This demonstrated emission rate of 0.11 lb NO_x/million Btu heat input is indicative of tight compliance with the RACT II presumptive NO_x limit of 0.12 lb NO_x/million Btu heat input established in 25 Pa. Code § 129.97(g)(1)(ii). The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $6,719—13,899 per ton of NO_x emissions reduced. See Appendix 8. The Department determined the installation and operation of SCR control technology on these distillate oil-fired combustion units and process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a distillate oil-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour shall continue to comply with the existing presumptive RACT emission limitation of 0.12 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(ii)]. The owners and operators of subject distillate oil-fired combustion units and process heaters equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive NO_x RACT requirements for a residual oil-fired or other liquid fuel-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour:

Most residual oil-fired or other liquid fuel-fired combustion units or process heaters located in this Commonwealth with a rated heat input equal to or greater than 50 million Btu/hour are equipped with LNB technology. The Department analyzed stack test data for residual oil-fired or other liquid fuel-fired combustion units or process heaters in this size range that demonstrate NO_x emission rates as high as 0.37 lb NO_x/million Btu heat input. The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $4,400—8,552 per ton of NO_x emissions reduced. See Appendix 9. The Department determined the installation and operation of SCR control technology on these residual oil-fired or other liquid fuel-fired combustion units or process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a residual oil-fired or other liquid fuel-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour shall continue to comply with the existing presumptive RACT emission limitation of 0.20 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(iii)]. The owners and operators of subject residual oil-fired or other liquid

fuel-fired combustion units or process heaters equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive NO_x RACT requirements for a refinery gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour:

Most refinery gas-fired combustion units or process heaters located in this Commonwealth with a rated heat input equal to or greater than 50 million Btu/hour units are equipped with LNB technology. The Department analyzed stack test data for refinery gas-fired combustion units or process heaters in this size range that demonstrate NO_x emission rates as high as 0.27 lb NO_x/million Btu heat input. The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $3,730—7,387 per ton of NO_x emissions reduced. See Appendix 10. The Department determined the installation and operation of SCR control technology on these refinery gas-fired combustion units or process heaters to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced. The benchmark is not a hard bright-line number. In this case, the very low end of the range dips slightly under the benchmark. The Department has used its discretion to determine that the installation and operation of SCR control technology on these subject units is not cost-effective.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a refinery gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour shall continue to comply with the existing presumptive RACT emission limitation of 0.25 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(iv)]. The owners and operators of subject refinery gas-fired combustion units or process heaters equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive NO_x RACT requirements for a coal-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hour and less than 250 million Btu/hour:

The Department has identified only one unit in this category that commenced operation prior to August 3, 2018, and still operating today – a spreader stoker boiler – at a major NO_x emitting facility located in this Commonwealth. The Department analyzed stack test data for this spreader stoker boiler that demonstrates NO_x emission rates as high as 0.36 lb NO_x/million Btu heat input. The Department also analyzed stack test data for boilers that existed prior to April 23, 2016, the date of promulgation for §§ 129.96—129.100 (RACT II). These boilers are no longer operating, but the stack test data for these coal-fired combustion units is included in the evaluation for the RACT limit for the 2015 8-hour ozone NAAQS as it would not be appropriate to set a presumptive limit for the 2015 8-hour ozone NAAQS based on one data point. Most of these

previously operating coal-fired combustion units were equipped with LNB technology because they were not spreader stoker boilers. The stack test data for these coal-fired boilers demonstrate NO_x emission rates as high as 0.51 lb NO_x/million Btu heat input.

The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $4,338—8,247 per ton of NO_x emissions reduced. See Appendix 11. The Department determined the installation and operation of SCR control technology on these coal-fired combustion units to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

The Department also evaluated these same subject boilers for the cost-effectiveness for the installation and operation of SNCR control technology and determined that the cost-effectiveness ranges from $5,409—11,273 per ton of NO_x emissions reduced. See Appendix 12. The Department determined the installation and operation of SNCR control technology on these coal-fired combustion units to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a coal-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hour and less than 250 million Btu/hour shall continue to comply with the existing presumptive RACT NO_x emission limitation of 0.45 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(v)]. The owners and operators of subject coal-fired combustion units equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive NO_x RACT requirements for a circulating fluidized bed (CFB) combustion unit firing primarily Bituminous waste (gob) coal or firing primarily Anthracite waste (culm) coal with a rated heat input equal to or greater than 250 million Btu/hour:

The Department analyzed CEMS NO_x emissions data for 3 years (2018—2020) for all CFBs located in this Commonwealth firing waste coal using the EPA's Clean Air Markets Division (CAMD) calculator. https://www.epa.gov/airmarkets; https://www.epa.gov/airmarkets/doing-business-camd. See Appendix 13 for the CAMD calculated results for two sizes of boilers. These units were permitted under RACT II with a NO_x emissions limitation of 0.16 lb NO_x/million Btu heat input on a 30-day rolling average. The wide range of NO_x emissions rates demonstrated by CEMS results indicated that NO_x emissions rates from CFBs firing waste coal are independent of the operation of SNCR control technology; rather, the NO_x emission rates are based on the variable characteristics and chemical composition of the waste coal being burned. The Department further evaluated the EPA CAMD data for the 3 years (2018—2020) using a daily average and determined that these units, except Scrubgrass Unit 2, near Kennerdell PA, are capable of meeting the NO_x emissions rate of 0.16 lb NO_x/million Btu heat input on a daily average basis.

The Department evaluated waste coal-fired CFB units with a baseline emission rate of 0.16 lb NO_x/million Btu heat input and determined that the cost-effectiveness for the installation and operation of SNCR control technology ranges from $4,747—6,207 per ton of NO_x emissions reduced. See Appendix 13. The Department determined the installation and operation of SNCR control technology on these CFBs firing waste coal to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

SCR control technology has been demonstrated to achieve high levels of NO_x emissions reduction on several types of combustion sources, including pulverized coal-fired and stoker-type coal-fired boilers, but has not been demonstrated on CFB boilers firing waste coal. This technology could potentially be transferred to a CFB boiler, but not without significant difficulty. Installation and operation of the SCR control technology upstream of the baghouse is technically infeasible because the particulate matter loading upstream of the baghouse will contain a very high percentage of alkaline particulate matter that would likely preclude effective SCR operation. Installation and operation of SCR control technology downstream of the baghouse is technically infeasible because the exhaust gas temperature at the downstream location is too low to support effective SCR operation. Location of the SCR downstream of the baghouse would require installation and operation of an additional burner, which would reduce the combustion unit's efficiency for generating electricity; the added burner would also emit air pollutants.

The Department evaluated the waste coal-fired CFB units with a baseline emission rate of 0.16 lb NO_x/million Btu heat input and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $5,507—9,060 per ton of NO_x emissions reduced. See Appendix 14. The Department determined the installation and operation of SCR control technology on these CFBs firing waste coal to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced. These cost-effectiveness determinations do not include the costs that would be incurred for installation and operation of a burner to heat the exhaust gas downstream of the baghouse.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a CFB combustion unit firing primarily bituminous waste (gob) coal or firing primarily anthracite waste (culm) coal with a rated heat input equal to or greater than 250 million Btu/hour shall comply with the presumptive RACT emission limitation of 0.16 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(g)(1)(vi)]. The owners and operators of subject CFBs equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

The Department has also established in this final-form rulemaking that the owner or operator of a CFB waste coal-fired combustion unit shall control the NO_x emissions each operating day by operating the installed air pollution control technology and combustion controls at all times consistent with the technological limitations, manufacturer's specifications, good engineering

and maintenance practices and good air pollution control practices for controlling emissions. [25 Pa. Code § 129.112(g)(1)(vi)(C)].

Presumptive NO_x RACT requirements for a solid fuel-fired combustion unit that is not a coal-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hour:

The Department analyzed stack test data for solid fuel-fired combustion units that are not coal-fired combustion units with a rated heat input equal to or greater than 50 million Btu/hour. The stack test data analysis demonstrates that these units are complying with the existing NO_x emissions rate limitation of 0.25 lb NO_x/million Btu heat input established in 25 Pa. Code § 129.97(g)(1)(vii).

The Department evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from $7,562—13,971 per ton of NO_x emissions reduced. See Appendix 15. The Department determined the installation and operation of SCR control technology on these subject solid fuel-fired combustion units to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

The Department also evaluated various sizes of subject boilers and determined that the cost-effectiveness for the installation and operation of SNCR control technology ranges from $7,840—18,200 per ton of NO_x emissions reduced. See Appendix 16. The Department determined the installation and operation of SNCR control technology on these subject solid fuel-fired combustion units to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a solid fuel-fired combustion unit that is not a coal-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hour shall continue to comply with the existing presumptive RACT emission limitation of 0.25 lb NO_x/million Btu heat input established in 25 Pa. Code § 129.97(g)(1)(vii). [25 Pa. Code § 129.112(g)(1)(vii)]. The owners and operators of subject combustion units equipped with CEMS shall comply with the NO_x emissions rate limitation using a daily average. The daily average shall be calculated by summing the total pounds of pollutant emitted for the calendar day and dividing that value by the total heat input to the source for the same calendar day. The daily average for the source shall include all emissions that occur during the entire day. [25 Pa. Code § 129.115(b)(4)].

Presumptive VOC RACT requirements for a combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, brick kiln, cement kiln, lime kiln, glass melting furnace or combustion source:

The typical amount of VOC emissions from a natural gas-fired, distillate oil-fired, residual oil-fired or other liquid fuel-fired, refinery gas-fired, coal-fired or solid fuel-fired combustion unit or process heater that is not a coal-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, or from a brick kiln, cement kiln, lime kiln, glass

melting furnace or combustion source range from 0.002 to 0.05 lb VOC/million Btu heat input, that is, very close to zero VOC emissions. The Department evaluated oxidation catalyst technology for for the control of VOC emissions from these sources using an average uncontrolled VOC emissions rate of 0.01 lb VOC/million Btu heat input with 60% VOC emission control efficiency. The Department determined the cost-effectiveness of oxidation catalyst technology on these sources ranges from approximately $59,992 to approximately $75,875 per ton of VOC emissions reduced due to the low amounts of VOC emissions. See Appendix 17. Therefore, the Department determined that the installation and operation of oxidation catalyst technology on these sources to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

The Department has established in this final-form rulemaking that the owner and operator of a natural gas-fired, distillate oil-fired, residual oil-fired or other liquid fuel-fired, refinery gas-fired, coal-fired or solid fuel-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, or a brick kiln, cement kiln, lime kiln, glass melting furnace or combustion source shall continue to comply with the existing presumptive VOC RACT emission requirements of installation, maintenance and operation in accordance with the manufacturer's specifications and with good operating practices established in 25 Pa. Code § 129.97(d). [25 Pa. Code § 129.112(d)].

(G) Combustion Turbines:

The Department notes that changes to the proposed requirements for combined cycle or combined heat and power combustion turbines and for simple cycle or regenerative cycle combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 180 MW were made in this final-form rulemaking as a result of comments received on the proposed rulemaking. Section 129.112(g)(2) is amended from proposed to this final-form rulemaking to clarify the applicable presumptive RACT emission limitations for combined cycle or combined heat and power combustion turbines and for simple cycle or regenerative cycle combustion turbines.

Proposed § 129.112(g)(2)(i) established the applicable presumptive RACT emission limitations for the owner or operator of a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 brake horsepower (bhp) and less than 180 MW. Final-form § 129.112(g)(2)(i) establishes the applicable presumptive RACT emission limitations for the owner or operator of a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp, rather than the proposed rated output of less than 180 MW. The applicable presumptive RACT emission limitations for subject turbines are established in § 129.112(g)(2)(i)(A)—(D). Clause (A) establishes the limitation of 120 ppmvd NO_x @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (B) establishes the limitation of 5 ppmvd VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (C) establishes the limitation of 150 ppmvd NO_x @ 15% oxygen when firing fuel oil. Clause (D) establishes the limitation 9 ppmvd VOC (as propane) @ 15% oxygen when firing fuel oil.

Final-form § 129.112(g)(2)(ii) establishes the applicable presumptive RACT emission limitations for the owner or operator of a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp, rather than the proposed rated output of equal to and greater than 1,000 bhp, and less than 180 MW. The applicable presumptive RACT emission limitations for subject turbines are established in § 129.112(g)(2)(ii)(A)—(D). Clause (A) establishes the limitation of 42 ppmvd NO_x @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (B) establishes the limitation of 5 ppmvd VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (C) establishes the limitation of 96 ppmvd NO_x @ 15% oxygen when firing fuel oil. Clause (D) establishes the limitation of 9 ppmvd VOC (as propane) @ 15% oxygen when firing fuel oil.

Proposed § 129.112(g)(2)(ii) is renumbered in this final-form rulemaking to § 129.112(g)(2)(iii). Final-form § 129.112(g)(2)(iii) establishes the applicable presumptive RACT emission limitations for the owner or operator of a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW. The applicable presumptive RACT emission limitations for subject turbines are established in § 129.112(g)(2)(iii)(A)—(D). Clause (A) establishes the limitation of 4 ppmvd NO_x @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (B) establishes the limitation of 2 ppmvd VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (C) establishes the limitation of 8 ppmvd NO_x @ 15% oxygen when firing fuel oil. Clause (D) establishes the limitation of 2 ppmvd VOC (as propane) @ 15% oxygen when firing fuel oil.

Proposed § 129.112(g)(2)(iii) is renumbered in this final-form rulemaking to § 129.112(g)(2)(iv). Final-form § 129.112(g)(2)(iv) establishes the applicable presumptive RACT emission limitations for the owner or operator of a simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp, rather than the proposed rated output of less than 3,000 bhp. The applicable presumptive RACT emission limitations for subject turbines are established in § 129.112(g)(2)(iv)(A)—(D). Clause (A) establishes the limitation of 120 ppmvd NO_x @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (B) establishes the limitation of 9 ppmvd VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (C) establishes the limitation of 150 ppmvd NO_x @ 15% oxygen when firing fuel oil. Clause (D) establishes the limitation of 9 ppmvd VOC (as propane) @ 15% oxygen when firing fuel oil.

Proposed § 129.112(g)(2)(iv) is renumbered in this final-form rulemaking to § 129.112(g)(2)(v). Final-form § 129.112(g)(2)(v) establishes the applicable presumptive RACT emission limitations for the owner or operator of a simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 4,100 bhp, rather than the proposed rated output of equal to or greater than 3,000 bhp, and less than 60,000 bhp. The applicable presumptive RACT emission limitations for subject turbines are established in § 129.112(g)(2)(v)(A)—(D). Clause (A) establishes the limitation of 42 ppmvd NO_x @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (B) establishes the limitation of 9 ppmvd VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Clause (C) establishes the limitation of 96 ppmvd NO_x @ 15% oxygen when firing fuel oil. Clause (D) establishes the limitation of 9 ppmvd VOC (as propane) @ 15% oxygen when firing fuel oil.

Presumptive NO_x RACT and VOC RACT requirements for a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp:

Most of the natural gas-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp in this Commonwealth are manufactured by Solar Turbines and used for natural gas compression applications. The Department assumed for the proposed rulemaking that natural gas-fired combined cycle combustion or combined heat and power turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp could use DLNC as the NO_x emissions control technology. Through comments received on the proposed rulemaking, the Department learned that Solar Turbines does not offer NO_x control technologies, including DLNC, for subject turbines rated below 4,100 bhp. Based on information provided by Solar Turbines, there are other turbine manufacturers that do offer DLNC technology for their new turbines rated at less than 4,100 bhp but these turbines are limited to electric generating applications. At this time, the Department is not aware of other turbine manufacturer equipment that can be used for a natural gas compression application.

The Department evaluated natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp with an existing RACT II emissions rate limitation of 150 ppmvd NO_x @ 15% oxygen and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from approximately $22,750—27,861 per ton of NO_x removed. See Appendix 18. The Department determined the installation and operation of SCR control technology on these turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

The Department analyzed stack test results for natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp. The Department also analyzed test results for natural gas-fired turbines rated between 1,000 bhp and 4,100 bhp provided by the vendor. Based on the available test results, the Department determined that these turbines can comply with an emissions rate limitation of 120 ppmvd NO_x @ 15% oxygen.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp, shall comply with the presumptive RACT emission limitation of 120 ppmvd NO_x @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(i)(A)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department also analyzed VOC emissions data and determined that existing natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion

turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp are able to meet 5 ppmvd VOC (as propane) or lower @ 15% oxygen.

The Department evaluated natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines between 1,000 and 4,100 bhp with an uncontrolled VOC emissions rate of 5 ppmvd VOC (as propane) @ 15% oxygen for control with oxidation catalyst technology. The Department determined that the cost-effectiveness for the installation and operation of oxidation catalyst technology ranged from approximately $32,052—94,104 per ton of VOC emissions reduced. See Appendix 19. The Department determined the installation and operation of oxidation catalyst technology on these turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall comply with the presumptive RACT emissions rate limitation of 5 ppmvd VOC (as propane) @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(i)(B)].

Presumptive NO_x RACT and VOC RACT requirements for a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp and less than 180 megawatts (MW):

Most of the large combined cycle turbines in this category are equipped with DLNC.

The Department evaluated varying sizes of subject turbines with a rated output equal to or greater than 4,100 bhp and less than 60,000 bhp with an existing RACT II emissions rate limitation of 42 ppmvd NO_x @ 15% oxygen for the installation and operation of SCR control technology. The Department determined that the cost-effectiveness for the installation and operation of SCR control technology on these turbines ranges from approximately $9,304—39,059 per ton of$NO_x$ emissions reduced. See Appendix 20. The Department determined the installation and operation of SCR control technology on these turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

The Department analyzed test results for these subject turbines that demonstrated NO_x emissions rates of 40 ppmvd and lower in compliance with the presumptive RACT emission limitation of 42 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(A).

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp and less than 180 MW shall continue to comply with the existing presumptive RACT emission limitation of 42 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(A). [25 Pa. Code § 129.112(g)(2)(ii)(A)]. The owners and operators of subject turbines equipped with

CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department also analyzed VOC emissions data and determined that existing natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 4,100 bhp are able to meet 5 ppm VOC (as propane) or lower @ 15% oxygen.

The Department evaluated natural gas or noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 4,100 bhp and less than 60,000 bhp for control with oxidation catalyst technology for control of VOC emissions. The Department determined that the cost-effectiveness for the installation and operation of oxidation catalyst technology ranged from approximately $10,778—40,277 per ton of VOC emissions reduced. See Appendix 21. The Department determined the installation and operation of oxidation catalyst technology on these turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp and less than 180 MW shall continue to comply with the existing presumptive RACT emissions rate limitation of 5 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(C). [25 Pa. Code § 129.112(g)(2)(ii)(B)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Presumptive NO_x RACT and VOC RACT requirements for a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW:

The natural gas and noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 180 MW in this Commonwealth are equipped with DLNC and SCR control technology. The Department analyzed NO_x emissions test results for these subject turbines and determined that these turbines are able to comply with a NO_x emissions rate of 4 ppmvd NO_x @ 15% oxygen.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW shall continue to comply with the existing presumptive RACT emissions limitation of 4 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(A). [25 Pa. Code § 129.112(g)(2)(iii)(A)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department analyzed test results for these subject turbines that demonstrated VOC emission rates of 2 ppmvd VOC (as propane) or lower @ 15% oxygen in compliance with the presumptive RACT emission limitation of 2 ppmvd VOC @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(C).

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW shall continue to comply with the existing presumptive RACT emissions limitation of 2 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(C). [25 Pa. Code § 129.112(g)(2)(iii)(B)].

Presumptive NO_x RACT and VOC RACT requirements for a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp:

Based on a review of the Department's records in databases and permits, there are no combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp powered solely by fuel oil in this Commonwealth. There are turbines of this type that use oil as a start-up fuel before switching to natural gas. The existing requirements for these turbines are consistent with the requirements in 40 CFR Part 60, Subpart KKKK, regarding standards of performance for stationary combustion turbines.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall continue to comply with the existing presumptive NO_x RACT emission limitation of 150 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(B) and with the existing presumptive VOC RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(D). [25 Pa. Code § 129.112(g)(2)(i)(C)] and [25 Pa. Code § 129.112(g)(2)(i)(D)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Presumptive NO_x RACT and VOC RACT requirements for a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp and less than 180 MW:

Based on a review of the Department's records in databases and permits, there are no combined cycle or combined heat and power combustion turbines with a rated output equal to or greater than 4,100 bhp and less than 180 MW powered solely by fuel oil in this Commonwealth. There are turbines of this type that use oil as a start-up fuel before switching to natural gas. The existing requirements for these turbines are consistent with the requirements in 40 CFR Part 60, Subpart KKKK.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 4,100 bhp and less than 180 MW shall continue to comply with the existing presumptive RACT emission limitation of 96 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(B) and with the existing presumptive RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(i)(D). [25 Pa. Code § 129.112(g)(2)(ii)(C)] and [25 Pa. Code § 129.112(g)(2)(ii)(D)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Presumptive NO_x RACT and VOC RACT requirements for a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW:

The existing NO_x RACT emissions rate limitation of 8 ppmvd NO_x @ 15% oxygen for these subject turbines established in 25 Pa. Code § 129.97(g)(2)(ii)(B) is consistent with the NO_x emissions rate limitations for fuel oil-fired turbines equipped with SCR control technology.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW shall continue to comply with the existing presumptive RACT emission limitation of 8 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(B). [25 Pa. Code § 129.112(g)(2)(iii)(C)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department analyzed test results for these subject turbines that demonstrated VOC emissions rates of 2 ppmvd VOC (as propane) or lower @ 15% oxygen in compliance with the presumptive RACT emission limitation of 2 ppmvd VOC @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(D).

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW shall continue to comply with the existing presumptive RACT emission limitation of 2 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(D). [25 Pa. Code § 129.112(g)(2)(iii)(D)].

Presumptive NO_x RACT and VOC RACT requirements for a natural gas or a noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp:

Most of the natural gas-fired simple cycle turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp in this Commonwealth are manufactured by Solar Turbines and used for natural gas compression applications. Solar Turbines does not offer NO_x control technologies, including DLNC, for subject turbines rated below 4,100 bhp. Based on information

provided by Solar Turbines, there are other turbine manufacturers that do offer DLNC technology for their new turbines rated at less than 4,100 bhp but these turbines are limited to electric generating applications. At this time, the Department is not aware of other turbine manufacturer equipment that can be used for a natural gas compression application.

The Department evaluated natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp with the existing presumptive RACT emissions rate limitation of 150 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(iii)(A) and determined that the cost-effectiveness for the installation and operation of SCR control technology ranges from approximately $22,750—27,861 per ton of NO_x removed. See Appendix 18. The Department determined the installation and operation of SCR control technology on these turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

The Department analyzed stack test results for natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp. The Department also analyzed test results for natural gas-fired simple cycle turbines with a rated output between 1,000 bhp and 4,100 bhp provided by the vendor. Based on the available test results, the Department determined that these turbines can comply with an emissions rate limitation of 120 ppmvd NO_x @ 15% oxygen.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall comply with the presumptive RACT emission limitation of 120 ppmvd NO_x @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(iv)(A)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department analyzed test results for these subject turbines that demonstrated VOC emission rates of 9 ppmvd VOC (as propane) or lower at 15% oxygen in compliance with the presumptive RACT emission limitation of 9 ppmvd VOC @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(ii)(D).

The Department evaluated natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp with uncontrolled VOC emissions rates of 9 ppmvd (as propane) @ 15% oxygen for control of VOC emissions with oxidation catalyst technology. The cost-effectiveness ranges from approximately $17,807—52,280 per ton of VOC emissions reduced. See Appendix 22. The Department determined the installation and operation of oxidation catalyst technology on these subject turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle

combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall continue to comply with the existing presumptive RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(iii)(C). [25 Pa. Code § 129.112(g)(2)(iv)(B)].

Presumptive NO_x RACT and VOC RACT requirements for a natural gas or a noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp:

All turbines in this category are equipped with DLNC. The Department analyzed NO_x emissions test results for thirteen natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp and found ten of them are able to achieve a NO_x emissions rate of 42 ppmvd @ 15% oxygen. The owners and operators of natural gas or noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to greater than 6,000 bhp are currently required to comply with the presumptive RACT NO_x emissions rate limitation of 42 ppmvd @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(iv)(A).

The Department evaluated turbines in this category with an uncontrolled NO_x emissions rate of 42 ppmvd @ 15% oxygen for the installation and operation of SCR control technology. The Department determined that the cost-effectiveness for the installation and operation of SCR control technology on these turbines ranges from approximately $8,525—26,175 per ton of NO_x emissions reduced. See Appendix 23. The Department determined the installation and operation of SCR control technology on these turbines to be a cost-prohibitive option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced. Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp shall continue to comply with the existing presumptive RACT emission limitation of 42 ppmvd NO_x @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(v)(A)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Most of the subject turbines in this size category meet the VOC emissions rate of 9 ppmvd VOC (as propane) @ 15% oxygen. The Department evaluated these turbines for control of VOC emissions with oxidation catalyst technology. The cost-effectiveness ranges from approximately $9,441—22,027 per ton of VOC emissions reduced. See Appendix 24. The Department determined the installation and operation of oxidation catalyst technology on these subject turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp shall comply with the presumptive RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(v)(B)].

Presumptive NO_x RACT and VOC RACT requirements for a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp:

Based on a review of the Department's records in databases and permits, there are no simple cycle or regenerative cycle combustion turbines with a rated output equal to greater than 1,000 bhp and less than 4,100 bhp powered solely by fuel oil in this Commonwealth. There are turbines of this type that use oil as a start-up fuel before switching to natural gas.

The Department evaluated turbines in this category with a NO_x emissions rate of 150 ppmvd NO_x @ 15% oxygen for the installation and operation of SCR control technology. The Department determined that the cost-effectiveness for the installation and operation of SCR control technology on these turbines ranges from approximately $21,643—26,506 per ton of NO_x emissions reduced. See Appendix 25. The Department determined the installation and operation of SCR control technology on these turbines to be a cost-prohibitive option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall continue to comply with the existing presumptive RACT emission limitation of 150 ppmvd NO_x @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(iii)(B). [25 Pa. Code § 129.112(g)(2)(iv)(C)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

The Department evaluated subject turbines with uncontrolled VOC emissions rates of 9 ppmvd (as propane) @ 15% oxygen for control of VOC emissions with oxidation catalyst technology. The cost-effectiveness ranges from approximately $17,807—52,280 per ton of VOC emissions reduced. See Appendix 22. The Department determined the installation and operation of oxidation catalyst technology on these subject turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 4,100 bhp shall continue to comply with the existing presumptive RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen established in 25 Pa. Code § 129.97(g)(2)(iii)(D). [25 Pa. Code § 129.112(g)(2)(iv)(D)].

Presumptive NO_x RACT and VOC RACT requirements for a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp:

Based on a review of the Department's records in databases and permits, there are no fuel oil-fired simple cycle or regenerative cycle combustion turbines with a rated output equal to greater

than 4,100 bhp and less than 60,000 bhp powered solely by fuel oil in this Commonwealth. There are turbines of this type that use oil as a start-up fuel before switching to natural gas.

The Department evaluated turbines in this category subject to the presumptive RACT NO_x emissions rate of 96 ppmvd NO_x @ 15% oxygen for the installation and operation of SCR control technology. The Department determined that the cost-effectiveness for the installation and operation of SCR control technology on these turbines ranges from approximately $8,518—23,498 per ton of NO_x emissions reduced. See Appendix 26. The Department determined the installation and operation of SCR control technology on these turbines to be a cost-prohibitive option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department is has established in this final-form rulemaking that the owner and operator of a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp shall continue to comply with the existing presumptive RACT emission limitation of 96 ppmvd NO_x @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(v)(C)]. The owners and operators of subject turbines equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Most of the subject turbines in this size category meet the VOC emissions rate of 9 ppmvd VOC (as propane) @ 15% oxygen. The Department evaluated these turbines for control of VOC emissions with oxidation catalyst technology. The cost-effectiveness ranges from approximately $9,441—22,027 per ton of VOC emissions reduced. See Appendix 24. The Department determined the installation and operation of oxidation catalyst technology on these subject turbines to be cost-prohibitive compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a fuel oil-fired simple cycle or regenerative cycle combustion turbine with a rated output equal to greater than 4,100 bhp and less than 60,000 bhp shall comply with the presumptive RACT emission limitation of 9 ppmvd VOC (as propane) @ 15% oxygen. [25 Pa. Code § 129.112(g)(2)(v)(D)].

(H) Stationary Internal Combustion Engines:

Presumptive NO_x RACT requirements for a natural gas or a noncommercial gaseous fuel-fired lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp and less than 3,500 bhp:

Most of these engines are equipped with LEC technology. Test results for natural gas-fired engines above 500 bhp demonstrate NO_x emissions rates of 3.0 gram NO_x/bhp-hr or lower. Engines manufactured on or after July 1, 2007, and subject to 40 CFR Part 60, Subpart JJJJ are required to meet the emission limitation of 2 gram NO_x/bhp-hr and engines manufactured on or after July 1, 2010, are required to meet the emission limitation of 1 gram NO_x/bhp-hr.

The Department evaluated engines with a rating equal to or greater than 500 bhp and less than 3,500 bhp for the installation and operation of SCR control technology. The Department determined that the cost-effectiveness for the installation and operation of SCR control technology on these engines ranges from approximately $3,871—10,449 per ton of NO_x emissions reduced. See Appendix 27. The Department determined the installation and operation of SCR control technology on these engines to be a cost-prohibitive option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department is has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp and less than 3,500 bhp shall comply with the presumptive RACT emission limitation of 3.0 gram NO_x/bhp-hr. [25 Pa. Code § 129.112(g)(3)(i)(A)].

Presumptive NO_x RACT requirements for a natural gas or a noncommercial gaseous fuel-fired lean burn stationary internal combustion engine with a rating equal to or greater than 3,500 bhp:

Most of these engines in this Commonwealth are equipped with LEC technology with a NO_x emissions rate limitation of 3.0 gram NO_x/bhp-hr.

The Department evaluated subject engines with a rating equal to or greater than 3,500 bhp for the installation and operation of SCR control technology with 80% NO_x emissions reduction efficiency. The Department determined that the cost-effectiveness for the installation and operation of this SCR control technology on these engines ranges from approximately $3,326—3,676 per ton of NO_x emissions reduced. See Appendix 28. The Department determined the installation and operation of this SCR control technology on these engines to be an economically feasible option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has determined that the installation and operation of this SCR control technology on these subject engines to be technically and economically feasible and is determined to be RACT for the 2015 8-hour ozone standard. The Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired lean burn stationary internal combustion engine with a rating equal to or greater 3,500 bhp shall comply with the presumptive RACT emission limitation of 0.6 grams NO_x/bhp-hr. [25 Pa. Code § 129.112(g)(3)(ii)(A)].

Presumptive NO_x RACT requirements for a liquid fuel or dual-fuel-fired stationary internal combustion engine with a rating equal to or greater than 500 bhp:

The Department evaluated diesel engines with a rating equal to or greater than 500 bhp and less than 5,000 bhp with an existing RACT II NOx emissions rate limitation of 8 gram NOx/bhp-hr established in 25 Pa. Code § 129.97(g)(3)(ii) for the installation and operation of SCR control technology with 80% NO_x emissions reduction efficiency. The Department determined that the cost-effectiveness for the installation and operation of this SCR control technology on these

engines ranges from approximately $2,543—3,503 per ton of NO_x emissions reduced. See Appendix 29. The Department determined the installation and operation of this SCR control technology on these engines to be an economically feasible option compared to the Department's cost-effectiveness benchmark of $3,750 per ton of NO_x emissions reduced.

Therefore, the Department has determined that the installation and operation of this SCR control technology on these subject engines to be technically and economically feasible and is determined to be RACT for the 2015 8-hour ozone standard. The Department has established in this final-form rulemaking that the owner and operator of a liquid fuel or dual-fuel-fired stationary internal combustion engine with a rating equal to or greater than 500 bhp shall comply with the presumptive RACT emission limitation of 1.6 gram NO_x/bhp-hr. [25 Pa. Code § 129.112(g)(3)(iii)].

Presumptive NO_x RACT requirements for a natural gas or a noncommercial gaseous fuel-fired rich burn stationary internal combustion engine with a rating equal to or greater than 100 bhp:

Uncontrolled NO_x emissions rates from natural gas-fired rich-burn engines in this Commonwealth typically range from 13—16 gram NO_x/bhp-hr. During the development of the RACT II regulation, the Department determined that NSCR with 80% NO_x emissions removal efficiency is technically and economically feasible and established a NO_x emissions rate limitation of 2.0 gram NO_x/bhp-hr for rich-burn engines with ratings equal to or greater than 500 bhp.

Most of the rich-burn engines with ratings greater than 500 bhp in this Commonwealth are retrofitted with NSCR or equivalent technology that reduces NO_x emissions to rates of 2 gram NO_x/bhp-hr or less. The Department evaluated the economic feasibility for the installation and operation of NSCR technology for engines with ratings as low as 100 bhp. NO_x emissions removal efficiency for NSCR technology varies from 80—95% depending on the size of the engines from small to large. The cost analysis was performed with an average 80% NO_x emissions reduction efficiency and 50% VOC emissions reduction efficiency. The Department determined that the cost-effectiveness ranges from approximately $70—616 per ton of NO_x emissions reduced and per ton of VOC emissions reduced. See Appendix 30.

Based on these evaluations, the Department has lowered the applicability to engines as small as 100 bhp. The Department has established in this final-form rulemaking that the owner and operator of a natural gas or a noncommercial gaseous fuel-fired rich burn stationary internal combustion engine with a rating equal to or greater than 100 bhp shall comply with the presumptive RACT NO_x emission rate limitation of 2.0 gram NO_x/bhp-hr and with the presumptive RACT VOC emission rate limitation of 0.5 gram VOC/bhp-hr. [25 Pa. Code § 129.112(g)(3)(iv)(A)] and [25 Pa. Code § 129.112(g)(3)(iv)(B)].

The Department notes that the proposed presumptive RACT NO_x emission rate limitation of 0.6 gram NO_x/bhp-hr was a typographical error which is corrected in this final-form rulemaking to the 2.0 gram NO_x/bhp-hr .

Presumptive VOC RACT requirements for all internal combustion engines:

The Department evaluated the economic feasibility for the installation and operation of oxidation catalyst technology on internal combustion engines with ratings equal to or greater than 500 bhp with an existing VOC emission rate limitation of 1.0 gram VOC/bhp-hr. The Department determined that the cost-effectiveness ranges from approximately $1,976–4,181 per ton of VOC emissions reduced. See Appendix 31. The Department determined the installation and operation of oxidation catalyst technology on the subject engines to be an economically feasible option compared to the Department's cost-effectiveness benchmark of $7,500 per ton of VOC emissions reduced.

The Department also reviewed stack test results for a sample of internal combustion engines and found the VOC emissions rate to be 0.5 gram VOC/bhp-hr or lower.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of subject lean-burn internal combustion engines with ratings equal to or greater than 500 bhp shall comply with the presumptive RACT VOC emission rate limitation of 0.5 gram VOC/bhp-hr, excluding formaldehyde. [25 Pa. Code § 129.112(g)(3)(i)(B)] and [25 Pa. Code § 129.112(g)(3)(ii)(B)].

(I) Portland Cement Kilns:

The EPA has evaluated SCR control technology systems for installation and operation at cement kilns and has found that their use at cement kilns is technically feasible. A review of the summary of comments received regarding the Consent Decree between Lehigh Cement and the EPA dated March 27, 2020, however, demonstrates that the installation and operation of SCR control technology is cost prohibitive for many cement kilns and would increase the cost per ton of clinker to the extent that it may render the cement plant economically non-viable. Therefore, the Department has determined that the installation and operation of SCR control technology for cement kilns in this Commonwealth is an economically infeasible option.

Long wet-process cement kiln:

All long wet-process cement kilns in this Commonwealth are equipped with and operating SNCR control technology. The Department evaluated NO_x emissions reduction test results for a long wet-process cement kiln located at Armstrong Cement.

Based on the review of these test results, the Department has established in this final-form rulemaking that the owner and operator of a long wet-process cement kiln shall continue to comply with the existing presumptive RACT emission limitation of 3.88 pounds of NO_x per ton of clinker produced established in 25 Pa. Code § 129.97(h)(1). [25 Pa. Code § 129.112(h)(1)]. The owners and operators of subject cement kilns equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Long dry-process cement kiln:

All long dry-process cement kilns in this Commonwealth are equipped with and operating SNCR control technology. The Department evaluated NO_x emissions reduction test results for a long dry-process cement kiln located at Evansville Cement.

In response to the Consent Decree between Lehigh Cement Evansville and the EPA, the Department established a limit of 3.0 pounds of NO_x per ton of clinker produced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a long dry-process cement kiln shall comply with the presumptive RACT emission limitation of 3.0 pounds of NO_x per ton of clinker produced. [25 Pa. Code § 129.112(h)(2)]. The owners and operators of subject cement kilns equipped with CEMS shall comply with the NO_x emissions rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Preheater and Precalciner cement kilns:

Precalciner cement kilns in this Commonwealth are equipped with and operating SNCR control technology.

SCR control technology systems applied to cement preheater/precalciner (PH/PC) kilns can be either "low-dust" or "high-dust" systems depending on their location after or before the particulate matter control device. In both types of systems, capital costs include the cost of the SCR catalyst and reactor, the costs to upgrade or replace kiln induced draft fans when the SCR control technology is added to existing PH/PC kilns, and the costs of the reagent delivery system, storage, and instrumentation. Because of the problems of catalyst plugging, the high-dust system requires a catalyst cleaning mechanism such as pressurized air nozzles or sonic horns. The low-dust system avoids costs associated with catalyst cleaning. Operating costs for both types of systems include operating labor and maintenance costs, reagent costs, and the electricity for reagent pumping. High-dust SCR systems incur higher energy costs for catalyst cleaning. Operating costs also include catalyst replacement every few years.

The EPA's "Alternative Control Techniques Document Update - NO_X Emissions from New Cement Kilns" (EPA-453/R-07-006 November 2007) document establishes that the average cost-effectiveness of SCR for PH/PC kilns is approximately $4,200 per ton of NO_x emissions reduced. Therefore, the Department has determined the installation and operation of SCR control technology to be a cost-prohibitive option for PH/PC cement kilns.

In response to the Consent Decree between Lehigh Cement and the EPA, the NO_x emissions rate for the Lehigh Cement kiln at Nazareth is limited to 2.30 pounds of NO_x per ton of clinker produced.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a PH/PC cement kiln shall comply with the presumptive RACT emission limitation of 2.30 pounds of NO_x per ton of clinker produced. [25 Pa. Code § 129.112(h)(3)]. The owners

and operators of subject cement kilns equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

VOC RACT for all cement kilns:

Based on the Department's cost analysis performed for the installation and operation of oxidation catalyst technology for combustion units and combustion sources, add-on controls such as oxidation catalyst technology is cost-prohibitive for combustion units or sources located at cement plants. See Appendix 17. Therefore, the Department established in this final-form rulemaking that the owner and operator of a subject cement kiln shall continue to comply with the existing presumptive VOC RACT requirements of installation, maintenance, and operation of the source in accordance with manufacturer's specifications and with good operating practices established in 25 Pa. Code § 129.97(d). [25 Pa. Code § 129.112(d)].

(J) Glass Melting Furnaces:

There are several glass melting furnaces in this Commonwealth that are major source emitters of NO_x. Most of the glass furnaces in this Commonwealth are equipped with SCR, LNB or Oxy-Firing and Air Staging controls.

Several alternative control technologies are available for glass manufacturing facilities to limit NO_x emissions. These options include combustion modifications (low NO_x burners, oxy-fuel firing, oxygen-enriched air staging), process modifications (fuel switching, batch preheat, electric boost), and post combustion modifications (fuel reburn, SNCR, SCR). Oxy-firing is an effective NO_x emissions reduction technique and is best implemented with a complete furnace rebuild. This strategy not only reduces NO_x emissions by as much as 85%, but reduces energy consumption, increases production rates by 10—15%, and improves glass quality by reducing defects. Oxy-firing is a demonstrated technology and has penetrated all segments of the glass melting industry.

The Department performed cost analyses for the installation and operation of SCR control technology on those glass melting furnaces that are equipped with LNB or Oxy-Firing controls.

Container glass furnaces:

All existing container glass furnaces in this Commonwealth are equipped with Oxy-firing and LNB. The Department performed a cost analysis for the installation and operation of SCR control technology on these subject furnaces. The Department determined that the cost-effectiveness ranges from approximately \$4,356 - \$5,064 per ton of NO_x emissions reduced. See Appendix 32. The Department determined the installation and operation of SCR control technology to be cost-prohibitive for these subject glass furnaces.

Therefore, the Department has established in this final-form rulemakig that the owner and operator of a container glass furnace shall comply with the presumptive RACT emission limitation of 4.0 pounds of NO_x per ton of glass pulled, which is consistent with the recommended emission limit in the OTC's "Identification and Evaluation of Candidate Control

Measures Final Technical Support Document" and 25 Pa. Code § 129.304. [25 Pa. Code § 129.112(i)(1)]. The owners and operators of subject glass furnaces equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Pressed or Blown glass furnaces:

All existing pressed or blown glass furnaces in this Commonwealth are equipped with SCR control technology.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a pressed or blown glass furnace shall comply with the presumptive RACT emission limitation of 7.0 pounds of NO_x per ton of glass pulled, which is consistent with the recommended emission limit in the OTC's "Identification and Evaluation of Candidate Control Measures Final Technical Support Document" and with 25 Pa. Code § 129.304. [25 Pa. Code § 129.112(i)(2)]. The owners and operators of subject glass furnaces equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Fiberglass furnaces:

No fiberglass furnace subject to RACT has been found in in this Commonwealth. If a fiberglass furnace in this Commonwealth becomes subject to RACT, the Department has established in this final-form rulemaking a NO_x RACT emission rate limitation for fiberglass furnaces of 4.0 pounds of NO_x per ton of glass pulled. [25 Pa. Code § 129.112(i)(3)]. The owners and operators of subject glass furnaces equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

This emission limit is also consistent with the recommended emission limit in the OTC's "Identification and Evaluation of Candidate Control Measures Final Technical Support Document" and 25 Pa. Code § 129.304.

Flat glass furnaces:

Most flat glass furnaces in this Commonwealth are equipped with Oxy-firing and LNB or SCR control technology with a controlled NO_x emission rate limitation of 7 pounds of NO_x per ton of glass pulled. However, one flat glass furnace in this Commonwealth is operating with a NO_x emission rate limitation of 26.75 pounds of NO_x per ton of glass pulled. This glass furnace is not able to meet the presumptive RACT III limit of 7.0 pounds of NO_x per ton of glass pulled. The Department performed a cost analysis for the installation and operation of SCR control technology on flat glass furnaces with an uncontrolled NO_x emissions rate of 26.75 pounds of NO_x per ton of glass pulled. The Department determined the cost-effectiveness to be less than $500 per ton of NO_x emissions reduced. See Appendix 32.

Since most flat glass furnaces are equipped with Oxy-firing and LNB or SCR control technology, the Department has established in this final-form rulemaking that the owner and

operator of a flat glass furnace shall comply with the presumptive RACT emission limitation of 7.0 pounds of NO_x per ton of glass pulled, which is consistent with the recommended emission limit in the OTC's "Identification and Evaluation of Candidate Control Measures Final Technical Support Document" and 25 Pa. Code § 129.304. [25 Pa. Code § 129.112(i)(4)]. The owners and operators of subject glass furnaces equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

All other glass melting furnaces:

All other glass furnaces are equipped with LNB or Air Staging controls. The Department performed an incremental cost analysis for the installation and operation of SCR control technology on these subject glass melting furnaces and found the cost-effectiveness to be higher than $4,000 per ton of NO_x emissions reduced. The Department determined the installation and operation of SCR control technology on these subject glass melting furnaces to be cost-prohibitive. See Appendix 33.

The Department evaluated a test result for NO_x emissions for other glass melting furnaces that demonstrates NO_x emissions rates of 5.7 pounds of NO_x or lower per ton of glass pulled. Therefore, the Department has established in this final-form rulemaking that the owner and operator of any other type of glass melting furnace shall comply with the presumptive RACT emission limitation of 6.0 pounds of NO_x per ton of glass pulled, which is consistent with 25 Pa. Code § 129.304. [25 Pa. Code § 129.112(i)(5)]. The owners and operators of subject glass melting furnaces equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

(K) Lime Kilns:

The Department evaluated SCR control technology for a long rotary kiln. The EPA's (SCR) RACT/BACT/LAER Clearinghouse (RBLC) does not show this technology as being applied to either long rotary or preheater lime kilns. SCR control technology is generally not considered to be a technically feasible option for long rotary lime kilns because of particulate fouling, especially with calcium-based particulates. The optimum temperature for the operation of SCR controls is significantly higher than the exhaust gas temperatures from a long rotary kiln (typically less than 500°F) and the fluctuation and variability of the exhaust gas temperature in a long rotary kiln hinders the control efficiency of SCR controls. Therefore, the Department has determined SCR control technology to be a technically infeasible option.

SNCR control technology has not been applied to a long rotary lime kiln where the reagent must be injected into the calcining zone of the kiln. The location of the injection point is critical to the level of NO_x reductions. The optimal location of the injection point in a long rotary kiln is variable and the ability to match the injection location to the NO_x concentration is difficult and inaccurate. Failure to match the required criteria could result in poor effectiveness of the ammonia reagent or by-product generation of NO_x from the ammonia reagent, or both. SNCR control technology has not been installed at a long rotary kiln in this Commonwealth and currently is not a reasonable control alternative. Therefore, the Department has determined the

installation and operation of SNCR control technology on long rotary lime kilns to be a technically infeasible option.

Combustion/burner optimization techniques such as Low Excess Air, Overfire Air, Low NO_X Burner and Flue Gas Recirculation can reduce NO_x emissions by anywhere from 5—60%. The goal of these control techniques is to optimize the efficiency of combustion while minimizing emissions of NO_x. The Department reviewed the operating permit for long rotary lime kiln No. 5 at Carmeuse Lime, Inc. The kiln incorporates combustion controls using multi-channel, multi-fuel feed burners. Carmeuse has an on-going program designed to minimize NO_x emissions through combustion of various fuels. Where applicable, depending on fuel type, product mix, and process conditions, the program incorporates an appropriate combustion/burner optimization technique. During the RACT II evaluation of this kiln, the Department revised the NO_x emission rate limitation from 6 lb to 4.6 lb of NO_x per hour with combustion/burner optimization for Kiln No. 5 at Carmeuse Lime, Inc.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a subject lime kiln shall comply with the presumptive RACT emission limitation of 4.6 lb of NO_x per hour. [25 Pa. Code § 129.112(j)]. The owners and operators of subject lime kilns equipped with CEMS shall comply with the NO_x emission rate limitation using a 30-operating day rolling average. [25 Pa. Code § 129.115(b)(1)].

Direct-fired Heater, Furnace, Oven or other combustion source with a rated heat input equal to or greater than 20 million Btu/hour:

The Department believes that the direct-fired heaters, furnaces, ovens or other combustion sources located in this Commonwealth are generally natural gas-fired with emission characteristics similar to natural gas, propane or LPG-fired combustion units or process heaters.

Therefore, the Department has established in this final-form rulemaking that the owner and operator of a subject direct-fired heater, furnace, oven or other combustion source with a rated heat input equal to or greater than 20 million Btu/hour shall comply with the presumptive RACT emission limitation of 0.10 lb NO_x/million Btu heat input. [25 Pa. Code § 129.112(k)]. The owners and operators of subject sources equipped with CEMS shall comply with the NO_x emission rate limitation using a daily average. [25 Pa. Code § 129.115(b)(5)].

(L) Electric Arc Furnace:

The Department evaluated several electric arc furnaces (EAFs) as part of case-by-case determinations for RACT II. The Department determined that no NO_x or VOC emission control technology is technically feasible for EAFs. This is because EAFs do not use combustion and are batch processes. Since there is no combustion, methods used to alter NO_x and VOC emissions cannot be employed as they would be for a combustion source. A numerical RACT emission rate limitation for either NO_x or VOC is not appropriate. The Department has determined that the presumptive RACT III requirement of the installation, maintenance and operation of EAFs in accordance with the manufacturer's

specifications and with good operating practices is consistent with previous RACT determinations and is appropriate as discussed below.

NO_x RACT:

An EAF is a furnace that heats charged material by means of an electric arc. In an EAF, the charged material is directly exposed to an electric arc and the current in the furnace terminals passes through the charged material. In an EAF, NO_x is primarily formed as thermal NO_x. Thermal NO_x is formed when oxygen and nitrogen molecules dissociate into individual atoms at temperatures above 2000°F. Individual nitrogen and oxygen atoms combine to make NO_x.

The first step of a RACT analysis is to identify available control technologies. The following control technologies were identified as having the potential to reduce NO_x emissions from EAFs:

- Selective Non-Catalytic Reduction (SNCR)
- Selective Catalytic Reduction (SCR)
- Catalyst Filters
- Good Operating and Management Practices

The second step in a RACT analysis is to eliminate technically infeasible options. The following control technologies were eliminated as technically infeasible:

- Selective Non-Catalytic Reduction (SNCR)
- Selective Catalytic Reduction (SCR)
- Catalyst Filters

SNCR requires a high but very specific temperature range and a minimum residence time at the temperature to be effective. The reaction requires a stable exhaust gas volumetric flow rate, a stable temperature range and a stable NO_x concentration. The stable conditions are not achievable in batch processes. Therefore, SNCR is a technically infeasible control technology for EAFs.

SCR uses a catalyst in the presence of injected ammonia at 500°F to 750°F to reduce NO_x concentrations. The reaction requires a stable temperature range in the gas entering the catalyst. Particulate matter present in the exhaust stream adversely affects the catalyst. If the SCR is placed upstream of a particulate filter, catalyst poisoning, fouling and masking will occur because of the high particulate emissions from the EAF. If the SCR is placed after a fabric filter, the gases will be too cold for effective reaction for NO_x control. Heating the gases would result in additional NO_x emissions. Also, use of SCR has not been commercially demonstrated on EAF steel making operations. Therefore, SCR is a technically infeasible control technology.

Catalyst filters with embedded SCR catalyst material are used in specially designed baghouses and have not been demonstrated on steel making process operations. These

systems are not listed in the RBLC for EAF sources. Therefore, catalyst filters are a technically infeasible control technology.

Other typical common technologies used for the control of NO_x emissions from fuel-fired combustion sources such as low-NO_x burners & ultra-low-NO_x burners (LNB, ULNB), flue gas recirculation (FGR), overfire air, and oxy-fuel combustion reduce NO_x generated during the combustion of fuel. These types of controls are not feasible for application on an EAF because EAFs do not use a fuel source. Therefore, these common technologies used for fuel-fired combustion sources are not technically feasible for use with EAFs.

There are no known technically feasible or commercially demonstrated add-on control technologies for production-related NO_x emissions from EAF ventilation systems. Most NO_x reduction technologies used for combustion processes are effective only at relatively stable gas flow rates, NO_x concentrations and temperatures. Since EAFs are cyclical batch processes, no active control technology for NO_x emissions are technically feasible. The only technically feasible method to control NO_x from EAFs is continued use of good operating and management practices.

VOC RACT:

VOC emissions from EAFs originate from contamination of scrap material used to make specialty stainless steel. Residual oil, plastic and other organic material in the scrap contributes to VOC formation during the initial period of scrap heating in the furnace. At an operating temperature greater than 2000°F, an EAF performs as an efficient organic materials oxidizer. There is no information to indicate that any EAF in the United States has active VOC emission controls or that suitable controls are available. However, listed below are various technologies that have been identified for the control of VOC emissions:

- Catalytic Incineration/Oxidation
- Thermal Incineration/Oxidation
- Carbon Adsorption
- Absorption (Scrubbing)
- Refrigerated Condensers
- Flares
- Good Operating and Management Practices

None of the technologies listed above have been commercially demonstrated on EAFs, but rather are more likely applicable to traditional VOC gas stream sources. Therefore, the control technologies are deemed technically infeasible and have been eliminated as potential RACT technologies. The only technically feasible method to control VOC from EAFs is continued use of good operating and management practices.

Based on the above, the Department determined that no add-on or inherent NO_x or VOC controls are technically feasible for use with EAFs.

Therefore, the Department has established in this final-form rulemaking that the owners and

operators of subject EAFs shall continue to comply with the presumptive RACT requirements of installation, maintenance, and operation of the source in accordance with manufacturer's specifications and with good operating practices. [25 Pa. Code § 129.112(c)(11)].

(M) Alternative RACT proposals and petitions for alternative compliance schedules:

Owners and operators of sources that cannot meet presumptive RACT requirements or emission limitations established in this final-form rulemaking for certain source categories may elect to meet the applicable NO_x RACT emission limitation by averaging NO_x emissions on either a facility-wide or system-wide basis. [25 Pa. Code § 129.113(a)].

Owners and operators of sources that cannot meet presumptive RACT requirements or presumptive NO_x or VOC emission rate limitations by averaging NO_x emissions on either a facility-wide or system-wide basis will be required to evaluate RACT requirements on a case-by-case basis for NO_x emissions or VOC emisisons, or both. [25 Pa. Code § 129.114(a), (b) and (c)].

Owners and operators of sources that are subject to the RACT III regulatory requirements but do not have presumptive RACT requirements or RACT emission rate limitations for the sources shall evaluate RACT requirements or RACT emission rate limitations on a case-by-case for NO_x emissions and VOC emissions as applicable.

Case-by-case RACT proposals must be submitted to the appropriate regional office by December 31, 2022. [25 Pa. Code § 129.114(d)(1)].

The owner or operator shall complete the implementation of the case-by-case RACT within 1 year after the effective date of adoption of the rulemaking. [25 Pa. Code § 129.114(d)(4)].

If an owner or operator is going to install a control device as part of a case-by-case RACT determination, the owner or operator may petition the Department for an alternate compliance schedule. [25 Pa. Code § 129.114(l)].

The case-by-case RACT proposal shall be submitted in accordance with the procedures specified in 25 Pa. Code § 129.114(d).

The proposal must also include testing, monitoring, recordkeeping, and reporting requirements to show compliance with the proposed case-by-case RACT.

(N) Compliance Demonstration:

An owner or operator must demonstrate compliance with the RACT III regulation by January 1, 2023. An owner or operator subject to RACT III may have the following compliance options:

1) Compliance with presumptive RACT requirements or RACT emission limitations, or both.
2) Facility-wide or system-wide averaging.

3) Case-by-case RACT determinations.

The owner or operator of a source with CEMS shall demonstrate compliance with the applicable presumptive RACT emission limitations using a 30-operating day rolling average basis except for MWCs subject to § 129.112(f), combustion units or process heaters subject to § 129.112(g)(1) and direct-fired heaters, furnaces, ovens or other combustion sources subject to § 129.112(k). [25 Pa. Code § 129.115(b)(1)].

The clinker production rate for Portland cement kilns is calculated in accordance with 40 CFR 63.1350(d). [25 Pa. Code § 129.115(b)(2)].

For an MWC with a CEMS, monitoring and testing in accordance with the requirements in Chapter 139, Subchapter C, using a daily average. [25 Pa. Code § 129.115(b)(3)].

For a direct-fired heater, furnace, oven or other combustion source subject to § 129.112(k) with a CEMS, monitoring and testing in accordance with the requirements in Chapter 139, Subchapter C, using a daily average. [25 Pa. Code § 129.115(b)(5)].

For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures). The source test shall be conducted to demonstrate initial compliance and subsequently on a schedule set forth in the applicable permit. [25 Pa. Code § 129.115(b)(6)].

(O) Recordkeeping and Reporting:

The owner or operator of a source shall comply with all applicable recordkeeping and reporting requirements established in 25 Pa. Code § 129.115. This includes compliance with the monitoring, recordkeeping and reporting requirements in the applicable regulations under 25 Pa. Code, Part I, Subpart C, Article III (relating to air resources) and the requirements established in the applicable plan approvals or operating permits, or both, for the subject facilities or sources.

Exhibit 6

Municipal Waste Combustor Workgroup Report

Prepared by the Ozone Transport Commission Stationary and Area Sources Committee

Revised April 2022



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Acronyms

ASNCR	Advanced selective non-catalytic reduction
BACT	Best available control technology
CEM	Continuous emission monitor
CFD	Computational fluid dynamics
CFR	Code of federal regulations
EGU	Electric generating units
EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency
FGR	Flue gas recirculation
LN™	Low NOx technology
MMbtu	Million British thermal units
MWC	Municipal waste combustors
NOx	Nitrogen oxides
NSR	Normalized stoichiometric ratio
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
PM	Particulate matter
ppm	Parts per million
ppmvd	Parts per million dry volume
PTE	Potential to emit
RACT	Reasonably available control technology
RDF	Refuse derived fuel
SAS	Stationary and Area Sources Committee
SCR	Selective catalytic reduction
SNCR	Selective non-catalytic reduction
SOx	Sulfur oxides
VLN™	Very low NOx technology

Introduction

This report summarizes results from a municipal waste combustor (MWC) pilot project conducted by the Ozone Transport Commission (OTC) Stationary and Area Sources (SAS) Committee. The report provides an estimate of oxides of nitrogen (NOx) emissions from Ozone Transport Region (OTR) MWCs, identifies opportunities for additional NOx reductions from the units, and provides example costs for installing additional NOx controls on OTR MWCs. The report has five sections, including background information, an overview of methods used in the pilot study, findings, policy implications, and conclusions. There are seven appendices to the report, three of which detail emissions and operating characteristics of the approximately 100 MWCs in the OTR, one that provides information on MWCs outside of the OTR, two that provide calculations for converting NOx concentrations to mass emissions and costs for urea use, and one which describes MWC emission reduction technologies.

Background

During the development of the 2020 Stationary and Area Sources Committee Charge, SAS Committee members identified a number of sectors, including MWCs, small electric generating units, and others, as significant sources of NOx emissions in the OTR. In the 2020 Charge, the SAS Committee prioritized MWCs for a pilot project as the first sector for evaluation. The pilot was intended to provide a template for evaluation of other sectors in the region. The SAS Committee formed an MWC workgroup to conduct an evaluation of MWCs in the region and the results of that effort are described in this report.

Waste incinerators are a common means of handling municipal trash and they provide a valuable solid waste disposal service to the communities they serve. However, their operation produces a variety of harmful pollutants, such as particles, nitrogen oxides, dioxin, lead, mercury, and greenhouse gases. The emissions released by the burning of trash contribute to ozone and adverse health impacts, especially for nearby communities that are often overburdened with environmental justice issues. Emissions from MWCs also affect the environment in areas downwind from the facilities. Many of these facilities operate with technology that is 30 to 40 years old. Urban areas are working to transition towards cleaner alternatives of waste management, such as anaerobic digestion or composting and recycling. In the interim, additional air pollution control technologies are available to bridge the gap and lessen the public health impacts from MWCs. Ensuring the use of modern pollution controls on MWCs will improve public health and assist states in achieving clean air goals.

In 2018, MWCs emitted approximately 22,000 tons of NOx in the OTR. Nine states in the OTR have MWCs and have established Reasonably Available Control Technology (RACT) regulatory or permit limits for the MWC NOx emissions. These states are Connecticut, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, and Virginia. Some OTC states have initiated a process to update NOx RACT for MWCs and this potentially provides an opportunity to strengthen emissions limits.

NOx reduction technologies applicable to MWCs have evolved over time, providing a greater selection of NOx reduction controls and strategies to cost effectively reduce NOx emission rates in retrofit situations. This SAS MWC workgroup effort included the evaluation of available information to help identify technically feasible and cost effective NOx controls for MWCs. This RACT type evaluation of available NOx controls is intended to identify numerical presumptive NOx RACT emission rate limits that could be widely met across the various sizes and configurations of the MWC category.

While it is believed that the proposed presumptive NOx RACT rate limits are generally attainable for many or most existing MWCs, it is understood that the proposed presumptive NOx RACT rate limits may not be attainable at every subject MWC. It is anticipated that the proposed presumptive NOx RACT rate limits will assist states in their conduct of case-by-case RACT determinations, considering the technological and economic circumstance for individual MWCs in their respective states.

Further, information developed in this work effort is intended to provide input to the OTC Modeling Committee. It is anticipated that the information will be used to help estimate the air quality impact of the existing OTR MWCs and any potential air quality benefit of adopting the presumptive NOx RACT limits.

Method

The pilot study was directed by the members of the SAS MWC workgroup. The sub-sections that follow in this section describe each basic step of the analysis method. In brief, these steps consisted of:

1) Developing a state-by-state OTR MWC unit inventory;
2) Estimating tons of NOx emitted annually from each MWC;
3) Conducting a literature review to identify additional control technologies;
4) Estimating tons per year of NOx that could be reduced with further controls; and
5) Researching and estimating the potential costs of further MWC NOx controls.

Developing a state-by-state MWC Inventory

In this step, MWC workgroup members compiled information in an Excel spreadsheet for each of the MWCs in their states. The information included the MWC unit ID, plant name, location, type of MWC, capacity (in tons of refuse processed per day), permit or RACT limits, existing control technology, and other information. In addition, using the federal definition, the workgroup segmented MWCs into "large" or "small" MWCs. A large unit has the capacity to process greater than 250 tons per day of refuse, and a small unit has the capacity to process 250 tons or less of refuse per day. Small units referred to in this report includes a "very small" category of MWCs defined in 40 CFR Part 60 as units that process less than 35 tons of refuse per day. MWCs were also categorized by technology type based on 40 CFR part 60 classifications.[1] The purpose of categorizing the MWCs was to identify characteristics of the MWCs that would either lend themselves to further emission controls or preclude further emission control. Appendix A provides NOx emissions for large MWCs and an estimate of potential reductions, Appendix B provides characteristics of the large MWCs, and Appendix C details characteristics of small MWCs in the OTR. The workgroup also identified non-OTR MWC electric generating units (EGUs) in the 48 contiguous states. The Results section provides an overview of findings, and Appendix D lists the MWCs outside of the OTR.

[1] *See* The Energy Recovery Council, "2018 Directory of Waste to Energy Facilities" accessed at: http://energyrecoverycouncil.org/wp-content/uploads/2019/10/ERC-2018-directory.pdf.

Developing an Emissions Inventory for the OTR MWCs

To develop inputs for the OTC Modeling Committee to use in air quality modeling, individual MWC permit limit NOx emission concentrations in parts per million (ppmvd) were collected.[2] These permit limits were used to estimate NOx mass emissions rates in pounds per million British thermal units (lb/MMBTU) using the provisions of 40 CFR Part 60 Appendix A Method 19 to convert from ppmvd to pounds per standard cubic foot (lb/scf). The workgroup subsequently used the provided F-factors to convert from lb/scf to lb/MMBtu. Method 19 provides conversion factors using F-factors for determining particulate matter (PM), sulfur dioxide (SO_2), and NOx emission rates in mass per unit calorific value, i.e., lb/ MMBtu.[3] Once inputs to the Method 19 calculation were gathered, the design capacity of the emission unit in MMBtu/hr was multiplied by the estimated lb/MMBtu emission rate to convert to a mass emission rate in pounds per hour (lb/hr).

Because these MWC units run practically all the time except for routine maintenance, the workgroup assumed these units operate continuously and used a consistent estimate of hours of operation per year across all emission units. The assumption of nearly constant operating levels of the MWCs was confirmed by examination of Energy Information Administration (EIA) fuel consumption data indicating nearly constant month-to-month fuel consumption over a year's time. By converting lb/hr to tons per year, the workgroup was able to compare the actual tons of NOx emitted per year relative to the permitted levels by using the same formula but inserting the permitted emission concentration in ppmvd. Appendix E provides a detailed description of the method used.

In addition to estimating tons per year of NOx for air quality modeling, the estimated mass emissions were used by the MWC workgroup to develop an estimate of the potential tons of NOx that could be reduced with the application of additional emissions controls.

Conducting a Literature Review to Identify Additional NOx Control Technologies

The MWC workgroup identified and reviewed a number of guidance documents and engineering analyses that evaluated the technical potential to reduce NOx emission from MWCs. Of particular interest to the workgroup were studies that evaluated NOx reductions from large MWCs with similar configurations to those in the OTR. A pair of studies conducted by Trinity Consultants for two Covanta facilities in Virginia were evaluated.[4] The studies used similar methodologies for both facilities. Another study conducted by Babcock Power Environmental for a Wheelabrator facility in Baltimore, Maryland was reviewed.[5] Like many large MWCs in the region, all three facilities use selective non-catalytic

[2] Throughout this report, the term ppmvd is used in reference to NOx emissions concentrations. As background, ppm can be shown on a mass (ug/g, or ug/cubic meter) or volume (ul/l) basis. The unit "ppmvd" means that the concentration is on a volume basis. The ppmvd designation indicates that the associated values are on a dry basis (e.g., water vapor is not part of the sample), which provides consistency for comparing any two values, by ensuring that the value is corrected on a dry basis which eliminates the variability introduced by moisture content in the sample gas. This process is similar to correcting a measured value for O_2 content of the sample gas, such as x ppmvd @12% O_2.

[3] EPA, "Method 19 - Sulfur Dioxide Removal and Particulate, Sulfur Dioxide and Nitrogen Oxides from Electric Utility Steam Generators," see: Method 19 - Sulfur Dioxide Removal and Particulate, Sulfur Dioxide and Nitrogen Oxides from Electric Utility Steam Generators | Air Emission Measurement Center (EMC) | US EPA.

[4] Trinity Consultants, "Project Report Covanta Alexandria/Arlington, Inc., Reasonably Available Control Technology Determination for NOx," September 2017, and "Project Report Covanta Fairfax, Inc., Reasonably Available Control Technology Determination for NOx," September 2017.

[5] Babcock Power Environmental, "Waste to Energy NOx Feasibility Study," Prepared for: Wheelabrator Technologies Baltimore Waste to Energy Facility Baltimore, MD, February 20, 2020.

reduction (SNCR) as their baseline NOx control technology. A brief summary of these studies is provided below and more detail on the studies can be found in the Results section.

Trinity Consultants Studies

The Trinity Consultants studies evaluated two Covanta facilities, one in Alexandria/Arlington, VA and the other in Fairfax, VA, which are subject to RACT requirements for the 2008 ozone standard. Four technologies were evaluated for these MWCs: 1) optimized SNCR; 2) a proprietary low NOx combustion system (LN™) developed by Covanta for certain MWC configurations owned by Covanta; 3) selective catalytic reduction (SCR); and 4) Very Low NOx (VLN)/SNCR combination.

Babcock Power Environmental

The Babcock Power Environmental Study was conducted for a Wheelabrator facility in Baltimore, Maryland. The purpose of this study was to provide a feasibility analysis for additional control of NOx emissions from the waste-to-energy facility. As with the Covanta facilities evaluated in the Trinity Consultants' studies, the Baltimore MWCs were equipped with SNCR systems. The study analyzed seven technologies: 1) advanced SNCR (ASNCR), 2) flue gas recirculation SNCR (FGR-SNCR), 3) FGR-ASNCR, 4) hybrid SNCR-SCR, 5) DeNOx catalytic filter bags, 6) optimized SNCR, and 7) tail end SCR systems. A technology vendor (Fuel Tech, Inc.) was hired to provide a more comprehensive analysis of SNCR and ASNCR system capabilities to augment Babcock Power Environmental's analysis.

Findings from the Trinity and Babcock Power studies are excerpted in the Results section of this report.

Other Resources

Additional papers, correspondence, and studies were evaluated for this report. They include:

- A North American Waste to Energy paper which evaluated the feasibility of a 100 ppmvd 24-hour NOx limit[6]
- Information from a Montgomery County Resource Recovery NOx optimization study[7]; and
- Recent stack test data from the Covanta Essex facility in New Jersey where LN™ technology was working in conjunction with a conventional SNCR system[8]

Small MWCs

No studies were found regarding the retrofit of NOx controls to small MWCs in the OTR, which are characterized by limited space for NOx reduction technology installation. One study from South Korea was reviewed by the MWC workgroup. The study discusses computational fluid dynamics (CFD) modeling and actual test data for the application of SNCR on a small (50 ton per day) MWC.[9] More information on the configuration of small MWCs and space limitations is provided in the following section.

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[6] White, M.; Goff, S.; Deduck, S.; Gohlke, O., "New Process for Achieving Very Low NOx," Proceedings of the 17th Annual North American Waste-to-Energy Conference, NAWTEC17, May 18-20, 2009.

[7] HDR, "Montgomery County Resource Recovery Facility NOx Optimization," May 18, 2016.

[8] Letter from the State of New Jersey to Michael Klein, dated March 14, 2019, in reference to Covanta Energy Group, Inc. Essex County Resource Recovery Facility – Newark Annual Stack Test Program.

[9] Nguyen, T.D.B., *et al*., "Application of urea-based SNCR to a municipal incinerator: On-site test and CFD simulation," Chemical Engineering Journal 152 (2009) 36-43.

Estimating Tons per Year of NOx that Could Be Reduced with Further Controls

Using the classifications of MWCs in the region (Part 60 classifications) and the results of engineering studies found in the literature, the MWC workgroup estimated the potential for additional NOx reductions at MWCs. As described in the literature review section above, several studies were identified and reviewed. The approach used in this estimation is described below.

Large MWCs:

Most of the existing large MWCs in the OTR are equipped with SNCR, which was the baseline technology in both the Trinity and Babcock studies. Improvements to these units could include enhancing or modifying the existing SNCR system as installed with better monitoring or better spray nozzles. Another approach that was described in a Babcock study involved retrofitting the entire system. Additional approaches were described in detail in the Babcock study.

Using the OTR MWC inventory Excel worksheet, the workgroup applied two control levels to the large MWCs in the region: 130 ppmvd and 105 ppmvd. These two levels were both assumed to be 30-day averages. It is important to note that the Trinity studies used for this analysis assumed 24-hour averaging periods, but not a 30-day averaging period. The Babcock study assumed a 30-day averaging period, though the report also concluded that a 24-hour limit of 110-125 ppmvd could be met as well through the utilization of ASNCR. In addition, one unit in operation in the region at the Covanta Montgomery facility in Maryland which utilizes LN^{TM} has a permit limit of 105 ppmvd for a 30-day rolling average.

The workgroup identified 105 ppmvd NOx on a 30-day averaging period as technically feasible for the large MWC units, based on the engineering analyses reviewed. The workgroup decided to use the same emission limit of 105 ppmvd over a 30-day average for nearly all large MWCs in the region, assuming that the control technologies evaluated in the studies can achieve this limit among nearly all large MWCs. This is the 30-day average value for ASNCR from the Babcock study. Like ASNCR, Covanta's Low NOx Technology is also able to meet a 30-day average of 105 ppmvd (e.g., the Covanta Montgomery facility in Maryland). This provides a consistent 30-day limit that is obtainable for the Covanta and Wheelabrator facilities. To the extent that the estimated emission reduction potential for some units is based on the permit limit values with 24-hour average periods, there is not a 1-to-1 comparison with the recommended limit of 105 ppmvd on a 30-day average unless the averaging time differences are accounted for.

In addition to researching the potential for a 30-day averaging period NOx limit, the workgroup evaluated the potential for a 24-hour averaging period NOx limit. The workgroup researched existing facilities permitted to a 110 ppmvd standard, read literature on technical feasibility and capital costs, and evaluated potential operating and maintenance costs associated with a more stringent 24-hour standard. Note that a 110 ppmvd @ 7% O2, 24-hr standard, if achieved by subject large OTR MWCs, would result in NOx reductions during ozone season days that may have a positive impact on air quality during ozone events. It is estimated that, relative to existing permit limits, compliance with a 110 ppmvd @ 7% O2 24-hr standard, and assuming a daily 90% capacity factor, at subject large OTR MWCs could result in an approximate 19 ton/day reduction in NOx emissions.

For both a 30-day and 24-hour NOx ppmvd averaging period, the workgroup researched and compiled implementation examples of MWCs that have been retrofitted with technologies to achieve the lower NOx limits.

Excluded Large MWCs:

There were existing large MWCs in the region that were also equipped with SNCR but were excluded from the estimation of further NOx reductions. The excluded units are the Wheelabrator Saugus units in Massachusetts. Due to the physical constraints of the two existing MWC units at this facility, the 105 ppmvd 30-day average NOx limit was not assumed to be achieved without major modifications of the existing MWCs. The Saugus MWCs are a vintage European design that incorporates a low profile "tail-end boiler" configuration with a single pass short waterwall furnace. The older tail end design and short furnace limits the ability to install additional cost effective NOx controls.

Small MWCs

Small MWCs located in the OTR tend to utilize rotary combustors or modular combustors of either the starved air or excess air configurations. While some small MWCs of these configurations incorporate some NOx control provision in their original design, little recent information was located discussing the technical or economic feasibility of retrofitting additional or more modern NOx controls on such units. The exception was the study conducted in South Korea (see footnote 9). For the MWC in the South Korean study, a NOx reduction of 70 percent was found to be feasible. This percentage reduction is similar to that found in the literature for large MWCs with the installation of ASNCR. The installation of DeNOx filter bags may be a technically feasible NOx reduction strategy for retrofit of small MWCs. But because the available information appears to indicate the use of the DeNOx filter bags may not be cost effective for larger installations, it was assumed that the economics would be no better for small capacity installations. Due to the limited number of small MWCs in the OTR and the sparsity of public information regarding the technological and economic feasibility of advanced controls, the MWC workgroup was unable to recommend NOx emission rate limitations more stringent than the values already permitted. However, the workgroup recommends that this category of sources not be forgotten as it is possible that additional reductions from this category may be found to be technically and economically feasible in the future as control options are introduced and improved.

The possibility of additional control for these small MWCs, as demonstrated in non-US applications, should be considered in the event additional sources of NOx reductions become necessary. Conducting additional research on small MWCs is a potential area for additional research since further review of the literature may yield more information on the potential to reduce emissions from these units. A list of these units is provided in Appendix C.

Researching the Potential Costs of Further MWC NOx Controls

The MWC workgroup relied on the Trinity and Babcock studies described above for example NOx control technology costs in this pilot study. In addition, the workgroup used costs found in an EPA document:

Chapter 2 - Cost Estimation: Concepts and Methodology[10] to fill in gaps in cost data. Last, the workgroup used information from EPA's NSR Guidance document to estimate urea consumption-related operating costs.[11]

The pair of studies by Trinity Consultants (described in previous sections) for the Covanta MWCs located in Alexandria/Arlington and Fairfax, VA were first evaluated. The Covanta facilities were equipped with SNCR at the time of the RACT analysis and costs were evaluated for adding three additional potential technologies: 1) the proprietary low NOx combustion system (LN™) developed by Covanta for certain MWC configurations utilized in its own facilities; 2) selective catalytic reduction (SCR); and Very Low NOx (VLN)/SNCR combination.

In the analysis for the SCR costs, Covanta solicited bids from engineering, procurement, and construction companies to determine system costs. The SCR system included the SCR reactor; gas-to-gas recuperative heat exchanger; steam coil heater; reagent feed injection and mixing system; and all associated support steel, piping, and controls. The consultants were instructed to design the SCR to receive NOx at 90-180 ppmvd (24-hour average) and control it to 50 ppmvd (24-hour average). Direct and indirect annual operating costs were obtained from a BACT analysis of an MWC in West Palm Beach, Florida.[12]

Capital costs for installation of the LN™ process were estimated by examining each of the boilers at the facility and costs were developed on a per-boiler basis. The installation cost, which includes items such as fans, dampers, ducting, and process controls, was estimated based on actual expenses from another Covanta facility (Montgomery County, MD). The annual costs were scaled linearly from the Montgomery County project costs to the Covanta facilities in Virginia.

Total capital investment costs were provided in both Covanta studies, including direct costs (purchased equipment) and indirect costs (installation costs and lost production due to extended downtime for installation). Direct and indirect costs were also presented for annual operating costs.

The third study was the Babcock Power Environmental analysis conducted for the Wheelabrator facility in Baltimore. Capital and operating costs were evaluated for each technology. At the Baltimore facility, each of the three MWCs is equipped with SNCR. As mentioned above, the study analyzed advanced SNCR (ASNCR), FGR-SNCR that incorporates flue gas recirculation into the SNCR design, FGR-ASNCR, hybrid SNCR-SCR, DeNOx catalytic filter bags, and tail end SCR systems. Because Covanta's Low NOx combustion system is proprietary technology, it was not considered for the Wheelabrator facility in Baltimore. For each of these technologies, Babcock Power Environmental estimated costs for materials, equipment, and installation. A technology vendor (Fuel Tech, Inc.) was hired to provide a more comprehensive analysis of SNCR and Advanced SNCR (ASNCR) system capabilities to augment Babcock's analysis. In this study, annualized capital costs were not provided and so the MWC workgroup estimated

[10] EPA, "Economic and Cost Analysis for Air Pollution Regulations," Chapter 2 - Cost Estimation: Concepts and Methodology, last updated in February 2018.
[11] EPA NSR Guidance Document, 2019, https://www.epa.gov/sites/production/files/2017-12/documents/sncrcostmanualchapter7thedition20162017revisions.pdf.
[12] Florida Department of Environmental Protection "Written Notice of Intent to Issue a Permit," "Public Notice of Intent to Issue Air Permit," "Technical Evaluation and Preliminary Determination," "Draft Permit with Appendices" November 2010.

these costs from a formula in the EPA document: Chapter 2 - Cost Estimation: Concepts and Methodology (see footnote 10).

To estimate the costs per ton of NOx reduced assuming a 24-hour NOx limit, the workgroup relied on the Trinity and Babcock Power studies. The workgroup made some adjustments to these costs. First, the workgroup estimated tons of NOx reduced each year using the 110 ppmvd limit. Operating cost adjustments were made to account for the fact that the Trinity study evaluated a 90 ppmvd annual NOx limit and the workgroup was estimating costs for a 110 ppmvd 24-hour limit. To adjust operating costs, the workgroup estimated the difference in cost for urea between the 90 ppmvd NOx annual limit and a 110 ppmvd 24-hour averaging period. The cost for urea consumption for NOx removal was performed in two ways. First, the cost estimate on a per lb of NOx reduction was developed using information in the Wheelabrator Baltimore study. The differences between the optimized SNCR and advanced SNCR control options were evaluated. The second estimation method was based on simple chemical reaction estimates available in guidance from EPA, and urea cost values from the Wheelabrator Baltimore study. Details of the utilized estimation methodologies are found in Appendix G. Additional information on how costs were developed in the RACT studies that the MWC workgroup relied on is provided in the next section.

The MWC workgroup anticipates the control technologies, associated costs and emissions reduction capability found in the literature would apply to most of the MWCs throughout the OTR. However, additional analyses may be needed to further refine these estimates for specific MWCs.

Findings

In this section, an inventory of MWC units and NOx emissions in tons per year, a summary of technologies to reduce NOx from MWCs, an estimate of the NOx emission reduction potential for OTR MWCs, and estimated costs for installing and operating additional technologies are provided.

OTR MWC Inventory of Units and NOx Emissions

The inventory of MWC units in the OTR is summarized in Table 1. A total of 103 large and small units are operating in the nine OTR states with MWCs. In 2018, large units emitted over 21,000 tons of NOx annually and small units emitted approximately 900 tons of NOx. Missing from this analysis are a few MWCs in the region for which the MWC workgroup could not calculate annual NOx emissions. This is a minor portion of the inventory and could be estimated in a follow-on analysis.

Table 1: Summary of OTR MWCs and NOx Emissions by State

State	Number of Large Units	Number of Small Units	Annual Tons of NOx Emissions - Large Units (2018)	Annual Tons of NOx Emissions - Small Units (2018)
Connecticut	12	0	2,169	0
Maine	4	2	670	278
Maryland	6	0	1,435	0
Massachusetts	11	6	4,754	173
New Hampshire	2	0	344	0
New Jersey	11	0	2,044	0
New York	13	5	3,998	456

Pennsylvania	19	0	3,531	0
Virginia	7	0	2,276	0
Total	**90**	**13**	**21,221**	**906**

As can be seen from Table 1, large MWCs emit most of the NOx pollution from MWCs in the OTR. As mentioned above, information was found in the literature on additional NOx control technologies for the types of MWCs in the "large" category. For these reasons, the MWC workgroup focused its attention on technologies to reduce NOx emissions from large MWCs.

Technologies to Reduce NOx from MWCs in the OTR

Information is provided below on the potential to reduce NOx emissions from MWCs in the OTR. First, excerpts from the Trinity Consultants' report describing the technologies and the potential NOx reductions that can be achieved using each of the technologies on Covanta facilities are provided, followed by information from the Babcock Power study on a Wheelabrator facility. Additional information on the technologies is available in Appendix F.

Covanta patented low NOx technology (LN™)

Covanta has developed a proprietary low NOx combustion system that involves staging of combustion air. The system is a trademarked system and Covanta has received a patent for the technology. The Covanta LN™ is not applicable to all MWC configurations, including some that are owned or operated by Covanta, and its overall NOx reduction effectiveness may vary from unit to unit depending upon individual MWC characteristics.

Secondary air (also called overfire air) is injected through nozzles located in the furnace side walls immediately above the grate creating turbulent mixing to complete the combustion process. The Covanta LN™ process modifies the secondary air stream. A new series of air nozzles are installed higher in the furnace (tertiary air) and a portion of the secondary air is diverted to these new nozzles. The distribution of air between the primary, secondary, and tertiary streams is then controlled to yield the optimal gas composition and temperature to minimize NOx formation and control combustion. The tertiary air achieves complete coverage of the furnace cross-section to ensure good mixing with the combustion gases. Note that the total air flow to the MWC is not changed, only the distribution of air is changed. The LN™ combustion system works in concert with an optimized SNCR system to achieve lower NOx emissions. The LN™ process can be retrofitted to an existing unit, and Covanta has installed the LN™ process at approximately 20 units worldwide. The LN™ process can appreciably increase annual maintenance costs due to increased refractory wear and boiler fouling.

The Trinity report found that implementation of LN™ can reasonably achieve an annual NOx emission limit of 90 parts per million volume dry (ppmvd) (7% O_2) and a daily NOx limit of 110 ppmvd (7% O_2). LN™ is used in combination with SNCR and is thus presented considering usage of the combustion technology plus SNCR. (Note also that while the Covanta LN™ technology is highly effective on some MWC configurations, including the facility discussed in the Trinity report, it is not applicable to all MWC configurations operated by Covanta.)

SCR

Trinity Consultants instructed its subcontractors to design a SCR system that included the SCR reactor; gas-to-gas recuperative heat exchanger; steam coil heater; reagent feed injection, and mixing system; and all associated support steel, piping, and controls. The consultants were instructed to design the SCR to receive NOx at 90-180 ppmvd (24-hour average) and control it to 50 ppmvd (24-hour average). The study concluded there are significant space considerations with SCR system installation which can be managed in a cost effective way in a new development, but which make retrofit installation very costly and complex. Specifically, the piping, wiring, supports, and other hardware require substantial space which may not be available in an existing facility.

VLN Technology

The Very Low NOx (VLN) system employs a unique combustion air system design, which in addition to the conventional primary and secondary air systems, features an internal gas recirculation injection system. Recirculation of the flue gas reduces the need for combustion air for complete combustion in the furnace. The combination of the internal gas recirculation and reduced secondary air extends the combustion zone in the furnace, which in turn inhibits the formation of NOx. A NOx limit of 110 ppmvd NOx on a 24-hour average basis and 90 ppmvd on an annual basis was found to be feasible. The study concluded that VLN remains a viable technology for new MWC units but is not technically feasible for an existing unit.

Babcock Power Environmental Study

The Babcock Power Environmental Study was conducted for a Wheelabrator facility in Baltimore, Maryland. The purpose of this study was to provide a feasibility analysis for additional control of NOx emissions from the waste-to-energy facility. The Baltimore MWCs were equipped with an SNCR system. Results from the analysis conducted for the study are provided below for each of the technologies evaluated.

Optimized SNCR

The study analyzed CFD model outputs and found that through adjustments to residence time, NOx emissions levels of 135 ppmvd @7% O_2 on a 24-hour block average and 130 ppmvd @7% O_2 on a 30-day rolling average are achievable.

Advanced-SNCR (ASNCR)

The Babcock Power Environmental study evaluated optimized injector locations. It concluded this option is technically feasible with future CFD and chemical spray modeling where particular attention is paid to injector placement so that there is no risk of chemical impingement on the superheater and boiler surfaces. The study concluded that a reduction of 25 ppmvd @7% O_2 on a 30-day rolling average (i.e., 105 ppmvd) can be realized over the optimized existing SNCR. In discussing the potential retrofit of ASNCR, the report states “based on experience … a 5% improvement in chemical coverage is feasible, leading to a target NOx of 110 ppmvd @7% O_2 on a 24-hour block average and 105 ppmvd @7% O_2 on a 30-day rolling average while the ammonia slip is kept at the 5 ppm range.”

ASNCR NOx control technology may be considered for retrofit on existing MWCs as either a new retrofit technology or a significant upgrade to an existing SNCR. ASNCR is like SNCR in that it utilizes the injection of reagents into the proper temperature zones of the furnace to reduce the flue gas NOx concentration. ASNCR designs may utilize advanced computer modeling techniques to specify SNCR

nozzle locations and elevations so that their operation may be optimized across varying furnace conditions. The primary difference between a well-designed SNCR and ASNCR system is that ASNCR would utilize advanced furnace temperature monitoring instrumentation to provide near real time operating furnace temperature profiles. This information allows the control system to modulate which ASNCR injectors are in operation and to automatically adjust the individual injector flow rate in order to optimize the overall NOx emission rate, including the reduction in magnitude of NOx spikes associated with the combustion of a heterogeneous fuel. This advanced system optimizes the NOx reduction chemical reaction across the furnace to achieve high levels of overall NOx reduction while maintaining low ammonia slip.

ASNCR is an effective NOx reduction technology capably of achieving a 70% reduction. Industry literature discusses that for most large MWC EGUs, uncontrolled NOx emission rates are in the range of 300 ppmvd to 350 ppmvd @7% O_2. Based on these values, it would appear that a general range of NOx emissions utilizing ASNCR would be 90 ppmvd to 105 ppmvd.

The Babcock Power Environmental information suggests that ASNCR may be applicable to many MWCs as a retrofit technology, although furnace configuration or other factors could affect the NOx reduction potential.

FGR-SNCR

With this option, Flue Gas Recirculation is incorporated into the SNCR design. The FGR-SNCR option was evaluated using a boiler heat transfer model. In this option, a portion of the flue gas from combustion is recirculated from the fan inlet duct and re-injected back into the furnace through the over-fire air system. FGR is used to replace a portion of the secondary air flow. This reduces use of ambient air, and therefore provides additional NOx emission reduction by reducing O_2 concentration or excess ambient air and combustion temperature, while still maintaining the secondary air gas flow needed for mixing in the furnace.

FGR-ASNCR

It is also possible to combine the FGR technology with the ASNCR technology. The implementation of ASNCR by adding additional independent zones of injection and an acoustic pyrometer can provide additional NOx reduction while controlling the ammonia slip. The FGR-ASNCR system was evaluated using a boiler heat transfer model. The study concluded that FGR-ASNCR is technically feasible from both an arrangement and performance perspective with future CFD modeling.

Hybrid SNCR-SCR

The Hybrid SNCR-SCR option utilizes two treatment stages: a SNCR treatment stage followed by a SCR treatment stage. In a stand-alone SNCR application, the reducing agent is released at higher temperatures to minimize ammonia slip formation. In hybrid applications, the ammonia slip becomes the reducing agent over the catalyst. The hybrid system was not considered to be technically feasible for the Baltimore facility.

DeNOx Catalytic Filter Bags

DeNOx catalytic filter bags can be utilized with ammonia injection to reduce NOx in a similar fashion to traditional SCR catalyst. These combination bags remove both dust and gaseous compounds simultaneously. The DeNOx catalyst was not considered to be technically feasible at the Baltimore facility due to operating temperature requirements.

Tail end SCR Systems

A tail end system positions the SCR downstream of all other air pollution control equipment installed on a unit. A major benefit of this installation location is that many of the flue gas constituents that would be damaging to the catalyst have been removed prior to the SCR reactor inlet. However, the installation location results in flue gas temperatures below the acceptable range for catalytic reduction, and the flue gas consequently must be reheated via natural gas or oil burners or steam coil heaters. Tail end SCR was not found to be technically feasible for a retrofit application in this study. While it is potentially technically feasible, it would require additional detailed evaluations to be performed to confirm feasibility for retrofits.

Implementation Examples of LN™ and ASNCR

The Covanta LN™ technology was installed at the Montgomery County, Maryland facility in 2009 and has been operational since then. The Montgomery County Resource Recovery Facility in Maryland is currently operating under a NOx RACT requirement which limits NOx emissions to 140 ppmvd @7% O_2 for a 24-hour block average. In 2009 Covanta, under an Agreement with the Northeast Maryland Waste Disposal Authority and the County, completed work on the installation of Covanta's LN™ combustion system upgrade to the SNCR system. Operational data (since the May 1, 2019, NOx RACT effective date) at the facility demonstrate that the units on average are able to achieve a daily average of around 84 ppmvd @7% O_2.

Maryland's NOx RACT also required a NOx 30-day rolling average emission rate of 105 ppmvd @7% O_2 to be met beginning on May 1, 2020. Since that time, the peak 24-hour average recorded has been on the order of 103 ppmvd @7% O_2. The facility is capable, and further demonstrates, meeting a 110 ppmvd 24-hour limit. Information from a Montgomery County Resource Recovery NOx optimization study found that ammonia slip is below 5 ppm for all units with LN™ technology with SNCR and with NOx emissions of 66 ppm and higher.

The Covanta LN™ is being installed at Covanta Alexandria/Arlington, Virginia and Covanta Fairfax, Virginia. For Covanta Alexandria/Arlington, the permit requires the facility to install the low NOx combustion system on the first unit by the end of the 4th quarter of 2019, the second unit by the end of the 4th quarter of 2020, and the third unit by the end of the 4th quarter of 2021.[13] For Covanta Fairfax, the permit requires the facility to install the low NOx combustion system on the first unit by the end of the 2nd quarter of 2019, the second unit by the end of the 4th quarter of 2019, the third unit by the end of the 4th quarter of 2020, and the fourth unit by the end of the 4th quarter of 2021.[14] Thus, both facilities will be completely utilizing the low NOx technology by the start of 2022.

The Virginia Department of Environmental Quality has determined that Covanta's proprietary Low NOx technology is RACT for Covanta MWCs. The Virginia facilities are permitted to emit 110 ppmvd of NOx on a 24-hour average basis @7% O_2, and 90 ppmvd of NOx on an annual average basis @7% O_2.[15] In addition, the limits of 110 ppmvd @7% O_2 on a daily average and 90 ppmvd @7% O_2 on an annual

[13] Permit issued by the Commonwealth of Virginia to operate a municipal solid waste combustor at Alexandria, Virginia, dated February 2019.
[14] Permit issued by the Commonwealth of Virginia to operate a municipal solid waste combustor at Fairfax, Virginia, dated February 2019.
[15] See footnotes 16 and 17 for sources.

average have been adopted into The Commonwealth of Virginia's SIP as RACT for the 2008 ozone NAAQS for both of these facilities.[16]

Table 2 lists details for facilities that have permitted NOx emission rate limits of 110 ppmvd @7% O_2, 24-hour average. Public information indicates all have been retrofit with the proprietary Covanta Low NOx (LN^{TM}) modifications in conjunction with SNCR. The boiler/combustion units are of three different manufacturers and range in rating from 325 tons/hr to 750 tons/hr.

Table 2: List of Facilities with Retrofit NOx Controls Permitted at 110 ppmvd 24-hour Average

Plant Name	State	Combustor Manufacturer	Rating (tons/day)	NOx Control	Permit Short Term NOx Limit*,**	Permit Long Term NOx Limit*,***
Covanta Alexandria/Arlington Energy	VA	Keeler/Dorr-Oliver	325	Covanta LN, SNCR	110	90
Covanta Alexandria/Arlington Energy	VA	Keeler/Dorr-Oliver	325	Covanta LN, SNCR	110	90
Covanta Alexandria/Arlington Energy	VA	Keeler/Dorr-Oliver	325	Covanta LN, SNCR	110	90
Covanta Fairfax Energy	VA	Ogden Martin	750	Covanta LN, SNCR	110	90
Covanta Fairfax Energy	VA	Ogden Martin	750	Covanta LN, SNCR	110	90
Covanta Fairfax Energy	VA	Ogden Martin	750	Covanta LN, SNCR	110	90
Covanta Fairfax Energy	VA	Ogden Martin	750	Covanta LN, SNCR	110	90
Hillsborough County Resource Recovery	FL	Riley w/Martin GMBH Grates	690	Covanta LN, SNCR, FGR	110	90

* ppmvd @7% O_2

** permit short term limit averaging period is 24-hour

*** permit long term limit averaging period is annual

The information in Table 2 indicates that many of the Covanta run facilities, across a wide range of sizes and manufacturers, can be retrofitted with the proprietary Covanta LN^{TM} technology and achieve significant NOx reductions. However, the workgroup understands that the Covanta LN^{TM} technology is not applicable to all MWC configurations operated by Covanta and that not all of the MWCs converted to the Covanta LN^{TM} technology may be able to achieve NOx reduction results similar to the table values. That a number of these units have been retrofitted with the LN^{TM} technology and have been permitted

[16] Submittal to EPA Region III for a SIP revision by the Commonwealth of Virginia entitled, "Statement of Legal and Factual Basis, Covanta Alexandria/Arlington, Permit No. NRO-RACT 71895," February 2019 and "Statement of Legal and Factual Basis, Covanta Fairfax, Permit No. NRO-RACT 71920," February 2019.

at 110 ppmvd @7% O_2 24-hr average supports a proposed 110 ppmvd 24-hr average presumptive NOx rate limit. Furthermore, data on Covanta Fairfax's website (https://www.covanta.com/where-we-are/our-facilities/fairfax) shows the facility is consistently able to achieve a daily average of around 90 ppmvd @7% O_2 for Units 2 and 4.

A number of additional facilities are retrofitted with LN™ but not permitted to 110 ppmvd. These include:

- The Montgomery County facility described previously.
- The Covanta Essex facility in New Jersey has achieved values around 100 ppmvd @7% O_2.[17] This is based on recent stack test data.
- There is limited information available that technology similar to LN™ has been installed on a Covanta operated MWC in the mid-west that is said to be operating at 90 ppmvd @7% O_2 annual average (similar to the annual limits for the units that are now permitted at 110 ppmvd 24-hr). However, the publicly available information indicates that the unit is operating at the low NOx level by contract, not by permit limit.

A North American Waste to Energy paper discussing the retrofit potential of Covanta's proprietary VLN and LN technologies on an existing Covanta operated MWC found that a 100 ppmvd 24-hour limit is feasible. The paper provided an overview of a MWC development and demonstration project and provided NOx and ammonia (NH_3) slip data. The paper discussed the extended operating experience that has been established on the system.

ASNCR technology is being installed at a Baltimore City, MD facility. The schedule for implementing the technology is as follows: permits must be in place by the end of 2021 for the three units, followed by construction in 2022, and the facilities must be on-line in 2023.

Potential NOx Reductions Resulting from Installing Additional Control Technologies

Using the methods described in previous sections, the MWC workgroup estimated that approximately 6,700 tons of NOx could be reduced in the OTR with a 105 ppmvd 30-day average NOx requirement for MWCs. The results are summarized in Table 3. The workgroup also evaluated a 130 ppmvd 30-day average NOx requirement. Not shown in the table, a 130 ppmvd 30-day average limit was estimated to reduce NOx by 3,300 tons per year.

Table 3: Summary of Potential NOx Reductions from MWCs in the OTR

Type of unit	2023 Projected NOx Emissions (tons/yr)	Potential 2023 NOx Reduction (tons/yr) Assuming 105 ppmvd	Percent Reduction from 2023 Projected NOx Emissions
Large MWC	22,992	6,742	29%
Small MWC	1,006	Not estimated	Not estimated
Total	23,998	6,742	28%

[17] Letter from the State of New Jersey to Michael Klein, dated March 14, 2019, in reference to Covanta Energy Group, Inc. Essex County Resource Recovery Facility – Newark Annual Stack Test Program.

An OTR-wide estimate of potential tons of NOx reduced assuming a 24-hour NOx limit of 110 ppmvd was not estimated in this study, however, tons of NOx reduced on an annual basis would be in the range of the reductions shown in column three of Table 3.

Control Costs

As discussed in the Method section, the MWC workgroup researched studies to identify costs associated with the installation and operation of additional NOx control technologies on MWCs in the region. Three studies were found with detailed cost information for MWCs that are similar in configuration to a significant number of large MWCs in the region. The results of cost analyses from these studies are provided in this section.

Results from the Trinity Consultants analysis of installation of a proprietary Covanta Low NOx technology and SCR at Covanta facilities are shown in Table 4. Note that the cost estimate values included in the report, and copied below in Table 4, were based on year 2017 dollars. SCR was estimated to be very costly ($31,000 per ton of NOx reduced), therefore the results for that technology are not presented here. The left column lists types of costs (such as capital or operating costs) and NOx emissions information for the Alexandria/Arlington VA facility. The middle column provides emission information for the baseline technology (SNCR). No costs are provided in this column since SNCR is already in operation at the facility. The right column provides costs associated with installing the Low NOx technology to the MWC and the resulting NOx emissions changes.

Table 4: Cost of Installing Low NOx Technology on an MWC with SNCR (Alexandria/Arlington, VA)

	SNCR (Base)	**Low NOx**
Capital Costs ($)	-	$1,018,705
Annual Operating Costs ($)	-	$213,773
Annualized Capital Costs ($)	-	$116,533
Projected Lifetime (yr)	-	20
Interest Rates (%)	-	7%
Total Yearly Costs ($)	-	$330,306
Base Case NOx (ppmvd)*	180	180
Controlled NOx (ppmvd)	180	90
Estimated NOx Reduction (%)	0	50
NOx Emission (ton/yr)	165	82.5
Emission Reduction (ton/yr)	0	82.5
Cost effectiveness ($/ton)	**$0.00**	**$4,004**

*This is an “equivalent” NOx emissions rate, rather than a permit level.

The analysis shows that equipping the Covanta unit with Low NOx technology resulted in a 50 percent NOx reduction at a cost of approximately $4,000 per ton of NOx reduced.

The row labeled “Base Case NOx (ppmvd)” shows the permit limit before installation of Covanta's Low NOx Technology and the “Controlled NOx (ppmvd)” is the new annual permit limit after installation of the Low NOx technology. The table shows that NOx emissions were reduced from 180 ppmvd to 90 ppmvd with the installation of the Low NOx technology.[18] The row labeled “NOx Emission (ton/yr)”

[18] Unless stated otherwise, all concentrations listed in this report assume 7% O_2.

shows NOx emissions before and after installation of Covanta's Low NOx technology. The NOx emission reduction in tons per year is calculated to be 82.5 tons per year as shown in the next row. The "Cost effectiveness" value assumes that SNCR was already installed at the facility and thus assigns zero additional cost to the facility.

The total capital investment or "Capital Costs" includes direct and indirect costs. Direct costs are purchased equipment costs and indirect costs are costs associated with installation of equipment and lost revenue due to extended downtime for installation.

The study also estimated direct and indirect costs for annualized expenditures. Direct costs in this category include increased capital expenditures due to the Low NOx technology and increased annual expenses from operating the equipment. Indirect operating costs are annualized capital costs such as administrative charges plus capital recovery (loan interest). Note that control costs are facility-specific, so any costs specified here are examples only.

Table 5 shows a similar analysis for the Covanta Fairfax, Virginia facility. Note that the cost estimate values included in the report, and copied below in Table 5, were based on year 2017 dollars. In the Trinity Consultants analysis for the Fairfax facility, capital costs ($1,564,242) were approximately 50 percent higher than for the Alexandria/Arlington facility. Operating costs ($493,322) were 130 percent higher than those for the Alexandria/Arlington facility. The cost effectiveness ($/ton of NOx reduced) for Fairfax was lower than in the Alexandria/Arlington MWC at $2,888 per ton of NOx reduced. This is because the NOx emissions from the Fairfax MWC are considerably higher than in the example shown in Table 4. While both facilities realized a 50 percent reduction in NOx emissions from the installation of Low NOx technology, the MWC in Fairfax had a 230 ton annual NOx reduction while the Alexandria/Arlington facility realized an 83 ton NOx reduction annually for a capital cost that was 50 percent lower.

Table 5: Cost of Installing Low NOx Technology on an MWC with SNCR (Fairfax, VA)

	SNCR (Base)	**Low NOx**
Capital Costs ($)	-	$1,564,242
Annual Operating Costs ($)	-	$493,322
Annualized Capital Costs ($)	-	$178,938
Projected Lifetime (yr)	-	20
Interest Rates (%)	-	7%
Total Yearly Costs ($)	-	$672,260
Base Case NOx (ppmvd)	180	180
Controlled NOx (ppmvd)	180	90*
Estimated NOx Reduction Factor	0	0.5
Estimated NOx Reduction (%)	0	50
NOx Emission (ton/yr)	465.6	465.6
Projected Controlled NOx Emissions (ton/yr)	465.6	232.8
Emission Reduction (ton/yr)	0	232.8
Cost effectiveness ($/ton)	**$0.00**	**$2,888**

*annual average

Cost Estimate for a 24-Hour NOx Limit of 110 ppmvd using LN™

In this section, the workgroup's estimate of capital and operating costs for using LN technology to achieve a 24-hour NOx limit of 110 ppmvd is presented. Tables 6 and 7 show estimates for the cost of installing and operating LN™ at Covanta facilities. In the far-right columns in the tables, labeled "Low NOx Trinity Consultants Study," costs and cost effectiveness numbers are taken from the Trinity Consulting study of the Alexandria/Arlington and Fairfax, VA Covanta facilities. The analysis evaluated an annual limit of 90 ppmvd for the facilities. The third column labeled "Low NOx Workgroup" provides an estimate developed by the MWC workgroup of dollars per ton of NOx reduced assuming a 24-hour limit using the costs from the Trinity study.

Table 6: Cost of Installing Low NOx Technology on an MWC with SNCR (Alexandria/Arlington, VA)

	SNCR (Base)[1]	**Low NOx – Workgroup[2]**	**Low NOx[3]**
Capital Costs ($)[3]	-	$1,018,705	$1,018,705
Cost Reduction for Assuming 110 ppmvd ($)[4]		$32,627	
Annual Operating Costs ($)	-	$181,146	$213,773[3]
Annualized Capital Costs ($)[3]	-	$116,533	$116,533
Projected Lifetime (yr)	-	20	20
Interest Rates (%)	-	7%	7%
Total Yearly Costs ($)	-	$297,679	$330,306
Base Case NOx (ppmvd)[5]	180	180	180
Controlled NOx (ppmvd)[6]	180	110	90
Estimated NOx Reduction Factor	0.0	0.389	0.5
Estimated NOx Reduction (%)	0	38.89	50
NOx Emission (ton/yr)[5]	165	165	165
Projected Controlled NOx Emissions (tons/yr)	165	100.83	82.5
Emission Reduction (ton/yr)	0	64.17	82.5
Cost effectiveness ($/ton)[7]	**$0.00**	**$4,639**	**$4,004**

[1]SNCR was already installed at both facilities; assume $0 additional cost to facilities
[2]The Workgroup's recommendation and cost estimate
[3]Based on Covanta's "Reasonably Available Control Technology Determination for NOx" for Covanta Alexandria/Arlington, VA
[4]Savings based on $0.89 per pound of NOx reduced (from Babcock report for Wheelabrator Baltimore)
[5]NOx emissions before installation of Covanta's Low NOx Technology
[6] New annual permit limit (@7% O_2)
[7] The Commonwealth of VA has determined that Low NOx Technology is RACT for the Alexandria and Arlington facilities

The O&M costs from the Trinity study assume use of reagent and other substances required to meet the 90 ppmvd annual average limit, as well as maintenance costs. Using these costs to calculate cost effectiveness values ($/ton) for an assumed 110 ppmvd NOx 24-hour average limit could result in higher costs than would be incurred in actual use for the 110 ppmvd limit. This is because reagent and other substances required to meet the 90 ppmvd limit may be higher than that of O&M costs to achieve the 110 ppmvd 24-hour limit. Thus, using the method previously described, the workgroup adjusted the O&M costs, and this is reflected in the "Annual Operating Costs" row in Tables 6 and 7.

The workgroup's estimate of a 110 ppmvd 24-hour NOx limit cost effectiveness is $4,639 per ton of NOx reduced. This is approximately $600 per ton higher than the 90 ppmvd annual NOx limit in the Trinity study. The difference in cost effectiveness (in $/ton of NOx removed) is primarily due to a lower estimated number of tons of NOx removed with the recommended NOx emission rate limit while assuming similar capital expenses associated with both rate limits. Note however that the estimated annual O&M expenses would be somewhat lower for the recommended 110 ppmvd limit primarily due to a reduction in reagent consumption.

Table 7 provides a similar calculation using the Fairfax, VA Covanta cost evaluation from the Trinity study.

Table 7: Cost of Installing Low NOx Technology on an MWC with SNCR (Fairfax, VA)

	SNCR (Base)[1]	**Low NOx – Workgroup[2]**	**Low NOx[3]**
Capital Costs ($)[3]	-	$1,564,242	$1,564,242
Cost Reduction for Assuming 110 ppmvd ($)[4]		$92,079	
Annual Operating Costs ($)	-	$401,243	$493,322[3]
Annualized Capital Costs ($)[3]	-	$178,938	$178,938
Projected Lifetime (yr)	-	20	20
Interest Rates (%)	-	7%	7%
Total Yearly Costs ($)	-	$580,181	$672,260
Base Case NOx (ppmvd)[5]	180	180	180
Controlled NOx (ppmvd)[6]	180	110	90
Estimated NOx Reduction Factor	0.0	0.389	0.5
Estimated NOx Reduction (%)	0	38.89	50
NOx Emission (ton/yr)[5]	465.6	465.6	465.6
Projected Controlled NOx Emissions (tons/yr)	465.6	284.53	232.8
Emission Reduction (ton/yr)	0	181.07	232.8
Cost effectiveness ($/ton)[7]	**$0.00**	**$3,204**	**$2,888**

[1] SNCR was already installed at both facilities; assume $0 additional cost to facilities.
[2] The Workgroup's recommendation and cost estimate.
[3] Based on Covanta's "Reasonably Available Control Technology Determination for NOx" for Covanta Alexandria/Arlington, VA.
[4] Savings based on $0.89 per pound of NOx reduced (from Babcock report for Wheelabrator Baltimore).
[5] NOx emissions before installation of Covanta's Low NOx Technology.
[6] New annual permit limit (@7% O_2).
[7] The Commonwealth of VA has determined that Low NOx Technology is RACT for the Alexandria and Arlington facilities.

The cost per ton of NOx reduced in the 110 ppmvd 24-hour limit case (third column) is $3,204. The method used to develop this estimate is the same as used in Table 6 for the Covanta Alexandria/Arlington facility.

As mentioned previously, the Babcock Power Environmental study for Wheelabrator evaluated four technologies: optimized SNCR, ASNCR, FGR-SNCR, and FGR-ASNCR. The baseline technology in this Wheelabrator facility was SNCR. Costs for converting this Wheelabrator facility to the different technology configurations are provided in Table 8.

The capital costs and annual operating costs shown in Table 8 were taken from the Babcock study for the Wheelabrator Baltimore facility. Note that the cost estimate values included in the report, and copied below in Table 8, were based on year 2019 dollars. "Interest Rates" and "Projected Lifetime" are based on Covanta's NOx RACT Analysis in Virginia for Covanta Fairfax and Covanta Alexandria/Arlington. "Current NOx Emissions" are based on 2023 estimates for NOx emissions from Wheelabrator Baltimore.

Table 8: Costs for Converting a Wheelabrator MWC with SNCR to Lower NOx Technology Configurations

	Optimized SNCR	**ASNCR**	**FGR-SNCR**	**FGR-ASNCR**
Capital Costs ($)[1]	$85,200	$8,665,162	$5,829,591	$12,993,524
Annual Operating Costs ($)	$695,000	$995,000	$815,000	$1,035,000
Annualized Capital Costs ($)	$8,042	$817,930	$550,272	$1,226,497
Projected Lifetime (yr)	20	20	20	20
Interest Rates (%)	7%	7%	7%	7%
Total Yearly Costs ($)	$703,042	$1,812,9300	$1,365,272	$2,261,497
Base Case NOx (ppmvd)	150	150	150	150
Controlled NOx (ppmvd)	135	110	120	105
Estimated NOx Reduction Factor	0.100	0.267	0.20	0.30
Estimated NOx Reduction (%)	10.000	26.7	20	30
Current NOx Emission (tons/yr)	1,104	1,104	1,104	1,104
Projected Controlled NOx Emissions (tons/yr)	993.38	809.42	883.01	772.63
Emission Reduction (tons/yr)	110.38	294.34	220.75	331.13
Cost effectiveness ($/ton)	**$6,370**	**$6,159**	**$6,185**	**$6,830**

In Table 8, the "Base Case NOx" 24-hour permit limit is 150 ppmvd and the "Controlled NOx" limits for technologies are based on 24-hour block averages from Babcock Power Environmental study for Wheelabrator Baltimore.

Cost Summary

Costs evaluated for additional NOx controls ranged from $2,888 to $6,159 per ton of NOx reduced, depending on the technology and averaging period considered. While the costs presented in this section may be generally representative of the costs of upgrading other MWCs in the region with additional technology, further analysis would be required to determine an estimate for specific units. Nonetheless, the workgroup believes the costs reported in this section represent a reasonable estimate for further reducing NOx emissions from MWCs in the OTR.

Non-OTR MWCs

Available public data indicate there are 63 MWC EGU units in non-OTR contiguous states. Most of these 63 non-OTR MWCs would be categorized as large MWCs. The majority of these MWC EGUs are located in Florida (33 units), and the state with the next highest number of MWCs is Minnesota (nine units). Of the 63 non-OTR MWC EGUs, 12 are located in states linked to OTR state air quality. Permit NOx emission rate limits for these non-OTR MWCs (including those in linked states) are predominately within the

range of the existing limits for OTR MWCs. While the non-OTR states were not contacted to obtain additional information from regulatory personnel most familiar with the non-OTR MWC, the publicly available information appeared to indicate that the range of configuration and operating characteristics of these non-OTR MWCs were not dissimilar from the range of OTR MWCs. This suggests that these non-OTR MWCs would have emission reduction potentials, on an average MWC unit basis, similar to those estimated for the OTR MWC units. To date, the workgroup has not quantified the emission reduction potential associated with the non-OTR MWCs, but may do so in the future as time and resources allow, as indicated in the section on Additional Research. However, that NOx emission reductions appear to be technically and economically feasible from this class of sources in upwind states should not be forgotten if more detailed analysis of upwind source impact is undertaken. See Additional Research (below) for recommendations on additional actions. OTC estimates the 2018 potential to emit from non-OTR MWCs was 20,506 tons of NOx per year, indicating that non-OTR MWC and OTR MWC NOx emissions each comprise approximately half of total U.S. MWC NOx emissions. See Appendix D for additional detail.

Policy Implications

This pilot study of MWCs in the OTR finds a NOx limit of 105 ppmvd (30-day average) could be achieved with the technologies described in this report in a cost effective manner. In addition, the pilot concludes almost all large MWC facilities can be held to a 110 ppmvd @7% O_2 24-hour NOx limit. The estimated range of cost-effective NOx controls associated with these presumptive limits are in line with a range of values some states have already considered RACT. Thus, states that are updating RACT or NOx permit limits for MWCs in the OTR should consider increasing the stringency of those emissions limits. At the federal level, the workgroup recommends SAS initiate a conversation with EPA on the introduction of similar requirements nationwide.

Additional Research

The Workgroup identified several areas for potential additional research. These are as follows:

- Conduct further research to determine whether any controls can be used on small MWCs. Since the workgroup had limited time to conduct its analysis, the group prioritized large MWCs. Some additional research could yield recommendations for these small units.
- Evaluate how peak day emissions could be reduced with either a 30-day averaging limit or a 24-hour limit.
- Research the potential for additional NOx reductions from non-OTR MWCs.
- Initiate a dialogue with EPA on establishing nationwide MWC standards similar to the ones recommended in this pilot and to the extent possible conduct additional research to support this goal.

Conclusions

MWCs in the OTR are a significant source of NOx emissions: in 2018, MWCs in the region emitted over 22,000 tons of NOx. Significant annual NOx reductions could be achieved from MWCs in the OTR using several different technologies, or combinations of technologies, as described in this report. The MWC workgroup concludes that a NOx control level of 105 ppmvd on a 30-day average basis and a 110 ppmvd on a 24-hour averaging period are likely achievable for most large MWCs in the region and could be viewed as presumptive NOx RACT limits to assist states in the conduct of case-by-case RACT evaluations. This conclusion is based on a review of publicly available information and engineering studies of similar

MWCs in the OTR. Based on a projected 2023 NOx inventory for the large MWCs in the region of approximately 23,000 tons, NOx emissions from MWCs could be reduced by approximately 6,700 tons annually with additional controls achieving a 105 ppmvd level on a 30-day average. Approximately 3,000 tons of NOx could be reduced with a permit limit of 130 ppmvd on a 30-day average. Studies evaluating MWCs similar in design to the large MWCs in the OTR found NOx reductions could be achieved at a cost ranging from approximately $2,900 per ton reduced to approximately $6,200 per ton of NOx reduced. (Note that this range of values is roughly equivalent to a range of $3,350 per ton of NOx reduced to $6,870 per ton of NOx reduced, in 2022 dollars.)

Appendix A: OTR Large MWC Actual and Proposed Emissions

Facility Name	State	Projected 2023 NOx Emissions (tons/yr)	Permit NOx Limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
Covanta Bristol Energy	CT	97	120	130 ppmvd is higher than permit	0	0	-12	97	84
Covanta Bristol Energy	CT	113	150	-13%	-15	-30%	-34	98	79
Covanta Southeastern Connecticut Company	CT	167	150	-13%	-22	-30%	-50	144	117
Covanta Southeastern Connecticut Company	CT	171	150	-13%	-23	-30%	-51	148	120
MIRA	CT	260	146	-11%	-28	-28%	-73	231	187
MIRA	CT	134	146	-11%	-15	-28%	-38	119	96
MIRA	CT	276	146	-11%	-30	-28%	-78	246	199
Wheelabrator Bridgeport	CT	301	150	-13%	-40	-30%	-90	261	211
Wheelabrator Bridgeport	CT	305	150	-13%	-41	-30%	-91	264	213
Wheelabrator Bridgeport	CT	310	150	-13%	-41	-30%	-93	269	217
Wheelabrator Lisbon	CT	117	150	-13%	-16	-30%	-35	101	82
Wheelabrator Lisbon	CT	126	150	-13%	-17	-30%	-38	109	88
Covanta Haverhill	MA	553	150	-13%	-74	-30%	-166	479	387
Covanta Haverhill	MA	586	150	-13%	-78	-30%	-176	508	410
SEMASS Resource Recovery	MA	426	146	-11%	-47	-28%	-120	379	306

Facility Name	State	Projected 2023 NOx Emissions (tons/yr)	Permit NOx Limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
SEMASS Resource Recovery	MA	486	146	-11%	-53	-28%	-136	432	349
SEMASS Resource Recovery	MA	498	146	-11%	-55	-28%	-140	443	358
Wheelabrator Millbury Facility	MA	500	150	-13%	-67	-30%	-150	433	350
Wheelabrator Millbury Facility	MA	472	150	-13%	-63	-30%	-142	409	331
Wheelabrator North Andover	MA	417	150	-13%	-56	-30%	-125	361	292
Wheelabrator North Andover	MA	447	150	-13%	-60	-30%	-134	387	313
Wheelabrator Saugus	MA	405	150	--	--	--	--	405	405
Wheelabrator Saugus	MA	388	150	--	--	--	--	388	388
Montgomery County Resource Recovery	MD	147	140	-7%	-11	-25%	-37	137	110
Montgomery County Resource Recovery	MD	147	140	-7%	-11	-25%	-37	137	110
Montgomery County Resource Recovery	MD	147	140	-7%	-11	-25%	-37	137	110
Wheelabrator Baltimore Refuse	MD	367	150	-13%	-49	-30%	-110	318	257
Wheelabrator Baltimore Refuse	MD	367	150	-13%	-49	-30%	-110	318	257
Wheelabrator Baltimore Refuse	MD	367	150	-13%	-49	-30%	-110	318	257

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
Penobscot Energy Recovery	ME	69.12	230	-43%	-30	-54%	-38	39	32
Penobscot Energy Recovery	ME	103.32	230	-43%	-45	-54%	-56	58	47
Ecomaine	ME	231.9	180	-28%	-64	-42%	-97	167	135
Ecomaine	ME	250.35	180	-28%	-70	-42%	-104	181	146
Wheelabrator Concord Facility	NH	218.09	205	-37%	-80	-49%	-106	138	112
Wheelabrator Concord Facility	NH	205.45	205	-37%	-75	-49%	-100	130	105
Camden Resource Recovery Facility	NJ	84.75	150	-13%	-11	-30%	-25	73	59
Camden Resource Recovery Facility	NJ	110.62	150	-13%	-15	-30%	-33	96	77
Camden Resource Recovery Facility	NJ	112.13	150	-13%	-15	-30%	-34	97	78
Covanta Essex Company	NJ	226.26	150	-13%	-30	-30%	-68	196	158
Covanta Essex Company	NJ	260.01	150	-13%	-35	-30%	-78	225	182
Covanta Essex Company	NJ	300.78	150	-13%	-40	-30%	-90	261	211
Union County Resource Recovery	NJ	204.55	150	-13%	-27	-30%	-61	177	143

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
Union County Resource Recovery	NJ	209.09	150	-13%	-28	-30%	-63	181	146
Union County Resource Recovery	NJ	216.8	150	-13%	-29	-30%	-65	188	152
Wheelabrator Gloucester LP	NJ	137.78	150	-13%	-18	-30%	-41	119	96
Wheelabrator Gloucester LP	NJ	126.77	150	-13%	-17	-30%	-38	110	89
Covanta Babylon Inc	NY	110.79	150	-13%	-15	-30%	-33	96	78
Covanta Babylon Inc	NY	111.78	150	-13%	-15	-30%	-34	97	78
Covanta Hempstead	NY	357.31	150	-13.3%	-48	30%	-107	310	250
Covanta Hempstead	NY	380.28	150	13.3%	-51	30%	-114	330	266
Covanta Hempstead	NY	465.8	150	13.3%	-62	30%	-140	404	326
Covanta Niagara I, LLC	NY	341.73	150	-13%	-46	-30%	-103	296	239
Covanta Niagara I, LLC	NY	378.41	150	-13%	-50	-30%	-114	328	265
Huntington Resource Recovery	NY	443 for all 3 units	150	-13%	-16	-30%	-35	101	82
Huntington Resource Recovery	NY	443 for all 3 units	150	-13%	-15	-30%	-35	101	81
Huntington Resource Recovery	NY	443 for all 3 units	150	-13%	-15	-30%	-34	98	79
Onondaga County Resource Recovery	NY	684.18	150	-13%	-91	-30%	-205	593	479

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
Onondaga County Resource Recovery	NY		150	-13%	0	-30%	0		0
Onondaga County Resource Recovery	NY		150	-13%	0	-30%	0		0
Wheelabrator Hudson Falls	NY	145.81	150	-13%	-19	-30%	-44	126	102
Wheelabrator Hudson Falls	NY	153	150	-13%	-20	-30%	-46	133	107
Wheelabrator Westchester	NY	411.93	150	-13%	-55	-30%	-124	357	288
Wheelabrator Westchester	NY	417.23	150	-13%	-56	-30%	-125	362	292
Wheelabrator Westchester	NY	459.57	150	-13%	-61	-30%	-138	398	322
Covanta Delaware Valley	PA	228.29	180	-28%	-63	-42%	-95	165	133
Covanta Delaware Valley	PA	240.23	180	-28%	-67	-42%	-100	173	140
Covanta Delaware Valley	PA	247.59	180	-28%	-69	-42%	-103	179	144
Covanta Delaware Valley	PA	253.87	180	-28%	-71	-42%	-106	183	148
Covanta Delaware Valley	PA	274.62	180	-28%	-76	-42%	-114	198	160
Covanta Delaware Valley	PA	275.95	180	-28%	-77	-42%	-115	199	161

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
Covanta Plymouth Renewable Energy	PA	440.65	180	-28%	-122	-42%	-184	318	257
Covanta Plymouth Renewable Energy	PA	445.72	180	-28%	-124	-42%	-186	322	260
Harrisburg Facility	PA	83.74	135	-4%	-3	-22%	-19	81	65
Harrisburg Facility	PA	84.22	135	-4%	-3	-22%	-19	81	66
Harrisburg Facility	PA	84.58	135	-4%	-3	-22%	-19	81	66
Lancaster County Resource Recovery	PA	231.02	180	-28%	-64	-42%	-96	167	135
Lancaster County Resource Recovery	PA	232.04	180	-28%	-64	-42%	-97	168	135
Lancaster County Resource Recovery	PA	233.49	180	-28%	-65	-42%	-97	169	136
Wheelabrator Falls	PA	430.12	150	-13%	-57	-30%	-129	373	301
Wheelabrator Falls	PA	451.76	150	-13%	-60	-30%	-136	392	316
York County Resource Recovery	PA	187.75	135	-4%	-7	-22%	-42	181	146
York County Resource Recovery	PA	206.45	135	-4%	-8	-22%	-46	199	161
York County Resource Recovery	PA	207.17	135	-4%	-8	-22%	-46	199	161
Covanta Alexandria/Arlington Energy	VA	75	110	130 ppmvd is higher		-5%	-3	75	72

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
				than permit					
Covanta Alexandria/Arlington Energy	VA	77	110	130 ppmvd is higher than permit		-5%	-4	77	74
Covanta Alexandria/Arlington Energy	VA	75	110	130 ppmvd is higher than permit		-5%	-3	75	72
Covanta Fairfax Energy	VA	250	110	130 ppmvd is higher than permit		-5%	-11	250	239
Covanta Fairfax Energy	VA	250	110	130 ppmvd is higher than permit		-5%	-11	250	239
Covanta Fairfax Energy	VA	250	110	130 ppmvd is higher		-5%	-11	250	239

Facility Name	State	Projected 2023 NOx emissions (ton/yr)	Permit NOx limit (ppmvd)*	130 ppmvd control level estimated NOx reduction (%)	130 ppmvd control level estimated NOx reduction (ton/yr)	105 ppmvd estimated control level NOx reduction (%)	105 ppmvd control level NOx estimated reduction (ton/yr)	2023 projected NOx (ton/yr) at 130 ppmvd	2023 projected NOx (ton/yr) at 105 ppmvd
				than permit					
Covanta Fairfax Energy	VA	250	110	130 ppmvd is higher than permit		-5%	-11	250	239
Total		**22,992**			**(3,293)**		**(6,742)**	**19,699**	**16,250**

* The majority of these limits reflect 7% O_2.

Appendix B: OTR Large MWC Characteristics

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Covanta Bristol Energy	CT	Hartford	Zurn	0.332	Mass burn waterwall	358	SNCR
Covanta Bristol Energy	CT	Hartford	Zurn	0.414	Mass burn waterwall	358	SNCR
Covanta Southeastern Connecticut Company	CT	New London	Deutsche Babcock Anlagen	0.444	Mass burn waterwall	344.5	SNCR
Covanta Southeastern Connecticut Company	CT	New London	Deutsche Babcock Anlagen	0.444	Mass burn waterwall	344.5	SNCR
MIRA	CT	Hartford	CE	0.981	Refuse-derived fuel combustor	675.6 RDF; 236.4 coal	SNCR
MIRA	CT	Hartford	CE	0.981	Refuse-derived fuel combustor	675.6 RDF; 236.4 coal	SNCR
MIRA	CT	Hartford	CE	0.981	Refuse-derived fuel combustor	675.6 RDF; 236.4 coal	SNCR
Wheelabrator Bridgeport	CT	Fairfield	B&W	1.005	Mass burn waterwall	750	SNCR
Wheelabrator Bridgeport	CT	Fairfield	B&W	1.005	Mass burn waterwall	750	SNCR
Wheelabrator Bridgeport	CT	Fairfield	B&W	1.005	Mass burn waterwall	750	SNCR
Wheelabrator Lisbon	CT	New London	B&W	0.377	Mass burn waterwall	281.4	SNCR
Wheelabrator Lisbon	CT	New London	B&W	0.377	Mass burn waterwall	281.4	SNCR

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Covanta Haverhill	MA	Essex	Ogden Martin	1.180	Mass burn waterwall	825	SNCR
Covanta Haverhill	MA	Essex	Ogden Martin	1.180	Mass burn waterwall	825	SNCR
SEMASS Resource Recovery	MA	Plymouth	Riley Stoker	1.190	Refuse-derived fuel combustor	995	
SEMASS Resource Recovery	MA	Plymouth	Riley Stoker	1.190	Refuse-derived fuel combustor	995	
SEMASS Resource Recovery	MA	Plymouth	Riley Stoker	1.129	Refuse-derived fuel combustor	995	SNCR
Wheelabrator Millbury Facility	MA	Worcester	B&W	0.999	Mass burn waterwall	864	SNCR
Wheelabrator Millbury Facility	MA	Worcester	B&W	0.999	Mass burn waterwall	864	SNCR
Wheelabrator North Andover	MA	Essex	Riley Stoker	0.892	Mass burn waterwall	750	SNCR
Wheelabrator North Andover	MA	Essex	Riley Stoker	0.892	Mass burn waterwall	750	SNCR
Wheelabrator Saugus	MA	Essex	Von Roll	1.005	Mass burn waterwall	750	SNCR
Wheelabrator Saugus	MA	Essex	Von Roll	1.005	Mass burn waterwall	750	SNCR
Montgomery County Resource Recovery	MD	Montgomery	Martin	0.794	Mass burn waterwall	600	LoNOx Mod & SNCR
Montgomery County Resource Recovery	MD	Montgomery	Martin	0.794	Mass burn waterwall	600	LoNOx Mod & SNCR
Montgomery County Resource Recovery	MD	Montgomery	Martin	0.794	Mass burn waterwall	600	LoNOx Mod & SNCR
Wheelabrator Baltimore Refuse	MD	Baltimore City	Wheelabrator Frye	1.005	Mass burn waterwall	750	SNCR - Optimized
Wheelabrator Baltimore Refuse	MD	Baltimore City	Wheelabrator Frye	1.005	Mass burn waterwall	750	SNCR - Optimized

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Wheelabrator Baltimore Refuse	MD	Baltimore City	Wheelabrator Frye	1.005	Mass burn waterwall	750	SNCR - Optimized
Penobscot Energy Recovery	ME	Penobscot		0.854	Refuse-derived fuel combustor	360.5	
Penobscot Energy Recovery	ME	Penobscot		0.854	Refuse-derived fuel combustor	360.5	
Comaine	ME	Cumberland	Steinmüller	0.453	Mass burn waterwall	275	SNCR
Regional Waste Systems	ME	Cumberland	Steinmüller	0.453	Mass burn waterwall	275	SNCR
Wheelabrator Concord Facility	NH	Merrimack	B&W	0.456	Mass burn waterwall	287.5	SNCR
Wheelabrator Concord Facility	NH	Merrimack	B&W	0.456	Mass burn waterwall	287.5	SNCR
Camden Resource Recovery Facility	NJ	Camden		0.478	Mass burn waterwall	350	SNCR
Camden Resource Recovery Facility	NJ	Camden		0.478	Mass burn waterwall	350	SNCR
Camden Resource Recovery Facility	NJ	Camden		0.478	Mass burn waterwall	350	SNCR
Covanta Essex Company	NJ	Essex	Foster Wheeler	1.308	Mass burn waterwall	933	SNCR and Low NOx
Covanta Essex Company	NJ	Essex	Foster Wheeler	1.308	Mass burn waterwall	933	SNCR and Low NOx
Covanta Essex Company	NJ	Essex	Foster Wheeler	1.308	Mass burn waterwall	933	SNCR and Low NOx
Union County Resource Recovery	NJ	Union		0.667	Mass burn waterwall	480	SNCR and Low NOx
Union County Resource Recovery	NJ	Union		0.667	Mass burn waterwall	480	SNCR and Low NOx

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Union County Resource Recovery	NJ	Union		0.667	Mass burn waterwall	480	SNCR and Low NOx
Wheelabrator Gloucester LP	NJ	Gloucester		0.334	Mass burn waterwall	287.5	SNCR
Wheelabrator Gloucester LP	NJ	Gloucester		0.334	Mass burn waterwall	287.5	SNCR
Covanta Babylon Inc	NY	Suffolk		0.453	Mass burn waterwall	375	SNCR
Covanta Babylon Inc	NY	Suffolk		0.453	Mass burn waterwall	375	SNCR
Covanta Hempstead	NY	Nassau	Deutsche Babcock Anlagen	1.748	Mass burn waterwall	890	SNCR
Covanta Hempstead	NY	Nassau	Deutsche Babcock Anlagen	1.748	Mass burn waterwall	890	SNCR
Covanta Hempstead	NY	Nassau	Deutsche Babcock Anlagen	1.748	Mass burn waterwall	890	SNCR
Covanta Niagara I, LLC	NY	Niagara	Deutsche Babcock Anlagen	1.683	Mass burn waterwall	1125	SNCR
Covanta Niagara I, LLC	NY	Niagara	Deutsche Babcock Anlagen	1.683	Mass burn waterwall	1125	SNCR
Huntington Resource Recovery	NY	Suffolk			Mass burn waterwall	250	SNCR
Huntington Resource Recovery	NY	Suffolk			Mass burn waterwall	250	SNCR
Huntington Resource Recovery	NY	Suffolk			Mass burn waterwall	250	SNCR

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Onondaga County Resource Recovery	NY	Onondaga		0.680	Mass burn waterwall	330	SNCR
Onondaga County Resource Recovery	NY	Onondaga		0.680	Mass burn waterwall	330	SNCR
Onondaga County Resource Recovery	NY	Onondaga		0.680	Mass burn waterwall	330	SNCR
Wheelabrator Hudson Falls	NY	Washington			Mass burn waterwall	275	
Wheelabrator Hudson Falls	NY	Washington			Mass burn waterwall	275	
Wheelabrator Westchester	NY	Westchester		1.233	Mass burn waterwall	750	SNCR
Wheelabrator Westchester	NY	Westchester		1.233	Mass burn waterwall	750	SNCR
Wheelabrator Westchester	NY	Westchester		1.233	Mass burn waterwall	750	SNCR
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Delaware Valley	PA	Delaware	Westinghouse O-Connor	0.665	Mass burn rotary waterwall	449	
Covanta Plymouth Renewable Energy	PA	Montgomery		0.965	Mass burn waterwall	608	SNCR

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Covanta Plymouth Renewable Energy	PA	Montgomery		0.965	Mass burn waterwall	608	SNCR
Harrisburg Facility	PA	Dauphin		0.322	Mass burn waterwall	266	SNCR
Harrisburg Facility	PA	Dauphin		0.322	Mass burn waterwall	266	SNCR
Harrisburg Facility	PA	Dauphin		0.322	Mass burn waterwall	266	SNCR
Lancaster County Resource Recovery	PA	Lancaster		0.619	Mass burn waterwall	400	SNCR
Lancaster County Resource Recovery	PA	Lancaster		0.619	Mass burn waterwall	400	SNCR
Lancaster County Resource Recovery	PA	Lancaster		0.619	Mass burn waterwall	400	SNCR
Wheelabrator Falls	PA	Bucks		1.005	Mass burn waterwall	800	SNCR
Wheelabrator Falls	PA	Bucks		1.005	Mass burn waterwall	800	SNCR
York County Resource Recovery	PA	York	Deltak Blr w/O'Connor Rot Comb	0.468	Mass burn waterwall	449	
York County Resource Recovery	PA	York	Deltak Blr w/O'Connor Rot Comb	0.468	Mass burn waterwall	449	
York County Resource Recovery	PA	York	Deltak Blr w/O'Connor Rot Comb	0.468	Mass burn waterwall	449	
Covanta Alexandria/Arlington Energy	VA	Alexandria City	Keeler/Dorr-Oliver	0.276	Mass burn waterwall	325	
Covanta Alexandria/Arlington Energy	VA	Alexandria City	Keeler/Dorr-Oliver	0.276	Mass burn waterwall	325	

Plant Name	State	County	Manufacturer	Est Daily PTE (tons)	Amended Unit Type, based on part 60 classifications, ERC directory & permits	Tons MSW/day	Permit NOx Control
Covanta Alexandria/Arlington Energy	VA	Alexandria City	Keeler/Dorr-Oliver	0.276	Mass burn waterwall	325	
Covanta Fairfax Energy	VA	Fairfax	Ogden Martin	0.780	Mass burn waterwall	750	SNCR
Covanta Fairfax Energy	VA	Fairfax	Ogden Martin	0.780	Mass burn waterwall	750	SNCR
Covanta Fairfax Energy	VA	Fairfax	Ogden Martin	0.780		750	SNCR
Covanta Fairfax Energy	VA	Fairfax	Ogden Martin	0.780		750	SNCR

Appendix C: OTR Small MWCs

Plant Name	State	Permit NOx Limit ppmvd (24-hour limit)	Unit Type (Part 60 classifications)	Tons MSW/day	2023 Projected NOx Emissions (ton/yr)
Pioneer Valley Resource Recovery	MA	167	Modular Excess Air	136	40.91
Pioneer Valley Resource Recovery	MA	167	Modular Excess Air	136	45.41
Pioneer Valley Resource Recovery	MA	167	Modular Excess Air	136	40.51
Pittsfield Resource Recovery Facility	MA	192	Modular Excess Air	120	17.9
Pittsfield Resource Recovery Facility	MA	192	Modular Excess Air	120	18.8
Pittsfield Resource Recovery Facility	MA	192	Modular Excess Air	120	18.97
MMWAC Resource Recovery Facility	ME	315	Mass burn rotary waterwall*	125	211.28
MMWAC Resource Recovery Facility	ME	315	Mass burn rotary waterwall*	125	202.71
Dutchess Cnty Resource Recovery Facility	NY	170	Mass burn rotary waterwall	228	Missing
Dutchess Cnty Resource Recovery Facility	NY	170	Mass burn rotary waterwall	228	Missing
MacArthur Waste to Energy Facility	NY	170	Mass burn rotary waterwall	242.5	Missing
MacArthur Waste to Energy Facility	NY	170	Mass burn rotary waterwall	242.5	Missing
Oswego County Energy Recovery	NY		Modular starved air	50	199.79

Appendix D: Non-OTR MWCs

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
CA	Mass burn waterwall	400	Ammonia Injection	165	0.2835	438.0
CA	Mass burn waterwall	400	Ammonia Injection	165	0.2835	438.0
CA	Mass burn waterwall w/reciprocating grate		SNCR	205	0.3522	148.9
CA	Mass burn waterwall w/reciprocating grate		SNCR	205	0.3522	148.9
CA	Mass burn waterwall w/reciprocating grate		SNCR	205	0.3522	148.9
FL	Mass burn rotary waterwall	255		170	0.2921	122.3
FL	Mass burn rotary waterwall	255		170	0.2921	122.3
FL	Mass burn waterwall	250	SNCR	205	0.3522	160.4

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
FL	Mass burn waterwall	250	SNCR	205	0.3522	160.4
FL	Mass burn waterwall	460	SNCR	205	0.3522	266.1
FL	Mass burn waterwall	460	SNCR	205	0.3522	266.1
FL	Mass burn waterwall	460	SNCR	205	0.3522	266.1
FL	Mass burn waterwall	690	Covanta LN™, SNCR, FGR	110	0.1890	238.0
FL	Mass burn waterwall	660	SNCR	180	0.3093	372.5
FL	Mass burn waterwall	660	SNCR	180	0.3093	372.5
FL	Mass burn waterwall	660	SNCR & FGR	150	0.2577	310.4
FL	Mass burn waterwall	288	SNCR	205	0.3522	185.1
FL	Mass burn waterwall	288	SNCR	205	0.3522	185.1
FL	Mass burn waterwall	288	SNCR	205	0.3522	185.1

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
FL	Mass burn waterwall	288	SNCR	205	0.3522	185.1
FL	RDF Spreader Stoker	648	SNCR	250	0.4295	568.9
FL	RDF Spreader Stoker	648	SNCR	250	0.4295	568.9
FL	RDF Spreader Stoker	648	SNCR	250	0.4295	568.9
FL	RDF Spreader Stoker	648	SNCR	250	0.4295	568.9
FL	RDF	900	SNCR	250	0.4295	804.3
FL	RDF	900	SNCR	250	0.4295	804.3
FL	Stoker Mass Burn waterwall	1000	SCR	50	0.0859	172.3
FL	Stoker Mass Burn waterwall	1000	SCR	50	0.0859	172.3
FL	Stoker Mass Burn waterwall	1000	SCR	50	0.0859	172.3
FL	Mass burn waterwall	350	SNCR	205	0.3522	216.0

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
FL	Mass burn waterwall	350	SNCR	205	0.3522	216.0
FL	Mass burn waterwall	350	SNCR	205	0.3522	216.0
FL	Mass burn waterwall	1050	SNCR	205	0.3522	675.7
FL	Mass burn waterwall	1050	SNCR	205	0.3522	675.7
FL	Mass burn waterwall	1050	SNCR	205	0.3522	675.7
FL	Mass burn waterwall	836	SNCR	205	0.3522	499.2
FL	Mass burn waterwall	836	SNCR	205	0.3522	499.2
FL	Mass burn waterwall	836	SNCR	205	0.3522	499.2
IN	Mass burn waterwall	726	SNCR	205	0.3522	513.4
IN	Mass burn waterwall	726	SNCR	205	0.3522	513.4
IN	Mass burn waterwall	726	SNCR	205	0.3522	513.4

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
MI	Mass burn waterwall	312.5	SNCR	205	0.3522	192.8
MI	Mass burn waterwall	312.5	SNCR	205	0.3522	192.8
MN	Mass burn waterwall	606	Ammonia Injection	205	0.3522	405.0
MN	Mass burn waterwall	606	Ammonia Injection	205	0.3522	405.0
MN	Stoker mass burn waterwall	100		500	0.8590	175.0
MN	Stoker mass burn waterwall	200	SNCR	150	0.2577	101.4
MN	Stoker mass burn waterwall	100		500	0.8590	175.0
MN	Starved air modular	48		500	0.8590	67.7
MN	Starved air modular	48		500	0.8590	67.7
MN	RDF air swept, traveling grate	393.6		250	0.4295	338.6
MN	RDF air swept, traveling grate	393.6		250	0.4295	338.6

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
OK	Mass burn waterwall	375	SNCR	205	0.3522	216.9
OK	Mass burn waterwall	375	SNCR	205	0.3522	216.9
OK	Mass burn waterwall	375	SNCR & Tertiary Air	205	0.3522	216.9
OR	Mass burn waterwall	275	SNCR	200	0.3436	161.0
OR	Mass burn waterwall	275	SNCR	200	0.3436	161.0
VA	RDF Spreader Stoker	593		250	0.4295	445.9
VA	RDF Spreader Stoker	593		250	0.4295	445.9
VA	RDF Spreader Stoker	593		250	0.4295	445.9
VA	RDF Spreader Stoker	593		250	0.4295	445.9
WA**	Mass burn waterwall	475		165	0.2835	227.6
WA**	Mass burn waterwall	475		165	0.2835	227.6

State	Configuration	Rating (tons/day)	NOx Control	Permit NOx Limit 1*	Est NOx Rate*** (lb/MMBTU)	Estimated Annual PTE (tons NOx/year)
total						20,506

* ppmvd @12% CO_2.

** 8-hour average, all others are 24-hour average.

*** From permit NOx rate and EPA Method 19.

Appendix E: Conversion of NOx Concentration to Mass

Below is an example of the calculation for conversion of NOx from concentration in ppm to lb/MMBtu and then ultimately from lb/MMBtu to lb/hr.

9.3 OTHER CEMS/CERMS CALCULATIONS

9.3.1 Calculation of Emissions in lb/MMBtu

Pollutant emission in units of lb/MMBtu are calculated as follows (see 40 CFR 60 Appendix A, Reference Method 19):

$$E = C_d * R * F_d * \left[\frac{20.9}{(20.0 - \%O_{2d})}\right]$$

Where:

E	=	Pollutant emission rate in pounds of pollutant per million Btu (lb/MMBtu).
C_d	=	Average pollutant concentration (ppm SO_2, NO_x or CO) recorded by the CEM Data Logger Subsystem, dry and calibration corrected, for a given hour.
R	=	Conversion factor - ppm to lb/scf ($SO_2 = 1.660E^{-7}$, $NO_x = 1.194E^{-7}$, $CO = 7.267E^{-8}$).
F_d	=	O_2 based F-factor (9570 dscf/MMBtu).
$\%O_{2d}$	=	Average dilutent concentration (% O_2) recorded by the CEM data logger subsystem, for a given hour, dry and calibration corrected.

In addition to the above example, more detail on the conversion calculations are provided below. In this example, an MWC with a NOx concentration emission limit of 150 ppm, and design capacity of 382 MMBtu/hr is used:

lb/MMBtu = (1.37*10^-6/460+Ts)*MWp*F-factor/MMBtu*20.9/(20.9-%Oxygen)*(ppm)

Where Ts = 68: Ts = stack gas T

MWp = Molecular weight (of NOx)

MWp NOx = 46

F-factor/MMBtu = 9570 for municipal solid waste in Appendix A EPA test method 19

%Oxygen = 7

0.00000137/528 x 46 x 9570 x (20.9/13.9) x 150 = 0.257 lb/MMBtu

0.257 lb/MMBtu x 382 MMBtu/hr = 98.2 lb/hr NOx

98.2 lb/hr x 24 hr/day x 1 ton/2,000 lb = 1.2 tons per day (tons per summer day)

Ts = stack gas T

T2 = standard T (32F)

1 mole = 22.4 L

ug/m^3 = (moles of pollutant/10^6 moles)*(460+T2)/(460+Ts)

ug/m^3 = 44.64*MWp*(460+T2)/(460+Ts) for 1 ppm

ug/m^3 = (21,962.88*MWp)/(460+Ts)*(ppm) for more than 1 ppm

lb/ft^3 = (21,962.88/460+Ts)*MWp*(m^3/35.31ft^3) *(g/10^6 ug)*(lb/454 g) for 1 ppm

lb/ft^3 = 1.37*10^-6*MWp/(460+Ts)*(ppm) for more than 1 ppm

Td = default T = 68 degrees F

Rankin scale where (degrees F + 460 = degrees Rankin) which is used in thermodynamics

lb/MMBtu = (1.37*10^-6/460+Td)*MWp*F-factor/MMBtu*20.9/(20.9-%Oxygen) for 1 ppm

lb/MMBtu = (1.37*10^-6/460+Ts)*MWp*F-factor/MMBtu*20.9/(20.9-%Oxygen)*(ppm) for more than 1 ppm

Appendix F: MWC Technology Descriptions

Municipal waste combustors are intended to reduce the volume of municipal solid waste through combustion of that solid waste. Municipal solid waste is a fuel that tends to be a heterogeneous mixture of heavy and light materials of various combustibility. Most MWCs are designed to recover some of the heat generated from the MSW combustion process through heat absorption by radiant and convective water-cooled and steam-cooled tubing surfaces. MWCs may incorporate the steam generator within the MWC as an integral component, or the steam generator is a separate entity acting as a waste heat recovery device attached to the MWC. The are many designs and configurations of MWC units, often depending upon the intended volume of MSW throughput, characteristics of the design "municipal waste fuel", and the experience and preferences of the owner/operator and engineering/design organization.

The majority of the OTR MWCs can be generalized into three major categories based on their individual municipal solid waste combustion process characteristics. One type of MWC is often referred to as mass burn, where the MSW is combusted in an as-received condition with only the removal of large objects prior to its introduction to the MWC. Most mass burn MWCs are essentially steam generators with MSW as the primary fuel.

The second type of MWC utilizes refuse derived fuel (RDF), a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification to produce low-density fluff RDF (in the OTR), densified RDF or pelletized RDF. The majority of RDF MWCs are essentially steam generators using RDF as the primary fuel.

The third type of MWC is sometimes referred to as a modular MWCs. These units are mass burn (unprepared MSW, other than removal of large objects). However, modular MWCs are generally smaller units that are shop-built rather than field-erected and utilize two combustion chambers. There are generally two types of modular controlled air MWCs, one that utilizes sub-stoichiometric air combustion conditions in the primary chamber (modular starved air MWC) and the other that utilizes excess air combustion conditions in the primary chamber (modular excess air MWC). This type of MWC generally features a secondary combustion chamber with supplemental fuel burners and combustion air supply. The modular MWC combustor does not generally incorporate heat recovery in the combustion chambers themselves, but in many cases the flue gases from the modular MWC are exhausted to a heat recovery steam generator for energy recovery.

Mass Burn MWCs

In the OTR, there are two major sub-categories of mass burn MWCs: mass burn waterwall MWCs and rotary waterwall MWCs.

- Mass Burn Waterwall MWCs

  Mass burn waterwall MWCs have lower furnace primary combustion zones made of waterwall tubes for heat transfer in the combustion zone. For mass burn water wall MWCs, the MSW fuel is typically loaded into charging hoppers and fed to hydraulic rams that push the MSW fuel onto the stoker grate in the furnace for combustion. Most stokers utilize a reciprocating grate action, utilizing either forward or reverse acting grate movement, which moves the combusting MSW fuel across the furnace to allow time for drying and complete combustion. Generally, there will be a large volume of fuel at the front end of the grate that burns down to a small amount of ash at the back of the grate. The grate may have a slightly downward angle from fuel introduction to the ash drop off to help move the MSW fuel through the furnace. The reciprocating action of the grates also tends agitate the MSW fuel, generally causing the MSW fuel to roll and mix. This agitation helps ensure all of the MSW fuel is exposed to the high temperatures in the bed of combusting MSW fuel and helps provide contact with combustion air, resulting in more complete combustion of the MSW fuel as it travels across the furnace. Combustion ash that does not leave the stoker grate as fly ash is dropped off at the end of the stoker through a discharge chute for disposal or further processing.

  Mass burn waterwall MWCs may also incorporate auxiliary fuel burners to help bring the MWCs to temperature to begin combustion of the MSW fuel, to supplement the heat input necessary to attain the steam generator output rating with varying MSW fuel quality, or to ensure sufficient flue gas temperatures are attained for proper emissions control.

  Combustion air is generally introduced to the combustion zone utilizing pressurized air as underfire (primary) air or overfire (secondary) air. At least one proprietary design, however, splits the overfire air into two distinct zones, effectively creating three combustion air introduction zones.

  Underfire air is introduced under the stoker grate, sometimes through a series of plenums that allow for the amount of underfire air introduced to various portions of the grate area to be controlled to enhance combustion based on MSW fuel characteristics. The underfire air travels from the plenums to the combustion zone through holes in the grate to assure good distribution across the grate. Underfire air systems are generally designed to be able to provide up to 70% of the total combustion air requirement, with typical underfire air operating requirements utilizing 50% to 60% of the total combustion air.

  Overfire air is introduced into the furnace above the grate level through multiple ports in the furnace walls. The primary purpose of the overfire air is to provide the amount of air necessary to mix the furnace gasses leaving the grate combustion zone and provide the oxygen required to complete the combustion process. Proper control of the overfire air may also be utilized to provide some control of

the NOx emission rate leaving the high temperature zone of the furnace. The amount of overfire air is typically 40% to 50% of the total required combustion air and is somewhat dependent upon MSW fuel quality and NOx emission control requirements.

- Rotary Waterwall MWCs

  A rotary waterwall MWC utilizes a water cooled, tilted, rotating cylindrical combustion chamber. The MSW fuel is typically loaded into charging hoppers and fed to hydraulic rams that push the MSW fuel into the slowly rotating combustion chamber. The rotation of the tilted cylindrical combustion chamber causes the MSW fuel to tumble and advance the length of the cylindrical combustion chamber, ensuring all of the MSW fuel is exposed to high temperatures and combustion air for a sufficient amount of time for drying and complete combustion of the MSW fuel. Combustion ash that does not leave the rotary burner as fly ash is dropped off at the end of the rotary burner through a discharge chute for disposal or further processing.

  Rotary burner MWCs may also incorporate auxiliary fuel burners to help bring the MWCs to temperature to begin combustion of the MSW fuel, to supplement the heat input necessary to attain the steam generator output rating with varying MSW fuel quality, or to ensure sufficient flue gas temperatures are attained for proper emissions control.

  Combustion air for rotary burner MWCs is introduced to the rotating combustion chamber by a pressurized plenum surrounding the rotating combustion chamber. The combustion air enters the rotating combustion chamber through the walls of the chamber, generally through spaces between waterwall tubes. Underfire air is introduced at the bottom of the rotating combustion chamber and through the bed of combusting MSW. Overfire air is introduced into the rotating combustion chamber over the bed of combusting MSW. Dampers are utilized to proportion the total air flow and control the overfire air/underfire air split. Because the waterwall tubes form the floor of the combustion zone and effectively remove heat from that surface, peak combustion temperatures may tend to be lower than experienced with other MWC designs, helping reduce the NOx emissions relative to those other MWC designs. Also, as the watercooled surfaces require lower amounts of initial combustion zone excess air for cooling of combustor components, lower amounts of total excess air may be required for many rotary burner MWCs compared to some other MWC designs. The reduced excess air requirements may also help to reduce base NOx emissions relative to other MWC designs.

RDF MWCs

In contrast to mass burn MWCs, RDF MWCs employ a more complex feeder/spreader system and different combustion bed characteristics. The prepared RDF is ram fed to a feeder hopper, where a conveying device further mixes and fluffs the RDF into a more uniform density as it transports the RDF to fuel/air spreader spouts. Multiple fuel/air spreader spouts located across the furnace and above the stoker grate distribute the RDF evenly across the width of a traveling grate, while the air pressure may be continuously varied to help provide a more uniform fuel bed over the depth of the grate. The traveling grate typically travels from the rear of the furnace to the front in the direction of the fuel distribution. Combustion of the RDF takes place in suspension for the lower density fraction and on the stoker grate for the higher density fraction. The underfire combustion

air passing through the traveling grate provides some agitation to the fuel bed to help ensure all the RDF is exposed to high temperatures and sufficient combustion air to ensure more complete combustion as it travels across the furnace. Like the mass burn combustion system, ash from the combustion process that does not leave the grate as fly ash will be dropped off at the end of the stoker through a discharge chute for disposal or further processing.

For RDF burning MWCs, combustion air is generally introduced to the combustion zone utilizing pressurized air as underfire (primary) air or overfire (secondary) air.

Underfire air (sometimes referred to as undergrate air) is introduced under the stoke grate. The underfire air is generally introduced into the steam generator through a single undergrate plenum and relies on enough pressure drop to supply combustion air evenly through all portions of the grate. Underfire air systems are generally designed to be able to provide up to 70% of the total combustion air requirement, with typical underfire air operating requirements utilizing 50% to 60% of the total combustion air.

Overfire air is introduced into the furnace above the grate level through multiple ports in the furnace walls. The primary purpose of the overfire air is to provide enough air to mix the furnace gasses leaving the grate combustion zone to provide the oxygen required to complete the combustion process. Proper control of the overfire air may provide some control of the NOx emission rate leaving the high temperature zone of the furnace. The amount of overfire air is typically 40% to 50% of the total required combustion air, being somewhat dependent upon the RDF fuel quality and NOx emission control requirements.

The fuel/air spreaders generally require approximately 5% of the total air flow requirement at any given load to properly distribute the RDF fuel in the furnace over the grate.

RDF MWCs may also incorporate auxiliary fuel burners to help bring the MWCs to temperature to begin combustion of the RDF, to supplement the heat input necessary to attain the steam generator output rating with varying RDF quality, or to ensure sufficient flue gas temperatures are attained for proper emissions control.

Modular MWCs

Modular MWCs are generally of smaller capacity than mass burn and RDF MWCs and utilize two combustion zones rather than one. The MSW fuel is typically introduced to the MWC without preparation other than removing large objects. MSW fuel is dropped into a chute and is pushed by rams into the first, or primary, combustion chamber and on to a reciprocating grate(s) or moving hearth. Instead of traveling grates or hearths, some modular MWCs may utilize a series of stepped rams to move the combusting MSW fuel across the combustion chamber. The MSW fuel is dried and combusted as it travels across the primary combustion chamber, and any ash not leaving the primary chamber as fly ash is dropped off at the end of the primary combustion chamber into a discharge chute for disposal or further processing.

The combustion zones of modular MWCs generally do not incorporate any heat recovery water or steam walls. Instead, the combustion zones generally consist of refractory lined walls. Heat recovery, if any, occurs in a heat recovery steam generator that is connected to the exhaust of the secondary combustion chamber. The distribution of combustion air is the primary distinction between the designs of modular starved air MWCs and modular excess air MWCs.

Combustion air for modular starved air MWCs is proportioned to provide combustion air to the primary combustion chamber and to the secondary combustion zone, with the amount of air supplied to the primary combustion chamber controlled such that combustion in the primary chamber is sub-stoichiometric (i.e., less oxygen than is necessary to achieve complete combustion). This results in flue gases exiting the primary chamber with high levels of combustibles. The flue gases enter the secondary chamber, where additional air (secondary air) is injected to complete the combustion process. The relatively high amount of secondary air injection also provides a high amount of turbulence to ensure mixing with the combustible portions of the primary combustion chamber flue gases. One of the intended results of the primary chamber sub-stoichiometric combustion is reduced air/flue gas velocity causing less turbulence in the combustion bed, less flue gas particulate carried out from the primary chamber, and lower peak combustion temperatures. However, the modular starved air MWC may reasonably be expected to have higher levels of unburned fuel than other types of MWCs.

Combustion air for modular excess air MWCs is also proportioned between the primary and secondary combustion chambers, but the amount of combustion air suppled to the primary chamber is proportioned to provide combustion conditions at greater than stoichiometric conditions (i.e., more oxygen than is necessary to achieve complete combustion). This may lead to higher levels of particulate carry-out from the primary combustion chamber and a higher degree of MSW fuel burnout.

Modular air MWCs may also incorporate auxiliary fuel burners to help the MWC operate with varying MSW fuel characteristics or to ensure appropriate flue gas temperatures are attained for proper emissions control.

MWC Retrofit NOx Control Technologies

MWCs are intended to combust a municipal waste fuel that tends to be a heterogeneous mixture of heavy and light materials of variable combustibility. Both fuel and thermal NOx is generated by the combustion process, with some limited degree of control possible through variation of the primary/secondary air ratio. The variation in MWC unit design and fuel quality leads to a range of expected uncontrolled NOx emissions, sometimes given as a range of 250 ppmvd @7% O_2 to 300 ppmvd @7% O_2. There are several NOx control options that can be retrofitted to existing MWCs, with applicability and effectiveness dependent upon unit configuration. Not all NOx reduction technologies are applicable to all MWC configurations, and not all technologies are reasonably feasible from an economic standpoint even if they are technologically feasible. Assessments of individual MWCs are necessary to evaluate the technical and economic feasibility of any NOx reduction technology for that MWC. However, the following information provides a limited indication of general applicability and cost effectiveness of various control equipment types.

Combustion Air Control

For the purposes of this document, combustion air control technology for NOx control on MWCs means utilization of low excess air operation or staged combustion, either separately or in combination. For low excess air operation, the overall amount of combustion air in the system is reduced generally through reduction of both underfire and overfire air. For staged combustion, the amount of underfire air is reduced to reduce the air available during the initial stages of combustion, while the amount of overfire air is increased to provide enough air to complete the combustion process. The generally high excess air requirements needed to achieve complete combustion of the non-homogenous MSW fuel provides only limited ability to attain NOx reductions through excess air reduction while still maintaining acceptable MSW fuel burnout, although some NOx rate reduction may be possible at some MWCs. By design, the majority of MWCs incorporate some level of control to proportion underfire and overfire air to optimize combustion quality with NOx generation rate so this technology is more of an operational tuning control technology. However, modifications to existing plant components or system upgrades may be necessary at some facilities to optimize combustion air control for NOx reduction. Industry information indicates that combustion air optimization for NOx control has the potential to reduce NOx emission rates by up to 10% while still maintaining acceptable fuel burnout on many MWCs. Because this "technology" control is already part of most OTR MWCs, it is assumed that optimizing combustion air control is already part of good operating practices. But it should not be overlooked that combustion air control or staging modifications may have potential NOx reduction capabilities at some facilities and may prove to be an important component in a NOx reduction strategy incorporating multiple control components.

Selective Non-Catalytic Reduction

Selective non-catalytic reduction (SNCR) is a retrofit-capable NOx control technology that is widely utilized for existing MWC units, including those located in the OTR. For SNCR, reagents (urea or ammonia) are injected into the MWC furnace at locations in the proper temperature range to drive chemical reactions between the reagents and NOx, resulting in the nitrogen in NOx being reduced to elemental nitrogen (N2) and water vapor. SNCR systems generally include reagent storage facilities, supply of demineralized water, electric power supply, pumps, mixing components, a heated structure to protect the pump skid and mixing/flow control components from colder ambient temperatures, pressurized air supply, pipes and tubing, flow control valves, a control system, communication with steam generator control and instrumentation systems, and penetrations into the steam generator at the proper locations to install SNCR injection nozzles. The effectiveness of NOx control using SNCR will be a function of the MWC's characteristics (such as furnace configuration, combustion excess air requirements, flue gas temperature gradients, etc.) to attain the proper orientation and location of SNCR injector nozzles and the ability to achieve proper reagent atomization and sufficient time for reagent contact and mixing with the flue gas in the proper temperature range. SNCR effectiveness will also be affected by the ability to consistently introduce the appropriate amount of reagents across the MWC's load range and in reaction to changes in MSW fuel characteristics. Literature suggests that SNCR is a technologically feasible NOx control system applicable to many MWCs.

Existing MWC SNCR installations include both urea and ammonia-based systems. Information provided by EPA indicates that for those facilities, the group of MWCs utilizing ammonia for the reagent had a higher average NOx reduction effectiveness than the group of MWCs utilizing urea

as the reagent, but that the top of the range of NOx reduction effectiveness was higher for the MWCs utilizing urea as reagent than for the MWCs using ammonia for the reagent. Many factors other than reagent type can influence the NOx reduction effectiveness of any particular SNCR installation, so these values may not be conclusive. There is also some consideration that the use of urea reagents may produce higher levels of nitrous oxide (N_20), a greenhouse gas, than the use of ammonia reagents. Nitrous oxide emissions will depend on the reagent feed rate and the flue gas temperature where the reduction is taking place, with higher levels on nitrous oxide emissions correlating to increased NOx reductions. The EPA indicated that there are commercially available, proprietary additives that can reduce nitrous oxide formation. The impact of the choice which reagent is most appropriate for any given MWC retrofit would be highly unit specific and it is assumed would be part of any state's case by case RACT determination.

The use of properly designed and well-tuned SNCR technology has been demonstrated to achieve approximate 40% to 50% reductions in NOx emission rates with low ammonia slip values at many facilities, including retrofit applications. Compliance with 150 ppmvd @7% O_2 24-hr average NOx emission rate limitations has been demonstrated at many OTR MWC facilities utilizing SNCR as the primary NOx control.

Some historic non-OTR NOx RACT evaluations and cost effectiveness estimates have been identified in EPA's RACT/BACT/LAER Clearinghouse regarding the use of SNCR on MWC units. Two are described below.

- The Lee County Waste to Energy facility (Florida) indicated an estimated cost effectiveness of $2,000/ton (approximately $2,880/ton in 2020 dollars) of NOx reduced utilizing SNCR for control on a 660 ton/day MWC. The permit NOx rate limits were 110 ppmvd 12-month average and 150 ppmvd 24-hour average.

- The Hillsborough County Resource Recovery facility (Florida) indicated an estimated cost effectiveness of $1,000/ton (approximately $1,500/ton in 2020 dollars) of NOx reduced utilizing SNCR for control on a 600 ton/day MWC. The permit NOx rate limits were 90 ppmvd 12-month average and 110 ppmvd 24-hour average.

Some historic industry information suggests a very wide range of NOx reduction cost effectiveness values as a function of the size (input capacity) of MWCs. This information suggests that estimated cost effectiveness values may range from approximately $7,400/ton for small MWCs (100 ton/day and smaller) to approximately $1,900/ton for large MWCs (750 ton/day and larger), based on a 50% NOx reduction and 80% annual capacity factor. Variations in capacity factor, required level of NOx reduction, and other factors would shift the estimated cost effectiveness range. As portions of SNCR can be shared among multiple MWCs at a single facility (reagent preparation, reagent storage, demineralized water supply, pumping/forwarding skids, etc.), the per MWC NOx reduction estimated cost at a multi-MWC facility may be lower.

Flue Gas Recirculation

Flue gas recirculation (FGR) technology can be a stand-alone NOx reduction technology, but as SNCR is already being utilized for many OTR MWCs, for this discussion it will be assumed that a retrofit FGR system would be utilized in combination with the continued use of existing SNCR

technology. The equipment and function of the existing SNCR portion of this option is assumed to be unchanged from that of properly tuned existing SNCR technology.

FGR helps reduce NOx emission rates by slightly reducing the average oxygen content in the combustion zone and also by reducing the peak temperatures in the combustion zone. An FGR retrofit would generally require the installation new ductwork, fan, control dampers and damper operators, electric power supply, flue gas injection/mixing nozzles, system controls, and integration with the steam generator controls and instrumentation. Retrofit FGR would generally be designed to extract a portion of the flue gases from ductwork downstream of the steam generator convective passes. Utilizing a fan, the extracted flue gases would be mixed with the secondary air prior to introduction into the combustion zone. As indicated above, by diluting the secondary air with the flue gases, the average amount of excess air available for combustion and average flame temperature are reduced resulting in lower levels of NOx formation. The amount of gas recirculated would be controlled to ensure complete combustion of the MSW fuel.

FGR is listed as an installed equipment at a couple of MWC facilities in the OTR. FGR is potentially a technically feasible retrofit technology for many MWCs. An exception might be a modular MWC not incorporating any heat recovery as that would hamper the ability to reduce flue gas temperatures to a range useful for recirculation to the combustion zone.

Babcock Power Environmental prepared an analysis for potential installation of FGR-SNCR at the Wheelabrator Baltimore MWC facility, which includes three MWCs each with a rating of 625 ton/day. The evaluation predicted the ability to maintain a 120 ppmvd @7% O_2 24-hr NOx rate limit and a 115 ppmvd @7% O_2 30-day NOx rate limit with ammonia slip of approximately 5 ppmvd.

A cost effectiveness estimate was performed using the data provided in the Babcock Power document. Using the cost assumptions for this particular facility (as discussed in the Babcock Power document with a 20-year control life with 6% interest rate), the incremental cost effectiveness was estimated at $3,470/ton of NOx reduced. There could be a significant range in estimated cost effectiveness due to MWC input capacity (and the need for the corresponding difference in amount of recirculated gas). For similar types of MWCs, the range of sizes would require the same level of engineering and design, and the same type of components (potentially varying in size), therefore many of the associated costs are similar. Because the ton/year of NOx mass reduction would vary with the input range of the MWCs, this could lead to a large range in the estimated cost effectiveness. Using the Babcock and Wilcox Wheelabrator Baltimore evaluation as a base input, the estimated FGR cost effectiveness could range from approximately $3,200/ton to $11,000/ton.

Advanced SNCR

Advanced SNCR (ASNCR) NOx control technology may be considered for retrofit on existing MWCs as either a new retrofit technology or a significant upgrade to an existing SNCR. ASNCR is like SNCR in that it utilizes the injection of reagents into the proper temperature zones of the furnace to reduce the flue gas NOx concentration. Both SNCR and ASNCR designs may utilize advanced computer modeling techniques to specify SNCR nozzle locations and elevations so that their operation may be optimized across varying furnace conditions. The primary difference

between a well-designed SNCR and ASNCR system is that ASNCR would utilize advanced furnace temperature monitoring instrumentation to provide near real time operating furnace temperature profiles. This information allows the control system to modulate which ASNCR injectors are in operation and to automatically adjust the individual injector flow rate in order to optimize the overall NOx emission rate. This advanced system optimizes the NOx reduction chemical reaction across the furnace to achieve high levels of overall NOx reduction while maintaining low ammonia slip. Further, the ASNCR system utilizing near real time control would tend to reduce the magnitude of emission spikes associated with the combustion of a heterogeneous fuel, helping achieve a lower average emission rate over any particular averaging period.

Babcock and Wilcox (B&W) prepared an analysis for the Wheelabrator Baltimore facility that included the potential use of ASNCR technology for NOx control. The B&W information suggests that ASNCR may be applicable to many MWCs as a retrofit technology, although furnace configuration or other factors could affect the NOx reduction potential.

Babcock Power prepared an analysis for potential installation of ASNCR at the Wheelabrator Baltimore MWC facility. The evaluation predicted the ability to maintain a 110-125 ppmvd @7% O_2 24-hr NOx rate limit and a 105-110 ppmvd @7% O_2 30-day NOx rate limit with ammonia slip of approximately 5 ppmvd.

A cost effectiveness estimate was performed for retrofit of ASNCR control using the data provided in the Babcock Power document. Using the cost assumptions for this particular facility (as discussed in the Babcock Power document and assuming a 20-year control life with 6% interest rate), the incremental cost effectiveness was estimated at $3,883/ton of NOx reduced.

Some industry information indicates that while it is likely that most MWCs could successfully retrofit ASNCR and expect NOx reductions, its ability to achieve significant amounts of NOx reduction in small MWCs is limited due to the reduced space and contact time. These factors are influenced by individual unit design. An insufficient amount of information is available to provide an estimate of the range of cost effectiveness for small MWCs.

Another control option combines ASNCR with FGR. The equipment and function of the ASNCR portion of this option is identical to that of the ASNCR-only technology described above. The FGR part would be identical to the above FGR discussion, where a portion of the flue gases is extracted downstream of the convective passes of the steam generator and those flue gases are injected into the secondary air system using an FGR fan. By diluting the secondary air with flue gases, the average amount of excess air available for combustion is reduced and the average flame temperature is reduced, resulting in lower levels of NOx formation. The lower levels of NOx formed are further reduced by the reaction of the flue gas NOx with the ASNCR reagents, which are enhanced by the high flow rate of the secondary air and recirculated flue gas mixture.

Babcock Power Environmental prepared an analysis for potential installation of FGR-SNCR at the Wheelabrator Baltimore MWC facility. The evaluation predicted the ability to maintain a 105 ppmvd @7% O_2 24-hr NOx rate limit and a 100 ppmvd @7% O_2 30-day NOx rate limit with ammonia slip of approximately 5 ppmvd.

A cost effectiveness estimate for the combined ASNCR and FGR technologies was performed using the data provided in the Babcock Power document. Using the cost assumptions for this particular facility (as discussed in the Babcock Power document with a 20-year control life with 6% interest rate), the incremental cost effectiveness was estimated at $4,695/ton of NOx reduced.

Covanta Proprietary Low-NOx

The Covanta Low-NOx (LN™) is a proprietary NOx reduction technology that is more of a system of related control techniques rather than a single component control technology. The LN™ process modifies the combustion process by diverting a portion of the secondary air and injecting it (tertiary air) at a higher elevation in the furnace. The distribution of combustion air between the primary, secondary, and tertiary levels is controlled to optimize combustion control and reduce NOx emissions by providing additional fuel/air staging for NOx control while still providing enough air for complete combustion. The installation of the LN™ system on a combustion unit already incorporating SNCR may require modifications to the SNCR system to optimize the combined NOx reduction effect of the LN and SNCR technologies. Covanta's website indicates that the propriety LNTM technology has already been installed on many of the MWCs operated by Covanta, with plans to install it on many more. The proprietary aspects of this technology suggest it is unlikely that it can be installed on non-Covanta MWCs.[19]

In addition to the modification of the combustion air systems and potential modification of an existing SNCR system (or installation of a new SNCR system if none existing) as part of an MWC Covanta LN™ retrofit, the Covanta LN™ may require additional modifications to other areas of the combustion zone and related components. Not all existing MWC designs or configurations may be able to incorporate all or any of the components related to the Covanta LN™, and the NOx reduction results may also tend to vary somewhat between units that can accept all of the Covanta LN™ components.

The Covanta LNTM technology was permitted as RACT for retrofit installation and operation in conjunction with SNCR at the Covanta Fairfax facility in Virginia. The permit NOx emission limits are 110 ppmvd @7% O_2 24-hr, and 90 ppmvd @7% O_2 annual. Prior to the LNTM retrofit, the facility's MWCs typically operated with NOx emission rate set-points ranging from 160 ppmvd to 180 ppmvd (dependent upon furnace conditions) in compliance with the permitted 205 ppmvd emission rate limits. Information provided in the RACT analysis for Covanta Fairfax indicated that at that time, the Covanta LNTM technology had been installed in approximately 20 units. The calculated incremental cost effectiveness for Covanta Fairfax was $2,888/ton of NOx removed.

The Covanta LNTM technology was also permitted as RACT for retrofit installation and operation in conjunction with SNCR at the Covanta Alexandria/Arlington facility in Virginia. The permit NOx emission limits are 110 ppmvd @7% O_2 24-hr, and 90 ppmvd @7% O_2 annually. Prior to LNTM retrofit, the facility's MWCs typically operated with NOx emission rate set-points ranging from 160 ppmvd to 180 ppmvd (dependent upon

[19] See footnote 3 for reference.

furnace conditions) in compliance with permitted 205 ppmvd emission rate limits. The calculated incremental cost effectiveness for Covanta Alexandria/Arlington was $4,005/ton of NOx removed.

The proprietary Covanta LNTM technology with SNCR technology has been in operation on the Montgomery County Resource Recovery unit in Maryland for several years. A recent study was performed at the request of MDE to address the potential for any additional NOx rate reduction capability that could be considered RACT. The evaluation noted that the facility has been able to typically control its average 24-hour NOx rate to less than 100 ppm, but that there are some periodic spikes in excess of those values caused by process variations that are outside operator control. The document concludes that an emissions limitation of 140 ppmvd @7% O_2, 24-hr average, is reasonable and can be met with good ammonia slip control.[20]

Covanta Bristol in Connecticut has incorporated the proprietary Covanta LNTM technology on one of its combustion units and has been permitted with a 120 ppmvd @7% O_2 NOx, 24-hr average, emission rate limit.

Selective Catalytic Reduction

Selective catalytic reduction (SCR) is a retrofit-capable NOx reduction technology where ammonia is injected into the flue gases ahead of a catalyst. In the proper temperature range, the nitrogen in the flue gas NOx is reduced to elemental nitrogen by the catalyst. Incorporation of SCR on an existing unit requires installation of a catalyst module in the flue gas ductwork, the installation of an ammonia storage and injection piping and control system, instrumentation, and coordination with steam generator controls to ensure the appropriate amount of ammonia is injected into the flue gas ahead of the catalyst. Since the temperature of the flue gases downstream of the steam generator convective passes may be too low to facilitate chemical reaction in the catalyst, most MWC units also require a means of reheating the flue gas to acceptable levels. This could be accomplished through installation of burners or other heat exchangers in the ductwork ahead of the catalyst module. In some installations, it may also be necessary to upgrade the existing induced draft fan(s) to overcome the draft loss through the catalyst. While this technology is applicable and effective to most MWCs, the space availability and configuration of a given facility may make it infeasible. SCR is also very costly from a capital expense standpoint, and more so in retrofit application, which may render it economically infeasible for retrofit for many existing MWCs. However, the control capability and adaptability of the SCR technology may make it desirable in certain applications.

Babcock Power prepared an analysis for potential installation of SCR at the Wheelabrator Baltimore MWC facility. While the analysis did not provide a site-specific prediction for the achievable NOx emission rate, the evaluation discussed BACT rates for a new MWC facility that incorporated SCR. The discussed NOx emission rates were 50 ppmvd @7% O_2 24-hr NOx rate limit and 45 ppmvd @7% O_2 30-day NOx rate limit, with ammonia slip of approximately 10 ppmvd.

[20] See footnote 4.

A cost effectiveness estimate was performed using the data provided in the Babcock Power document. Using the cost assumptions for the Wheelabrator Baltimore facility (as discussed in the Babcock Power document with a 20-year control life with 6% interest rate), the incremental cost effectiveness was estimated from $10,296/ton to $12,779/ton of NOx reduced, depending upon which flue gas reheating mechanism was chosen.

The RACT evaluation for the Covanta Alexandria/Arlington facility addressed the potential for installing SCR at that site. This evaluation also cited the same new MWC facility SCR installation as Babcock Power did in their Wheelabrator Baltimore facility evaluation, along with the 50 ppmvd @7% O_2 24-hr NOx rate limit and 45 ppmvd @7% O_2 30-day NOx rate limit. The Covanta Alexandria/Arlington evaluation estimated a cost effectiveness of $31,445/ton of NOx removed.

The RACT evaluation for the Covanta Fairfax facility addressed the potential for installing SCR at that site. This evaluation also cited the same new MWC facility SCR installation as Babcock Power used in their Wheelabrator Baltimore facility evaluation, along with the 50 ppmvd @7% O_2 24-hr NOx rate limit and 45 ppmvd @7% O_2 30-day NOx rate limit. The Covanta Fairfax evaluation estimated a cost effectiveness of $15,898/ton of NOx removed.

For Florida's Palm Beach Renewable Energy Facility, which was a new MWC facility, the use of SCR and a 50 ppmvd @7% O_2 NOx (24-hr average) emission rate were considered BACT when the facility was permitted in 2010.

DeNOx Catalytic Filter Bags

DeNOx catalytic filter bags are a product of Gore and are designed to provide both particulate filtration and NOx reduction. The DeNOx filter bags are similar in appearance to the bags utilized for flue gas particulate removal in baghouses, except each bag consists of both a membrane for particulate removal and a PTFE based catalytic felt for NOx and NH3 reduction. In some instances, DeNOx bags can be made to be direct installation replacements for conventional bags in existing particular baghouses.

For retrofit installations where the combustion units already utilize SNCR for NOx control, the existing SNCR system can be operated at higher NSR levels to provide ammonia slip in the combustion flue gasses in order to provide the necessary reagent for catalytic reduction in the filter bags.

No publicly available information was found that discussed an existing installation in the US utilizing the DeNOx catalytic filter bags. However, information was found regarding the retrofit installation of these catalytic filter bags at MWC units located in European countries. That information indicated that addition NOx reductions of up to 60% were achieved on MWCs that were already reasonably well controlled with combustion air controls and SNCR. It should be noted that these subject European MWCs were all small units (less than 250 ton/day rating). No cost information was found for these European installations to enable any assessment of the cost effectiveness for the DeNOx catalytic filter bags.

Some cost information was available regarding DeNOx catalytic filter bag installation through a cost effectiveness evaluation performed by San Joaquin Valley Unified Air Pollution Control District. The cost evaluation was for two mass burn waterwall MWCs at a single facility using a 4% rate of return, 10-year equipment life, and a projected 60 ppmvd @ 12% CO2 NOx emission rate limit (roughly equivalent to 63 ppmvd @ 7% O2). The projected NOx emission rate limit was compared to the then-existing limit of 165 ppmvd @ 12% O2. The cost evaluation presented an estimated annualized capital cost of only about one sixth of the cost for full SCR, but presented an annualized O&M cost that was more than 3 times the annualized O&M cost of full SCR. The evaluation noted that much of the high annualized O&M cost was due to the need to remove high sulfur content components (such as drywall) from the waste fuel stream, as the DeNOx filter bags are susceptible to fouling at high levels of SOx. The San Joaquin evaluation estimated a cost effectiveness in excess of $88,000/ton (2020 $) of NOx removed. This estimated cost value may be lower in retrofit to a facility that has waste fuel quality restrictions or already includes sulfur emission controls.

The above-mentioned NOx control technologies are commercially available and represent a number of choices available to MWC owner/operators and state agencies in the consideration of RACT controls for NOx emissions from MWCs. From a technology standpoint, some technologies may not be technically feasible or provide significant reductions in retrofit due to the design or specific conditions of some individual MWCs. Similarly, individual unit design or operating conditions may cause a technically feasible NOx control to be economically infeasible for any specific MWC. The RACT analysis protocol of specific states would dictate whether any technically feasible NOx control technology, or group of NOx control technologies, could be considered RACT from a cost effectiveness standpoint for and specific MWC unit. For most retrofit considerations, the cost effectiveness estimates for the SCR and DENOx filter bag technology options appear to identify them as not cost-effective from a RACT standpoint. However, the workgroup felt it would be helpful to provide states with some general guidance concerning the relative cost effectiveness of all of the available NOx control technologies.

Additionally, the workgroup recognizes that MWC capacity ratings may have a significant impact on the estimated cost effectiveness of any given MWC retrofit NOx control technology. Some of the issues contributing to this are that design/engineering/modeling costs do not decrease substantially with smaller size, installation may be more difficult with smaller footprint facility and more compact combustors, and less room/time for reagent residence in the proper temperature zone for reaction. Information from EPA shows that generally the estimated magnitude of the cost effectiveness for a given retrofit NOx control technology increases (becomes less cost-effective) from higher rating units to lower rating units. Based on the EPA information, the relative cost effectiveness of several specific MWC retrofit NOx control technologies between several MWC capacity ratings are shown in the following table. For the data in the table, the estimated retrofit cost effectiveness for a 750 ton/day capacity MWC is assumed as the base with the cost effectiveness increases for the small sizes shown as percentage increases above the base.

MWC Combustor Rating (tons/day)	SCR Control Relative Cost Effectiveness	ASNCR Control Relative Cost Effectiveness	SNCR Control Relative Cost Effectiveness
750	100	100	100
400	123	149	131
100	245	463	328

The only cost effectiveness information associated with potential NOx reduction technologies that provides the consistency of same design and same operating characteristics for direct comparison is presented in the Babcock Power NOx control evaluation for the Wheelabrator Baltimore facility. The evaluation provided estimated costs and NOx control capability of several NOx reduction technologies, allowing a reasonable comparison of the impact of the control technologies. The incremental cost effectiveness values in the below table were estimated from the data provided in the Babcock Power document, by assuming a 20-year control life with 6% interest rate, and the cost effectiveness estimates were performed using the 2019 values identified in the Babcock Power report. Note that the baseline comparison for this estimate is compliance with a 150 ppmvd @7% O_2 24-hr average NOx emission rate.

Estimated NOx Control Cost effectiveness

Estimates based on Babcock Power Wheelabrator Baltimore Study

Control Technology	Estimated Achievable 24-hr Avg NOx Rate (ppmvd @7%O2)	Estimated Cost Effectiveness ($/ton)
Estimate Base	150	NA
Optimize Existing SNCR	135	6941
FGR & Existing SNCR	120	3470
ASNCR	110	3883
FGR & ASNCR	105	4695
SCR	50	12779

The above information suggests that for this facility with these NOx control technologies, the most cost effective options are FGR&SNCR, FGR&ASNCR, and ASNCR. The associated controlled NOx emission rates are between 105 ppmvd @7% O_2 and 120 ppmvd @7% O_2, 24-hr average. The range of NOx control estimated cost effectiveness is $3,470/ton to $4,695/ton.

These indications are somewhat in agreement with the RACT analysis conducted by Virginia and Covanta for the Covanta Fairfax and Covanta Alexandria/Arlington facilities. For these Covanta facilities, RACT was selected as Covanta's proprietary LNTM technology and SNCR with predicted NOx emission rate values of 110 ppmvd @7% O2, 24-hr average. The analysis indicated a NOx control cost effectiveness of $2,888/ton for Covanta Fairfax and $4,005/ton for Covanta Alexandria/Arlington. These values are comparable to the range of controlled NOx rate and cost effectiveness estimated for the Wheelabrator Baltimore facility. While cost effectiveness values would vary across MWCs, the control technologies would likely maintain the same relative cost effectiveness positioning.

While any revised RACT is unit-specific based on technical and economic feasibility of marketed control technologies, the limited information above suggests that a revised NOx RACT rate of between 105 ppmvd @7% O_2 and 120 ppmvd @7% O_2, 24-hr average, may be a reasonably achievable target emission rate for many MWCs. The limited information also suggests that NOx reduction cost effectiveness values of $3,000/ton to $5,000/ton may be reasonably representative of the range of related costs to achieve a revised NOx RACT emission rate. Within this cost range, several NOx reduction technologies may be available for consideration to comply with a revised RACT for MWCs.

Appendix G: Method for Estimating Costs for Urea Consumption

The cost estimation for urea consumption for NOx removal was performed in two ways. First, the cost estimate on a per lb of NOx reduction was performed using information presented in the Wheelabrator Baltimore study and specifically the differences between the optimized SNCR and advanced SNCR control options. Using this Wheelabrator Baltimore study information, the incremental NOx reduction cost effectiveness was estimated to be $0.89 per pound of NOx reduced. The second estimation method was based on simple chemical reaction estimates, high efficiency NSR guidance from EPA, and urea cost values from the Wheelabrator Baltimore study. Using this second estimation methodology, the cost effectiveness was estimated to be $1.01 per pound of NOx reduced. Details of the utilized estimation methodologies are included below.

Using the estimated cost effectiveness values and the mass reduction values shown in the workgroup summary document, the estimated annual O&M cost reductions for the two facilities are shown in the following table:

Facility	Workgroup Paper Identified Change In NOx Mass Reduction (tons/yr)	Workgroup Paper Existing Estimated O&M Cost ($/yr)	Estimated O&M Cost Reduction Due To Urea Consumption Based On Wheelabrator Baltimore Study ($/yr)	Estimated O&M Cost Reduction Due To Urea Consumption Based On Chemistry/EPA NSR ($/yr)
Alexandria/Arlington	18.33	213773	32627	37027
Fairfax	51.73	493322	92079	104495

As can be seen in the cost per pound of NOx reduction estimates, there is a $0.12/lb difference between the two methodologies. One possible explanation is that in reality there is no need to have an NSR as high as 2.0 (as was assumed for the chemistry-based estimate) to achieve the target 110 ppmvd @7% O_2 limit when there is improved reagent furnace penetration and mixing with ASNCR. The workgroup has used the Wheelabrator study information for adjusting the estimated O&M costs for the workgroup document.

Incremental Cost Estimation for Urea Consumption Using Wheelabrator Baltimore Study*

From EPA Method 19, eq 19-1: $E = CdFd\ (20.9/(20.9 - \%O_2))$

where: E = pollutant emission rate lb/MMBTU

Cd = pollutant sample concentration dry basis lb/scf

Fd = fuel specific factor volume of dry combustion products per fuel heat content 9570 dscf/MMBTU for municipal waste

Incremental NOx rate reduction: From 135 ppmvd limit to 110 ppmvd limit = 25 ppmvd Cd NOx = 25 ppmvd x (1.194 x 10^-7 (lb/ft^3)/ppm) = 29.9 x 10^-7 lb/ft^3

E = (29.9 x 10^-7 lb/ft^3)(9570 dscf/MMBTU)(20.9/(20.9 – 7)) = 0.0430 lb/MMBTU

Incremental annual NOx mass reduction: 0.0430 lb/MMBTU x 3 boilers x 325 MMBTU/hr/boiler * 8760 hr/yr * 0.92 availability = 337882 lb/yr 168.9 tons/yr

Annual average change in cost per incremental reduction = (995,000$/yr – 695,000$/yr) / (337,882 lb/yr) = 0.8879 $/lb or 1776.20 $/ton

*Ref: WASTE TO ENERGY NOX FEASIBILITY STUDY; PREPARED FOR: WHEELABRATOR TECHNOLOGIES BALTIMORE WASTE TO ENERGY FACILITY BALTIMORE, MARYLAND; BPE PROJECT NO.: 100825; BPE DOCUMENT NO.: 100825-0908400100; FINAL REVISION FEBRUARY 20, 2020

*Study operating assumptions: Three Stirling boilers of 750 tpd capacity each (municipal solid waste at 5200 BTU/lb) ~ 325 MMBTU/hr/boiler

92% annual operating factor

Urea mixture cost $1.19/gal, 50% urea by weight

*Study Control Option – Optimize Existing SNCR - 135 ppmvd 24-hr avg @7% O_2, estimated annual urea consumption cost ~ $695,000/yr, estimated urea consumption 72 gal/hr

*Study Control Option – Advanced SNCR - 110 ppmvd 24-hr avg @7% O_2, estimated urea consumption cost ~ $995,000/yr, estimated urea consumption 105 gal/hr

Incremental Cost Estimation Using Basics

Assumption NOx – 95% NO, 5% NO_2

$2NO + CO(CH_2)_2 + 1/2O_2 >>> 2N_2 + CO_2 + 2H_2O$

$2NO_2 + 2CO(NH_2)_2 + O_2 >>> 3N_2 + 2CO_2 + 4H_2O$

Est mix MW (95% NO, 5% NO_2) >>> 30.8 lb

Est urea requirement (per lb/mole NOx) >>>31.54 lb (theoretical NSR)

Theoretical NSR for urea/NOx = 0.5

Hi-efficiency removal operating NSR for urea/NOx - 2.0 (ref Fig 1.7, https://www.epa.gov/sites/production/files/2017-12/documents/sncrcostmanualchapter7thedition20162017revisions.pdf)

Est required urea for high efficiency NSR=2 (per lb/mole of NOx) >>> 126.16 lb urea / 30.8 lb NOx = 4.09 lb

Weight of 50% by weight water/urea – 9.57 lb/gal urea = 4.79 lb urea/lb mixture

Urea/water mixture consumption @ 2.0 NSR – 4.09 lb urea / (4.79 lb urea/gal mixture) = 0.85 gal urea/lb NOx removed

Est water/urea mixture cost range (@ 1.19$/gal from Wheelabrator Baltimore report, 2020 value) 0.85 gal/lb NOx x $1.19/gal = $1.01/lb NOx removed

Exhibit 7

COVANTA
Powering Today. Protecting Tomorrow.

Covanta Essex Company
183 Raymond Boulevard
Newark, NJ 07105
Tel: 973-344-0900
Fax: 973-344-4999

January 10, 2022

Mr. Anthony Fontana, Chief
NJ Department of Environmental Protection
Bureau of Solid Waste Permitting
P.O. Box 420
Mail Code: 401-02C
401 East State Street
2nd Floor, West Wing
Trenton, NJ 08625-0420

Subject: Application for a Solid Waste Facility Permit Renewal
Covanta Essex Company
Essex County Resource Recovery Facility
Program Interest Number: 133546
Permit No. RRF200001
Response to Technical Notice of Deficiency

Dear Mr. Fontana:

On behalf of Covanta Essex Company, the following responses are being provided to the questions and comments received in the Technical Notice of Deficiency letter dated November 10, 2021 and received on November 15, 2021 regarding the above referenced permit application. An extension to respond to these comments by January 10, 2022 was granted by the Department in a letter dated December 9, 2021. The comments and responses are provided below:

- Comment No. 1
  Section 3.0 Updated Engineering Design and Site Modifications
  Section 3.2.1 Fabric Filter Baghouse Project, Environmental Impact of Change
  The comment requests a comparison to be provided, which includes but is not limited to a calculation of the percent reduction of particulate matter PM10 and PM2.5, lead, cadmium, mercury, arsenic, beryllium, chromium, and nickel emissions from November 2016 through November 2019 compared to the previous permit renewal review period (2006-2010) in order to demonstrate environmental benefit of the fabric filter baghouse upgrade.

  Covanta Response:
  Please see Table 1 below showing the requested information:

Table 1

	2006-2010 Average Actual Results	2016- 2019 Average Actual Results	% Reduction of Actuals
	(with ESP)	(with Baghouse)	
	Avg of All Boilers	Avg of All Boilers	Avg of All Boilers
Mercury (ug/dscm7)	9.59	1.24	87.04%
Mercury (lb/hr)	0.00333	0.000485	85.44%
Lead (ug/dscm7)	144.52	2.43	98.32%
Lead (lb/hr)	0.04774	0.00088	98.16%
Cadmium (ug/dscm7)	10.9	0.26	97.64%
Cadmium (lb/hr)	0.00378	0.0000933	97.53%
Arsenic (ug/dscm7)	0.87	0.14	83.74%
Arsenic (lb/hr)	0.000293	0.0000515	82.42%
Beryllium (ug/dscm7)	0.04	0.02	46.56%
Beryllium (lb/hr)	0.0000121	0.00000707	41.57%
Chromium (ug/dscm7)	2.23	1.57	29.43%
Chromium (lb/hr)	0.000757	0.000566	25.23%
Nickel (ug/dscm7)	4.08	1.86	54.49%
Nickel (lb/hr)	0.00147	0.000674	54.15%
PM-2.5 (lb/hr)*	5.33	3.28	38.46%
PM-10 (lb/hr)	5.33	3.53	33.77%

*Note the facility was not required to perform stack testing for PM2.5 until 2014 so PM-2.5 emissions were assumed to be equal to PM-10 emissions.

- Comment No. 2
  Section 3.2.2 Removal of Phosphoric Acid Fly Ash Treatment, Environmental Impact of Change – Please provide the monthly totals (in gallons) of phosphoric acid that was used by the ECRRF from 2015 through December 2017 (when the phosphoric acid treatment was discontinued) to further demonstrate the environmental benefit of the discontinuation of the phosphoric acid fly ash treatment system. In addition, please include a calculation of the estimated yearly reduction of truck traffic as a result of the discontinuation of the phosphoric fly ash treatment.

  Covanta Response:
  Please see Table 2 below showing the monthly total in gallons of phosphoric acid used by the ECRRF from January 2015 through December 2017.

Table 2

Month, Year	Total Phosphoric Acid Usage (gallons)
January, 2015	14,519
February, 2015	10,107
March, 2015	12,658
April, 2015	16,279
May, 2015	16,315
June, 2015	17,870
July, 2015	18,168
August, 2015	16,968
September, 2015	15,783
October, 2015	15,232
November, 2015	13,678
December, 2015	11,080
January, 2016	13,364
February, 2016	11,706
March, 2016	11,704
April, 2016	12,500
May, 2016	8,506
June, 2016	5,956
July, 2016	6,868
August, 2016	6,540
September, 2016	6,272
October, 2016	6,264
November, 2016	3,267
December, 2016	6,007
January, 2017	6,017
February, 2017	4,409
March, 2017	4,695
April, 2017	15
May, 2017	30
June, 2017	398
July, 2017*	2,184
August, 2017	11
September, 2017	77
October, 2017	0
November, 2017	0
December, 2017	0

* Additional phosphoric acid usage to empty out the storage tank

Records of deliveries of phosphoric acid were reviewed for the 5 years prior to the removal of the system. The number of deliveries of phosphoric acid received each year is shown in Table 3 below. Please note that this analysis through 2016 was also included with the application for the minor modification of the Solid Waste Facility Operating permit submitted on September 20, 2017.

Table 3 – Phosphoric Acid Deliveries 2012 – 2016 (trucks/month)

	2012	2013	2014	2015	2016	2017
January	5	4	4	5	4	2
February	4	4	3	3	3	2
March	4	4	4	4	5	2
April	6	6	4	4	3	0
May	5	5	5	6	4	0
June	5	4	5	5	1	0
July	5	5	5	5	2	0
August	4	5	4	5	1	0
September	5	5	5	4	2	0
October	5	5	5	5	2	0
November	2	5	4	4	1	0
December	3	5	5	3	2	0
TOTAL	53	57	53	53	30	6

Based on the delivery records, a maximum of 57 truck deliveries were received per calendar year over the last 5 years. The number of deliveries in 2016 were lower than normal due to lower usage of phosphoric acid which began to decrease as each baghouse was brought on line. Based on this data, it is estimated that between 53 and 57 truck trips per year were eliminated as a result of the removal of the phosphoric acid fly ash treatment system.

- Comment #3
  Section 4.0 – Updated Operations and Maintenance (O&M) Manual
  Section SD-2 at 5.3 – "Tipping Floor" of the O&M Manual shall be updated to state that an adequate number of trained and qualified operations technicians should continually inspect the tipping floor during all hours of waste receiving, not just during the hours of 10:30 am to 03:00 pm.

  Covanta Response:
  Section 5.3 of System Description SD-2 of the O&M Manual has been revised as requested and the entire revised section is included in Attachment 1 to this response letter. Note that Section 3.7 Bulky Waste Shear and Section 4.5 Bulky Waste Shear were also removed as this equipment was permanently removed from service in 1993.

- Comment #4
  Section 4.0 – Updated Operations and Maintenance (O&M) Manual
  Section OP-3 at 3.I.1 – "Precautions and Limitations (Cont')" of the O&M manual shall be updated to remove the mention of an electrostatic precipitator and include appropriate information regarding the baghouse equipment. This Section shall also be updated to include opacity provisions to comply with what is stated in Covanta Essex's Title V Air Permit (e.g. 10% opacity for 6 minutes).

  Covanta Response:
  Section 3.0 subsection I.1 of Section OP-3 of the O&M manual has been revised to remove references to an electrostatic precipitator and to add the appropriate information regarding the baghouse equipment as requested. Additional references to an electrostatic precipitator have also been removed from Section 3.0. The entire revised section is included in Attachment 2 to this response letter.

- Comment #5
  Please update the O&M manual to include the corrective measures taken to achieve compliance regarding the recent spent baghouse disposal incident as described in your letter dated June 25, 2021 to Stephan Szardenings of the Bureau of Hazardous Waste Compliance and Enforcement. This shall include, but not be limited to, prohibiting the use of any third-party contractors for the disposal of used bag filters and requiring all hauler trucks leaving the site for any reason to stop at the scale house for authorization to leave prior to leaving the site.

  Covanta Response:
  As stated in the June 25, 2021 letter submitted to the Bureau of Solid Waste Permitting, to prevent recurrence of this event in the future, Covanta Essex Company has modified Section API-3 of Volume IX of the Operations and Maintenance Manual to include the procedure for the disposal of used bag filters. This procedure, which prohibits the use of any third-party contractors for this task, is incorporated as a new paragraph f under Section C.1. Only employees of Covanta Essex will be responsible for taking the used filter bags that have been double bagged and sealed to the tipping floor for processing in the MWC units at the facility. Also, in addition to the regular scaling out of all refuse hauler trucks, ash hauler trucks, and metal hauler trucks, all other hauler trucks leaving the site for any reason will be required to stop at the scale house for authorization to leave prior to departing from the site. This will prevent unauthorized removal of waste from the site. This requirement has also been added as a new paragraph g under Section C.2. The revised Section API-3 is included in Attachment 3 to this response letter.

- Comment #6
  Covanta Essex Company Submittals in Response to Administrative Consent Order (ACO) EA ID #NEA 200001-07736 – Please provide an updated O&M Manual that includes all added protocols and procedures regarding enhanced iodine waste detection and removal at the ECRRF. The prohibition of iodine containing waste shall be expressly prohibited through language in the O&M Manual. Please include in the O&M Manual all forms, procedures, and protocols that have been submitted by Covanta Essex and recommended by Tetra Tech in response to the Department's ACO. The O&M Manual shall be updated to include, but not limited to, the following items:

a. An example of the informational flyers that are distributed by Covanta Essex to the Essex County Utilities Authority, Department of Sanitation of New York, and commercial haulers. Include frequency with which Covanta Essex distributes these flyers.
b. A description of Covanta Essex's updated hospital outreach program.
c. A description of Covanta Essex's updated procedures regarding Essex County Solid Waste Advisory Committee (SWAC) outreach, including the website link that has been created by Covanta Essex that lists all waste types that are prohibited from being accepted at the facility.
d. A description of Covanta Essex's updated procedures regarding outreach via invoicing. Please provide an example copy of this new invoice in the O&M Manual. Also, please include in the O&M Manual that all Essex County customers will be provided this website link via the ECUA SWAC.
e. A description and copy of the Covanta Essex Purple Plume Prevention Plan. The description shall include a provision that the plan shall be reviewed on a yearly basis to assess whether further improvements or enhancements could be made.
f. A description of the Covanta Essex Virtual Drive-By Procedure.
g. A copy of the "Covanta Essex Hospital Load Inspection Procedure." In addition, Section 2.c.ii of this Procedure shall be updated to include the following language: "The waste will be raked as thinly as possible so that most of the waste is visible." Also include a copy of the Covanta Essex Hospital Waste Load Inspection Form.
h. A copy of the modified Covanta Material Characterization Forms for Type 27 waste approvals and an updated description of the Type 27 waste approval process.
i. A copy of the updated solid waste inspection throwdown form. Also, the O&M Manual shall be updated to include the new inspection frequency and protocols – including the increased frequency to inspect a minimum of 10% of all waste loads per day and to include iodine containing waste as unacceptable waste. These inspections shall be truly randomized.
j. A description of the installation of high-definition digital cameras at appropriate locations throughout the facility – Please include: the number of cameras, the location of the cameras, and who is responsible for monitoring the cameras. Diagrams showing the locations of the cameras shall also be included in the O&M Manual.
k. A description of any new training programs, including training on monitoring truck deliveries and unloading, how to identify iodine-containing waste and the proper action to take if this waste is received at the facility, training on the use of digital cameras by tipping floor attendants, and any randomly staged drills. Include the frequency of these training programs.
l. A copy of the purple plume response procedures provided to Control Room Operators on response steps to be taken during a purple plume event.
m. A provision that signs at the truck entrance to the Covanta Essex facility will clearly indicate iodine as a prohibited waste.

Covanta Response:
An additional section has been added to Volume IX of the O&M Manual entitled Purple Plume Mitigation Plan (Plan). The section is numbered as API-3A and includes all forms, procedures, and protocols to prevent the delivery of iodinated waste to Covanta Essex as well as procedures and training to prevent processing of any iodinated waste delivered to Covanta Essex and deposited in the tipping floor area. The Plan is based on all forms, procedures, and protocols that have been submitted by Covanta Essex and recommended by Tetra Tech in response to the Department's ACO. The revised section API-3A is included in Attachment 4 to this response.

- Comment #7
  Section 6.0 – Changes in Environmental Impacts from Facility Operations
  Section 6.3.1 – Bypass Waste Summary – For the 2015-2019 review period, please provide the disposal facilities where the bulky/unprocessible waste was transported to. In addition, according to the Requirement Number 123 of Covanta Essex's SWF Permit, "The information submitted shall include, but not be limited to the following: …the weight of unprocessible solid waste removed for alternate disposal, and the facility receiving that waste for disposal." Please include the facility receiving the unprocessible waste for disposal on future SWF Monthly Operations Reports submitted by Covanta Essex. Simply stating, "The facility does not determine where unprocessible waste is delivered to," is not sufficient.

  Covanta Response:
  Between January 1, 2015 and December 31, 2019, all bulky/unprocessible waste collected on the tipping floor was picked up by a third-party hauler and was delivered to the following disposal facilities:

Destination	Tons Delivered (1/1/15 – 12/31/19)
HMDC Solid Waste Baler 100 Baler Blvd. North Arlington, NJ 07031	227.95 tons
Waste Management Julia Street Transfer Station 864 Julia Street Elizabeth, NJ 07201	242.60
IWS Transfer Station 375 Route 1 & 9 South Jersey City, NJ 07304	8.46 tons

- Comment #8
  Section 6.0 – Changes in Environmental Impacts from Facility Operations
  Section 6.3.11 – Ash Residue Generation and Characterization – Please provide the following information for this section:

  a. Monthly totals for the 2015-2019 review period for the amount of ash residue that was transported to the Gloucester County Solid Waste Complex Landfill and to the Covanta Metals Marketing, LLC facility.
  b. A summary of the ash processing system that takes place at the Covanta Metals Marketing, LLC facility and describe any environmental benefits of sending the ash to this facility as compared to the Gloucester County Solid Waste Complex Landfill.
  c. Monthly summaries of TCLP results for the 2015-2019 review period.

  Covanta Response:
  a. The monthly totals for the 2015-2019 review period of ash residue transported to the Gloucester County Solid Waste Complex Landfill are presented in Table 4 below. During this period, there was no ash residue transported to the Covanta Metals Marketing, LLC facility. The delivery of ash residue to the Covanta Metals Marketing, LLC facility did not begin until May, 2020.

Table 4 – Ash Residue Disposal (2015-2019)

Year	Destination	Tons Transported
2015	Gloucester County Solid Waste Complex Landfill	81,871
2016	Gloucester County Solid Waste Complex Landfill	185,924
2017	Gloucester County Solid Waste Complex Landfill	198,224
2018	Gloucester County Solid Waste Complex Landfill	192,459
2019	Gloucester County Solid Waste Complex Landfill	187,262

b. The following describes the ash processing system that takes place at the Covanta Metals Marketing, LLC facility in Fairless Hills, PA.

Covanta Metals Management ("CMM") operates a metals and aggregate recovery facility on a portion of Keystone Industrial Port Complex ("KIPC") which primarily comprises approximately 13 acres located at 500 Middle Drive, Fairless Hills, PA. The CMM facility is permitted under PADEP General Permit WMGM061SE001 for metal recovery and the processing, recovery, and beneficial use of aggregates from energy-from-waste (EfW) ash residue.

The CMM Facility includes two (2) metal recovery areas and an aggregate and metals recovery area (referred to as Total Ash Processing System ("TAPS")). In the TAPS facility, ash residue from EfW facilities is processed to recover metals (ferrous and non-ferrous) and aggregates for beneficial use. Recovered metals are sent to off-site metals recyclers and aggregate meeting the requirements of the General Permit is beneficially reused in asphalt production.

c. The monthly summaries of TCLP results for the 2015-2019 review period is presented in Table 5 below. Note that the results presented below are a summary of the monthly results based on the statistical analysis of 10 monthly aliquots of each monthly composite combined ash sample.

Table 5 – TCLP Monthly Summary Results (2015-2019)

Sample Month, Year	TCLP Concentration Results (mg/l)				
	Cadmium	Chromium	Lead	Mercury	Selenium
January, 2015	0.050^{U}	0.050	0.050^{U}	0.00040^{U}	0.082
February, 2015	0.050^{U}	0.051	0.050^{U}	0.00040^{U}	0.064
March, 2015	0.050^{U}	0.054	0.050^{U}	0.00040^{U}	0.074
April, 2015	0.050^{U}	0.050^{U}	0.050^{U}	0.00040^{U}	0.128
May, 2015	0.050^{U}	0.050^{U}	0.050^{U}	0.00040^{U}	0.067
June, 2015	0.060	0.050^{U}	0.050^{U}	0.00045	0.091
July, 2015	0.099	0.050^{U}	0.050^{U}	0.00094	0.060

Sample Month, Year	TCLP Concentration Results (mg/l)				
	Cadmium	Chromium	Lead	Mercury	Selenium
August, 2015	0.050U	0.050U	0.050U	0.00040U	0.114
September, 2015	0.078	0.050	0.050U	0.00062	0.116
October, 2015	0.050U	0.050U	0.050U	0.00040U	0.112
November, 2015	0.050U	0.050U	0.050U	0.00040U	0.050U
December, 2015	0.050U	0.050U	0.050U	0.00040U	0.051
January, 2016	0.050U	0.051	0.050U	0.00040U	0.084
February, 2016	0.050U	0.050U	0.050U	0.00040U	0.096
March, 2016	0.050U	0.051	0.050U	0.00040U	0.080
April, 2016	0.050U	0.050U	0.135	0.00040U	0.050U
May, 2016	0.050U	0.050U	0.050U	0.00040U	0.050U
June, 2016	0.055	0.050U	0.050U	0.00040U	0.050U
July, 2016	0.055	0.050U	0.050U	0.00040U	0.050U
August, 2016	0.050U	0.050U	0.050U	0.00040U	0.050U
September, 2016	0.050U	0.050U	0.050U	0.00040U	0.050U
October, 2016	0.050U	0.050U	0.090	0.00040U	0.050U
November, 2016	0.050U	0.050U	0.050U	0.00040U	0.075
December, 2016	0.050U	0.050U	0.183	0.00040U	0.092
January, 2017	0.050U	0.050U	0.050U	0.00040U	0.050U
February, 2017	0.050U	0.050U	0.050U	0.00040U	0.050U
March, 2017	0.050U	0.050U	0.050U	0.00040U	0.050U
April, 2017	0.050U	0.050U	0.050U	0.00040U	0.063
May, 2017	0.050U	0.050U	0.050U	0.00040U	0.052
June, 2017	0.050U	0.050U	0.050U	0.00044	0.074
July, 2017	0.050U	0.050U	0.050U	0.00040U	0.078
August, 2017	0.050U	0.052	0.050U	0.00040U	0.133
September, 2017	0.050U	0.050U	0.050U	0.00040U	0.057
October, 2017	0.050U	0.050U	0.051	0.00040U	0.060
November, 2017	0.050U	0.050U	0.051	0.00040U	0.055
December, 2017	0.050U	0.054	0.308	0.00040U	0.069
January, 2018	0.050U	0.071	0.050U	0.00040U	0.133
February, 2018	0.050U	0.051	0.071	0.00040U	0.104
March, 2018	0.050U	0.086	0.064	0.00040U	0.133
April, 2018	0.050U	0.050U	0.799	0.00040U	0.058
May, 2018	0.050U	0.050U	0.050U	0.00040U	0.050U
June, 2018	0.050U	0.050U	0.050U	0.00040U	0.114
July, 2018	0.050U	0.050U	0.050U	0.00040U	0.050U
August, 2018	0.050U	0.050U	0.050U	0.00040U	0.079
September, 2018	0.050U	0.050U	0.286	0.00040U	0.083
October, 2018	0.050U	0.050U	0.066	0.00040U	0.097
November, 2018*	NA	NA	NA	NA	NA
December, 2018	0.050U	0.050U	0.050U	0.00040U	0.061
January, 2019	0.073	0.050U	0.050U	0.00040U	0.050U
February, 2019	0.050U	0.050U	0.050U	0.00040U	0.057
March, 2019	0.050U	0.050U	0.050U	0.00040U	0.060
April, 2019	0.050U	0.050U	0.050U	0.00040U	0.050

Sample Month, Year	TCLP Concentration Results (mg/l)				
	Cadmium	Chromium	Lead	Mercury	Selenium
May, 2019	0.050[U]	0.050[U]	0.050[U]	0.00040[U]	0.056
June, 2019	0.050[U]	0.050[U]	0.050[U]	0.00040[U]	0.061
July, 2019	0.070	0.050[U]	0.050[U]	0.00040[U]	0.079
August, 2019	0.050[U]	0.050[U]	0.050[U]	0.00040[U]	0.112
September, 2019	0.050[U]	0.050[U]	0.050[U]	0.00040[U]	0.084
October, 2019	0.050[U]	0.050[U]	0.050[U]	0.00040[U]	0.076
November, 2019	0.050[U]	0.062	0.050[U]	0.00040[U]	0.072
December, 2019	0.050[U]	0.050[U]	0.077	0.00040[U]	0.059

* As previously discussed among Covanta and NJDEP representatives and as set forth in the letter dated December 28, 2018 submitted by Covanta to Mr. Anthony Fontana of the Bureau of Solid Waste Permitting, the November 2018 ash samples were deemed not representative and therefore not subjected to Toxicity Characteristic Leaching Procedure (TCLP) analysis.

U: The analyte was not detected in the sample. Value shown is the calculated Reporting Limit (RL) which is the lowest quantifiable reporting limit that can be achieved when an analysis is performed under ordinary conditions.

If you have any questions regarding these responses, please do not hesitate to contact me.

Sincerely,

Patricia Earls
New Jersey Regional Environmental Manager

cc: Kimberly Beccia, Bureau of Solid Waste Permitting
Tom Byrne, Bureau of Solid Waste Permitting
Gina Lugo, Bureau of Solid Waste Compliance & Enforcement
Rajendra Gandhi, Bureau of Solid Waste Compliance & Enforcement
Jeffrey Meyer, Bureau of Air Compliance & Enforcement - Northern

APPLICANT'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I understand that, in addition to criminal penalties, I may be liable for a civil administrative penalty pursuant to N.J.A.C. 7:26-5 and that submitting false information may be grounds for denial, revocation or termination of any solid waste facility permit or vehicle registration for which I may be seeking approval or now hold.

David Blackmore
Print/Type Applicant/Owner Name

Signature of Applicant/Owner

11/10/22
Date

Facility Manager
Title

David Blackmore
Print/Type App./Operator Name

Signature of Applicant/Operator

11/10/22
Date

Facility Manager
Title

Print/Type Co-Applicant Name

Signature of Co-Applicant

Date

Title

Attachment 1

COVANTA
ENERGY
for a cleaner world

COVANTA ESSEX COMPANY

ESSEX RESOURCE RECOVERY FACILITY

REFUSE RECEIVING & HANDLING SYSTEM

SYSTEM DESCRIPTION NO. 2

VOLUME I

REVISED, MAY 1990
REVISED, SEPTEMBER 1990
REVISED, JANUARY 1994
REVISED, MAY 1995
REVISED, SEPTEMBER 2003
REVISED, MAY 2009
REVISED, MAY 2011
REVISED, JANUARY 2022

APPROVED BY: _____ **DATE:** 1/16/22

RECORD OF CHANGES

Change #	Date	Affected Pages	Purpose
1	5/90	2, 5-8, 19,21,23,24	Correct Errors
		All page numbers	Changed to SD2-#reference
2	9/90	4, 7, 8,15,19,21	Correct Errors
3	1/94	10, 11, 12,13,14,15, 16, 18, 22,23,24,25 26, 27, 28	Correct Errors
4	5/95	Addition of Section 5.0	Addition
5	9/03	All	Review & correct errors
6	5/09	All	Review, add waste diversion project description
7	5/11	All	Review for Solid Waste Permit Renewal
8	1/22	All	Incorporate changes outlined in Technical NOD response for Solid Waste Permit Renewal

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-Fire Protection System SD2-6

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1.0 System Function

The tipping floor operates 6 days a week. Approximately 250-400 refuse trucks are processed at the facility per day.

The facility receives approximately 18,000 to 20,000 tons over a six day period each week. This is to ensure that sufficient quantities of refuse are available to support boiler operation when refuse is not being received. The main objective of this system is to provide a 3-4 day supply of refuse. This is accomplished by storing the refuse in various sections of the refuse bunker. Refuse inventory typically ranges from 5,000 to 15,000 tons. The secondary objective is to facilitate the diversion of 100 to 300 tons per day to alternate facilities.

2.0 Main Flow Path

Tipping Operation for Trucks Delivering MSW

The refuse flow path begins when trucks carrying refuse enter the facility from the south (Figure 1). The trucks proceed to the scales after they have entered the facility. The scales measure the weight of the truck and the refuse load. Once the trucks have been weighed, they go to the tipping bay. There they are directed to an unloading bay by the tipping floor operator. The trucks maneuver on the large tipping floor to align with one of the tipping ports and unload the refuse.

Two refuse cranes are used to transfer refuse within the refuse bunker or to the refuse feed charging hopper. In order to help stabilize furnace performance mixing of the refuse is performed within the bunker. This helps to make the refuse more uniform in combustion characteristics. The refuse feed charging hopper stores refuse and guides it to the upper feed chute. The upper feed chute fills with refuse and maintains an air seal between the atmosphere and the furnace.

From the upper feed chute refuse falls to the lower feed chute. The lower feed chute directs refuse to the ram feeder. A shut-off damper is positioned between the upper and the lower feed chutes to seal the boiler during start up and shut down.

Waste Diversion Operation

Waste which will be diverted to other facilities will be temporarily stored near refuse Bays 7, 8 and 9. This pile will be stocked 10’ – 15’ in height and 10’ – 40’ in length. Each Bay is approximately 17’ in width.

2.1 Minor Flow path

The minor flow paths included in the Refuse Receiving & Handling System include:

Cooling Water System
Fire Protection System

Cooling Water System

Cooling water is used to cool the lower feed chute, since it is exposed to the heat from the furnace. Water from the closed cooling water system enters both sides of the lower feed chute. Cooling water is regulated by a flow regulating valve CC-139. Water flows through side wall water jacket and cools the lower feed chute. Water from the side walls is piped to the rear jacket of the chute and is then discharged from the chute to the cooling water surge tank through return piping mounted on both sides of the lower feed chute. The chute coolers are not pressure vessels and water should not exceed 15 psig.

Fire Protection System

Two fire stations are provided above the refuse bunker to extinguish fires which may start in the refuse bunker or the feed chute. The stations are equipped with water cannons for directing water to the burning refuse. The tipping floor is equipped with an overhead sprinkler system. A sprinkler system is also installed above the bunker and the crane to protect the units and their festoon cabling.

3.0 Component Description

The components included in this system include:

Scales
Tipping Bay
Waste Diversion Operation
Refuse Bunker
Overhead Refuse Crane
Orange Peel Grapple
Refuse Feed Charging Hopper

3.1 Scales – Tipping Floor Operation

Function

The function of the truck scales is to provide the scale operator with a gross, net, or tare weight of a truck. The weight of the refuse dumped at the plant site is required for billing and reporting purposes.

Description

Two 100-ton, 60'x 10', truck scales, for incoming trucks are located to the southeast of the tipping bay next to the scale house. Two 100-ton scales for outgoing empty refuse trucks and for those loaded with ash, ferrous, and bulk removal are also provided.

The scale is equipped with a scale house operator's console that contains a digital display for each scale. The digital display has a 120,000 lb capacity with weight increments of 10 pounds and an automatic zero. The instruments are solid state integrated circuits. The

display is composed of at least six digits 3/4 inches in height. The scale is also equipped with digital TARE entry switches to match the weight display. A Gross-Net switch is also provided to select the read out display to be either gross weight or net weight. In the Net position, the value set on the Tare switches is subtracted from the gross weight and the net weight will appear on the display. All trucks are weighed for both tare and gross weights at this facility.

3.1a. Scale – Waste Diversion

A 70'x10' above grade scale will be utilized to weigh trailers prior to and after loading operation. Scale will be located along the east wall of the tipping floor.

Operational Data

Scale Design Data – Tipping Floor Operation
Manufacturer: Weigh-tronics, Inc & Fairbanks Scale
Capacity: 60 Ton (3)

Scale Design Data – Waste Diversion Operation
Manufacturer:
Capacity:

3.2 Tipping Bay

Function

The function of the tipping bay is to provide ample space for refuse trucks to maneuver, unload and exit. The tipping floor will also provide an area for a temporary storage pile of material to be diverted to other licensed facilities.

Description

The tipping bay, shown in Figure 2 is located adjacent to the refuse bunker and is accessed through two roll-up doors, one located on the northern roadway and one located on the southern. The floor area is 272 feet long by 112 feet wide. The tipping floor can handle up to 16 trucks at one time, though the average number of trucks for any given time is expected to be less, usually about 6-8. The tipping bay is under a slight negative pressure to ensure that no odors escape the building.

A separate high cycle door will be added to the entrance area at the northeast corner of the tipping bay to allow transfer trailers access to the waste diversion area of the floor.

3.3 Refuse Bunker

Function

The function of the refuse bunker (pit) is to store large quantities of refuse for use in the boiler.

Description

The refuse bunker, shown in Figure 4, is a large storage area located adjacent to the tipping floor. It is approximately 69 feet wide by 269 feet long by 95 feet deep. The refuse bunker has a storage capacity of approximately 16,000 tons which is approximately a 5 to 6 day supply of refuse with all three boilers operating at maximum continuous rating (MCR). Refuse cranes are mounted above the refuse bunker to transfer refuse within the pit and to transfer it to the refuse feed charge hoppers.

3.4 Refuse Cranes

Function

The function of the refuse cranes is to transport and mix refuse within the refuse bunker and to deliver refuse to the refuse charging feed hopper.

Description

Two, 100% capacity refuse cranes, shown in Figure 5, are located above the refuse bunker, at elevation 101'-1". The cranes are sized to hold approximately 8.5 tons. This is based on the following assumptions and calculations:

Crane Capacity = 12.00 tons (grapple weight) + 8.5 tons (trash weight) = 20.5 tons

The refuse cranes consist of the following components:

Bridge Drive System
Trolley Drive System
Holding/Closing Hoist Drive System
Six Tine Orange peel Grapple
Railways
Motors
Motor Brakes
Circuit Switches
Festoon System
Auxiliary Hoist

Bridge Drive System

The bridge drive system is used to position the crane on the rails above the refuse bunker. It uses two motor drive assemblies. The drive assemblies, shown in Figure 5, are located on the east and west end of the bridge. They consist of a magnatorque brake, a 40 HP motor, a motor brake, and a gear case connected to a drive wheel by a shaft. The bridge drive has a maximum speed of 250 feet per minute (fpm).

Trolley Drive System

The trolley drive system positions the grapple over the refuse bunker. The trolley is driven by a 30 HP motor connected to a gear box to two drive wheels via a drive shaft. The drive is slowed by motor and magnatorque brakes. The trolley drive system has a maximum speed of 250 fpm.

Holding and Closing Hoist Drive System

There is a drive system and drum for each of these two functions. The hoist drive system is driven by a 200 HP motor connected by a coupled drive shaft to the drum by a reduction gear. Magnatorque and motor brakes act on the shaft to reduce speed. The holding hoist drive is used for raising and lowering the grapple. The holding/closing hoist has a maximum speed of 250 fpm. The closing drive is used to open or close the grapple. To move the grapple vertically, and maintain the open or closed position, both lines must be moved simultaneously.

Each drive assembly is made up of the following components: motor, motor brake, magnetorque brake, gearbox, and drive shaft(s).

--Motor

All motors are 480 volt, 3 phase AC. They are synchronous motors connected to the drive shaft via a coupling to enable easy removal.

Inspection

Motors should be clean to allow proper cooling. The holding and closing motors are equipped with separate blowers which should also be inspected.

--Motor Brake

This is the On-Off brake. It is opened by an electromagnetic solenoid and closed by a spring. Electricity to the solenoid is supplied whenever the motor is energized, thus releasing the brake when movement is desired. During all movement the brake is off.

The brakes contain a self-adjustment mechanism which consists of a stack of spacer plates enclosed in a housing through which the rod that connects the brake jaws passes. As the brake lining wears, the rod moves further through the spacer plate housing each time the brake is released. When the stroke length reaches a certain point, the spacer nearest the brake wheel automatically drops from the stop on the end of the brake rod. The next time the brake is set, the stop butts against the remaining spacers and the brake stroke is shortened by the width of one spacer. This cycle repeats throughout the life of the liner.

Inspection

Check brake pads for wear and that all bolts and fittings are tight.

--Magnetorque Brake

This brake, shown in Figure 6, is the speed control brake. Electromagnetic poles in the brake oppose rotation when the speed needs to be reduced. The larger the difference between the desired speed and the actual speed, the more current will be supplied to the brake, and the more counter-torque will be applied. The brake allows for an infinite range of speed control.

--Gear box

The gear box controls the ratio of the motor speed to the drum or shaft speed.

Inspection

An oil level must be maintained in the gear box. This level should be checked every shift for each gear box. Inspect the box seals for leaks and report any excessive leaks.

--Drive Shafts

Drive shafts contain couplings between components to allow removal of components without affecting the position of connected shafts. Check at least once per day during walkdown.

-Circuit Breakers

Circuit breakers are installed to provide over current protection to the electrical equipment on the cranes. They also provide positive electrical isolation during outages.

The 480 volt supply is transformed from the 4160 volt switch gear SG-904 and SG-906 for the north and south cranes, respectively. 480 volts is sent from transformers TR-912 and TR-913 to the main disconnects (HC-DS1 and HC-DS2) in the crane switch gear area. This breaker then feeds the five functions: bridge, trolley, holding, closing, and auxiliary hoist motors. Any time these components require maintenance or any time a crane inspection is being performed, this switch must be locked off.

-Refuse Crane Operational Limit Switches

Function

The functions of the refuse crane limits are, primarily, to automatically slowdown or stop a crane component before reaching the limit of its travel. Various limit switches are employed by the automatic crane operating system.

Description

The sections which follow will describe the various types of limit switches used on the P & H overhead refuse crane.

--Mechanically Activated Toggle or Flop-Type Switches

This type of switch, mounted to the rail support, is actuated by contact made with a piece of metal attached to the moving part (bridge or trolley platform) which is to be limited. The switch is either on or off. When the switch if off there is no limit applied. Throughout most of the operating range of the bridge or trolley the switch will be off. However, as the edge of the rails is approached the metal plate will contact the limit switch and flip it to the "on" position. When the switch is on, a relay in the control circuit for the motor will cause the motor to either slowdown or stop completely.

These switches, shown in Figure 8 are rugged and reliable. Normal operational inspection should be limited to checking the tightness of the mounting bolts and visually verifying the proper "on" or "off" position. Do not flop the switch unless a problem is suspected, as mistakenly leaving the switch in the wrong position will cause it to be destroyed on the next pass of the crane, or no trolley movement possibly creating delays to crane operations when needed.

--Electro-Magnetic, Proximity "Go" Switches

This type of switch is mounted on the moving object to be slowed or stopped. A metal plate fixed to the rail support structure will actuate this switch without making contact. This is done through the use of a magnetic core in the switch which will move the switch from the "off" to the "on" position when an iron plate is next to (or in the same "proximity") as a switch.

The switches which limit bridge and trolley movement can be found on an arm hanging over the side of either component. They are spaced so as to pass freely and without contact between the iron actuator plates. It is extremely important that when working on or inspecting a refuse crane none of the switches or actuator plates be stepped on or moved in any way.

Operational inspection should include a check to ensure that all the mounting bolts of the plates and the switches are tight, and that the electrical connections to the switches are tight and in the proper location, and switches aren't covered with iron filings giving false readings.

In addition to providing for slowdown or stop functions the proximity switch can be used to determine the position of the bridge or trolley for automatic operation. This is done by placing a metal plate on one of the wheels and attaching a proximity switch close to the wheel such that when the wheel makes a revolution it will activate the switch which acts as a counter. By knowing the distance around the outside of each wheel and multiplying this by the number of turns counted by the switch, the location of the bridge or trolley can be

determined. Other positioning proximity switches used in automatic operation are mounted similarly to the slowdown and stop switches. These switches reset the wheel counter if there is any wheel slippage.

--Rotational Gear Type Limit Switches

In order to determine the position of the grapple during crane operations rotational switches (Figure 3) attached to the grapple closing drum shaft. With the grapple close to the desired limit position the switch can be set. Whenever the drum rotations return to this point the switch is turned "on". When "on" the switch will limit drum rotation by slowing or stopping the motor.

--Mechanical Grapple Stop Limit Bar

The only function of this device is to stop motion of the grapple upwards so that it does not contact the holding or closing drums or the trolley platform. The switch (Figure 5) operates on a counterweight system, and is very similar to a breaker. Two of the three AC power feed cables to each of the holding and closing drum motor are fed into the switch housing to a contact. As long as the contact switch is closed power will flow out to the motor. One contact for each of the four switches in the cubicle is attached to an operating bar which extends out of one side of the cubicle. Attached to the free end of this bar is a counterweight mechanism. When the counterweight is allowed to move freely the operating bar will rotate and the switch contacts will be opened, disconnecting power to the motors.

During normal operation the switch counterweight is held in the closed position by the weight of the crane limit bar which is attached to the switch counter weight by a cable. The weight of the crane limit bar holds the contact switch shut. However, if the grapple were to come up high enough to contact the limit bar, the cable between the bar and the switch counterweight will slacken and the switch will open.

--Anti-Collision Bridge Limits

Each bridge has a device mounted on it which sends a signal to the other bridge to determine how close the bridges are. If the bridges get too close together, a red alarm warning light goes on in both refuse crane cabs. If the bridges are close they will not travel toward one another.

-Switch Functions

This section will describe the functions of the various switches for each of the various crane functions.

--Bridge

The main concern with the bridge function is to slowdown and stop the bridge motion before the bumpers hit the mechanical stops at either the east or west edge of the rail. To accomplish this there is a set of electrical proximity limit switches at each of the rail, east

and west. As the bridge hits the first switch, the motor is slowed down. The second switch stops the motor. Both types of switches are provided for redundant protection. One center lane located approximately 1/2 way on the bridge will allow the bridge to come all the way to the back to the north or south wall to allow for crane maintenance.

--Trolley

The trolley limits are similar to that of the bridge with a few minor differences. A set of mechanical limits is mounted on the east and west sides of one of the trolley rails. As the trolley moves in either the east or west direction, it operates the first switch which slows down the motor speed. When the trolley platform reaches the second switch the power to the trolley motor is cut off, and the platform will coast to a stop.

On the cab side of each bridge rail, two long pieces of metal stock are mounted beneath the rail to actuate proximity switches mounted on the platform. The first plate going south actuates the slowdown function and the second the stop function, only in combination with grapple height. The function of these limits is to protect the festoon power supply cables which are draped along the south side bridge rail. If the grapple were in the raised position it could make contact and damage these festoons at the east end of trolley travel. When the grapple is not at a high position these proximity limits switches will not effect operation. At the west side of each trolley rail, two more metal plate proximity switch actuators are mounted. These are called the hopper slowdown and stop limits due to their location. Finally, there is a short plate mounted in the middle of the trolley rail which functions to reset the automatic control system trolley location.

--Holding Drum

A gear rotational limit switch is attached to each end of the holding drum. One end of the drum has the upper limit switch which stops the upward motion of the grapple before it hits the mechanical grapple stop.

The other end of the drum has the Trolley Festoon Zone Upper Limit Switch which works in conjunction with the trolley limits. This end also has the upper slowdown switch to slowdown the upward movement of the grapple when it is getting close to the Bridge.

In addition the mechanical limit bar protects both the holding and closing drums from being struck by the grapple by cutting power to the motors.

-Festoon System

The cranes are provided with a festoon system used to gather in and let out electrical wire the full distance of the refuse crane's travel. The system consists of railways with rollers to guide the gathering and letting out of electrical wire to the crane. Shock cords are provided with each of the loops to prevent snapping the wires on full extension of the crane, which should be inspected during the walk down.

-Auxiliary Hoist{tc \l 3 "-Auxiliary Hoist"}

The auxiliary hoist is located on the refuse crane bridge. It provides the operator with a service crane to pick out small to medium size non-combustible materials. The auxiliary hoist can travel at a maximum speed of 80 fpm and has a capacity of 3 tons.

Refuse Crane Operating Data

Manufacturer: P & H
Lifting Capacity: 20.5 tons
(with grapple): (16 yds grapple)
Grapple Capacity: 8.5 tons
Maximum Speeds:
Bridge: 250 fpm
Trolley: 250 fpm
Hoist: 250 fpm
Auxiliary Hoist: 80 fpm
Lift: 103ft 6in.
CMAA Classification: Class F
Auxiliary Hoist Capacity: 3 Tons

-Railways

Each of the railways provide guides and support track for the bridge and trolleys and are equipped with hydraulic bumpers on the corners of the unit. The bumpers each have sufficient energy absorbing capacity to stop a fully loaded crane when traveling at full rated speed without causing damage to the bumpers. Stops are provided on each of the bridge girders for contact with the bumpers.

3.5 Six Tine Orange Peel Grapple

One grapple, shown in Figure 8, is installed per refuse crane assembly. Each 16 cubic, yard, grapple weighs 12.0 tons has a capacity of 8.5 tons, per load. The grapple consists of the following components:

Equalizing bar
Guide rollers
Upper and Lower Sheave
Press Rod
Tines
Lower sheave
Holding/Closing line assembly.

-Equalizing Bar

The equalizing bar ensures that equal tension is maintained on all lines when lifting a load. The bar pivots around a center pin connected to the grapple. Any slight unevenness of the

cable length will be nullified by the equalizing bar. In addition, the equalizing bar allows the grapple to rotate if the load is off-center. If the equalizing bar is severely uneven, though it could cause the cables to wrap on the drum unevenly and cause the cables to break.

-Guide rollers

The guide rollers are located on the equalizing bar and the upper sheave to keep the hoist ropes in position and reduce wear which would otherwise occur on the top of the upper sheave platform.

-Upper Sheave

The upper sheave assembly is pinned to the top of each press rod and is located beneath the equalizing bar. It contains the sheaves (pulleys) through which the wire rope for the closing line passes, and the guide rollers for the closing lines.

-Press Rods

The press rods are provided for support and to act as a pivot between the upper sheave assembly and the tines. The press rod is used to direct the tine motion by maintaining a fixed distance between the upper sheave assembly pin and the tine pin.

-Tines

The tines are pinned to the press rods and the lower sheave assembly and are used to grab refuse from the pile. There are six, symmetric, tines which make the orange peel grapple. The angle of the tines ensures good penetration for digging.

-Lower Sheave Assembly

The lower sheave assembly is pinned to the tines and contains the sheaves through which closing line wire rope is fastened. The lower sheave assembly drops to its lowest position as the closing lines are let out. Since the tines are connected to the press rod which is fixed to the upper sheave, the tines rotate out and become vertical.

-Holding and Closing Lines

The holding and closing lines are wrapped around their respective hoist drums and are let out or taken in to operate the grapple. There are two separate cables for each drum. The holding lines are attached to the top of the grapple and will move the grapple vertically. The closing lines are passed through the grapple and wound around the sheaves. Each closing line enters through the upper sheave assembly plate straight down to the first lower sheave. The cables passes around this sheave and back up to the upper sheave. Finally, the cable loops back down through the second lower sheave and is attached to the closing equalizing bar located between the upper sheaves. All cables are connected to the grapple by a wire rope socket. Holding and closing drums each have a sufficient number of wraps to allow the grapple to operate to the lowest pit level.

3.6 Crane Operator Control Room

Function

The function of the crane operator control room is to provide a safe and convenient location for the crane operator to manipulate the refuse crane.

Description

The crane operator control rooms are located at the top of the refuse bunker at elevation 85 feet. There are two control rooms, one each at the north and south ends of the refuse bunker. The control rooms contain the controls for the refuse cranes and the auxiliary hoist. The control rooms are equipped with hinged windows on the front and sides to provide the operator with a clear view of the refuse bunker. They are environmentally conditioned and pressurized to minimize odor and dust collection.

3.7 Bulky Waste Shear - DELETED

4.0 Controls Description

4.1 Scales

As a refuse truck enters the plant it must be weighed in order to properly bill the contractor. The truck stops on the scale and the weight indicator records the trucks actual weight.

This function is controlled by the scale house computers located at the scale house.

Transfer trailers for waste diversion will be weighed in and out at the tipping floor area on a separate scale. Scale weights will be electronically registered.

4.2 Tipping Bay

The utility operator controls the dumping of refuse into the refuse bunker. He guides the refuse trucks to the appropriate tipping port by using hand signals or telling the driver when he stops at the entrance door. He will also direct the appropriate quantity of trash (100-300 TPD) to be staged on the tipping floor in front of bays 7, 8 or 9 for diversion.

4.3 Refuse Bunker

The refuse cranes are used to move the refuse from the receiving bay doors directly into the charging hopper or into the storage pit for later use. The amount of refuse sent into the boiler charging hopper depends on the boiler load, rate of burning and quality of the refuse. Because the refuse boilers burn the trash at a controlled rate, the charging hoppers only need to be fed as they require more fuel. The remainder of the trash from the receiving bay door is stored on the side of the refuse bunker until needed as fuel. It is very important for the crane operator to monitor the level of fuel in the charging hopper.

A video camera that is located above the charging hopper sends a signal to a television monitor in the crane operator's station. By watching the monitor, the level in the charging hopper can be observed and the hopper refilled as required. The operator should continually check the monitor and maintain the charging hopper level.

-Bunker Management

The goal of bunker management is to coordinate the operation of both cranes to maintain an adequate flow of refuse into the hoppers and keep the refuse storage pit stackable.

The crane operator is responsible for carrying out the pit plan and keeping the CRO constantly informed of changes in the bunker and maintaining an area for truck discharge. Proper management will allow the maximum amount of refuse to come into the facility. To accomplish this, maintaining an open tipping trench (the area of the pit which receives refuse from the trucks) is vital. Refuse should be moved from the trench to the west side of the pit or into the hoppers.

If two cranes are operating to clear the trench, both cranes should operate on their sides of the bunker. If only one crane is operating, it should be used to charge the hoppers and clear the entire trench area.

In general, pit management plan will be developed each day to accommodate the particular refuse conditions. The following is a guide to how this plan is developed.

-Shift Responsibilities

During the day shift two cranes are in operation to maintain the flow of refuse. Typically, during two crane operation with all three boilers on-line, the south crane will feed hopper three and the north will feed hoppers one and two. The south crane must continually move refuse to the north to ensure even pit stacking. The cranes work in conjunction with the front-end loader to move the trash from the tipping bay. Refuse not fed directly to the hoppers should be stacked along the middle of the wall, adjacent to charging hoppers two and three. While stacking it is important to ensure that the trash is stored level enough to evenly to prevent collapse. It is also necessary to maintain as many tipping port chutes clear as possible.

During the evening shift, after the refuse trucks have finished unloading all of the trash, refuse should be taken from the trench and the wall next to the hoppers. Good mixing of refuse should be performed. If the trash in the bunker is squared-off and neatly stacked, it is easier for the crane operator to handle the following day's deliveries.

During the weekend refuse is received on Saturday only. Therefore, the crane operator should pick the refuse evenly from the bunker. Focus on clearing the trench as low as possible. Dig one end wall pile down to the base of the bunker on alternate weekends to keep the refuse from sitting at the base of the pit for long periods of time. This will prevent excessive decomposition of refuse which occurs over time. The decomposition will cause methane and heat to be produced, which increases the chance of a bunker fire.

-Maintaining Good Fuel Flow

The crane operator is also responsible for the mixture of trash that is fed to the furnace. Throughout the period of a day, many trucks dump refuse into the bunker. Although a large portion of the material is combustible, some is not. To the extent that bulky waste is observed in the pit, the crane operator will endeavor to remove it from the fuel supply. In order to maintain optimum firing conditions, the refuse that is passed into the pit and eventually into the charging hopper must be inspected and mixed by the operator before being dropped directly into the hopper.

The proper mixture of trash will promote stable, uninterrupted, and proper furnace firing conditions. This mixture should consist of heavy and light refuse, paper, metal, and wet and dry refuse. It may be difficult for a crane operator to know exactly what is in the crane grapple, but mixing and fluffing the trash will give the operator a good indication of what will go into the charging hopper.

The **mixing** of refuse is accomplished during the process of stacking and storing the refuse. By watching what is discarded into the refuse storage pit through the tipping port, the crane operator can decide on the quality of the load. For example, too much dry paper will burn too fast, while too much metal will not burn at all. By taking the load and spreading it out around the storage pit, the tipping port can be cleared of trash, and the refuse can be mixed in the bunker to obtain a good refuse mixture.

Fluffing the refuse is another method of mixing the refuse. Fluffing the refuse is accomplished by picking the load from the pit, elevating the load a few feet from the pile, and dropping the load back into the pile. This allows some of the trash to land away from the grapple tines and gives the grapple a less compacted pile from which to grab the trash. This is especially important where digging down a storage pile. The refuse under the pile is compressed, and often a full grapple load will be difficult to obtain without fluffing the pile.

4.4 Crane

During operation, the crane operator uses joy sticks mounted on the operator's chair to position the crane over the refuse bunker, retrieves a load and deposits the load in one of the charging feed hoppers or in another section of the refuse bunker.

The grapple is operated to pick and drop loads with two sets of cables or wire rope. The holding line, which attaches directly to the top of the grapple, through an equalizing bar, positions the grapple height. The closing line will operate to open and close the grapple lines when it is moving and the holding line is stationary.

To pick a load, the opened grapple must be lowered onto the pile. To do this both the holding and closing cable joy sticks are moved to the lower position and the drums pay out cable. The grapple will hit the pile and the tines will penetrate the refuse. Stop both cables, and then carefully move only the closing cable up. This will shorten the distance between the upper and lower sheaves and close the bucket. Stop closing the grapple when the closing cables begin to lift the grapple. Take up the slack on the holding cables. Both

cables should now lift the grapple together. If the closing cable is closed too fast, it will snap tight and try to lift the full load. This will often result in breaking a cable.

At this point, the fully closed and loaded bucket should be lifted by positioning both the holding and closing lines to the hoist (up) position.

NOTE: If only the holding line is raised, this will OPEN the grapple by causing slack in the closing line.

The grapple can then be positioned as desired by moving the trolley and bridge with the joy stick. When in position, the normal dumping method is to maintain the height with the holding lines and slacken (lower) the closing lines. This will cause the tines to spread and the refuse to fall.

-Crane Safety

The equipment used can be very dangerous to persons who are careless. Because of these dangers, forming safe and intelligent work habits is as important as knowing the equipment. Some of the primary objectives a crane operator should meet in training are to recognize and correct dangerous conditions and avoid unsafe acts. The following subsections list some general rules of safety to be followed when operating the crane and its auxiliary process refuse-handling equipment.

The following rules for safety of the crane and its auxiliary equipment should be followed at all times.

1. Never operate a crane under the influence of drugs or alcohol.

2. Never operate the crane when tired.

3. Avoid becoming distracted from the crane when it is in motion.

4. Practical jokes are not tolerated.

5. The bucket of the crane should not be used as an elevator for anyone. No one should ride on the crane at any time.

6. Never block out safety devices, such as limit switches, in order to allow operation of the crane in a manner not intended by the manufacturer.

7. Whenever leaving chair power down the crane.

8. Never rely on limits. They're there as backups not primary protection.

-Process Operations

During the crane operation, a few safety rules should be acknowledged. These rules can be broken down into preoperational, operational, and post operational safety rules.

-Preoperation Precautions

1. Only properly designated persons should operate the cranes.

2. Always inspect the crane thoroughly before operating the crane.

3. Before climbing on the crane to check it, power down the crane by opening the circuit breaker to the crane.

4. While changing shifts, communicate with the previous operator about any necessary information regarding the condition and operation of the crane.

-Walk down Inspection

Inspect the following:

1. All brake linings and gaps.

2. Bridge and trolley for obstructions.

3. All bridge and trolley wheels.

4. Motor leads and festoon cables.

5. Gear boxes for oil leaks.

6. Lubrication and grease lines for leakage.

7. Drum bearings and shaft coupling for integrity.

8. Wire rope for frays and breaks.

9. Bucket or grapple for cracks or wear.

-Preoperation Inspection

1. Do visual inspection of cables and grapple by bringing grapple close to cab.

2. Run trolley and bridge east/west and north/south to listen or see any abnormal noises or operations.

-Operational Precautions

1. Always keep both hands on the joy stick controls at all times when in the crane operator's seat.

2. In order to stop the crane due to an emergency hit the emergency stop button.

3. In emergency conditions, do not panic.

4. In emergency situations, always stay in constant communication with the control room.

5. Perform only as many functions at a time as you can handle; do not try to do too much.

6. In an emergency condition, once the crane has stopped all motion, immediately power down the unit.

7. Always know the location of all cranes in and out of service.

8. Always make sure the load is free from all obstructions before lifting or traveling.

9. Check all electrical operation limit switches and report any abnormalities to the supervisor immediately.

10. Avoid sudden starts and stops.

11. Stopping the crane by bumping into the runway stops is not permitted.

12. If the electrical power fails, place all controllers in the OFF position until power is restored to prevent sudden and unexpected movement when the power is restored.

-Post operation Precautions

1. Before leaving the crane operators seat, always power down the unit.

2. When parking the crane on the service bay area, allow the crane holding and closing lines some slack.

3. While changing shifts, communicate with the relief crew any conditions about the operation and condition of the crane.

4. Always clear the load from the bucket before spotting the crane.

5. Before leaving the crane operator control room, always properly secure the crane.

6. Repairs and adjustments should be made only by properly designated and authorized personnel.

-Crane Operator Conduct

1. The operator shall respond to signals from a person directing the lift, or an appointed signal person. When a signal person is not available, the crane operator is responsible for the lifts. However, the crane operator shall obey a stop signal at all times, no matter who gives it.

2. Each operator shall be responsible for those operations under the operator's direct control. Whenever the operator has a question about safety, the operator shall consult with the supervisor before handling the loads.

3. All cranes should be secured when being left unattended. Set the bridge parking brake, power down the unit and controls, and leave the hoist lines slacked while the unit is not operating.

4.5 Bulky Waste Shear - DELETED

5.0 Truck Traffic Abatement Plan

The goal of this plan is to assist facility personnel in reducing on-site refuse truck waiting times to the lowest practical duration. The facility uses this all inclusive plan which incorporates coordination of the scale house, tipping bay personnel, and refuse crane operation, along with the maintenance of all the related equipment. The objectives of this section will be monitored by plant management and supervisors to ensure that the objectives are met and in order to identify problem areas quickly and to then institute corrective action, where necessary.

The facility is approved to receive refuse trucks 24 hours 6 days per week. Operational history indicates that peak hours are generally between 10:30 AM and 2:00 PM. In order to minimize truck queuing times throughout the day and specifically during the peak receiving time, the following guidelines have been instituted.

5.1 Refuse Pit

During the evening hours, the crane operators are required to ensure the refuse pit is in good order for acceptance of refuse during the early morning rush (06:00 a.m. to 07:00 a.m.). The objective is for the trench to be dug down throughout the evening in order to attain a target level of greater than 20′ below the tipping floor elevation by 6:00 a.m. This is a critical element of the plan and must be strived for in order to minimize truck traffic. Without the trench in good condition by 06:00 a.m., it may fill up quickly causing the tipping floor traffic to back up.

5.2 Scale House

During the peak period, an additional scale house clerk can be called in if needed to help facilitate smooth traffic flow through both the inbound and outbound scales. Security

personnel may also assist in traffic abatement during peak periods. If any abnormal traffic should occur, security personnel will immediately notify the Shift Supervisor, who will then coordinate all traffic flow between the scale house and tipping floor until the traffic subsides. The Operations Manager will regularly review the truck queue time reports generated by the scale house personnel to ensure traffic flow issues are not occurring on a regular basis. Truck drivers will be given copies of the attached, or subsequent, handout entitled "Truck Driver Safety Guide" to assist them with safe and efficient maneuverability while on site.

5.3 Tipping Floor

Proper staffing of both the tipping floor and the refuse cranes is another important item. Throughout the day, both refuse cranes remain in service at all times to ensure the trench remains in acceptable condition. The tipping floor is staffed with an adequate number of trained and qualified operations technicians at all times to continually inspect the tipping floor during all hours of waste receiving. This will provide optimum coverage of all the necessary areas. One technician will be located in the tipping bay office at the incoming door to the tipping floor and will provide bay assignments. A second technician will work the floor and loader, performing refuse inspections and moving the trash from the floor to the bunker, assisting in truck traffic control. At least two front end loaders will be available during peak hours. To the extent practical, trailers delivering waste will be scheduled to arrive during off-peak hours in an effort to further minimize on-site truck congestion. At the discretion of the tipping floor technicians, trailers may be queued on the tipping floor for a short period of time to allow packer trucks to cycle through quickly. After one to two cycles of packer trucks, the trailers will then be allowed to off-load. Transfer trailers will also be positioned on the tipping floor in a manner which will reduce backups; approximately 20′ minimum passage space will be provided at all times by trailers which are in the process of unloading. As the trailers unload, they will be directed to position their vehicle such that clearance will be maintained for other trucks to pass. (See Figure 5-1.) The transfer trailers will also be instructed to depart quickly after unloading to avoid additional delays. Any transfer trailer operators which are found to be hindering flow through the tipping floor will be specifically addressed by tipping floor personnel.

Utilization of the waste diversion process will also assist with minimized turn times for deliveries. Transfer trailers for load-out will be staged to insure minimal delay when load-out is planned. Typically, transfer trailers for waste diversion will be loaded only during off peak hours.

5.4 Maintenance of Refuse Handling Equipment

The maintenance of both the refuse cranes and the front end loaders is a vital part of the truck traffic abatement plan. This maintenance program is designed to ensure that this equipment is always available for use during the peak time. The Maintenance Department performs daily walk downs of the refuse cranes at 05:30 a.m. Monday through Friday. Any corrective maintenance can then either be performed immediately or scheduled for an off-peak time depending on its urgency. The Operations Department performs minor preventive maintenance to the refuse cranes daily on the evening shift. Any discrepancies are reviewed with the Maintenance Department the following morning. The front end

loaders are walked down daily by the Operations Department prior to 08:00 a.m. to ensure they are in good working order. Included with the walk downs is the refueling of the machines. Any discrepancies are immediately attended to by Operations, Maintenance, or an outside contractor, if necessary. There is an established preventive maintenance program performed on a routine basis by an outside heavy equipment contractor. This program consists of scheduled minor and major maintenance for both the front end loaders.

5.5 Contingency

In the unlikely event that the facility experiences equipment failure or malfunction that could result in major tipping floor delays, the facility will take the steps necessary to minimize truck waiting times. Any waste being brought to the site from outside Essex County will be reduced to the extent practicable. Essex County will be notified that an emergency condition exists and that diversion of a percentage of refuse trucks from the facility may be required. The County will be provided with updates on the problem as it is being resolved to assist in the earliest possible resumption of normal activity.

References

Flow Diagrams

None

Control Logic Diagrams

None

Electrical Diagrams

None

Vendor Manuals

Deutsch Babcock Anlangen - Operating Instructions

Vendor Drawings

Harnischfeger P & H Operations Manual CB-29777

Figure 1 Site Plan

Figure 2 Tipping Bay

Figure 3 Refuse Bunker

Figure 4 Refuse Crane

Figure 5 Holding/Closing Drive System

Figure 5-1 Transfer Truck Unloading

Figure 6 Magnetorque Brake

Figure 7 Orange Peel Grapple

Figure 8 Limit Switches

Attachment 2

COVANTA
ENERGY
for a cleaner world

ESSEX RESOURCE RECOVERY FACILITY

BOILER: FURNACE COMBUSTION and GAS PATH

OPERATING PROCEDURE NO. 3

VOLUME III

REVISED, SEPTEMBER 1990
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Record of Changes

Change #	Date	Affected Pages	Purpose
1	9/90	All	Change page #s to OP3-#
2	1/94	All	Update Manual
3	10/00	No changes	Review
4	3/11	All	Review
5	6/13	OP3-22 – OPS-31	Change ARS 1-1D
6	1/2022	All	Remove reference to ESP and update opacity information

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Boiler: Furnace Combustion and Gas Path

1.0 Purpose of Procedure

The purpose of this procedure is to provide plant personnel with standardized operating methods for the most common activities and foreseeable abnormal operating conditions encountered with the Boiler: Furnace Combustion and Gas Path.

Caution:

No one document can effectively foresee all operating conditions. Therefore, this document should be used as a guide. It is not intended that this document replace good operating judgement. If there are any questions pertaining to an activity outlined in this document, consult with the shift supervisor or the operations supervisor.

2.0 References

2.1 Flow Diagrams

Ford Bacon Davis

674001	Rev 3	Combustion Air Boiler No. 1-B-100
674002	Rev 3	Refuse, Furnace & Flue Gas Boiler No. 1
674025	Rev 2	I.D. Fan

2.2 Control Logic Diagrams

Not Available

2.3 Electrical Diagrams

Not Available

2.4 Vendor Manuals

Deutsche Babcock Anlagen Operation Manual

2.5 Vendor Drawings

Deutsche Babcock Anlagen
315-0355.00 B Boiler Start up Diagram

3.0 Precautions and Limitations

A. The main control document for starting the boiler: Steam Generation Operating Procedure No. 7.

B. Increase boiler steam load slowly to ensure that the combustion systems can supply the required fuel and air requirements without overshooting the maximum rating.

C. Do not exceed the furnace temperature of 750F until there is an indication of steam flow through the superheater.

D. The control room operator must be informed prior to the opening of a boiler access or inspection door while there is fire in the boiler. The control room operator must ensure that the ID fan is properly maintaining negative furnace draft during such an operation.

E. Secure primary air flow to any undergrate windbox when on-line inspection of the windboxes (i.e., to clean siftings plug) is performed.

F. Do not key communications radios in the vicinity of the ID fan drive units. This may cause the drive to trip or malfunction.

G. Monitor flame pattern during each shift. Balance air flow to ensure that the flame does not impinge on either the front or the rear walls.

H. Control refuse combustion so as not to exceed the following NJDEP emissions limits:

1. **Temperature**: Maintain the temperature one (1) second downstream of the secondary air injection point at 1136^0 F or greater.

   Note: Should temperatures go below this level, auxiliary oil burners must be started.

2. **Oxygen**: Maintain the oxygen in the flue gas exiting the boiler at no less than 3%.

3. **Opacity**: Limit of 10% for a 6 minute block average.

3.0 Precautions and Limitations (Cont')

4. **Nitrous Oxides**: Maintain NO_x emissions less than 300 ppm on a one (1) hour average when there is an equipment malfunction and < 155 ppmdv for 24-hour average.

5. **Maximum Load Level:** Maximum load (4-hour average) shall not exceed 110 percent of the maximum load (4-hour average), demonstrated during the most recent dioxin/furan compliance test.

6. **Flue Gas Temperature:** Maximum flue gas temperature at the ESP inlet (4-hour average) shall not exceed 17 degrees C (30° F) above the maximum demonstrated temperature (4-hour average) observed during the most recent dioxin/furan compliance test. Compliance shall be determined through continuous monitoring and 4-hour block averages.

I. Per the NJDEP regulations, the following conditions require that you **stop feeding refuse to the boiler.**

1. Failure of a baghouse which results in an opacity reading exceeding 10% for any 6 minute period. Note if only one of the baghouse modules fails and can be isolated from service so that there is no excess opacity, waste feeding to the boiler can resume.

J. Take action to ensure that the scrubber system is repaired immediately should the sulfur dioxide ($S0_2$) emissions:

1. Exceed 94 ppmdv SO_2 average and not achieve 70% removal SO_2 removal (average) during any one (1) hour period.

2. Exceed 29 ppmdv SO_2 average for a 24-hour geometric and less than 75% removal.

K. Within one (1) hour after charging and igniting refuse on start up, the temperature of the flue gas, three second downstream of the secondary air injection point, must be 1136ºF.

4.0 Prerequisites

A. Electrical Distribution system in service per Operating Procedure No. 11.

B. Instrument air system in service per Service Air Operating Procedure No. 19.

C. Chemical feed system ready for service per Water Treatment Operating Procedure No. 15.

D. All required tank and pump levels established and all piping system charged.

E. Auxiliary steam system in service per Main Steam & Auxiliary Steam Operating Procedure No. 8.

F. Boiler filled with water and ready for operation per Boiler: Steam Generating Operating Procedure No. 7.

G. Boiler Ash Removal System ready for operation per Ash Removal Operating Procedure No. 21.

H. Scrubber ready for operation per Acid Gas Removal (Scrubber) Operating Procedure No. 5.

I. Closed Cooling water flow to refuse feed chute established per Closed Cooling Water Operating No. 18.

J. Oil is available to the ignition burners and temperature control burners per Fuel Oil Operating Procedure No. 4.

K. Baghouse in service per Environmental Systems Operating Procedure No. 6.

L. Sootblower system ready for service per Boiler: Steam Generating Operating Procedure No. 7.

M. Prior to charging refuse on start up, the furnace must be at least 938^0 F at a point 3 seconds downstream of the secondary air injection point.

N. Establish drum level in the boiler drum.

5.0 Prestart Checklist

A. Cooling water is supplied to the refuse feed chute.

B. Feed chute, ram feeder, and roller grate free of any bulky parts.

C. Feed chute isolation damper shut.

D. All components of the system ready for operation.

E. All valves and dampers are in the position of the valve line-up checklist.

F. Verify an adequate supply of refuse is available.

G. Verify the furnace temperature monitoring system is in working order and available for service.

H. Verify all access doors and ductwork are closed and all personnel are clear of the boiler.

I. Visually check and verify that the roller grates are ready for service, all work completed, tools removed, and all moving parts are well lubricated.

6.0 Start Up Instructions

6.1 Start the ID Fan System

	Operator Actions	Location	Comments
A.	Manually close fan damper FV-355.	DCS	HIC-355
B.	Start ID Fan	DCS	HS-351
C.	Monitor vibration and oil level as the fan comes up to speed.	DCS	VI-350AA/AB VI-350BA/BB Speed-SI-351
D.	Set the furnace draft set point to -0.2" H_2O to prepare for oil fire purge.		
E.	Monitor vibration.	DCS	VI-351A/B
F.	One hour after start up, roving operator should check local oil level and temperature.		

6.2 Primary Air Fan Start

	Operator Actions	Location	Comments
	Note: The ID fan must be running in order to start this fan.		
A.	After starting the ID fan and the furnace pressure conditions have stabilized; Start the primary air fan.		
B.	Close or verify closed inlet damper.	DCS	PV-360 ZL-360
C.	Depress start pushbutton	DCS	HS-360
D.	Check the ID fan inlet damper to maintain -0.2" H_2O and minimum speed		

6.3 Starting the Roller Grates

	Operator Actions	Location	Comments
	Note: The roller grates can start individually or as a group.		
A.	Start all roller grate lube oil pumps either individually or with the master start.	DCS	HS-348
B.	Start all roller grates either individually or with the master start.	DCS	HS-354
C.	Set the roller grates to maximum for purge and oil firing.	DCS	SIC-354 A-F
D.	During trash start up adjust the speeds as specified by combustion controls.	DCS	

6.4 Secondary Air Fan Start

	Operator Actions	Location	Comments
	Note: The ID fan must be running before starting this fan.		
A.	Close or verify closed inlet damper.	DCS ZL-356	FV-356
B.	Depress start pushbutton	DCS	HS-350
C.	Adjust the ID fan damper to maintain draft set point -0.2" H_2O and minimum fan speed.		

Boiler: Furnace Combustion and Gas Path

6.5 Furnace Purge and Burner Start up

	Operator Actions	Location	Comments
A.	Start ID Fan per section 6.1		
B.	Start PA fan per section 6.2		
C.	Start roller grates per section 6.3.		
D.	Open the ID fan Damper to approx. 10%.	DCS	PIC-365
E.	Start the Temp. & Ign. burner control air fan per Fuel Firing Operating Procedure No. 4.		
F.	Start the Cold Start up burner air fan per Fuel Firing Operating Procedure No. 4.		
G.	Start the purge. -Timer starts to count down from 780 seconds.	DCS	Purge
H.	After the purge is completed the ignition ready timer starts, counting down from 480 seconds.		
I.	Start the oil burners per Fuel Oil Procedure No. 4.		
J.	Heat up the boiler to operating temperature (1136^0F) per the Boiler: Steam Generating Procedure No. 7.		
K.	During heat up start the ram feeder per section 6.6.		

6.6 Ram Feeder Start up

	Operator Actions	Location	Comments
A.	Verify the hydraulic skid valve line up.	L	
B.	Start the forward hydraulic pump in speed 1	C	
C.	Start the reverse hydraulic pump in speed 2. -Set the speed at 75% to 100%	C	
D.	Test ram strokes in various forward speeds to assure proper operation.	C/L	

6.7 Starting a Refuse Fire

	Operator Actions	Location	Comments
	Caution:		
	Do not feed refuse until the temperature 3 seconds downstream of the secondary air injection is 938^0F or more.		
	-Ensure that all environmental monitors are operating. -Ensure the precipitator & the scrubber are operating.		
A.	Allow the ram feeder to retract and take to HOLD to stop movement.		
B.	Ensure both refuse cranes have full loads of dry refuse and are in front of the boiler charging hopper.		
C.	Open the feed chute damper.	C	LSLL-342
D.	Open the ID fan damper to allow for increased draft when charging.	C	FV-355
E.	As soon as damper is open charge both scoops of trash to hopper and get two more. Continue to charge hopper to normal level.		
F.	Adjust ID fan set point -0.2" H_2O.	DCS	PIC-365
G.	Start the ram feeder at minimum forward speed (in short stroke) to slowly charge the refuse.	DCS	HS-3475
H.	Start the secondary air fan per section 6.7.		

6.7 Starting a Refuse Fire (Cont')

	Operator Actions	Location	Comments
I.	As trash moves down the grate, Increase the ram feeder, roller grate, and primary & secondary air to control CO, CO_2, and temperature		
K.	As the refuse fire improves, begin to cut back on the oil burners at a steam flow of approx. 150,000 lb./hr. -Continue to reduce oil burners until they can be shut down. -Continue to adjust air flow set points, ram feeder speed and roller grate speeds according to combustion controls. Place in cascade once boiler is stable.		
L.	At 180,000 lb./hr. steam flow, set the furnace power controller to cascade, all ram feeder, roller grate, air dampers should be in cascade mode. **Caution:** Within 1 hour of burning refuse the temperature 3 second downstream of the secondary air injection must be at least 1136°F.		
M.	Bring boiler load up to desired lb./hr. for Trash quality to maintain proper O_2, CO, and temperature requirements.		

6.8 Running Checklist

	Operator Actions	Location	Comments
A.	Maintain temperatures, 0_2, and CO within specifications (See Precautions & Limitations)		
B.	Maintain fire line between roller grates three & four, depending on refuse quality.		

6.9 Shutdown Instructions

7.0 Normal Shutdown

	Operator Actions	Location	Comments
A.	Start Cold Start up burner Air Fan	DCS	HS-401
B.	Stop the refuse supply to the Feed Chute per the Refuse Receiving & Handling OP No. 2.	L	Crane
C.	Start Cold Start up burners per Fuel Oil OP No. 4.		
D.	If necessary, start Temp. & Ign. fan & burners per Fuel Oil OP No. 4.		
F.	As trash burns out, decrease primary air flow to maintain oxygen and carbon monoxide levels until all refuse is burned.	DCS	HIC-361A-F
G.	During primary air flow adjustments adjust the secondary air flow to maintain 25% to 35% of primary air flow, keeping temperature, O_2 and CO within limits.	DCS	FIC-356
H.	Maintain ID fan, primary air fan, and secondary air fan for 30 minutes **after** fires have been removed from the boiler. Do not exceed boiler cool down limits.		
I.	Consult supervisor for shut down plan.		
J.	Operate burners to maintain complete combustion until all trash is burned.	DCS	
K	Operate roller grates at least until all the trash is off of them.		

7.1 Normal Shutdown

Operator Actions	Location	Comments
A. If it is necessary to cool the boiler as quickly as possible: Maintain the ID fan, primary air fan, and secondary air fan for as long as necessary.		

Boiler: Furnace Combustion and Gas Path

Summary of Alarms

Number	Title
1.	Master Fuel Trip.
2.	Primary Air Fan Trip.
3.	ID Fan Trip.
4.	Secondary Air Fan Trip.
5.	Roller Grate Trouble.
6.	Ram Feeder Trouble.

Alarm Response Sheet 1
NUMBER 1

Alarm Title: Master Fuel Trip (Hardwire / Boiler Trip)

A. Possible causes of alarm

1.
2. Steam Drum Lo-Lo level at -9”
3. Excess furnace draft at +6” H2O
4. High Steam Temperature at 850F for 30 seconds

B. Automatic Actions

1. The Ram feeder stops.
2. On the boiler hardwire trip panel (xx-CP-960, located in the bailey room), the associated trip light is lit.
3. FV – 276 (Fuel oil trip valve) for the associated boiler trips.
4. The associated alarms come in on the alarm screen in the Control Room.

C. Immediate Operator Action

Control Room Operator

1. Notify the shift supervisor.
2. Use the alarm summary screen to determine the cause of the trip, respond IAW written procedure and by direction of the shift supervisor.
3. After correcting the cause of the boiler trip, reset the master fuel trip relay(s) located in the associated trip relay panel (CP 960).
4. Restart tripped components as able.

Assistant Control Room Operator

Go as directed by the CRO / Shift Supervisor to stabilize the plant and clear trip alarm conditions.

D. Follow up Actions

Control Room Operator

1. Start boiler fans as necessary, ID fan first, then other fans. (*Note: There have been instances when power has been lost to the associated MCC panel (MCC 901/902/903) upon starting an ID fan if the panel’s other components (boiler feed pump, plant air compressor) are also running. Consider swapping one of these components if this condition exists prior to starting the ID fan*).
2. Check furnace temperature then light burners or start the ram feeder as able. *Minimum temperature for feeding waste to boiler = **938F**. Furnace temperature below **750F** requires purging the boiler prior to lighting burners*.

Assistant Control Room Operator

1. Assist CRO as needed to restore the boiler to operation.
2. Monitor the tripped components which were restarted.
3. Perform LOTOs as needed / directed to support maintenance.

E. Consequences

Loss of the flame and temperature could lead to cold CO formation. Safely recover from the trip as soon as possible to minimize the chance for environmental excursions.

Alarm Response Sheet 1A

Alarm Title: Master Fuel Trip due to Steam Drum lo-lo Level

Discussion: At -9" in the steam drum as read by at least 2 out of 3 hardwire trip switches 1/2/3-LLL078A/B/C the boiler undergoes a Master fuel trip to protect the internal components of the boiler steam drum.

A. Possible causes of alarm

1. Electrical problem resulting in sudden loss of proper level indication, e.g., loss of BFP motor(s)
2. Loss of control of boiler's Feed Regulation Valve (FRV)
3. Motor or control fault resulting in boiler level "swings"
4. Major tube failure.

B. Automatic Actions

1. Primary, Secondary and Burner fans trip.
2. Ram feeder stops
3. FV-276 closes
4. Alarms come in on Control Room alarm screen
5. The light for boiler steam drum lo-lo level trip is lit on CP-960.

C. Immediate Operator Action (Note: For loss of level resulting from a major boiler tube failure, please refer to Plant Specific SOP #17K, Boiler Emergency Shutdown Catastrophic Tube Failure)

Control Room Operator

1. Notify the shift supervisor.
2. Use the alarm summary screen to verify trip of boiler due to lo-lo steam drum level.
3. Ensure that all affected equipment is secured. Ensure that all fans' dampers are closed; once dampers closed, check that all fans have permissive met for start as seen on the boiler control screen. If a permissive is not met, direct the ACRO to the equipment to investigate and inform the shift supervisor.
4. After correcting the cause of the boiler trip, reset the master fuel trip relay located in the associated trip relay panel (CP-960)
5. Restart tripped components as able.

Assistant Control Room Operator

1. Go to the tripped ID fan to prepare for restoration of fan, if able, unless directed otherwise by the shift supervisor or CRO. Prior to starting ID fan, ensure that the area around the fan is "all clear" and inform the CRO. (**Note: ID fan running is a permissive to clear both the master fuel trip <u>and</u> to restart the primary air fan.)**
2. Following restoration of the ID fan, continue assisting the CRO as directed in the restoration of affected equipment and boiler.

D. Follow up Actions

Control Room Operator

1. Continue restoration of plant.

2. Assist the Shift Supervisor, as directed, to gather information for any incident reports needed, including log sheets, trends, etc.
3. Align plant as directed by shift supervisor to prepare for any corrective maintenance needed.

Assistant Control Room Operator

1. Continue to assist, as needed, with restoration of the plant and any applicable maintenance walk down / LOTO related work.

E. Consequences

1. Loss of water level in the steam drum without operator action could result in uncovering of steam drum lower components and subsequent damage to them due to loss of the water for cooling.

Alarm Response Sheet 1B

Alarm Title: Master Fuel Trip due to Excess Furnace Draft

Discussion: At +6"furnace draft, as read by at least 2 out of 3 hardwire trip switches 1/2/3-PAH365A/B/C, the boiler undergoes a Master fuel trip to protect the internal components of the boiler steam drum.

A. Possible causes of alarm

1. Explosion caused by material in boiler's MSW
2. Sudden high pressure
3. Motor or control fault resulting in high furnace pressure, e.g., ID fan damper going shut
4. Major tube failure in furnace causing high pressure as steam expands quickly due to flashing.

B. Automatic Actions

1. Primary, Secondary and Burner fans trip.
2. Ram feeder stops
3. FV-276 closes
4. Alarms come in on Control Room alarm screen
5. The light for boiler furnace high pressure trip is lit on CP-960.

C. Immediate Operator Action

Control Room Operator

1. Notify the shift supervisor.
2. Use the alarm summary screen to verify trip of boiler due to high furnace pressure.
3. Ensure that all affected equipment is secured. Ensure that all fans' dampers are closed; once dampers closed, check that all fans have permissive met for start as seen on the boiler control screen. If a permissive is not met, direct the ACRO to the equipment to investigate and inform the shift supervisor.
4. After correcting the cause of the boiler trip, reset the master fuel trip relay located in the associated trip relay panel (CP-960)
5. Restart tripped components as able.
6. **If boiler pressure trip was caused by a major tube failure, please refer to SOP 17K, Boiler Emergency Shutdown Catastrophic Tube Failure.**

Assistant Control Room Operator

1. Go to fans to prepare for restoration of fans, if able, unless directed otherwise by the shift supervisor or CRO. Prior to starting fan, ensure that the area around the fan is "all clear" and inform the CRO. (**Note: ID fan running is a permissive to clear both the master fuel trip <u>and</u> to restart the primary and secondary air fans.)**
2. Following restoration of fans, continue assisting the CRO as directed in the restoration of affected equipment and boiler.

D. Follow up Actions

Control Room Operator

1. Continue restoration of plant.
2. Assist the Shift Supervisor, as directed, to gather information for any incident reports needed, including log sheets, trends, etc.
3. Align plant as directed by shift supervisor to prepare for any corrective maintenance needed.

Assistant Control Room Operator

1. Continue to assist, as needed, with restoration of the plant and any applicable maintenance walk down / LOTO related work.

Alarm Response Sheet 1C

Alarm Title: Master Fuel Trip due to High Steam Outlet Temperature

Discussion: At 850F main steam outlet temperature for 30 seconds, as read by at least 2 out of 3 hardwire trip switches 1/2/3-THH009A/B/C, the boiler undergoes a Master fuel trip to protect the steam tubes of the boiler.

A. Possible causes of alarm

1. Loss of attemperator water / control.
2. Failure of trip switches on boiler caused by electrical problem.
3. High steam rate swing on boiler for extended period of time

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B. Automatic Actions

1. Primary, Secondary and Burner fans trip.
2. Ram feeder stops
3. FV-276 closes
4. Associated alarm(s) come in on Control Room alarm screen
5. The light for boiler steam hi hi temperature trip is lit on CP-960.

C. Immediate Operator Action

Control Room Operator

1. Notify the shift supervisor.
2. Use the alarm summary screen to verify trip of boiler due to hi-hi steam temperature. Check attemperator operation.
3. Ensure that all affected equipment is secured. Ensure that all fans' dampers are closed; once dampers closed, check that all fans have permissive met for start as seen on the boiler control screen. If a permissive is not met, direct the ACRO to the equipment to investigate and inform the shift supervisor.
4. After correcting the cause of the boiler trip, reset the master fuel trip relay located in the associated trip relay panel (CP-960)
5. Restart tripped components as able.

Assistant Control Room Operator

1. Go to the tripped fan to prepare for restoration of fan, if able, unless directed otherwise by the shift supervisor or CRO. Prior to starting fan, ensure that the area around the fan is "all clear" and inform the CRO. (**Note: ID fan running is a permissive to clear both the master fuel trip <u>and</u> to restart the primary and secondary air fans.)**
2. Following restoration of the fans, continue assisting the CRO as directed in the restoration of affected equipment and boiler.

D. Follow up Actions

Control Room Operator

1. Continue restoration of plant.
2. Assist the Shift Supervisor, as directed, to gather information for any incident reports needed, including log sheets, trends, etc.
3. Align plant as directed by shift supervisor to prepare for any corrective maintenance needed.

Assistant Control Room Operator

1. Continue to assist, as needed, with restoration of the plant and any applicable maintenance walk down / LOTO related work.

ALARM RESPONSE SHEET
NUMBER 2

Alarm Title: Primary Air Fan Trip

A. Possible Causes of Alarm

1. ID fan trip.
2. Low drum level.
3. Loss of electrical power, motor fault or control fault.

B. Automatic Actions

1. Master fuel (Boiler) trip.
2. Fan inlet damper shut.

C. Immediate Operator Action

Control Room Operator

1. Verify master fuel trip.
2. Check operation of ID fan and furnace draft.
3. Dispatch Asst control room operator to PA fan to review, evaluate & report cause of malfunction.

Assistant Control Room Operator

Asst control room operator to proceed to the PA fan or controller to review, evaluate & report cause of malfunction.

D. Follow Up Actions

Control Room Operator

1. Notify Shift Supervisor.
2. Determine cause of trip. If possible, restart the fan.

Assistant Control Room Operator

1. Stand by for fan restart.
2. Monitor repair activities & verify components are returned to an operating condition.

E. Consequences

Boiler trip, possibility of poor burning and CO or temperature excursions.

ALARM RESPONSE SHEET
NUMBER 3

Alarm Title: ID Fan Trip

A. Possible Causes of Alarm

1. Loss of electrical power.
2. Fan mechanical malfunction.
3. Control system malfunction.

B. Automatic Actions

Master Fuel (Boiler) Trip.

C. Immediate Operator Action

Control Room Operator

1. Verify master fuel trip.
2. Dispatch Asst Control Room Operator to review, evaluate & report cause of malfunction.

Assistant Control Room Operator

Asst Control Room Operator to review, evaluate & report cause of malfunction.

D. Follow Up Actions

Control Room Operator

1. Notify Shift Supervisor.
2. Determine cause of trip. If possible, restart fan.
   See Alarm response No. 1, Master Fuel trip for other actions.

Assistant Control Room Operator

Assist boiler restart.

E. Consequences

Boiler trip.

ALARM RESPONSE SHEET
NUMBER 4

Alarm Title: Secondary Air Fan Trip

A. Possible Causes of Alarm

1. Loss of electrical power or motor control failure.

B. Automatic Actions

None.

C. Immediate Operator Action

Control Room Operator

1. Dispatch ACRO to fan controller.
2. Monitor flue gas temperatures.
3. Notify Shift Supervisor.

Assistant Control Room Operator

Asst Control Room operator to review, evaluate & report cause of malfunction.

D. Follow Up Actions

Control Room Operator

1. Notify Shift Supervisor.
2. Determine cause of trip. If possible, restart fan.
3. If fan can not be restarted, use cold start up burner fan and/or reduce load to maintain temperatures; start some or all gas burners.

Assistant Control Room Operator

Assist in fan restart or monitor repair activities & verify components are returned to an operating condition.

E. Consequences

-Loss of combustion control.
-Loss of flame control.

ALARM RESPONSE SHEET
NUMBER 5

Alarm Title: Roller Grate Trouble
Initiating Device: Controller 100A-F

A. Possible Causes of Alarm

1. Loss of power.
2. Drive unit failure.
3. Roller grate jammed.
4. Loss of lubricating oil pumps or pressure.

B. Automatic Actions

Loss of two roller grates stops the ram feeder and oil burners.

C. Immediate Operator Action

Control Room Operator

1. Stop the jammed grate.
2. Depending on the grate any or all of the following may work:
   a. Put more air to the affected grate.
   b. Reverse the grate which feeds.
   c. Increase air to the next grate.
   d. Visually check progress.
   e. After some burn out, reverse jammed grate.
   f. If free to move, change to forward.
   g. If it works in forward, restore to normal.
3. Notify Shift Supervisor.
4. Lube oil pump trip:
   a. Send ACRO to investigate.
   b. Adjust boiler to burn without this grate.

Assistant Control Room Operator

1. Jammed Grate:
   a. Assist with local observations or operation.
2. Lube oil pump trip:
   a. Go to roller grate and inspect.

D. Follow Up Actions

Control Room Operator

If grate is inoperative, notify supervisor and maintenance as necessary.

Assistant Control Room Operator

Monitor combustion and repair during maintenance.

E. Consequences

Loss of controlled refuse travel into the furnace.
Uneven heat output of the furnace.

ALARM RESPONSE SHEET
NUMBER 6

Alarm Title: Ram Feeder Trouble

A. Possible Causes of Alarm

1. Loss of power.
2. Hydraulic pump malfunction.
3. Ram feeder limit switch failure.
4. Hydraulic fluid leak.
5. Stroke adjuster failure.
6. Ram feeder jammed.
7. Ram feeder misalignment.

B. Automatic Actions

Ram feeder automatic shutdown.

C. Immediate Operator Action

Control Room Operator

1. Notify Shift Supervisor.
2. Dispatch Asst Control Room operator to local control panel to review, evaluate & report cause of malfunction.
3. Light fuel oil burners to maintain combustion.

Assistant Control Room Operator

1. Asst Control Room operator to review, evaluate & report cause of malfunction.
2. Consult attached sheets for trouble codes.

D. Follow Up Actions

Control Room Operator

If the unit can not be restarted, prepare the fuel oil burners. Lower steam set point and maintain good combustion.

Assistant Control Room Operator

1. Check all piping for leaks and pumps for operation. If necessary, use the back up pump to replace the forward or reverse pump.
2. Monitor repair activities & verify components are returned to an operating condition.

E. Consequences

Loss of refuse feed.

Attachment 3

COVANTA
ENERGY
for a cleaner world

WASTE FLOW CONTROL PLAN

Revision 7, April 2015
Revision 8, June 2021
Revision 9, January 2022

VOLUME IX, CHAPTER 3

Approved by: _____ **Date:** 1/10/22

COVANTA ESSEX COMPANY
OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3

ESSEX COUNTY RESOURCE RECOVERY FACILITY
WASTE FLOW CONTROL PLAN

Revision 9, January 2022

Waste Flow Control

The following contains a discussion of the waste delivery and flow path through the facility. Included in this discussion are measures utilized to minimize the processing of prohibited waste, to handle incoming waste flow during periods of emergencies and/or equipment breakdown or shutdown, and to describe the management of internally generated plant wastes.

A. Waste Deliveries

A.1 Permitted Waste Types

The following solid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) may be accepted for disposal:

TYPE 10 Municipal Waste (household, commercial and institutional)

TYPE 23 Vegetative Waste (except bulk quantities)

TYPE 25 Animal and Food Processing Waste (small quantities only, not large quantities or full truck loads)

TYPE 27 Dry Industrial Waste (except asbestos and asbestos containing wastes; dry non-hazardous pesticides; contaminated soils; hazardous waste; radioactive waste; and Type 27 from districts which have complied with an Industrial Waste Survey.

A.2 Prohibited Waste Types

The following solid and liquid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) and (h), regulated medical waste classes as defined in N.J.A.C 7:26-3A.6(a), and bulk recyclables as defined in N.J.A.C. 7:26A are specifically prohibited from disposal at the facility:

TYPE 12 Dry Sewage Sludge
TYPE 13 Bulky Wastes
TYPE 23 Vegetative Waste (Bulk quantities)
TYPE 25 Animal and Food Processing Waste (Large quantities or full truck loads)
TYPE 27 Dry Industrial Wastes
TYPE 72 Bulk liquid and Semi-Liquids
TYPE 73 Septic Tank Clean-out Wastes
TYPE 74 Liquid Sewage Sludge
Regulated Medical Waste (RMW), all classes, N.J.A.C 7:26-3A.6 (a)
Bulk Recyclables N.J.A.C. 7:26A
Iodine containing waste of any kind

A.3. Waste Flow

On-site traffic control is maintained to provide for orderly vehicular movement on the Facility grounds. Lane delineations, signals, signs, barriers ensure a controlled flow of traffic delivering waste to the Facility through the scales to the tipping floor, then leaving the tipping floor and exiting the Facility through the scale. Trucks carrying ash residue, recovered metals, unprocessible wastes, bypass wastes and/or chemical deliveries are similarly controlled and directed to minimize waste delivery traffic. Signs are posted indicating the maximum speed limit. A Facility traffic flow is represented in Appendix 1.

The control of prohibited waste is a multi—layered approach incorporating the cooperation of customers, the haulers, and Covanta Essex. One mechanism is through the guidance of the Essex County Solid Waste Management Plan, through which the company has determined which industrial wastes are prohibited at the Essex County Resource Recovery Facility.

In order to minimize prohibited waste from entering the facility, a HAULERS HANDBOOK (**copy attached as Appendix 2a**) has been developed which outlines and explains the waste acceptance criteria at the facility. This Handbook has been sent to all registered haulers utilizing the facility. The Handbook will be provided to new haulers. An abstract (as provided in Appendix 2) to the handbook pertaining to waste acceptance will be available at the scale house.

In addition, signs have been prominently posted on the facility's access road to indicate which wastes are acceptable. The signs read as follows:

THIS FACILITY RECEIVES AND BURNS ONLY HOUSEHOLD WASTE, COMMERCIAL WASTE AND INDUSTRIAL WASTE THAT DOES NOT CONTAIN HAZARDOUS WASTE – AS IDENTIFIED UNDER RCRA. INSPECTIONS WILL BE DONE TO ENSURE COMPLIANCE.

THIS FACILITY IS NOT PERMITTED TO ACCEPT BULKY WASTE. INSPECTIONS WILL BE PERFORMED TO ENSURE COMPLIANCE.

The first review of the paperwork and delivery vehicles is provided by the facility's scale house personnel. The origin and disposal (O&D) form, shown in Appendix 3, carried by the hauler denotes the origin and waste type of the material being delivered. At this time, the delivery vehicle is also checked for weight, proper registration, decals and is automatically scanned for radioactivity. If the review of documents and vehicle requirements proves satisfactory, the load information is entered into the scale house computer and the truck is released to proceed to the tipping bay. The scales are integrated into a computerized weighing system and weights of each load are recorded. Any problems encountered are brought to the attention of the appropriate supervisor.

If a delivery vehicle arrives at the facility's scale house and the O&D form indicates that it is a full truck load of Type 25 waste, the driver will be notified that the truck will be prohibited from dumping the load for processing at the facility and must be diverted to another location. The driver will receive instructions based on a previously determined agreement with the hauling company for delivering the waste to one of Covanta's New Jersey transfer stations which are permitted to accept Type 25 waste.

A.4. Tipping Floor Inspections:

Once the load has exited the scale and proceeded to the tipping floor (the waste receiving area), the load is subject to a visual inspection. Inspections are performed on a random basis by trained plant personnel on a minimum of 10% of trucks received at the facility per day. The purposes of the inspection are twofold: 1) to identify and remove prohibited or unprocessible materials prior to initiation of processing and 2) to ensure that the waste delivery vehicle is properly registered and decaled.

Under the visual inspection program, a truck being inspected will be observed for proper decals and for prohibited or unprocessible waste types as the truck unloads onto the tipping bay floor. For palletized loads of waste materials, a random sampling of the waste material will be checked against the approval paperwork (see Section D). With the inspection program, any hauler may be requested to unload contents of their truck on the tipping floor for visual inspection of waste. Once the inspection is completed, the acceptable portion of the load is pushed into the refuse pit by use of heavy equipment. Prohibited or unprocessible materials are handled as described below in Section 4. If the entire portion of the load is acceptable, the truck is released and returned to the scale house to weigh out.

All MSW loads received from hospitals are subject to inspection to check for iodine containing material in the waste which is prohibited. The procedure for these inspections includes pictures of typical items that may be found in hospital waste that could contain iodine to educate and train tipping floor operators. The waste will be raked as thinly as possible so that most of the waste is visible while performing these inspections. The current Hospital Load inspection procedure is included in Appendix 5 to this Plan.

Inspections will be conducted where they will least interfere with existing operational demands and flow of truck traffic. This provides for use of the tipping floor relative to the distribution of waste in the bunker and provides flexibility with regard to activities on the tipping floor.

All inspections will be recorded and these records will be used to evaluate carrier compliance and performance. An example of an inspection form in provided in Appendix 5. The enforcement of the inspection program is conducted primarily by Covanta Essex personnel. Regularly scheduled inspections by the NJDEP Solid Waste Enforcement Division also serve as a spot check of the inspection program.

A.5 Procedure for Removing Prohibited or Unprocessible Waste:

If prohibited or unprocessible waste is identified during the visual inspection, it will be separated or isolated as required.

If bulk recyclables as defined in N.J.A.C. 7:26A are identified, the vehicle will be reloaded and the material will be rejected. Class A materials consist of metals, glass, plastics and corrugated cardboard. Class B, C, and D materials would also not be acceptable at the facility due to the fact that they fit the description of ID 13, ID 23 (bulk) and ID 72.

If suspected hazardous waste, regulated medical waste (RMW) or prohibited dry industrial (Type 27) is identified, Tipping Hall personnel will initiate action to ensure proper handling of the material. If practicable and can be done safely, this material is separated from the acceptable portion of waste. If the generator can be identified and the NJDEP grants approval, the prohibited material can be rejected to the original generator. If the generator is not positively identified, the material will be secured and moved to the secured prohibited waste storage area (identified in Appendix 3) that is located a safe distance from the active disposal area. Arrangements for identification and disposal will be handled through qualified vendors.

In the case of bulky waste, the waste will be separated manually or by the use of a front-end loader. The bulky waste either be immediately rejected to the hauler or placed into the bulk storage/transport container. This container is routinely delivered to the authorized bulk acceptance site. The container is stored on the south side of the tipping floor next to Bay 15. (See Appendix 3 for arrangement drawing).

If a visual inspection spots an unidentifiable industrial container in the refuse pit, it can be removed with the overhead crane and lowered to the extended bucket of the front-end loader. The container will be separated using all necessary precautions and moved to the unprocessible or bulky waste storage area as identified in Appendix 3. Upon the identification of a bulky item in the refuse pit, the item will be picked-up by the overhead crane and deposited on the charging deck. Bulky items would be removed as described above.

If a visual inspection indicates a small quantity of Type 25 waste in the load on the floor, the front end loader operator will be notified and the load would be pushed into the pit immediately by the front end loader. After the load has been removed from the tipping floor, a bleach solution will be applied to the affected tipping floor area and front end loader bucket for disinfection.

If iodine containing material is discovered in a waste load on the tipping floor, the waste will be separated manually or by the use of a front-end loader if needed. The iodine containing waste will either be immediately rejected to the hauler with clear instructions that this waste is not to be delivered the the facility again or other arrangements will be made to have the waste transported to a landfill that can accept the waste.

A.6. Special Waste

The Facility offers secured destruction for a variety of materials including APHIS waste, pharmaceuticals, health care products, documents and non-hazardous industrial wastes.

a. Animal and Plant Health Inspection Services (APHIS) waste generated from international sources. These loads may originate from the numerous airports or shipping ports located in the area. A separate procedure for handling **(attached here as Appendix 6)** APHIS wastes is located in the Safe Operating Procedures (SOP) Manual.

b. Pharmaceuticals, Health Care Products & Industrial Wastes are accepted at the Facility for assured destruction. This material is screened for acceptability prior to approval and receipt at the Facility. A procedure for handling this type of material is located in the Safety Manual, Volume 10

of the O&M Manual. Provided in Appendix 7 is Plant Specific Operating Procedure #42 Handling Special Waste Deliveries.

B. Refuse Flow By—Pass Procedure

Since the majority of the potential equipment malfunctions or emergencies are not expected to affect waste flow, the Facility will first utilize the capacity of the waste pit to handle incoming waste flow in the event of an unplanned malfunction or outage. The bunker is designed to store an estimated 14,000 tons of refuse, enough for approximately four days of operation.

In the event that the Facility is unable to accept and dispose of Acceptable Waste whether as a result of scheduled downtime for maintenance or otherwise and the permits do not authorize use of the Facility (or a portion thereof) for transfer operations (or if the permits do authorize such use, such as transfer facilities are not operational), the Essex County Utilities Authority (ECUA) will arrange for Alternate Disposal Facilities to be available for disposal of such Acceptable Waste. After being informed by Covanta Essex that waste is unable to be accepted at the Facility, the ECUA would in turn call individual municipalities and contracted haulers to redirect to the appropriate by-pass site. The haulers are instructed as to the proper procedures to follow under this condition. They will be supplied with routes from Covanta Essex and from their respected origin sites to the by-pass location. Covanta Essex will supply the ECUA with updates as to when waste acceptance will resume.

During a short term situation which may affect the acceptance of waste into the tipping hall (i.e., pit fire, two cranes down, truck accident) no waste will be kept on the floor, other than what has been thrown—down for routine inspections, without seeking approval from the NJDEP. Space restrictions inside the facility limit staging of trucks in case of short term outages to road “A”, which leads to the tipping hall, as shown in Appendix 4.

During a situation which may affect the acceptance of waste into the tipping hall (i.e., bunker (pit) fire, hazardous material release, trucking accident) the refuse trucks will first be held at the entrance gate. The trucks in line will remain in place. If it appears that the situation will not be solved quickly, NJDEP will be consulted as part of the decision making process.

C. Plant Waste Management -All Sources

Management of internally generated facility waste is best categorized in terms of waste disposal methods. The Essex facility has the capacity to safely process certain amounts and types of waste materials. Other waste types, including recyclables, will be handled through off-site disposal.

C.1. INTERNAL DISPOSAL

a. Use of incineration for waste types ID 10 non— recyclable trash, ID 23 vegetative waste (except for leaves), ID 25 animal and food processing waste, and ID 27 (dry industrial waste) allowed by the Solid Waste Permit.

b. Use of process design and water balance to absorb normally generated industrial wastewater for wetting of ash. The storm water retention system is also used to provide water for low quality use.

c. **Waste bulk liquid oils generated from equipment maintenance will be disposed off site to Class D used oil facilities in the State of New Jersey, or other similarly licensed facilities located outside of the State of New Jersey.**

d. **Use of incineration for waste oil debris and solids generated from spills, equipment maintenance and housekeeping.**

e. Use of incineration for disposal of various sump contents.

f. Used filter bags from the boiler baghouses

1) When disposing of used filter bags from any of the boiler baghouses, bags must be shaken, blown or pulsed prior to removal to remove as much loose ash residue as possible.
2) Bags are to be removed from the cell plate and placed into sealed containers (double plastic bags or fiber drums) within the baghouse compartment or within an enclosure that prevents direct release of ash to the environment. During removal of bags, procedures must be in place to avoid the emission or spillage of any loose ash into the environment.
3) The baghouse module qualifies as “preventing a release” if the filter bags are immediately rolled up and placed in plastic bags or drums.
4) The sealed containers containing the used baghouse filter bags are to be transported to the tipping floor and discharged into the refuse pit as soon as possible. The transporting of bags to the tipping floor shall only be performed by facility personnel. Third-party contractors shall not be used for this task.
5) The container or bag that the used filter bags are placed into should be marked with a red X using spray paint or similar markings to allow for easy identification by the refuse crane operator once placed in the refuse pit.

C.2. <u>EXTERNAL DISPOSAL</u>

a. Use of solid waste disposal contractor for waste Types ID 13 (bulky waste), through the appropriate transfer station.

b. Use of sanitary sewer system for sanitary/gray discharge and “upset condition” industrial wastewater (with approval from PVSC).

c. Use of recycling contractor for designated Essex County recyclables including newspapers, glass containers, aluminum, old corrugated containers, office paper and ferrous scrap.

d. Use of appropriately licensed vendors for:

1) waste degreaser (D001);
2) spent batteries;
3) fluorescent lamps/bulbs and other mercury containing devices;
4) spent phosphoric acid sludge (D002).

e. Use of one or combination of the following methods for non—hazardous empty drum disposal: (1) return to supplier; (2) establishment of reuse procedure; and/or (3) deheading of container and crushing prior to recycling disposal as ferrous scrap.

f. Use of contract for Essex County ash residue disposal. Ash will be loaded and transported 24 hours per day, six days a week. **Ash residue and recovered metals (contained in truck bodies or containers) can be stored on the tipping floor during Sundays only.**

g. All refuse hauler trucks, ash hauler trucks, metal hauler trucks, and bulky waste hauler trucks leaving the facility shall scale out on one of the outbound truck scales at the scalehouse. All other hauler trucks leaving the site for any reason are required to stop at the scale house for authorization from the scale house attendant to leave prior to departing from the site.

WASTE FLOW CONTROL PLAN

APPENDIX 1

(Appendix 1)

UNACCEPTABLE/UNPROCESSIBLE WHICH CANNOT BE ACEPTED AT THE ESSEX COUNTY RESOURCE RECOVERY FACILITY.

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE SOLID WASTE MANAGEMENT PLAN OF ESSEX COUNTY REGULATES THE PERMIT OF THE ESSEX COUNTY RESOURCE RECOVERY FACILITY TO ACCEPT ONLY HOUSEHOLD, NON-HAZARDOUS INDUSTRIAL/COMMERCIAL WASTE, CERTAIN VEGETATIVE WASTE (LEAVES ARE EXCLUDED), AND ANIMAL AND FOOD PROCESSING WASTE (EXCEPT LARGE QUANTITIES OR FULL LOADS). UNACCEPTABLE/UNPROCESSIBLE WASTE WHICH CANNOT BE RECEIVED INCLUDES ALL HAZARDOUS WASTE, CERTAIN NON-HAZARDOUS WASTES AND ALL MEDICAL/INFECTIOUS WASTES.

UNACCEPTABLE NON-HAZARDOUS INCLUDE BUT ARE NOT LIMITED TO:

BATTERIES such as dry cells, mercury batteries, vehicle batteries.

WHITE GOODS such as refrigerators, stoves, dishwashers, washers and dryers.

BULKY GOODS such as bed springs, mattresses, air conditioners, hot water heaters, water storage tanks, furnaces, oil storage tanks, any compressed storage tank, children swing sets, vehicle frame parts, crank cases, transmissions, engines, lawn equipment, snow blowers, bikes, file cabinets, metal furniture, clean fill, metal piping, fuel containers.

LARGE QUANTITIES OR FULL TRUCK LOADS OF TYPE 25 WASTE

WASTE CONTAINING IODINE IN ANY QUANTITY

UNACCEPTABLE MEDICAL/INFECTIOUS WASTES INCLUDE BUT ARE NOT LIMITED TO:

SURGICAL AND OBSTETICAL WASTES

PATHOLOGICAL WASTES such as human tissue, human anatomical parts.

BIOLOGICAL WASTES such as excretions, suctionings, secretions, disposable medical supplies that have come into contact with such wastes.

BLOOD SOILED MATERIALS

RENAL DIALYSIS WASTES such as tubing and needles.

UN-AUTOCLAVED OR UNSTERILIZED serums or vaccines, lab waste, sharp instruments such as hypodermic needles intravenous needles and tubing.

UNACCEPTABLE HAZARDOUS WASTE INCLUDING BUT NOT LIMITED TO:

DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC CONTAINERS.

BULK SLUDGES OR WET SOLIDS NOT CHARACTERISTIC TO MUNICIPAL WASTE.

LARGE AMOUNTS OF LIQUIDS OR OIL SOAKED SOLIDS OR SORBENTS, EXCEPT FOR SOLIDS OR SORBENTS CONTAINING OILY RESIDUE WHICH HAVE BEEN CERTIFIED BY THE GENERATOR OF THE WASTE TO BE NON-HAZARDOUS.

MILITARY ORDINANCE OR OTHER EXPLOSIVES.

PRESSURIZED CONTAINERS.

ANY SUSPECT CLOSED INDUSTRIAL PACKAGING.

COVANTA ESSEX COMPANY

WASTE FLOW CONTROL PLAN - APPENDIX 2

COVANTA ESSEX WASTE LOAD INSPECTION REPORT

INSPECTION TYPE: (CIRCLE ONE) VISUAL (ON FLOOR) CAMERA (TIPPING BAY OFFICE)

BAY ASSIGNMENT: 2 3 4 5 6 7 8 9 10 11 12 13 14 15 CIRCLE BAY # ASSIGNED

INSPECTOR: DATE:	VEHICLE DATA: TYPE OF VEHICLE # NJDEP DECAL		COMPANY VEHICLE # TRUCK # NJ DEP # ***(Painted)***	
TIME:	TRUCK			
HAULER:	ROLL-OFF		LIC PLATE # FRONT	REAR
TAG#:	TRANSFER			
WASTE TYPE:	ACCT. #		HOSPITAL WASTE?	YES NO

UNACCEPTABLE WASTE TYPES AND IDENTIFIERS

POTENTIALLY HAZARDOUS:

LIQUID SOAKED DEBRIS _____
EXPLOSIVES _____
INDUSTRIAL CONTAINERS _____
RADIOACTIVE MATERIAL _____
DRY/POWDERED MATERIAL _____
PRESSURIZED VESSELS _____
WARNING LABELS _____
MOTORS _____
PAINTS _____
WET SOLIDS _____
UNUSUAL ODOR _____

IODINE WASTE:

LIQUID IODINE _____
ANTISEPTIC IODINE_____
- BETADINE ANTISEPTIC _____
- POVIDONE IODINE _____

MEDICATIONS W/IODINE _____
DYES OR INKS _____
PHOTO FILM/CHEM _____
INDUSTRIAL CHEMICALS _____
OTHER _____

REGULATED MEDICAL WASTE:

CULTURES AND STOCKS (CLASS 1) _____
PATHOLOGICAL WASTE (CLASS 2) _____
HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) _____
SHARPS (CLASS 4) _____
ANIMAL WASTE (CLASS 5) _____
ISOLATION WASTE (CLASS 6) _____
UNUSED SHARPS (CLASS 7) _____

RECYCLABLES:

ALUMINUM ____ CARDBOARD _____ PLASTIC ___ GLASS ___ BULK LOAD (100%) ____

BULKY WASTE (TYPE 13):

APPLIANCES _____
TAR PAPER/SHINGLES _____
METAL PRODUCTS _____
SHEET ROCK _____
BALES _____
BED SPRINGS _____
RUBBER PRODUCTS _____
C & D WASTE _____
AUTO PARTS _____
OTHER (SEE COMMENTS) _____
CEILING TILES _____

TYPE 27 - UNACCEPTABLE PORTIONS

NJDEP PROHIBITED WASTE _____
NON-RESPONDENT/INSUFFICIENT TO SURVEY _____
HAZARDOUS IMPACT ON EMISSIONS ___
HAZARDOUS WASTE _____
HAZ. EFFECT ON ASH _____
NON-COMBUSTIBLES _____

OVERALL RESULTS:

ACCEPTABLE LOAD _____ UNACCEPTABLE LOAD _____ DRIVER SAFETY VIOLATION _____

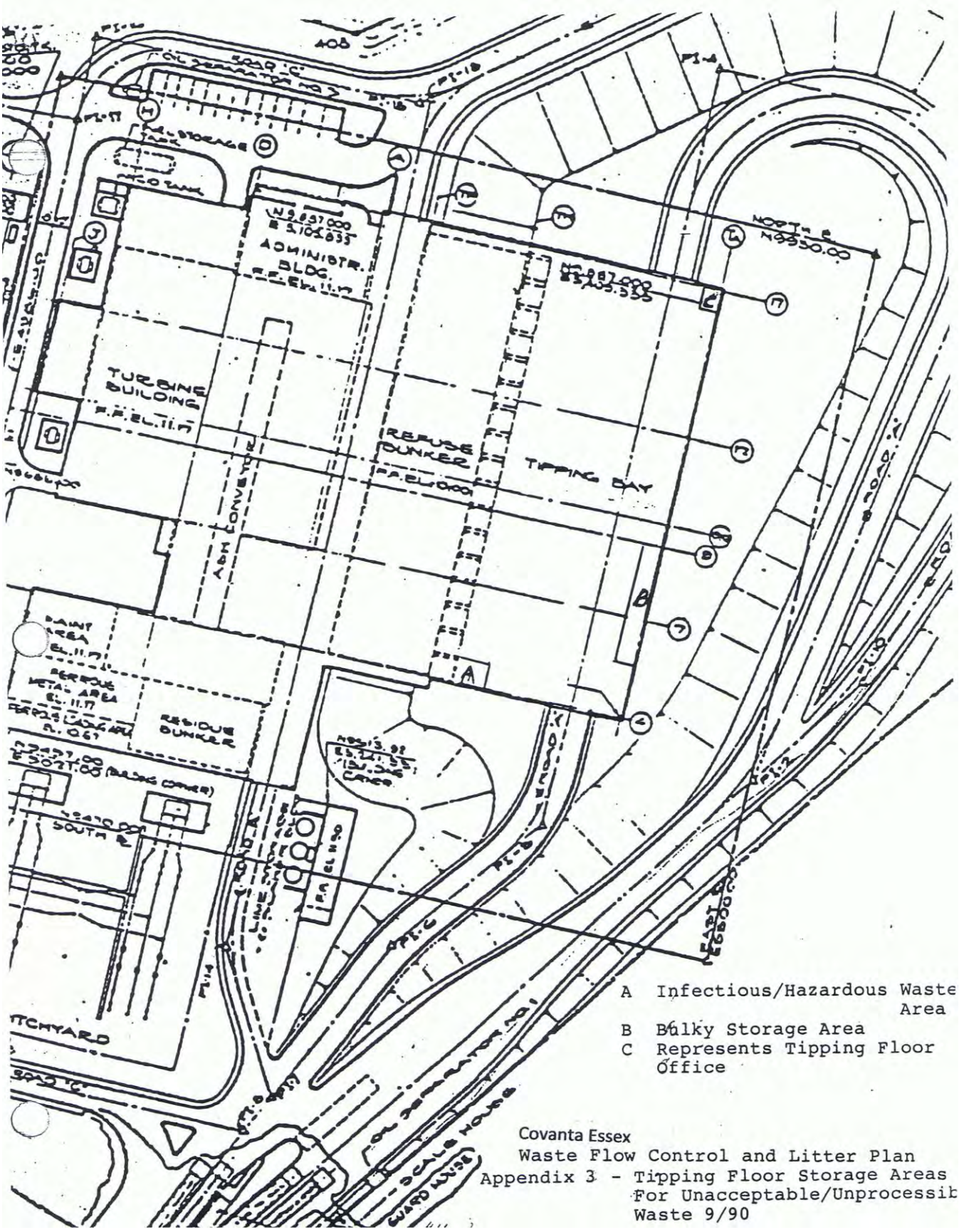
COMMENTS:

FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:

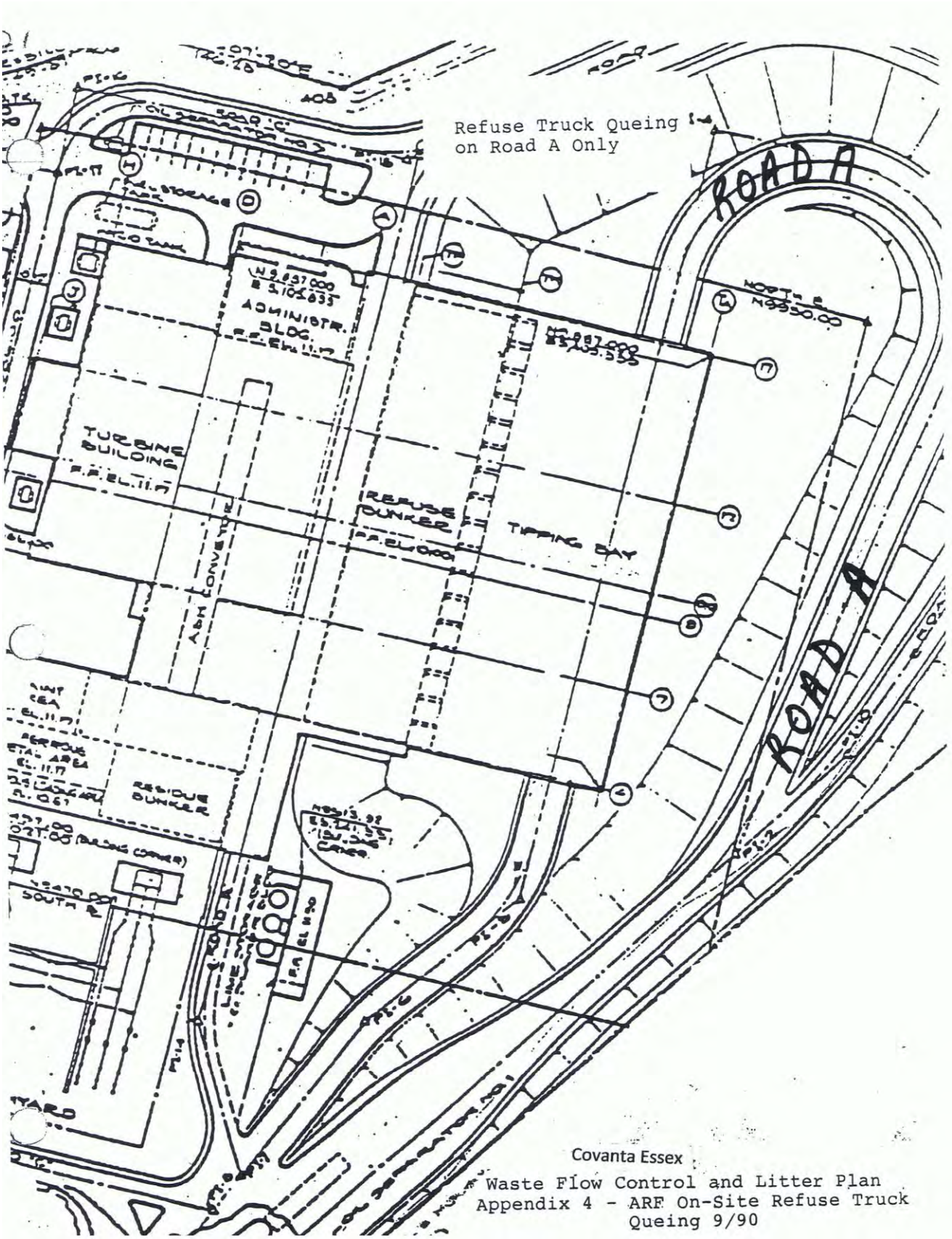
1) SHIFT SUPERVISOR ON DUTY		
2) ENVIRONMENTAL SPECIALIST		
2) OPERATIONS MANAGER		

*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED

PLEASE INCLUDE PICTURES OF ALL UNACCEPTABLE WASTE



Covanta Essex
Waste Flow Control and Litter Plan
Appendix 3 - Tipping Floor Storage Areas For Unacceptable/Unprocessib Waste 9/90



Covanta Essex

Waste Flow Control and Litter Plan
Appendix 4 - ARF On-Site Refuse Truck Queing 9/90

COVANTA ESSEX COMPANY
WASTE FLOW CONTROL PLAN
APPENDIX 5

COVANTA ESSEX HOSPITAL LOAD INSPECTION PROCEDURE

1. FLAGGING LOADS AT SCALEHOUSE

a. Haulers delivering from hospitals in Essex County will be identifying loads from hospitals on the O&D forms going forward. The current known haulers are but not limited to:
   i. Interstate Waste Services (IWS)
   ii. T. Farese
   iii. LT Roselle; and
   iv. Giordano Company
b. These loads are typically compactor loads that contain 100% hospital waste.
c. The scalehouse operator is to make a note on the stage ticket that the load is from a hospital by marking “Hospital” on the ticket for the tipping floor operator.

2. WASTE INSPECTIONS ON THE TIPPING FLOOR

a. Once a notification is received from the scale house or the “Hospital” notation is observed on the stage ticket at the North entrance door, the tipping floor operator will have Bay #4 cleared if there is waste in the bay so that the hospital load can be dumped into Bay #4 for a closer inspection. Hold the truck at the door until Bay 4 is ready to receive the load.
b. Once the load is dumped into Bay 4 and the truck has left the bay and it is safe to do so, the tipping floor operator will walk over to Bay 4 for a closer visual inspection of the load. The “Covanta Essex Hospital Load Inspection Form” (attached) will be used to document the inspection. To provide for the operator’s safety, no loads are to be dumped in Bay 3 or Bay 5 during the inspection.
c. A visual inspection of the load will be conducted to determine if there are any containers of iodine containing material or any medications which contain iodine. The operator will use the visual aids provided for examples of this material to determine if it is visibly present in the load.
   i. The inspector will conduct a visual inspection only and will not handle the load or the materials directly.
   ii. The inspector may use a long handled tool such as a fire hook to move materials as needed. The waste will be raked as thinly as possible so that most of the waste is visible.
d. If nothing is observed that appears to contain iodine, the operator will note that the load is acceptable on the inspection form and the load can be pushed into the refuse pit.
e. If material is identified that may contain iodine, the operator will note this on the inspection form and will contact the Shift Supervisor, Chief Engineer, and/or Environmental Specialist for further instructions. The load is to be left in Bay 4 until the material can be examined by one of the above supervisors.
f. If it is determined that the material does appear to contain iodine, the material will be isolated in the unacceptable waste container on the tipping floor for alternate disposal.
g. The customer, hauler, and Essex County will be notified of the material observed in the compactor.

COVANTA ESSEX COMPANY
SAFE OPERATING PROCEDURE #41
APHIS COMPLIANCE AGREEMENT

Revision 8 – September 2018

I. INTRODUCTION

1. International waste brought into the United States may contain certain dangerous plant diseases and/or insect pests. This waste is referred to as **"regulated garbage"** which is regulated by the Department of Homeland Security, Customs and Border Protection (CBP) under the authority of the Animal and Plant Health Inspection Service (APHIS). The purpose of this SOP is to alert Covanta Essex personnel to that fact and to instruct personnel how to minimize potential uncontrolled contamination.

2. This does not include U.S. Customs seizures, which are typically packaged and palleted, unless packages are broken open. If packages open, exposing waste, equipment and floor must be disinfected, as necessary. Seizures are handled as Special Waste.

II. SPECIAL SAFETY ASPECTS/PRECAUTIONS

1. Do not handle APHIS regulated garbage – especially with bare hands. Use hand tools to inspect or manipulate the load.

2. Equipment used to manipulate regulated garbage must be disinfected after use. This includes tools, loader bucket, and the floor. Grapple should be disinfected prior to maintenance or repair activities if feasible or at least once at the end of each shift.

3. A mixture of the disinfectant is to be kept on the floor at all times. An APHIS authorized disinfectant must be used which includes either of the following:
   a. Clorox bleach (chemical name: sodium hypochlorite). Undiluted Clorox bleach must be 8.25% sodium hypochlorite.
   b. Virkon S, which is a livestock disinfectant, in a 1% solution.

4. Either disinfectant must be mixed into a dilute solution – Virkon S comes in powder form while bleach comes in liquid form. Due to the handling hazards of Virkon S in powder form, bleach will be used to disinfect the waste.

5. According to the Compliance Agreement with USDA, the bleach solution is a mixture of 1.0 part bleach (which is 8.25% sodium hypochlorite) in 9.0 parts water (example: 8 ounces Clorox to 72 ounces water) and must be prepared each day for maximum effectiveness. A typical garden sprayer will be used for application.

6. In the event of a spill of APHIS regulated garbage outside the facility, APHIS/CBP will be notified by calling (908) 986-9200. Cleaning and disinfection of the area of the spill with the above listed disinfectant must be performed immediately using the procedures listed in section V.

III. PERSONAL PROTECTIVE EQUIPMENT

1. Standard PPE (safety glasses, safety shoes, hearing protection).

2. Safety vest (for tipping floor).

3. Required disinfecting PPE: Tyvek suit with hood, disposable boot covers, yellow hard hat, nitrile gloves, chemical resistant gloves, face shield, and N95 respirator.

Note: Review Donning/Removal of PPE procedure – Attachment 1

IV. PROCEDURE

1. Fuel Handling Supervisor or designee and Control Room should be notified when load arrives on site.

2. Bay 4 will be used for all APHIS regulated loads, if available, and disinfectant should be staged in the area. This bay does not have to be dedicated to APHIS regulated loads.

3. Bay 12 will be used only when the North Refuse Crane is out of service and the South Refuse Crane will be used to charge waste.

4. Once the truck is accepted, the crane operator is to be notified as to which bay the material will be dumped into.

5. When possible, before the material is dumped into the pit, the crane operator must dig down into the trench area where the material will be dumped to create a hole for the APHIS regulated waste to be dumped into.

6. The APHIS regulated load should be pushed into the pit as soon as possible.

7. When unloading the APHIS regulated waste on the tipping floor, stage other dry, non-APHIS regulated waste in the area in front of bay 4 or 12 so that this dry waste can be mixed with the APHIS regulated waste if wet using the front end loader. The mixed waste should then be treated as APHIS regulated waste and pushed into the pit as soon as possible. In no case should APHIS waste be held for more than 72 hours.

8. Once in the pit, the load should be charged to a boiler as soon as possible. The crane operator must notify the Control Room before feeding any APHIS regulated waste. Ensure that the entire load is charged by digging down in the trench as necessary. Check that there is no residual material left on tipping floor.

9. If the APHIS regulated waste is wet and requires further mixing with dry waste, the waste should be taken from another area of the pit to the area where the APHIS regulated waste is and mixed in the trench. The APHIS regulated waste is not to be moved to any other areas of the pit once it has been dumped into the pit. Ensure that the entire mixed load is charged by digging down in the trench as necessary.

10. At least once per shift, the front end loader bucket, the floor, and any tools used to manipulate the APHIS regulated waste must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

11. Before performing any maintenance on the front end loader, the loader bucket must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

12. Before using the premixed bleach solution as a disinfectant, agitate the solution thoroughly.

13. If any residual material is observed on the floor, it should be pushed into the pit immediately. The crane operator will be notified and Steps 5-10 will be repeated as necessary.

14. At least once per shift and before performing maintenance/inspections/greasing, the grapple of the refuse crane that has charged APHIS regulated waste to a boiler must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

15. When disinfecting the grapple, the following procedure will be used:

    a. Place the grapple on the charging deck in the open position.
    b. Using the sprayer, spray the interior surface of the grapple tines starting at the top pivot point and working down.
    c. Spray the overhead center hub as a last step in interior disinfection.
       Note: While spraying, do not stand under surfaces being sprayed.
    d. Spray the exterior surface of the grapple tines to complete the grapple disinfection.

V. SPILL RESPONSE PROCEDURES

1. The Fuel Handling Supervisor and Environmental Engineer or designee should be notified when a spill of regulated waste occurs in an area other than the tipping floor.

2. When a spill occurs, sweep up or scrape off as much of the contaminant as possible with a whisk broom and dust pan or shovel.

3. Apply absorbent material if needed (paper towel, etc.).

4. Place the sweepings, scrapings, and absorbent material in a 3 mil leak-proof plastic bag for incineration.

5. Free surfaces of grease or dirt when applicable.

6. Scrub the contaminated area or areas where the spill occurred using a detergent solution.

7. Flush the scrubbed surfaces with clean water.

8. When using the premixed bleach solution described in section II.5 as a disinfectant, agitate the solution thoroughly.

9. Apply disinfectant generously covering the entire area and allow it to remain on the surface for at least 5 minutes.

10. Rinse the surface with clean water and allow the surface to dry.

11. Dispose of all refuse, sweepings, and scrapings that are in the plastic bag in the pit for incineration.

VI. RECORDKEEPING REQUIREMENTS

1. When the APHIS approved hauler arrives at the scale house at the facility entrance, the origin and disposal (O&D) form carried by the hauler must be presented to the scale house personnel. This denotes the hauler name and origin and waste type of the material being delivered. If the review of documents and vehicle requirements proves satisfactory, the load information is entered into the scale house computer, a loop ticket is issued and highlighted as APHIS regulated waste, and the truck is released to proceed to the tipping bay. The scales are integrated into a computerized weighing system and weights of each load are recorded. Also recorded are the date and time the load of regulated garbage was received, the hauler name, and identification of the waste as international waste so that it is processed according to the USDA Compliance Agreement requirements.

2. Records must be kept of the dates that the bleach solution disinfectant is used in association with the handling of regulated garbage. Log sheets (shown on pages 5 and 6) will be maintained on the tipping floor and in the North Refuse Crane which will include the following information on disinfectant use:

    a. Date of use
    b. Location of use
    c. Name of disinfectant used
    d. Volume and concentration of sanitizer used

3. Documentation including date and time of notification of APHIS and US Customs and Border Protection (CBP) if there is any spillage of regulated garbage outside of the facility and the name of the employee making the notification must be maintained.

4. Records must be kept for three (3) years from the date of disinfectant or sanitizer usage.

VII. EMERGENCY BACK-UP PLAN

In the event that the facility is not able to accept waste due to a malfunction or outage, the local APHIS/CBP office will be notified immediately at (908) 986-9200 and will be advised in advance, as to the use of the following pre-arranged approved backup system:

Covanta Union, Inc.
1499 Route 1 North
Rahway, NJ 07065
(732) 499-0101

APPROVED:

Plant Manager	9/19/18 Date
Operations Manager	9/13/18 Date
Safety & Training Supervisor	9/13/2018 Date
Environmental Specialist	9/13/18 Date

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: Tipping Floor – Front End Loader Bucket and Bay 4 Floor

Date of Use	Volume Used (gallons)

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: North Refuse Crane – Grapple

Date of Use	Volume Used (gallons)

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: South Refuse Crane – Grapple

Date of Use	Volume Used (gallons)

ATTACHMENT 1
CORRECT DONNING AND REMOVAL OF PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR EBOLA

For most work tasks requiring PPE to protect a worker from exposure to Ebola virus, put on personal protective equipment in the following order:

1. Gown or Tyvek (if using double gloves, put on first pair before gown or Tyvek)
2. Mask (or respirator, when appropriate)
3. Face shield or goggles
4. Gloves

Remove PPE in a way to avoid self-contamination. This may include removing outer gloves simultaneously with the gown or Tyvek suit, decontaminating PPE between removal steps, or other measures. The order of PPE removal may vary depending on the type of PPE a worker uses, the nature of the work tasks being performed, and which devices or garments are contaminated, among other factors.

After use, remove and place suits, gloves, and disposable masks in a labeled waste container, as appropriate. Wash hands with soap and water, or use an alcohol-based hand gel if soap and water are not available. Reusable goggles, face shields, respirators, and other equipment must be decontaminated before re-use.

COVANTA ESSEX COMPANY
WASTE FLOW CONTROL PLAN
APPENDIX 7

Plant Specific Operating Procedure #42

COVANTA ESSEX COMPANY
PLANT SPECIFIC OPERATING PROCEDURE #42
HANDLING SPECIAL WASTE DELIVERIES

Revision 7 – December 2008

I. INTRODUCTION

This procedure is meant to be utilized whenever personnel are involved in the acceptance, unloading, and charging of Special Waste. Special Waste includes APHIS waste, Treated (disinfected and destroyed) Regulated Medical Waste and non-hazardous industrial waste pre-approved for disposal at our facility by Covanta Essex Company. For the purposes of this procedure, handling of the non-hazardous industrial component is discussed. Pharmaceutical waste, characterized using the Browning-Ferris protocol, is part of this classification.

II. SAFETY ASPECTS

A. Disposal of each Special Waste load requires visual inspection and appropriate handling. Because of this, personnel are required to come into much closer proximity to the waste stream than ordinary municipal solid waste deliveries. Detailed information regarding waste composition is available for review.

B. When inspecting or handling Special Waste, precautions must be taken so that personnel minimize contact with the waste and appropriate respiratory protection (dust mask) is used whenever a dusting condition is created. The Tipping Floor Technician or Special Waste Coordinator must notify the Refuse Crane Operators when these types of loads are present and must coordinate feed into the refuse pit. Use of hand tools and sharp objects requires attention to detail.

C. Many Special Waste deliveries require the unloading of trucks and staging of pallets on the tipping floor. This necessitates precautions while normal waste deliveries are still entering the tipping floor. Traffic flow is a concern as well as proper operation of the forklift. Loads should be handled on the far north/south ends whenever possible. A barrier with flashing light is placed in front of the work area to warn truck drivers of personnel in the area.

D. During transportation loads may shift. The truck driver is responsible for opening the vehicle's gate or door. Personnel must maintain a safe distance from the back of the truck when the back gate or door is being opened.

D. Personnel should maintain a minimum safe distance away from heavy equipment that is in use on the tipping floor. A general rule for safe distance is 8-10 feet from this equipment, however certain loads may require a greater distance away from the equipment.

III. ENVIRONMENTAL ASPECTS

A. Wastes excluded specifically by permit and regulation include, but are not limited to:
Asbestos, dry non-hazardous pesticides,
PCB containing material, contaminated soil
Hazardous waste, sewage sludge, animal and food waste.

B. Excluded due to potential permit issues with air emissions are wastes that contain:
Bromine or iodine containing material
Heavily sulfonated (rubber) or chlorinated (salts, PVC) materials.
Heavy metals (nickel, lead, beryllium, mercury, cadmium, and chromium)
Silica, fiberglass, carbon fibers, fine powders, etc.

C. Containers (drums) greater than or equal to 20 gallon capacity that contain bulk liquid cannot be accepted. Bulk loads (roll-offs or dump trailers) must also be limited to amount of free liquid.

D. Whenever charging the furnace with special waste, the Refuse Crane Operator must first thoroughly mix the waste stream with MSW. When not mixed, some industrial wastes can be more combustible than MSW. In almost all cases, this characteristic will not be a factor if the waste is thoroughly mixed drums, pallets and boxes must be broken up as much as possible by the crane grapple and the contents mixed thoroughly with MSW. Direct feed or witness burns necessitate the feeding of material to the hopper. Direct feed situations involve limited to no mixing of the material prior to introduction into the hopper. Feed rate will be determined upon evaluation of the load. The Special Waste Coordinator or Tipping Floor Technician must coordinate witness burns must with the Control Room and the Refuse Crane Operators.

IV. PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. All personnel must wear standard personal protective equipment. If an observer or witness is present with the load, they must comply with our PPE standards if they should leave the normal tour route. Bays 2 & 3, the north end of ash alley and 84' elevation boiler house Unit #1 hopper window are areas where witnesses may be present.

B. Respirators may be utilized on an "as needed" basis for nuisance dusting when inspecting containers of bulk powders.

C. Appropriate gloves must be worn at all times when handling or inspecting Special Waste.

D. Personal restraint harnesses must be worn if working within 10' of the refuse bunker.

E. All personnel working on the tipping floor are required to wear reflective clothing. Reflective vests located at either end of the tipping floor.

V. PROCEDURE

Tipping Floor Drops

A. Special Waste deliveries will be identified at the Scalehouse. Tipping Floor Technicians can identify a special waste load by looking at the scale ticket, which identifies the load as special waste (ID10S or ID27S). A non-hazardous Special Waste manifest (attached) or bill of lading paperwork may accompany the load.

B. Once a load is identified as Special Waste; the Tipping Floor Technician will identify the type of Special Waste and verify the waste is scheduled and approved for disposal. The Special Waste Coordinator and facility Environmental Scientist keeps copies of approved profiles. Depending on the type of Special Waste received will dictate the visual QA/QC inspection to be performed.

C. Once the shipping paperwork is reviewed and the material is determined to be approved for disposal, the Tipping Floor Technician will determine how the waste will be unloaded. It is necessary to unload the vehicle before total assurance is achieved in the load's acceptability. The Tipping Floor Technician will also inquire if witnesses are required to see the destruction from the floor or crane cab.

NOTE: All loads are accompanied by a Certificate of Destruction (C of D).

D. During transportation loads may shift. The truck driver is responsible for opening the vehicle's gate or door. Personnel must maintain a safe distance from the back of the truck.

E. Vehicles that are to be unloaded with a forklift will be moved to the extreme north/south end of the tipping floor for unloading. Interference with truck and equipment traffic on the tipping floor will be eliminated by coordination with Tipping Floor personnel. A barrier to warn others, must be set up once the truck is in place.

G. A visual check of the materials will be done to ascertain if the material appears to be the approved waste. Pharmaceutical materials and consumer-packaged materials will be checked through the use of the approval lists. Each pallet will be checked against the approved product lists from each company. If the products are not listed the products will be rejected and reloaded on to the truck. Discrepancies or issues with the load will be documented on a Covanta Essex Company SWS Incident Report form (attached).

An inspection sheet is generated for each special waste load (attached). After the off-load QA/QC inspection is completed, the delivery paperwork is completed and the truck is cleared to leave. If unapproved, non-hazardous waste material is rejected, the containers are reloaded and the paperwork is properly annotated. , The truck is secured by use of a plastic numbered seal. If suspected hazardous or medical waste is found, the NJDEP Hot Line (1-877-WARNDEP) must contacted. Prior to the waste being rejected, verbal approval is secured from the NJDEP Division of Solid and Hazardous Waste (DSHW).

F. Some materials may be delivered in metal drums. The forklift drum tipper will be used to empty the drums. The metal drums will be crushed prior to be introduced into the refuse bunker. Caution must be taken when using heavy equipment to crush empty drums. Drums should be flattened by "pancaking"the drum with the bucket of the loader.

H. The Refuse Crane Operator will be informed whenever special waste is being put into the refuse bunker. The information that is conveyed should include the following:

1. Which refuse chute the special waste will be put into.
2. Type of special waste (i.e pharmaceuticals, documents, industrial).
3. Approximate amount of material
4. Confirmation with the Control Room Operator (CRO) when direct feeding a boiler with Special Waste.

This information will be communicated by the Special Waste Coordinator or Tipping Floor Technician to the Refuse Crane and Control Room Operator. The Refuse Crane Operator should then mix the Special Waste as instructed by the Special Waste Coordinator thoroughly with the MSW prior to charging it into the furnace at a specified feed rate.

NOTE: For confidentiality reasons, type of waste being handled should not be broadcast over the radio.

I. When charging special waste mixed with MSW, the Refuse Crane Operator will notify anyone working on the charging deck that special waste is being mixed and fed to the boilers. If the feeding of the special waste creates an excessive amount of dust, feeding should be stopped immediately.

Witness of Burn/Direct Feed

A. Government agencies or private entities request to use our facility for the secured and guaranteed destruction of seized narcotics, controlled substances, criminal evidence or USDA sanctioned material. These items will be fed directly into one of the boilers as directed by the Special Waste Coordinator.

B. All visiting personnel witnessing and handling these wastes must wear visitor PPE. Additionally, any person guarding the Ram Feeder Table at 49' elevation is required to wear steel-toed shoes.

C. When the load arrives, the Control Room Operator will be notified by either the Special Waste Coordinator or Tipping Floor Technician and provided with the following information:

1. Direct feeding special Waste
2. Type of material
3. Receiving boiler
4. Approximate quantity of material
5. Feed rate

D. The material will be offloaded from the truck and brought to 84' elevation by elevator.

E. If Boiler #1 is available the north Refuse Crane Operator will be notified of the destruction. A Covanta Essex employee will be in radio contact at all times with the north Refuse Crane Operator. Prior to opening the window above hopper #1, the Covanta Essex employee accompanying the government agents will obtain permission from the Refuse Crane Operator.

F. Once approval is obtained, the window above #1 will be opened and Special Waste material fed into the hopper. Feed rate into the hopper is determined by the type of material being fed. A grapple full of MSW should be placed in the hopper after a predetermined amount of Special Waste is fed.

G. If Boiler #1 is off line or in an upset condition, Boilers #2 and/or #3 may be used with all communications being maintained with the appropriate Refuse Crane Operator.

VI. POSTING

Control copies of SOP Manual
Tipping floor

APPROVED:

Plant Manager — 12/23/08 Date

Operations Manager — 12-15-08 Date

Safety & Training Supervisor — 12-24-2008 Date

Environmental Engineer — 01-05-2009 Date

Attachment 4

COVANTA

Powering Today. Protecting Tomorrow.

PURPLE PLUME MITIGATION PLAN

Original, January 2022

VOLUME IX, CHAPTER 3A

Approved by: _____ **Date:** 1/10/22

COVANTA ESSEX COMPANY

OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3A

PURPLE PLUME MITIGATION PLAN

Original, January 2022

Purple Plume Mitigation

On December 20, 2019, Covanta Essex submitted a Purple Plume Prevention Plan to NJDEP (see Attachment 1) outlining planned efforts to eliminate the occurrence of purple plumes which occur when iodine containing waste is combusted. This was the basis of the requirements included in this Purple Plume Mitigation Plan (Plan) outlined below.

Iodine containing waste is prohibited from being delivered to the Covanta Essex facility. The following plan includes protocols and procecures to prevent the delivery of iodinated waste to Covanta Essex and procedures and training at Covanta Essex to prevent processing of any iodinated waste delivered to Covanta Essex and deposited in the tipping floor area.

1.0 Procedures to increase education and outreach

1.1 Distribution of Flyers

Covanta Essex distributes informational flyers (see Attachment 2) to the Essex County Utility Authority (ECUA) at least annually which ECUA includes in their billing invoices to all Essex county haulers to alert them of the problem created by the presence of iodine in waste delivered to Covanta Essex. Flyers are also sent to all the commercial haulers and the Department of Sanitation of New York (DSNY) at least annually that deliver waste to Covanta Essex.

These informational flyers may also be sent to local businesses identified using the Virtual Drive-By Procedure described in Section 2.1 below to educate them about iodine containing materials in the waste stream, and Covanta will also offer assistance to interpret any reagent SDS sheets.

1.2 Hospital Outreach

The following hospitals are known to deliver waste to the facility and will be sent the informational flyers referenced in section 1.1 above on an annual basis to continue to inform them that iodine containing waste is prohibited from being delivered to the Covanta Essex facility:

- St. Barnabas Medical Center, Livingston NJ
- Clara Mass Medical Center, Belleville, NJ
- Beth Israel Medical Center, Newark, NJ
- St. Michael's Medical Center, Newark, NJ
- UMDNJ Hospital, Newark, NJ
- East Orange General Hospital, East Orange NJ
- VA Medical Center, East Orange, NJ

1.3 Essex County Solid Waste Advisory Committee (SWAC) Outreach

When necessary, Covanta Essex will solicit route information from members of the Essex County SWAC where commercial stops are incorporated into municipal routes. This information is used in the "Virtual Drive-By" procedure discussed in Section 2.1 below.

1.4 Website Link

A website link has been created by Covanta Essex that lists all waste types that are prohibited from being accepted at Covanta Essex including waste that contains iodine. This link will be maintained on the website with the most current informaiton. This link will be included on all correspondence with ECUA, DSNY and all haulers delivering waste to the Covanta Essex facility. The link address is https://info.covanta.com/prohibited-wastes.

1.5 Troy Chemical Outreach

Covanta Essex used the "Virtual Drive-By" procedure discussed in Section 4.2 to identify Interstate Waste Services (IWS) as the waste hauler for Troy Chemical who was identified as the source of the iodinated waste after the April 7, 2020 purple plume event. Covanta Essex has reached out to Troy Chemical numerous times since then to inform them that IPBC and any other iodine containing compounds in their waste are not acceptable to be delivered to Covanta Essex. Troy Chemical has not responded to Covanta Essex. After receiving no response, Covanta Essex contacted IWS and instructed them to divert all waste from Troy Chemical to another disposal location. Future attempts to contact Troy Chemical will only be made in the event that waste from their Newark facility is discovered in any loads delivered to the facility.

1.6 Outreach via Covanta Invoicing

Covanta Essex has created invoice templates for its non-Essex County commercial waste haulers and other haulers that are billed directly by Covanta which include the above referenced website link for prohibited waste types. These will be used for all future billing cycles. The website link address is listed in section 1.4 above. A copy of an invoice containing the website link is included as Attachment 3 to this Plan.

1.7 Plant Signage for Prohibited Waste

The signs posted on the scalehouse that list all the prohibited waste types for the Covanta Essex facility shall include iodine containing waste as a prohibited waste type. The signage shall be updated as needed.

2.0 Procedures to identify potential generators/sources of iodine containing waste, to ensure these wastes are not included in the waste streams coming to the facility and inspection/interception protocols to ensure these waste types are not processed through the facility

2.1 Virtual Drive-By Procedure

Covanta Essex has developed a detailed procedure to identify potential generators/sources of iodinated wastes in the facility's service area. These steps are summarized below:

Step	Action	Output	Covanta Essex Responsibility
1	Conduct Virtual Drive-By using Google Maps and going street by street and documenting: • the location (town, city) • business name and type • website address • contact information • list of products that may contain iodine.	List of businesses that potentially use iodine in their operation. Business types may include: • Large scale chemical companies; • Hospitals/Medical Labs • Printing companies • Veterinary clinics • College chemistry labs • Research facilities • Photography studios	Covanta support staff
2	Identify businesses that have waste delivered to Covanta Essex	Smaller pool of companies/haulers to investigate	Business Manager
3a	Contact hauler/generator to confirm that they delivered iodine-containing waste. If confirmed, then develop a plan to re-route source to a transfer station, ban their deliveries, or remove the iodine material from their waste stream	Confirmation of source	Business Manager
3b	Use the New Jersey's Community Right To Know database to check the inventory of target businesses for iodinated compounds	Confirmation of iodine-containing compounds on site	Environmental Specialist
4	Distribute flyers to customers/haulers	Educate waste generators/sources	Business Manager
5	Update waste screening protocols and train Covanta business units in screening non-residential waste approvals for targeted businesses and iodine containing wastes	Updated waste approvals	Covanta Business Units/Environmental Specialist

This procedure will be implemented in the event of any future purple plume events at the facility to identify the generator of the iodine containing waste.

2.2 Increased Hospital Load Inspections and Throwdown Inspections

All MSW loads received from hospitals are subject to inspection to check for iodine containing material in the waste which is prohibited. The procedure for these inspections includes pictures of typical items that may be found in hospital waste that could contain iodine to educate and train tipping floor operators. In a letter dated November 5, 2019 to NJDEP, Covanta Essex submitted its Hospital Waste Load inspection procedure and the original form used to identify loads of iodinated waste received at the facility. The Hospital Waste Load inspection procedure has been updated and now includes the following additional requirement that the waste will be raked as thinly as possible so that most of the waste is visible while performing the inspection. The current Hospital Load inspection procedure is included as Attachment 4 to this Plan. The standard throwdown inspection form for all waste load inspections has been updated and now also includes a section for identification of iodine containing waste as unacceptable waste and can also be used to document all hospital waste inspections. This form will now be used to document all waste load inspections, including Hospital waste load inspections. The updated form is included in Attachment 5.

Throwdown inspections are required to be performed on a minimum of 10% of all waste loads received per day. The inspections shall be done on a random basis throughout each shift.

3.0 Digital Camera Use

Between 2018 and 2019, Covanta Essex installed 10 HD digital cameras on the tipping floor. Four of the 10 cameras have additional pan, tilt and zoom (PTZ) capability. This PTZ capability allows for greater visual observation of loads. Additionally, 3 new HD digital cameras were installed over each of the three boiler feed chute hoppers. All recorded video footage by the cameras is stored and available for review for 40 days.

Covanta Essex plans to also install 7 additional HD digital cameras on the East Wall of the tipping floor, 4 additional HD digital cameras on the North side of the refuse pit, and 3 additional HD digital cameras on the South side of the refuse pit as part of the planned fire system upgrade to be installed in 2022. A diagram of the current and proposed loccations of all cameras on the tipping floor and refuse pit are included as Attachment 6 to this Plan.

3.1 Tipping Floor Monitoring

The tipping bay office is located inside the North entrance of the tipping floor. For each operations shift, one tipping floor operator is stationed at the North entrance and a second operator operates the front end loader. Once the load has exited the scale and proceeded to the North entrance to the tipping floor (the waste receiving area), the truck is required to present a scale ticket to the operator at the entrance and is inspected for proper decals. Once approved, the truck is then assigned a bay where it can deposit its load of waste.

The computer monitor located in the tipping bay office displays all tipping floor camera views

which allows the tipping floor operator that is stationed at the North entrance to view all bays where waste is deposited. The operator can zoom in on any load using the cameras equipped with PTZ capability and can visually inspect the load for prohibited or unprocessible waste types as the truck unloads onto the tipping bay floor. The use of the cameras in addition to the throwdown inspections allows for greater visibility of all loads delivered to the tipping floor so that unprocessible waste can be identified and prevented from being processed.

4.0 Training

4.1 Annual Environmental Training

A training program is conducted annually to review all sections of the Environmental Compliance Operating Manual (ECOM) and is provided by the Environmental Specialist to all Covanta Essex employees who have responsibilities affecting the operation of the facility, including, but not limited to chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Section 3 of the ECOM covers types of waste that are acceptable and unacceptable at the facility, including waste with iodine, and required procedures for inspecting waste loads on the tipping floor, handling any unacceptable waste that is identified on the tipping floor, and management of the refuse pit by the refuse crane operators.

4.2 Waste Inspection and Camera Use Training

Refresher training will be provided to tipping floor attendants and refuse crane operators on completing inspections focused on MSW loads from hospitals on both the tipping floor and within the refuse pit on an annual basis. Training will include a review of inspection methods and proper completion of the throwdown inspection sheet and procedures for rejecting unacceptable and prohibited waste including iodine containing waste. The training will also include a review of the use of the cameras on the tipping floor for monitoring of loads.

4.3 Control Room Operator Purple Plume Response Procedure

All Control Room Operators (CROs) have been provided a procedure detailing response steps to be taken if a purple plume event occurs to minimize the impact of the event on opacity. The procedure is in a binder that is kept in the control room for easy access to all CROs when needed if an event occurs. This procedure is also included in Attachment 7 to this plan.

5.0 Annual Review of Plan

The Purple Plume Mitigation Plan shall be reviewed on an annual basis to assess whether further improvements or enhancements could be made to ensure that iodine containing waste is not processed at the Covanta Essex facility.

Attachment 1

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Covanta Essex Company
183 Raymond Blvd
Newark, NJ 07105
Tel 973 344 0900

VIA E-MAIL AND CERTIFIED MAIL

December 20, 2019

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Re: Covanta Essex Company – Draft Purple Plume Prevention Plan

Dear Ms. Wormley and Mr. Hastry:

On behalf of Covanta Essex Company ("Covanta"), I am writing in furtherance of our meeting on December 10th to discuss Covanta's ongoing efforts to prevent purple (iodinated) plumes at the Essex County Resource Recovery Facility ("Facility") located at 183 Raymond Boulevard in Newark. Covanta understands and appreciates the concerns expressed by the Ironbound Community Corporation and the New Jersey Department of Environmental Protection ("DEP") regarding these atypical visible emissions, and we are committed to finding a solution to prevent their occurrence.

As explained in the presentation that we shared with you last week, a copy of which is attached, a plume with a pink to purple color is caused when sufficient quantities of iodine are present in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in the Facility's boilers. Covanta has been working rigorously to develop a two-pronged solution to prevent the occurrence of purple plumes: (1) develop a robust set of plans and procedures to prevent delivery of iodinated waste to the Facility in the first instance, and (2) in the event that iodinated waste nevertheless makes its way into the boilers, to have a system in place to reduce iodine emissions and thus minimize the formation of a purple plume.

The purpose of this letter is to present in DRAFT form our proposed strategy to address the five (5) specific action items identified by DEP for inclusion in Covanta's Purple Plume Prevention Plan:

1. Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2. Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility.
3. Evaluate potential human health risks associated with purple plume emissions.
4. Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume event.
5. Review and evaluate the safety and efficacy of the proposed purple plume mitigation system

In response to DEP's request, Covanta will secure the services of independent contractors to review past and present efforts to prevent purple plume events, results obtained to date, and other ideas for consideration. Purple plumes are not acceptable to us and we welcome all efforts to prevent delivery of iodinated waste to the Facility.

Covanta's proposed approaches to the five action items, further detailed in Covanta's Purple Plume Prevention Plan attached, are as follows:

- The attached responses to action items 1 and 2 identify a wide range of efforts already implemented by the Facility to identify potential sources of iodinated waste, to prevent delivery of such waste to the Facility, and to detect the presence of iodinated waste on the Facility's tipping floor to keep it from reaching the boilers. Those efforts are continuing; however, to date we have not identified a generator of iodinated waste that can be linked to the plume events at the facility. We are also installing high resolution digital cameras that will record all waste charged to a boiler. If a purple plume should develop, those cameras and back up files would assist in identifying the nature of the waste and potential identification of the source (hauler/generator). Other technology-based solutions under consideration include iodine monitors in the pit area.

- The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on a recently completed facility-wide risk screening assessment completed in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. The report includes ambient impacts determined from dispersion modeling using the U.S. Environmental Protection Agency AERMOD model, and was designed to correlate facility operating conditions with short term and long term ground level impacts. The results from Part 1 will be compared to established iodine exposure standards and will serve as the foundation for a timely and complete evaluation of potential human health risks associated with purple plumes.

- The Facility's response to action item 4 identifies all recent community outreach efforts. With regard to purple plume events, Covanta has engaged with local and regional media including the *Star-Ledger*, *Newark Patch*, News 12 NJ and CBS 2 New York to educate the public and explain the events. The facility also created an educational flyer/poster used for outreach to customers, haulers and hospitals that explains the type of waste that may contain iodine and provides

contact information to discuss alternative disposal options. We will be formulating a plan for alerting the local community in the event of a purple plume. In the meantime, the annual Open Public Meeting for the Facility occurred at the Blueprint Café (369 Raymond Boulevard, Newark), on December 18, 2019, during which we responded to questions from the public based on currently available information.

- In response to action item 5, the Facility has been actively involved in the development of a possible purple plume prevention technology. A test skid for one boiler (unit) is currently scheduled for delivery in the January-February time frame with testing scheduled to occur sometime in the 1st quarter of 2020. Testing would be limited to demonstrating that the injection of sodium thiosulfate solution promotes the formation of sulfur dioxide, which in turn reacts with iodine to prevent a plume from developing. This mitigation technology is in the development phase and would only be used when a plume is developing; it would not be in operation on a continuous basis. Implementation on all 3 combustion units at the Facility would occur only following a complete evaluation of the technology, and subject to any necessary DEP approvals.

We are evaluating qualified independent contractors so that we can implement their review as soon as we arrive at a final plan. We expect that each action item may require its own contractor or contractors and that each action will also have its own implementation schedule. The plan is to implement each as soon as possible.

We look forward to your feedback on this draft action plan however that does not mean that we have stopped researching the issues. Efforts on each of the five action items are continuing and will continue as we wait for your response. We are available to discuss at your convenience.

If you have any questions, please contact Patricia Earls at 973-817-7322 or pearls@covanta.com.

Sincerely,

David Blackmore
Facility Manager

Cc: Anthony Fontana, Solid Waste Permitting
(anthony.fontana@dep.nj.gov)
Jeffrey Meyer, Northern Regional Air Enforcement Field Office
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Brian Bahor, Covanta
Jack Bernardino, Covanta
Patricia Earls, Covanta

DRAFT

Covanta Essex Purple Plume Prevention Plan

Action Item	Action
1	Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2	Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP's) to screen/manage waste once it arrives at the Facility.
3	Evaluate potential human health risks associated with purple plume emissions.
4	Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume.
5	Review and evaluate the safety and efficacy of the proposed purple plume mitigation system.

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DRAFT Action Item # 1

1.0 Action

Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.

1.1 Purpose

An independent contractor will review past and ongoing efforts to identify generators who could be the source of iodinated waste causing colored plumes.

1.2 Goal

Prevent further deliveries of iodinated waste.

1.3 Scope of contractor review

1.3.1 Background

Table 1 summarizes the outreach and inspection plan including a brief summary of efforts to date by Covanta Essex to investigate generators and haulers and inspections at Covanta Essex. This plan is an evolving work-in-progress and is updated to include lessons learned and new information and ideas.

1.3.2 Scope of contractor review

The independent contractor will review efforts outlined in Table A to identify and contact generators and to inspect deliveries of hospital waste and other non-hazardous waste known as Type 10 & 27. Contractor's review should consider any new ideas or approaches that would improve that outreach effort to prevent deliveries and/or activities at site to inspect waste deliveries.

Table A Outreach and Inspection Plan for Iodine Bearing Waste

A.1 Purpose

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Facility, the following actions have been and continue to be implemented by Covanta Essex:

A.2 Outreach to generators

Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) and has been included in their billings to all Essex County haulers
	That same flyer was mailed to all the commercial haulers that deliver waste to the Facility
	That same flyer has also been sent to the Department of Sanitation of New York (DSNY)
	Covanta hosted its annual Hauler Day at the Facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.
Transfer Station waste	Transfer stations in Paterson and Totowa owned by Covanta affiliates separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to the Facility.
Direct outreach by phone to hospitals that have waste delivered to the Facility. Major hospitals include;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael's Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for:	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
	IWS is to distribute our iodine flyer to the hospitals
Other hospitals	Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear. With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the Facility.
Findings to date	One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection

Identify other sources of iodinated waste.

Goal	Activity
Identify other generators beyond hospitals	Evaluating generators in Essex County, Passaic County and New York City
	Medical service providers including dental offices, veterinary hospitals and offices, urgent care facilities, surgery centers, dialysis centers, doctor's offices, and X-ray contrast media producers
	Adding chemical companies and food manufacturers
	Compare waste delivery schedule with past plume events

A.3 Facility Inspections

A.3.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified on the form and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked "Hospital"
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

A.3.2 Other Type 10 and Type 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked "Type 27" by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types. This is in addition to the normal inspections which is performed on 10% of the incoming trucks per day.

(a) Iodine has many uses including as an additive to nutrition products, and a wide range of medical, agricultural, and industrial applications. The leading application of iodine is in the production of X-ray contrast media (22%). Another application of iodine is in polarizing film in liquid crystal display (LCD) screens, where iodine is incorporated as a polyiodide (I_3^- or I_5^-). Potassium iodide is used in iodine tablets to be taken during nuclear accidents to protect the thyroid against exposure to radioactive iodine. Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application. Other applications include pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis. An additional use of iodine is in Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

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DRAFT Action Item # 2

2.0 Action

Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility

2.1 Purpose

Evaluate existing practices to investigate content of trucks delivered to the facility.

2.2 Goal

If an iodinated waste is delivered to the facility, prevent it from being combusted.

2.3 Scope of contractor review

Review existing practices and procedures. Review must consider health and safety of personnel on site while facility is conducting normal business practices.

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DRAFT Action Item # 3

3.0 Action

Evaluate potential human health risks associated with purple plumes.

3.1 Purpose

An independent contractor will review results from the recent dispersion modeling report to determine the ground level impacts of iodine and possible health impacts.

3.2 Goal

Estimate the ground level impact of iodine and how it compares with documented heath-based standards.

3.3 Scope of contractor review

3.3.1 Background

Covanta recently completed a facility-wide risk screening assessment in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. This report is described as a second-level risk screening assessment which determined ambient impacts from dispersion modeling from application of U.S. Environmental Protection Agency's AERMOD model. Second-level screening is a more rigorous evaluation as compared to first-level screening which uses dispersion look-up tables and DEP's risk screening spreadsheet.

The report was designed to correlate facility operating conditions with short term and long term ambient impacts. The results provide the ability to estimate ambient level iodine concentrations for comparison with established iodine exposure standards.

3.3.2 Scope of contractor review

The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on the recently completed facility-wide risk screening assessment "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" completed in connection with the Facility's Title V operating permit renewal.

Part 2 will include a survey of recognized exposure standards for iodine for comparison with estimate ground level impacts.

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DRAFT Action Item # 4

4.0 Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume.

4.1 Purpose

Ensure effectiveness of community outreach practices, including timely communication in the event of a purple plume.

4.2 Goal

Covanta, along with Corporate Outreach and Communication resources will continue to plan community outreach activities as has been done historically. In addition, Covanta will investigate methodologies for communicating relevant operational information, including incidents involving a purple plume, to the community.

4.3 Scope

Develop outreach activities and present options on an immediate notification in the event of a purple plume.

4.3.1 Background

Community Outreach is typically targeted at developing long term, meaningful relationships with various members and groups within the community. Covanta has participated in a number of events to support various initiatives and address issues within its community.

Historically, operational information, whether routine or a deviation have not been communicated to the community directly, unless triggered as part of a specific incident with possible immediate impacts to the community or environment.

4.3.2 Scope of Contractor Review – general community outreach

An Agency with expertise in Marketing and Communications will review the Facility's outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Plan Community Outreach Activities	Follow past practice to develop an outreach strategy appropriate for the facility stakeholders and local community.
Investigate Communication Methodologies	Determine what information and what timeframe is appropriate to communicate to the community.
	Investigate communication technologies appropriate for large scale communication of information.

Examples of previous outreach activities in 2018 and 2019 that would be reviewed to determine appropriateness for 2020 include:

1.0 Meet periodically with stakeholders:
- Essex County Utilities Authority
- Essex County Executive
- City of Newark
- Ironbound Community Corporation
- Ironbound Business District
- Newark Board of Education

2.0 Member Essex County Solid Waste Advisory Committee

3.0 Member Newark Regional Business Partnership

4.0 Accept Pharmaceutical Takeback:
- Newark Police
- Essex County
- New Jersey Field Office DEA

5.0 Board member and Participant in NJ Clean Communities Program (includes litter cleanup at Valisburg Park)

6.0 Food Drive to benefit Pierre Toussaint Food Pantry Newark

7.0 Event Sponsor
- Millburn Township Earth Day
- Essex County Parks Earth Day
- Holiday Lights at Turtleback Zoo
- Giraffe Exhibit at Turtleback Zoo

8.0 Coordinate with Go Green Initiative pilot in Newark City School District. Provide support for Sustainable Jersey School Certification

9.0 Sustainable Jersey Sponsor

10.0 Donated reusable water bottles to Miller Street School for field trip and to teach about waste reduction

11.0 Conduct tours for visitors from NJIT, Rutgers, other community groups

12.0 Host Annual Open House

13.0 Sponsor 4E-waste collection events (1 in Ironbound)

14.0 Install Rain Garden at St. Benedict's School in Newark

15.0 Newark Sustainability Summit Participant

16.0 Hosted a 4-week summer program for Boys and Girls Club

17.0 Publish Quarterly Newsletter to the Community & Stakeholders

4.3.3 Scope of Contractor Review – community outreach for an event

An Agency with expertise in Marketing and Communications will review Covanta's proposed outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Evaluate Outreach and Communication Plan	Engage an Agency with Marketing and Communications expertise to review Covanta Essex's proposed outreach activities and communication actions, which will include an option for notification in the event of a plume.

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DRAFT: Action Item # 5

5.0 Review and evaluate the safety and efficacy of the proposed purple plume prevention system

5.1 Purpose

An independent contractor will review the plan to use sodium thiosulfate to prevent a purple plume. Note that the addition of sodium thiosulfate is proposed only during a purple plume event and would not be in continuous operation.

5.2 Goal

Evaluate viability of sodium thiosulfate and other possible options for preventing the plume.

5.3 Scope of contractor review

5.3.1 Background

A colored plume with a pink to purple color is due to iodine in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in a municipal waste combustor (MWC) at the Facility. Iodine is converted to a component of flue gas including I_2 which is the form that promotes a pinkish/purplish plume. Control of I_2 requires mitigation technology in an addition to the existing air pollution control systems. The proposed sodium thiosulfate (ST) system would only inject a ST solution when needed, it would not be in continuous operation.

ST prevention was initially used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber only when iodinated waste is incinerated. That facility has the advantage of knowing when iodinated waste is being combusted because such waste is accepted for disposal as part of that company's normal business. In contrast, Covanta does not purposefully accept iodinated waste for disposal and any delivery of iodine occurs as a constituent of MSW. Application of ST at a MWC was initially evaluated at Covanta's sister facility in Lancaster, PA as a "proof of concept" that ST would breakdown and form SO_2 which is known to react with I_2. Initial efforts at the Covanta Lancaster facility have demonstrated the potential for ST as a prevention strategy however there are significant design differences between the Covanta Lancaster and Covanta Newark facilities including the equipment (grate, furnace and boiler), MSW quantity and origin and flue gas residence time and temperature through the system. We are not assuming that the ST prevention technology information from Covanta Lancaster translates directly to the Newark Facility and are therefore proposing to implement ST technology on one unit to confirm its potential as an I_2 mitigation technology.

Covanta has conducted R&D tests to evaluate the optimum injection location however that is a work in progress. Covanta is also using three consultants affiliated with universities to evaluate the basic ST prevention strategy and other issues that may impact its effectiveness.

5.3.2 Scope of contractor review

Independent contractors have already been involved in various aspects of the prevention design and optimization. The new independent contractor will be tasked to review the entire strategy and to consider alternative solutions. The scope of the contractor's review will include but not be limited to general mitigation chemistry, ST injection strategy and alternative prevention strategies.

AGENDA

Covanta Essex Purple Plume Management Plan
December 10, 2019 Meeting
Covanta Essex and NJDEP

Purpose - provide responses to questions posed by NJDEP -

- What actions Covanta has taken to date to identify source(s) of iodine
- Describe why SO2 levels drop to near zero right before and during purple plume events. Is the SO2 being converted to sulfuric acid for example?
- Can Covanta quantify how much iodine would be needed to generate a purple plume for about 3 hours (e.g. June 2019 event)?
- Background info on sodium thiosulfate contemplated for mitigation of purple plumes. What type of emissions are produced?

Goals:

- Identify underlying knowledge about iodine plume – its origin and mitigation
- Identify steps to prevent and mitigate purple plumes from iodinated waste
- Solicit NJDEP feedback on mitigation with generators

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Covanta Essex : Purple plume management strategy

Situation:
Opacity exceedances correlated with purple plumes are presumably due to iodine in MSW delivered to the facility

Remedy: A two part solution

Part 1: Prevent delivery of iodinated waste to Covanta Essex

Refer to handout “Outreach and Inspection Plan for Iodine Bearing Waste Covanta Essex County Resource Recovery Facility (ECRRF)

Part 2 : Evaluate plume mitigation technology

a. Theory and Research
b. Field program results
c. Next steps

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Part 1: Outreach as purple plume management strategy

Purpose of outreach plan

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Essex County Resource Recovery Facility (ECRRF), the following actions have been and continue to be implemented by Covanta Essex Company.

Plan Outline

1.0 Outreach to generators

- Direct contact with generators and haulers where possible

2.0 Inspections

- Other Type 10 and 27 Waste Inspections
- Hospital Waste Inspections

3.0 Other

- Managing any collected iodine Waste
- Technology Upgrades

Part 1: Outreach as purple plume management strategy

1.0 Outreach to generators - Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) which has been included in their billings to all Essex county haulers
	That same flyer was mailed to all the commercial haulers that deliver waste to the ECRRF
	That same flyer was also been sent to the Department of Sanitation of New York (DSNY)
	Covanta hosted its annual Hauler Day at the Essex facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.
Transfer Station waste	Covanta owned transfer stations in Paterson and Totowa separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to ECRRF.
Direct outreach by phone to hospitals that have waste delivered to Covanta Essex. Major hospitals include;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael's Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
	IWS is to distribute our iodine flyer to the hospitals
Other hospitals	Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear. With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the ECRRF.
Findings to date	One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection

Part 1: Outreach as purple plume management strategy

-

2.0 Inspections

2.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked "Hospital"
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

2.2 Other Type 10 and 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked "Type 27" by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Essex facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types.
	Based on research on other uses of iodine, we've notified commercial haulers to note customers that manufacture X-ray contrast solution, film and food products.

Part 1: Outreach as purple plume management strategy

2.2 Continued

(a) Possible sources of iodine from medical, agricultural, and industrial applications include; 1) iodine is in the production of X-ray contrast media, 2) polarizing film in liquid crystal display (LCD) screens, 3) Potassium iodide is used in iodine tablets to be taken during nuclear accidents, 4) Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application, 5) pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis and 6) Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

3.0 Other

3.1 Managing any collected iodine Iodine Waste

- Iochem Coporation, the largest producer of medical grade iodine in North America, has offered to take any recovered iodine in BULK quantities for free at their facility in Oklahoma. They will consider smaller quantities in bottles depending on the quantity.
- In the event that Covanta identifies hospitals or other sources that need assistance with disposal of any expired iodine containing material, this can be an alternative for disposal of that material in an environmentally sound way.

3.2 Technology Upgrades

Goal	Activity
Hi definition cameras on tipping bay and hoppers	Installed one camera over Bay 2 on tipping floor with high definition zoom capability to provide an additional tool to see waste in tipping bays. Can also record footage for review after a purple plume event. Plan is to install additional cameras on tipping floor and over boiler feed hoppers.

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Part 2: Plume mitigation technology – theory and research -

Background:

- Iodine is known to generate a pink/purple plume when it is present as diatomic iodine - I_2
- Observations at Covanta Essex and elsewhere have identified a unique characteristic of iodine where it reacts with SO_2
- The primary chemical reaction under consideration;

EQN 1 : $I_2 (g) + SO_2 (g) + 2 H_2O = 2 HI + H_2 SO_4$

- Equation 1 establishes that iodine (I_2) reacts with SO_2 on a 1:1 molar basis
- Equation 1 explains why SO_2 goes to "zero" when a purple plume develops (see following slide of Oct 10th event as an example)
- If H_2SO_4 was generated, it would be removed by the semi dry scrubber system
- Hydrogen iodide (HI) is a very reactive gas (similar to HCl) and would dissolve quickly in water and react with calcium hydroxide

Additional research;

1. Utilization of corporate resources and independent 3rd parties to research;
   - Potential causes of colored plumes
   - Potential mitigation technology/chemistry for colored plumes
   - Iodine behavior
2. Effectiveness of sodium thiosulfate at Covanta Lancaster

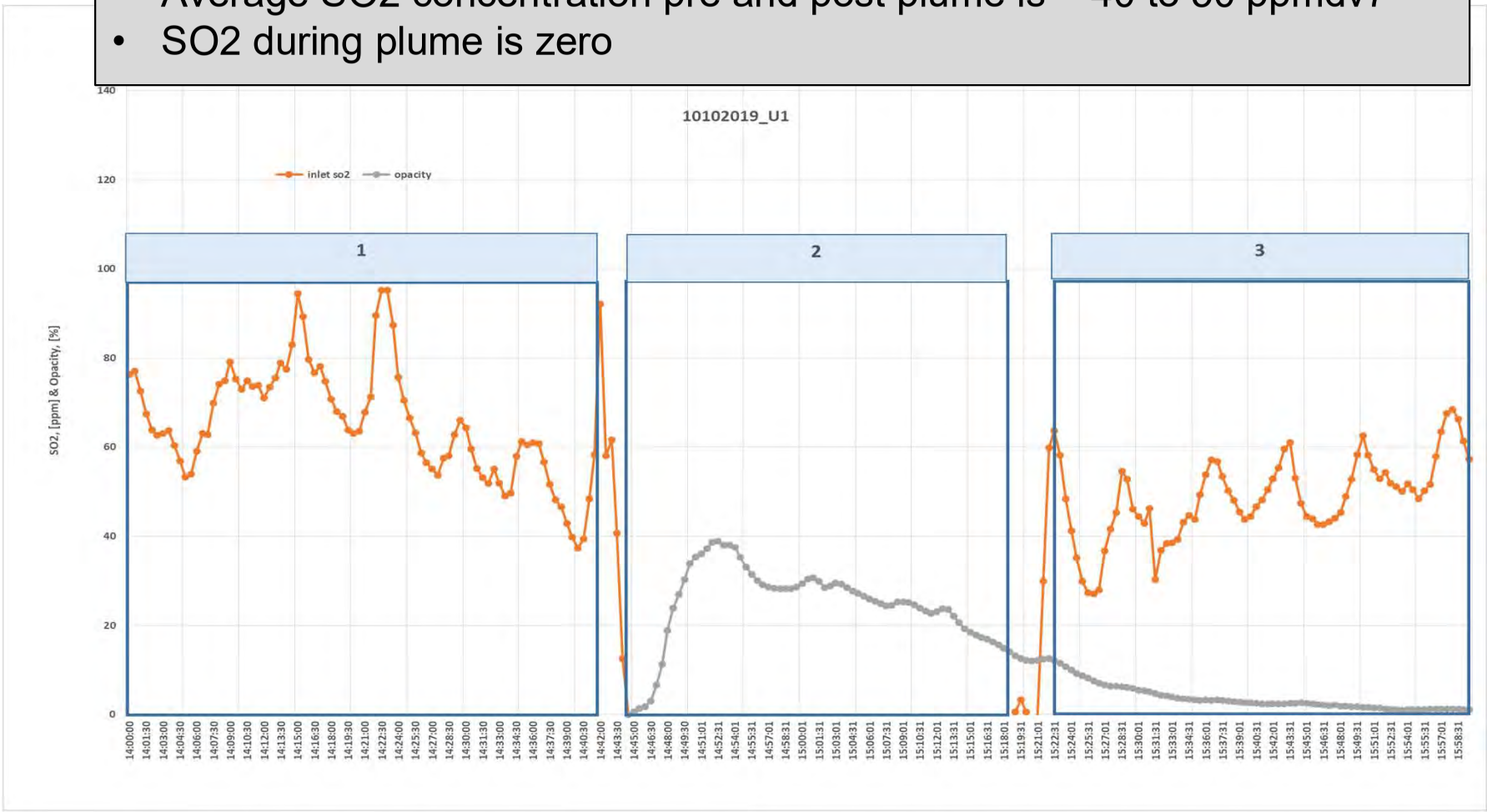
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Part 2: Plume mitigation technology

– October 10, 2019 as example of SO_2 and I_2 reaction -

Observations

- Average SO2 concentration pre and post plume is ~ 40 to 50 ppmdv7
- SO2 during plume is zero



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Part 2: Evaluation of June 19, 2019 Opacity event

OPACITY DATA					Average
CEM time	L1	L2	L3	Average	
12:12	0	2	1	1	
12:18	0	12	3	5	
12:24	0	27	13	13	
12:30	1	34	20	18	18.5
12:36	1	25	15	14	
12:42	1	32	16	16	
12:48	2	50	21	24	
12:54	3	39	39	27	
13:00	6	27	35	23	
13:06	6	23	32	20	
13:12	7	22	25	18	
13:18	8	18	22	16	
13:24	7	16	18	14	
13:30	7	16	15	13	
13:36	7	15	16	13	
13:42	5	15	16	12	
13:48	4	12	15	10	
13:52	4	11	18	11	
14:00	3	13	17	11	
14:06	3	17	10	10	
14:12	3	17	10	10	
14:18	2	26	9	12	
14:24	2	17	9	9	
14:30	2	12	10	8	
AVG	3.5	20.8	16.9	13.7	

Overview

- All 3 MWC units had elevated opacity readings and pink or purple colored plume
- Unit 2 and 3 had opacity above the opacity limit of 10 % as a 6-minute average
- The maximum 1-hour average opacity was estimated to be 18.5 % and correlated to 30 ppm of I_2 at actual stack conditions
- 30 ppm of stack I2 was initially estimated to create a maximum 1-hour ground level concentration of 0.0045 ppm when using dispersion modeling results from a recent air toxics analysis (March 2019).
- Ambient impacts were below NJ DOH workplace references for I_2 (OSHA, NIOSH and ACGIH)
- Current estimate of average I_2 was ~ 18 ppm, actual concentration, during maximum hour
- I_2 behavior is being researched

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Covanta Essex : Essex test plan

Background

- Sodium thiosulfate (ST) is used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber
- Application of ST at a municipal waste combustor at Covanta Lancaster was novel idea that was based on adding SO_2 to facilitate reduction of I_2
- Grate/furnace design of Covanta Lancaster and Covanta Essex are different (see next slide)
- Covanta Lancaster has semi dry scrubbing technology, somewhat similar to Covanta Essex however details are different
- "full scale" R&D test has demonstrated the potential to mitigate purple plumes though not conclusive. Questions remain which is the driving force behind additional test program.

ST strategy

- Chemical reaction: $Na_2S_2O_3 + 2HCl \rightleftharpoons 2NaCl + S + SO_2 + H_2O$
- Store ST as 30 weight % solution
- Inject only when necessary

Covanta Essex Plan

- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO_2
- Continue to learn from other ongoing efforts at Covanta Lancaster.

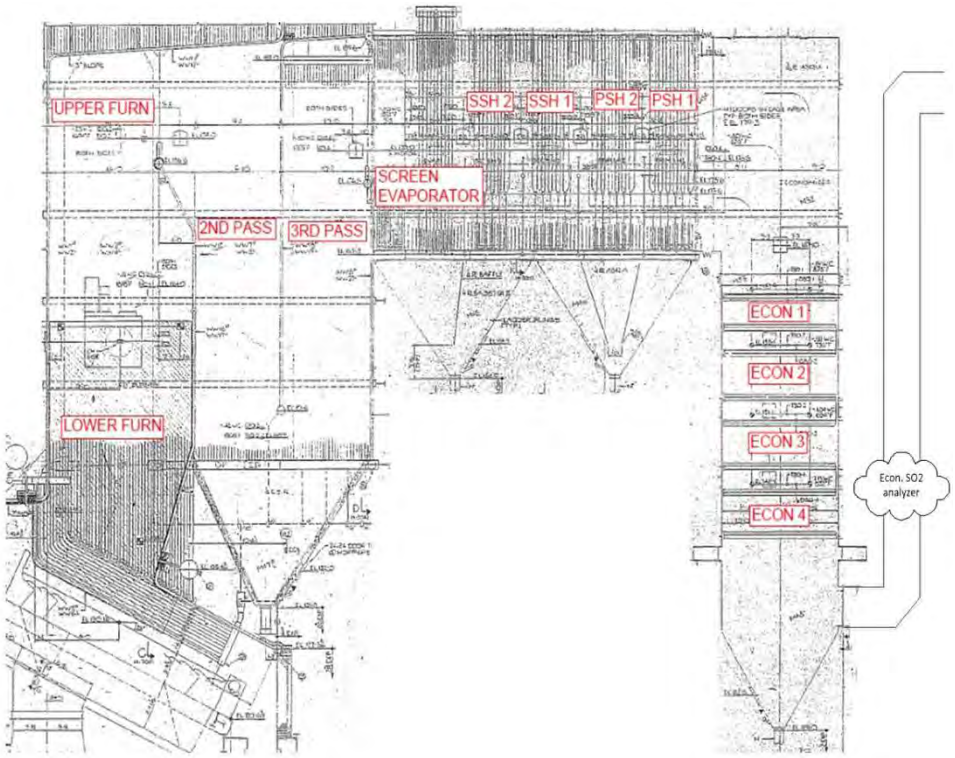
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Grate/furnace/boiler: Covanta Lancaster and Essex

Different design, waste and operating conditions create different flue gas velocities, residence time and temperature profile through unit – therefore separate evaluation required

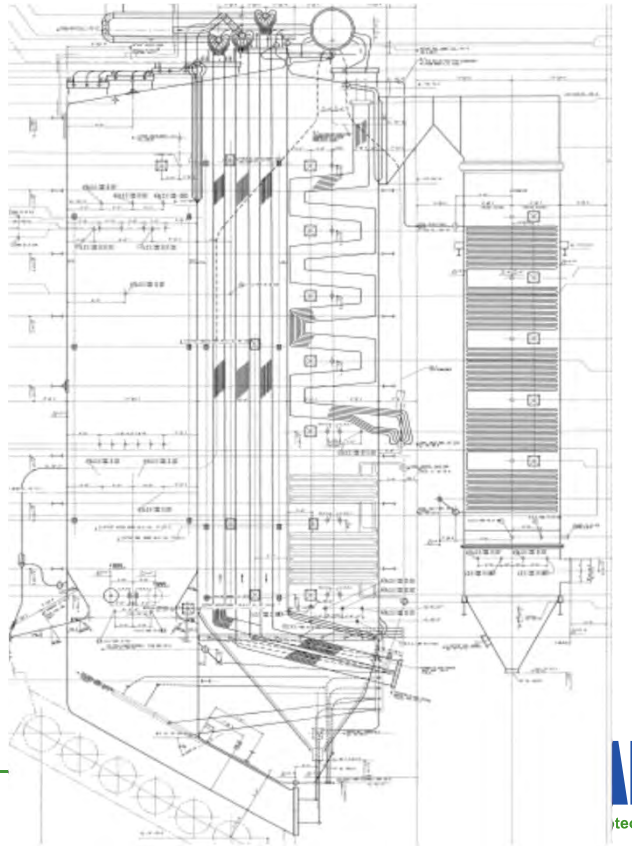
Covanta Lancaster

- Martin Gmbh grate/furnace/boiler
- Three units, each rated at nominal 400 TPD



Covanta Essex

- DBA roller grate/furnace/boiler
- Three units, each rated at nominal 933 TPD



INTA
tecting Tomorrow.

Covanta Essex : Summary and Conclusions

Summary

- A 2-part program is being implemented to prevent purple plumes at Covanta Essex;
  1. Outreach efforts to prevent deliveries of iodinated waste to Covanta Essex.
  2. Evaluation of mitigation technology to control an opacity event if iodinated waste is delivered and combusted.
- Outreach efforts to waste generators, haulers and others have been underway and are being expanded.
- Mitigation technology is under investigation where injection of sodium thiosulfate is used to remove iodine from flue gas
- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO_2
- Additional research is being conducted in parallel thru independent 3rd parties on causes and control of colored plumes

Conclusions

- Existing outreach and communication is being expanded but at present we have not identified any sources of waste that could cause the colored plumes
- Sodium thiosulfate is being evaluated as a mitigation technology however implementation at Covanta Essex requires a field test program to evaluate its effectiveness.

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Attachment 2

What is the Purple Plume?

Visible evidence that iodine is in the waste stream

WE NEED YOUR HELP!!

Please Keep Iodine Out of the Waste Stream



We need your help in preventing iodine from getting into the waste that you deliver to the Covanta Essex Energy-from-Waste facility. Combustion of iodine can lead to the discharge of unwanted, visible Pink/Purple plumes from the facility stack.

If you have waste that contains iodine, please contact Jack Bernardino at 732-956-1436.

Covanta Essex thanks you for your cooperation!

183 Raymond Blvd
Newark, NJ 07105



COVANTA

¿QUE ES UN HUMO COLOR PURPURA?

Es la evidencia visible de que los residuos contienen yodo.

¡Necesitamos Tu Ayuda!

Por favor mantenga el yodo fuera del flujo de residuos



Necesitamos tu ayuda para evitar que el yodo ingrese a los desechos que usted deposita en las instalaciones de Covanta Essex Energy- from Waste. La combustión de yodo puede conducir a visibles descargas de humos no deseados, color rosado / púrpura de la pila de chimenea.

Si tiene desechos que contienen yodo, comuníquese con Jack Bernardino al 732-956-1436.

¡Covanta Essex gracias por su cooperacion!

183 Raymond Blvd
Newark, NJ 07105



COVANTA

Attachment 3

COVANTA
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INVOICE

Invoice: 376080ESSEX
Invoice Date: 12/15/21
Page: 2 of 2

Original

Line	From Date PO Ref#	To Date	Ticket # Manifest#	Approval #	Description Origin/ destination	Qty Truck#	UOM	Unit Amount	Net Amount
1	12/09/2021	12/09/2021	2305107	13149	Aphis Waste Ton-Indirect Feed International - 9900	0.230 11953	TON		
2	12/10/2021	12/10/2021	2305371	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.170 11941	TON		
3	12/15/2021	12/15/2021	2306518	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.250 11941	TON		
					Recycle Tax	14.650			
					Environmental, Insurance and Sec Recovery Fee	14.650			

Total Amount:

Remittance Information:

Use following for ACH : JPMORGAN CHASE BANK N.A.
Chicago, IL
Bank/ABA/Routing # : 071000013, Bank Acct. # : 675522767
Account name: **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

Use following for WIRE : JPMORGAN CHASE BANK N.A.
New York, NY
Bank/ABA/Routing # : 021000021, Bank Acct. # : 675522767
Account name: : **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

For overnight and local courier, the following address is required:
JPMorgan Attn: Lockbox Covanta Energy, LLC, Lockbox # : 28893
4 Chase Metrotech Center - 7th floor East
Brooklyn, NY 11245

ALL REMITTANCES MUST REFERENCE Customer No.:COV13680 Invoice No.: 376080ESSEX.
PLEASE EMAIL ALL PAYMENT REMITTANCE INFORMATION TO customerpayments@covanta.com

Help us prevent unacceptable waste at Covanta Essex. Click https://info.covanta.com/prohibited-wastes for more info.

Attachment 4

COVANTA ESSEX HOSPITAL LOAD INSPECTION PROCEDURE

1. FLAGGING LOADS AT SCALEHOUSE

a. Haulers delivering from hospitals in Essex County will be identifying loads from hospitals on the O&D forms going forward. The current known haulers are but not limited to:
   i. Interstate Waste Services (IWS)
   ii. T. Farese
   iii. LT Roselle; and
   iv. Giordano Company
b. These loads are typically compactor loads that contain 100% hospital waste.
c. The scalehouse operator is to make a note on the stage ticket that the load is from a hospital by marking “Hospital” on the ticket for the tipping floor operator.

2. WASTE INSPECTIONS ON THE TIPPING FLOOR

a. Once a notification is received from the scale house or the “Hospital” notation is observed on the stage ticket at the North entrance door, the tipping floor operator will have Bay #4 cleared if there is waste in the bay so that the hospital load can be dumped into Bay #4 for a closer inspection. Hold the truck at the door until Bay 4 is ready to receive the load.
b. Once the load is dumped into Bay 4 and the truck has left the bay and it is safe to do so, the tipping floor operator will walk over to Bay 4 for a closer visual inspection of the load. The “Covanta Essex Hospital Load Inspection Form” (attached) will be used to document the inspection. To provide for the operator’s safety, no loads are to be dumped in Bay 3 or Bay 5 during the inspection.
c. A visual inspection of the load will be conducted to determine if there are any containers of iodine containing material or any medications which contain iodine. The operator will use the visual aids provided for examples of this material to determine if it is visibly present in the load.
   i. The inspector will conduct a visual inspection only and will not handle the load or the materials directly.
   ii. The inspector may use a long handled tool such as a fire hook to move materials as needed. The waste will be raked as thinly as possible so that most of the waste is visible.
d. If nothing is observed that appears to contain iodine, the operator will note that the load is acceptable on the inspection form and the load can be pushed into the refuse pit.
e. If material is identified that may contain iodine, the operator will note this on the inspection form and will contact the Shift Supervisor, Chief Engineer, and/or Environmental Specialist for further instructions. The load is to be left in Bay 4 until the material can be examined by one of the above supervisors.
f. If it is determined that the material does appear to contain iodine, the material will be isolated in the unacceptable waste container on the tipping floor for alternate disposal.
g. The customer, hauler, and Essex County will be notified of the material observed in the compactor.

Attachment 5

COVANTA ESSEX WASTE LOAD INSPECTION REPORT

INSPECTION TYPE: (CIRCLE ONE) VISUAL (ON FLOOR) CAMERA (TIPPING BAY OFFICE)

BAY ASSIGNMENT: 2 3 4 5 6 7 8 9 10 11 12 13 14 15 CIRCLE BAY # ASSIGNED

INSPECTOR:	VEHICLE DATA:		COMPANY VEHICLE #	
DATE:	TYPE OF VEHICLE	NJDEP DECAL #	TRUCK #	NJ DEP # *(Painted)*
TIME:	TRUCK			
HAULER:	ROLL-OFF		LIC PLATE # FRONT	REAR
TAG#:	TRANSFER			
WASTE TYPE:	ACCT. #		HOSPITAL WASTE?	YES NO

UNACCEPTABLE WASTE TYPES AND IDENTIFIERS

POTENTIALLY HAZARDOUS:

LIQUID SOAKED DEBRIS ____
EXPLOSIVES ____
INDUSTRIAL CONTAINERS ____
RADIOACTIVE MATERIAL ____
DRY/POWDERED MATERIAL ____
PRESSURIZED VESSELS ____
WARNING LABELS ____
MOTORS ____
PAINTS ____
WET SOLIDS ____
UNUSUAL ODOR ____

IODINE WASTE:

LIQUID IODINE ____
ANTISEPTIC IODINE ____
- BETADINE ANTISEPTIC ____
- POVIDONE IODINE ____

MEDICATIONS W/IODINE ____
DYES OR INKS ____
PHOTO FILM/CHEM ____
INDUSTRIAL CHEMICALS ____
OTHER ____

REGULATED MEDICAL WASTE:

CULTURES AND STOCKS (CLASS 1) ____
PATHOLOGICAL WASTE (CLASS 2) ____
HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) ____
SHARPS (CLASS 4) ____
ANIMAL WASTE (CLASS 5) ____
ISOLATION WASTE (CLASS 6) ____
UNUSED SHARPS (CLASS 7) ____

RECYCLABLES:

ALUMINUM ____ CARDBOARD ____ PLASTIC ____ GLASS ____ BULK LOAD (100%) ____

BULKY WASTE (TYPE 13):

APPLIANCES ____
TAR PAPER/SHINGLES ____
METAL PRODUCTS ____
CEILING TILES ____
SHEET ROCK ____
BALES ____
BED SPRINGS ____
RUBBER PRODUCTS ____
C & D WASTE ____
AUTO PARTS ____
OTHER (SEE COMMENTS) ____

TYPE 27 - UNACCEPTABLE PORTIONS

NJDEP PROHIBITED WASTE ____
NON-RESPONDENT/INSUFFICIENT TO SURVEY ____
HAZARDOUS IMPACT ON EMISSIONS ____
HAZARDOUS WASTE ____
HAZ. EFFECT ON ASH ____
NON-COMBUSTIBLES ____

OVERALL RESULTS:

ACCEPTABLE LOAD ____ UNACCEPTABLE LOAD ____ DRIVER SAFETY VIOLATION ____

COMMENTS:

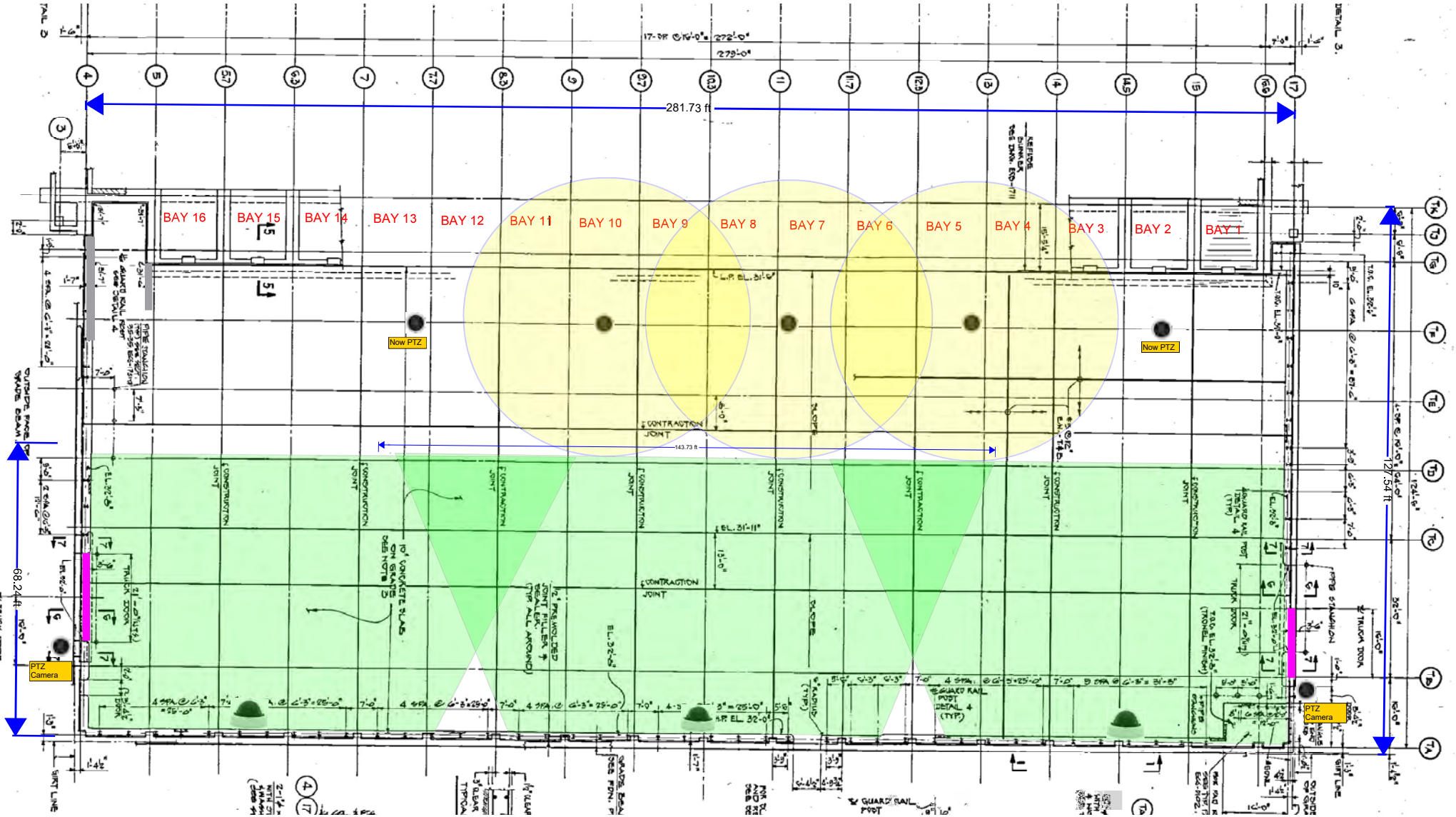
FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:

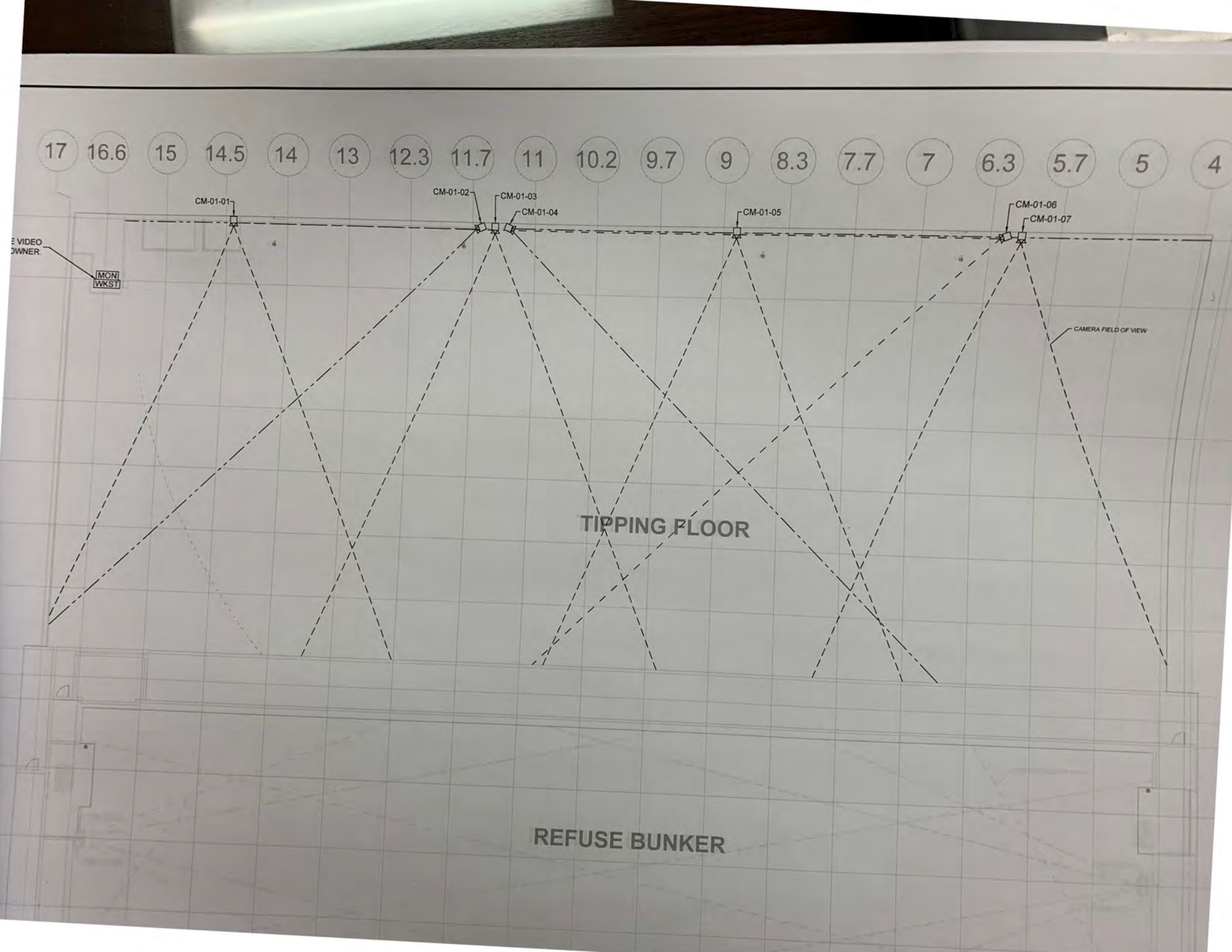
1) SHIFT SUPERVISOR ON DUTY		
2) ENVIRONMENTAL SPECIALIST		
2) OPERATIONS MANAGER		

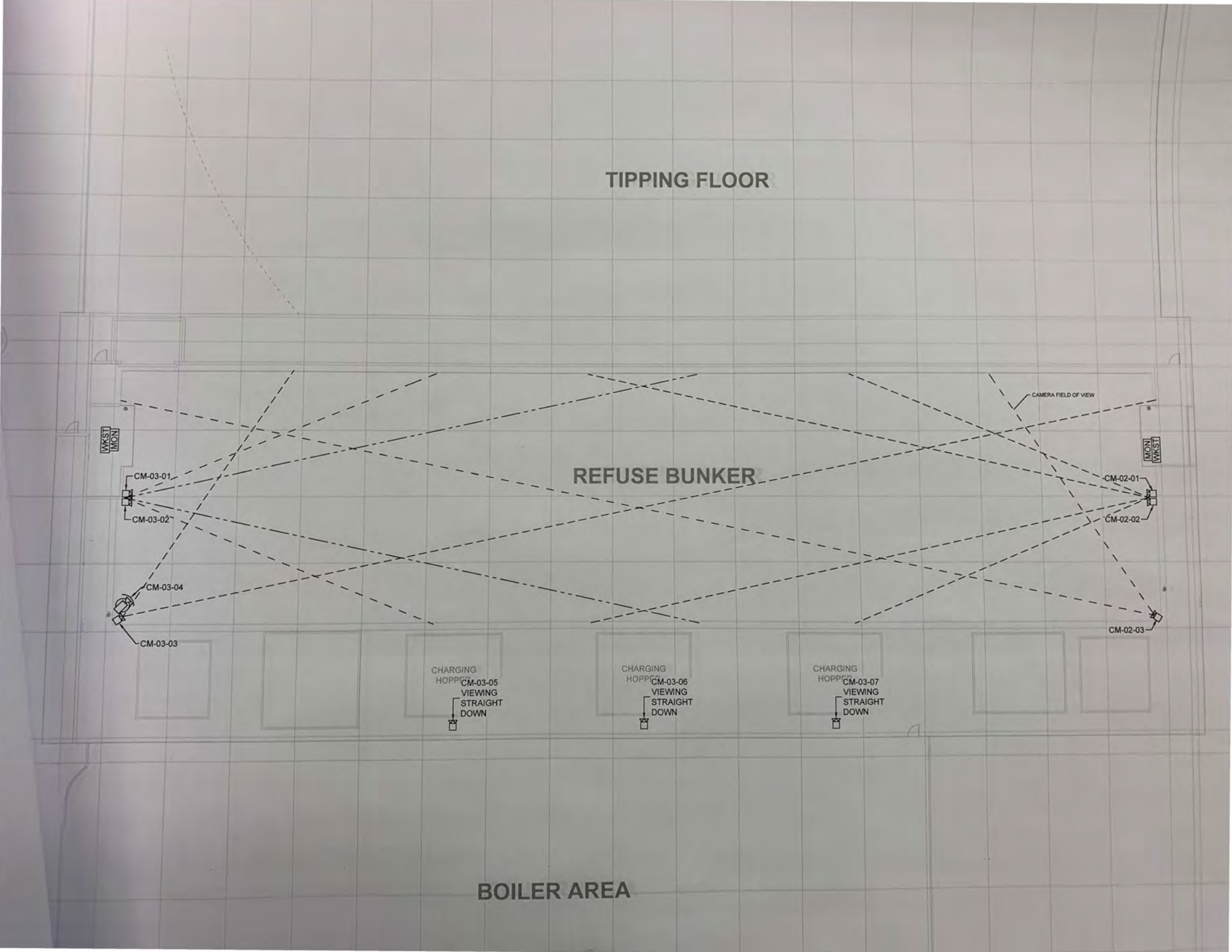
*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED

PLEASE INCLUDE PICTURES OF ALL UNACCEPTABLE WASTE

Attachment 6


GROUND FLOOR PLAN AT EL. 32'-0"
281.73 ft
BAY 16
BAY 15
BAY 14
BAY 13
BAY 12
BAY 11
BAY 10
BAY 9
BAY 8
BAY 7
BAY 6
BAY 5
BAY 4
BAY 3
BAY 2
BAY 1
Now PTZ
Now PTZ
PTZ Camera
PTZ Camera
68.24 ft
127.54 ft
143.73 ft
CONTRACTION JOINT
TRUCK DOOR


17
16.6
15
14.5
14
13
12.3
11.7
11
10.2
9.7
9
8.3
7.7
7
6.3
5.7
5
4
CM-01-01
CM-01-02
CM-01-03
CM-01-04
CM-01-05
CM-01-06
CM-01-07
E VIDEO
OWNER.
MON
WKST
CAMERA FIELD OF VIEW
TIPPING FLOOR
REFUSE BUNKER


TIPPING FLOOR
REFUSE BUNKER
BOILER AREA
WKST
MON
MON
WKST
CAMERA FIELD OF VIEW
CM-03-01
CM-03-02
CM-03-04
CM-03-03
CM-02-01
CM-02-02
CM-02-03
CHARGING HOPPER
CM-03-05 VIEWING STRAIGHT DOWN
CHARGING HOPPER
CM-03-06 VIEWING STRAIGHT DOWN
CHARGING HOPPER
CM-03-07 VIEWING STRAIGHT DOWN

Attachment 7

Response Steps for a Purple Plume Event

An alarm to alert the operator that a purple plume event may be happening has been added to Citect. The alarm is based on inlet SO2 dropping to a very low level compared to where it was several minutes earlier. This alarm will clear when inlet SO2 increases to a more normal level. The alarm will only function when the affected controller is in AUTO. This may occur shortly before or at the same time that opacity levels begin to spike.

The following response steps should be taken when this alarm comes in or when a visible observation of a purple plume is made:

1. When the alarm comes in on Citect for a purple plume indicated by a rapid decrease in inlet SO2, pull up the control screen for purple plume in Citect for the affected boiler.

2. Pull up the trend screen on Citect called “Purple Plume” for the affected boiler to verify a rapid decrease in SO2 and increase in opacity.

3. Check stack camera to get a visual observation of a purple plume if possible.

4. If alarm is verified by step 2 and/or step 3 above, decrease furnace draft to a setpoint of -0.1. Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.

5. Do <u>not</u> increase lime slurry flow. <u>Reduce</u> lime slurry flow until the event is over.

6. Report any opacity exceedance to NJDEP Hotline within 15 minutes of the end of the first 6 minute averaging period that is above the 10% limit. When the event is over, if there are additional exceedances, another call must be made to the Hotline to follow up on the previous notification with the updated exceedance information.

Note: Based on the trends from some of the past events, inlet SO2 has been seen to increase after a few minutes, only to drop back to near zero several minutes later and/or to be jumping up and down at a level below where it was prior to the event. This is most likely due to more than one pocket of the source of the iodine in the fuel stream. Therefore, at the present time the alarm has been implemented, but control logic has not.

Purple Plume Opacity Decision Tree

Purple Plume Alarm in Citect

- Based on inlet SO2 dropping to a very low level compared to where it was several minutes earlier.
- Only functions when the affected controller is in AUTO.

Purple Plume Alarm is Triggered in Citect?

Yes

Pull up the control screen for purple plume in Citect for the affected boiler.
Pull up trend on Citect called "Purple Plume" for Boiler that is alarming. Determine if inlet SO2 is rapidly decreasing and opacity is increasing indicating a real purple plume event

Check stack camera to get a visual observation of plume if possible.

Can purple plume be verified in either of the above steps?

No

Treat event like any other opacity spike

Yes

- Decrease furnace draft to a setpoint of -0.1.
- Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.
- Reduce lime slurry flow. Do not increase slurry flow.
- Report any exceedance to NJDEP Hotline.

No

Treat event like any other opacity spike

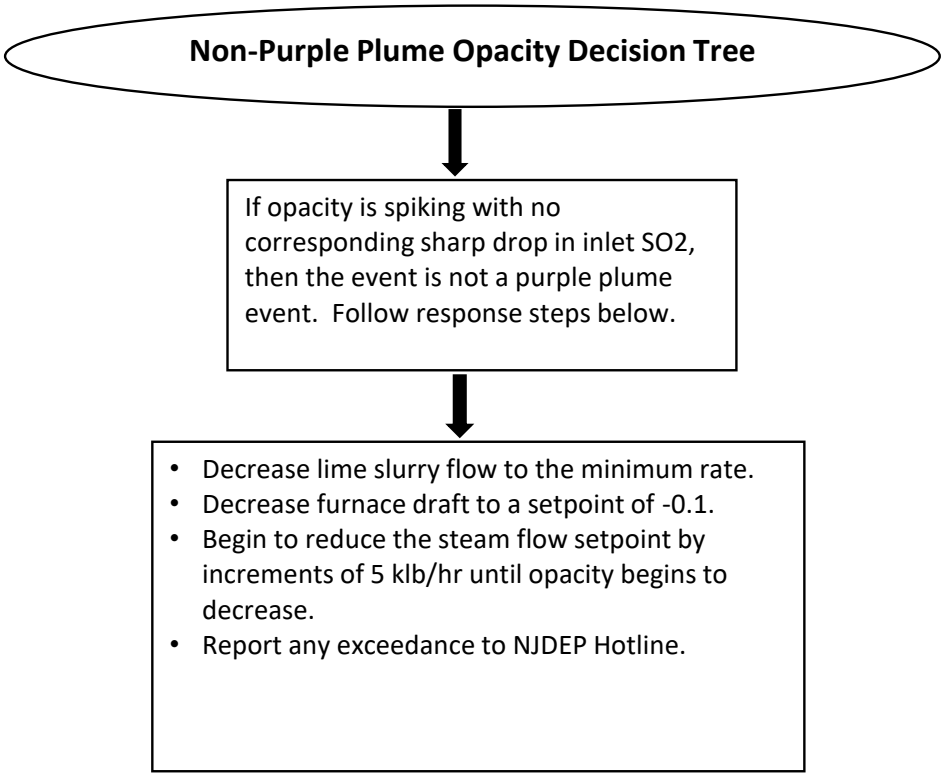

Non-Purple Plume Opacity Decision Tree
If opacity is spiking with no corresponding sharp drop in inlet SO2, then the event is not a purple plume event. Follow response steps below.
• Decrease lime slurry flow to the minimum rate.
• Decrease furnace draft to a setpoint of -0.1.
• Begin to reduce the steam flow setpoint by increments of 5 klb/hr until opacity begins to decrease.
• Report any exceedance to NJDEP Hotline.

Exhibit 8

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR QUALITY PROGRAM

TITLE V/STATE OPERATING PERMIT

Issue Date: September 2, 2016 Effective Date: September 2, 2016

Expiration Date: September 2, 2021

In accordance with the provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and 25 Pa. Code Chapter 127, the Owner, [and Operator if noted] (hereinafter referred to as permittee) identified below is authorized by the Department of Environmental Protection (Department) to operate the air emission source(s) more fully described in this permit. This Facility is subject to all terms and conditions specified in this permit. Nothing in this permit relieves the permittee from its obligations to comply with all applicable Federal, State and Local laws and regulations.

The regulatory or statutory authority for each permit condition is set forth in brackets. All terms and conditions in this permit are federally enforceable applicable requirements unless otherwise designated as "State-Only" or "non-applicable" requirements.

TITLE V Permit No: 23-00004

Federal Tax Id - Plant Code: 76-0531017-1

Owner Information

Name: COVANTA DELAWARE VALLEY LP
Mailing Address: 10 HIGHLAND AVE
CHESTER, PA 19013-2231

Plant Information

Plant: COVANTA DELAWARE VALLEY LP/DELAWARE VALLEY RES REC
Location: 23 Delaware County 23001 Chester City
SIC Code: 4953 Trans. & Utilities - Refuse Systems

Responsible Official

Name: ALEX PISCITELLI
Title: FACILITY MANAGER
Phone: (610) 497 - 8100

Permit Contact Person

Name: STEVE JENNESS
Title: ENVIRONMENTAL ENGINEER
Phone: (610) 497 - 8100

[Signature] _____

JAMES D. REBARCHAK, SOUTHEAST REGION AIR PROGRAM MANAGER

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D-II: Testing Requirements
D-III: Monitoring Requirements
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Note: These same sub-sections are repeated for each source!

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Section F. Emission Restriction Summary

Section G. Miscellaneous

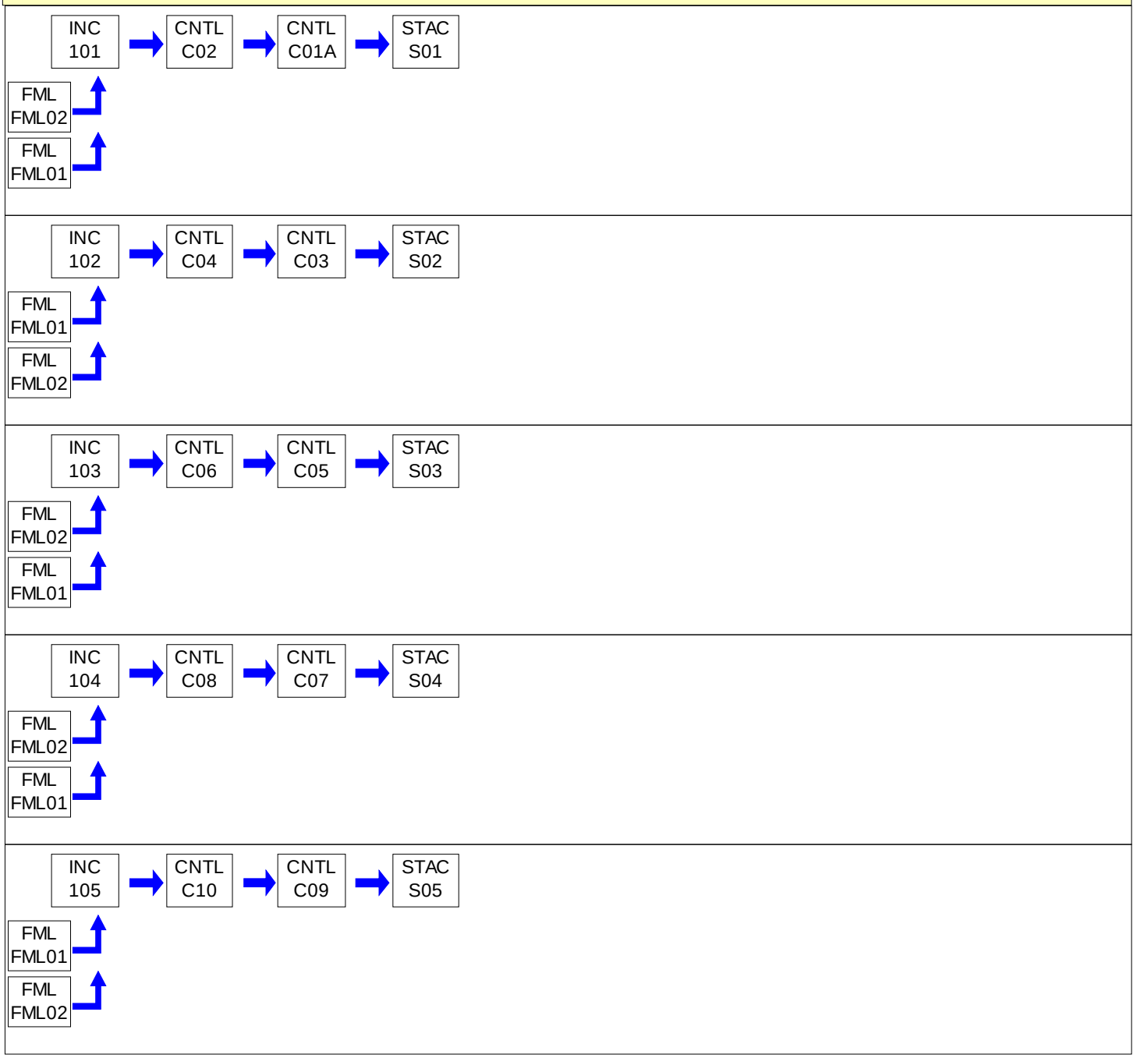
SECTION A. Site Inventory List

Source ID	Source Name	Capacity/Throughput	Fuel/Material
101	ROTARY COMBUSTER 1		
102	ROTARY COMBUSTER 2		
103	ROTARY COMBUSTER 3		
104	ROTARY COMBUSTER 4		
105	ROTARY COMBUSTER 5		
106	ROTARY COMBUSTER 6		
107	VEHICLE TRAFFIC ON ROADS	N/A	DUST
108	COOLING TOWER		
110	LIME STORAGE SILO		
111	ASH HANDLING		
112	COLD DEGREASERS (2)	N/A	SOLVENT
113	EMERGENCY ENGINE		
114	EMERGENCY FIRE PUMP ENGINE		
C01A	BAGHOUSE - PULSE JET FABRIC FILTER		
C02	SPRAY DRYER ABSORBER		
C03	BAGHOUSE - PULSE JET FABRIC FILTER		
C04	SPRAY DRYER ABSORBER		
C05	BAGHOUSE - PULSE JET FABRIC FILTER		
C06	SPRAY DRYER ABSORBER		
C07	BAGHOUSE - PULSE JET FABRIC FILTER		
C08	SPRAY DRYER ABSORBER		
C09	BAGHOUSE - PULSE JET FABRIC FILTER		
C10	SPRAY DRYER ABSORBER		
C108	COOLING TOWER MIST ELIMINATORS		
C11	BAGHOUSE - PULSE JET FABRIC FILTER		
C12	SPRAY DRYER ABSORBER		
FML01	NATURAL GAS PIPELINE		
FML02	MUNICIPAL WASTE STORAGE PIT		
S01	COMBUSTOR 1 STACK		
S02	COMBUSTOR 2 STACK		
S03	COMBUSTOR 3 STACK		
S04	COMBUSTOR 4 STACK		
S05	COMBUSTOR 5 STACK		
S06	COMBUSTOR 6 STACK		
S110	LIME STORAGE STACK		
S113	EMERGENCY ENGINE STACK		
S114	EMERGENCY FIRE PUMP ENGINE STACK		
Z01	ROAD DUST EMISSIONS		
Z108	COOLING TOWER FUGITIVES		
Z111	ASH HANDLING FUGITIVES		

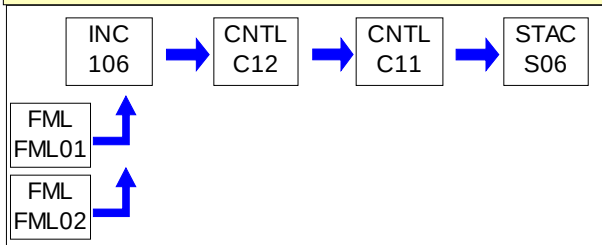
SECTION A. Site Inventory List

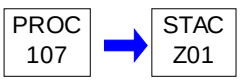
Source ID	Source Name	Capacity/Throughput	Fuel/Material
Z112	DEGREASER FUGITIVES		

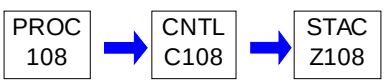
PERMIT MAPS

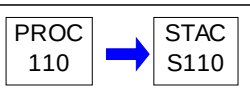


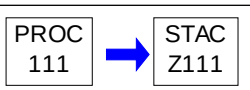
PERMIT MAPS

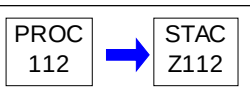

INC 106
CNTL C12
CNTL C11
STAC S06
FML FML01
FML FML02

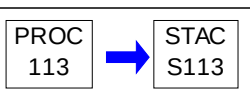

PROC 107
STAC Z01

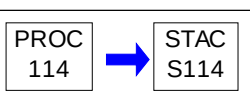

PROC 108
CNTL C108
STAC Z108


PROC 110
STAC S110


PROC 111
STAC Z111


PROC 112
STAC Z112


PROC 113
STAC S113


PROC 114
STAC S114

SECTION B. General Title V Requirements

#001 [25 Pa. Code § 121.1]

Definitions

Words and terms that are not otherwise defined in this permit shall have the meanings set forth in Section 3 of the Air Pollution Control Act (35 P.S. § 4003) and 25 Pa. Code § 121.1.

#002 [25 Pa. Code § 127.512(c)(4)]

Property Rights

This permit does not convey property rights of any sort, or any exclusive privileges.

#003 [25 Pa. Code § 127.446(a) and (c)]

Permit Expiration

This operating permit is issued for a fixed term of five (5) years and shall expire on the date specified on Page 1 of this permit. The terms and conditions of the expired permit shall automatically continue pending issuance of a new Title V permit, provided the permittee has submitted a timely and complete application and paid applicable fees required under 25 Pa. Code Chapter 127, Subchapter I and the Department is unable, through no fault of the permittee, to issue or deny a new permit before the expiration of the previous permit. An application is complete if it contains sufficient information to begin processing the application, has the applicable sections completed and has been signed by a responsible official.

#004 [25 Pa. Code §§ 127.412, 127.413, 127.414, 127.446(e) & 127.503]

Permit Renewal

(a) An application for the renewal of the Title V permit shall be submitted to the Department at least six (6) months, and not more than 18 months, before the expiration date of this permit. The renewal application is timely if a complete application is submitted to the Department's Regional Air Manager within the timeframe specified in this permit condition.

(b) The application for permit renewal shall include the current permit number, the appropriate permit renewal fee, a description of any permit revisions and off-permit changes that occurred during the permit term, and any applicable requirements that were promulgated and not incorporated into the permit during the permit term.

(c) The renewal application shall also include submission of proof that the local municipality and county, in which the facility is located, have been notified in accordance with 25 Pa. Code § 127.413. The application for renewal of the Title V permit shall also include submission of compliance review forms which have been used by the permittee to update information submitted in accordance with either 25 Pa. Code § 127.412(b) or § 127.412(j).

(d) The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information during the permit renewal process. The permittee shall also promptly provide additional information as necessary to address any requirements that become applicable to the source after the date a complete renewal application was submitted but prior to release of a draft permit.

#005 [25 Pa. Code §§ 127.450(a)(4) & 127.464(a)]

Transfer of Ownership or Operational Control

(a) In accordance with 25 Pa. Code § 127.450(a)(4), a change in ownership or operational control of the source shall be treated as an administrative amendment if:

(1) The Department determines that no other change in the permit is necessary;

(2) A written agreement has been submitted to the Department identifying the specific date of the transfer of permit responsibility, coverage and liability between the current and the new permittee; and,

(3) A compliance review form has been submitted to the Department and the permit transfer has been approved by the Department.

SECTION B. General Title V Requirements

(b) In accordance with 25 Pa. Code § 127.464(a), this permit may not be transferred to another person except in cases of transfer-of-ownership which are documented and approved to the satisfaction of the Department.

#006 [25 Pa. Code § 127.513, 35 P.S. § 4008 and § 114 of the CAA]

Inspection and Entry

(a) Upon presentation of credentials and other documents as may be required by law for inspection and entry purposes, the permittee shall allow the Department of Environmental Protection or authorized representatives of the Department to perform the following:

(1) Enter at reasonable times upon the permittee's premises where a Title V source is located or emissions related activity is conducted, or where records are kept under the conditions of this permit;

(2) Have access to and copy or remove, at reasonable times, records that are kept under the conditions of this permit;

(3) Inspect at reasonable times, facilities, equipment including monitoring and air pollution control equipment, practices, or operations regulated or required under this permit;

(4) Sample or monitor, at reasonable times, substances or parameters, for the purpose of assuring compliance with the permit or applicable requirements as authorized by the Clean Air Act, the Air Pollution Control Act, or the regulations promulgated under the Acts.

(b) Pursuant to 35 P.S. § 4008, no person shall hinder, obstruct, prevent or interfere with the Department or its personnel in the performance of any duty authorized under the Air Pollution Control Act.

(c) Nothing in this permit condition shall limit the ability of the EPA to inspect or enter the premises of the permittee in accordance with Section 114 or other applicable provisions of the Clean Air Act.

#007 [25 Pa. Code §§ 127.25, 127.444, & 127.512(c)(1)]

Compliance Requirements

(a) The permittee shall comply with the conditions of this permit. Noncompliance with this permit constitutes a violation of the Clean Air Act and the Air Pollution Control Act and is grounds for one (1) or more of the following:

(1) Enforcement action

(2) Permit termination, revocation and reissuance or modification

(3) Denial of a permit renewal application

(b) A person may not cause or permit the operation of a source, which is subject to 25 Pa. Code Article III, unless the source(s) and air cleaning devices identified in the application for the plan approval and operating permit and the plan approval issued to the source are operated and maintained in accordance with specifications in the applications and the conditions in the plan approval and operating permit issued by the Department. A person may not cause or permit the operation of an air contamination source subject to 25 Pa. Code Chapter 127 in a manner inconsistent with good operating practices.

(c) For purposes of Sub-condition (b) of this permit condition, the specifications in applications for plan approvals and operating permits are the physical configurations and engineering design details which the Department determines are essential for the permittee's compliance with the applicable requirements in this Title V permit.

#008 [25 Pa. Code § 127.512(c)(2)]

Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

SECTION B. General Title V Requirements

#009 [25 Pa. Code §§ 127.411(d) & 127.512(c)(5)]

Duty to Provide Information

(a) The permittee shall furnish to the Department, within a reasonable time, information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit.

(b) Upon request, the permittee shall also furnish to the Department copies of records that the permittee is required to keep by this permit, or for information claimed to be confidential, the permittee may furnish such records directly to the Administrator of EPA along with a claim of confidentiality.

#010 [25 Pa. Code §§ 127.463, 127.512(c)(3) & 127.542]

Reopening and Revising the Title V Permit for Cause

(a) This Title V permit may be modified, revoked, reopened and reissued or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay a permit condition.

(b) This permit may be reopened, revised and reissued prior to expiration of the permit under one or more of the following circumstances:

(1) Additional applicable requirements under the Clean Air Act or the Air Pollution Control Act become applicable to a Title V facility with a remaining permit term of three (3) or more years prior to the expiration date of this permit. The Department will revise the permit as expeditiously as practicable but not later than 18 months after promulgation of the applicable standards or regulations. No such revision is required if the effective date of the requirement is later than the expiration date of this permit, unless the original permit or its terms and conditions has been extended.

(2) Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator of EPA, excess emissions offset plans for an affected source shall be incorporated into the permit.

(3) The Department or the EPA determines that this permit contains a material mistake or inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.

(4) The Department or the Administrator of EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

(c) Proceedings to revise this permit shall follow the same procedures which apply to initial permit issuance and shall affect only those parts of this permit for which cause to revise exists. The revision shall be made as expeditiously as practicable.

(d) Regardless of whether a revision is made in accordance with (b)(1) above, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations.

#011 [25 Pa. Code § 127.543]

Reopening a Title V Permit for Cause by EPA

As required by the Clean Air Act and regulations adopted thereunder, this permit may be modified, reopened and reissued, revoked or terminated for cause by EPA in accordance with procedures specified in 25 Pa. Code § 127.543.

#012 [25 Pa. Code § 127.541]

Significant Operating Permit Modifications

When permit modifications during the term of this permit do not qualify as minor permit modifications or administrative amendments, the permittee shall submit an application for significant Title V permit modifications in accordance with 25 Pa. Code § 127.541.

SECTION B. General Title V Requirements

#013 [25 Pa. Code §§ 121.1 & 127.462]

Minor Operating Permit Modifications

The permittee may make minor operating permit modifications (as defined in 25 Pa. Code §121.1), on an expedited basis, in accordance with 25 Pa. Code §127.462 (relating to minor operating permit modifications).

#014 [25 Pa. Code § 127.450]

Administrative Operating Permit Amendments

(a) The permittee may request administrative operating permit amendments, as defined in 25 Pa. Code §127.450(a).

(b) Upon final action by the Department granting a request for an administrative operating permit amendment covered under §127.450(a)(5), the permit shield provisions in 25 Pa. Code § 127.516 (relating to permit shield) shall apply to administrative permit amendments incorporated in this Title V Permit in accordance with §127.450(c), unless precluded by the Clean Air Act or the regulations thereunder.

#015 [25 Pa. Code § 127.512(b)]

Severability Clause

The provisions of this permit are severable, and if any provision of this permit is determined by the Environmental Hearing Board or a court of competent jurisdiction, or US EPA to be invalid or unenforceable, such a determination will not affect the remaining provisions of this permit.

#016 [25 Pa. Code §§ 127.704, 127.705 & 127.707]

Fee Payment

(a) The permittee shall pay fees to the Department in accordance with the applicable fee schedules in 25 Pa. Code Chapter 127, Subchapter I (relating to plan approval and operating permit fees).

(b) Emission Fees. The permittee shall, on or before September 1st of each year, pay applicable annual Title V emission fees for emissions occurring in the previous calendar year as specified in 25 Pa. Code § 127.705. The permittee is not required to pay an emission fee for emissions of more than 4,000 tons of each regulated pollutant emitted from the facility.

(c) As used in this permit condition, the term "regulated pollutant" is defined as a VOC, each pollutant regulated under Sections 111 and 112 of the Clean Air Act and each pollutant for which a National Ambient Air Quality Standard has been promulgated, except that carbon monoxide is excluded.

(d) Late Payment. Late payment of emission fees will subject the permittee to the penalties prescribed in 25 Pa. Code § 127.707 and may result in the suspension or termination of the Title V permit. The permittee shall pay a penalty of fifty percent (50%) of the fee amount, plus interest on the fee amount computed in accordance with 26 U.S.C.A. § 6621(a)(2) from the date the emission fee should have been paid in accordance with the time frame specified in 25 Pa. Code § 127.705(c).

(e) The permittee shall pay an annual operating permit administration fee according to the fee schedule established in 25 Pa. Code § 127.704(c) if the facility, identified in Subparagraph (iv) of the definition of the term "Title V facility" in 25 Pa. Code § 121.1, is subject to Title V after the EPA Administrator completes a rulemaking requiring regulation of those sources under Title V of the Clean Air Act.

(f) This permit condition does not apply to a Title V facility which qualifies for exemption from emission fees under 35 P.S. § 4006.3(f).

#017 [25 Pa. Code §§ 127.14(b) & 127.449]

Authorization for De Minimis Emission Increases

(a) This permit authorizes de minimis emission increases from a new or existing source in accordance with 25 Pa. Code §§ 127.14 and 127.449 without the need for a plan approval or prior issuance of a permit modification. The permittee shall provide the Department with seven (7) days prior written notice before commencing any de minimis emissions increase that would result from either: (1) a physical change of minor significance under § 127.14(c)(1); or

SECTION B. General Title V Requirements

(2) the construction, installation, modification or reactivation of an air contamination source. The written notice shall:

(1) Identify and describe the pollutants that will be emitted as a result of the de minimis emissions increase.

(2) Provide emission rates expressed in tons per year and in terms necessary to establish compliance consistent with any applicable requirement.

The Department may disapprove or condition de minimis emission increases at any time.

(b) Except as provided below in (c) and (d) of this permit condition, the permittee is authorized during the term of this permit to make de minimis emission increases (expressed in tons per year) up to the following amounts without the need for a plan approval or prior issuance of a permit modification:

(1) Four tons of carbon monoxide from a single source during the term of the permit and 20 tons of carbon monoxide at the facility during the term of the permit.

(2) One ton of NOx from a single source during the term of the permit and 5 tons of NOx at the facility during the term of the permit.

(3) One and six-tenths tons of the oxides of sulfur from a single source during the term of the permit and 8.0 tons of oxides of sulfur at the facility during the term of the permit.

(4) Six-tenths of a ton of PM10 from a single source during the term of the permit and 3.0 tons of PM10 at the facility during the term of the permit. This shall include emissions of a pollutant regulated under Section 112 of the Clean Air Act unless precluded by the Clean Air Act or 25 Pa. Code Article III.

(5) One ton of VOCs from a single source during the term of the permit and 5.0 tons of VOCs at the facility during the term of the permit. This shall include emissions of a pollutant regulated under Section 112 of the Clean Air Act unless precluded by the Clean Air Act or 25 Pa. Code Article III.

(c) In accordance with § 127.14, the permittee may install the following minor sources without the need for a plan approval:

(1) Air conditioning or ventilation systems not designed to remove pollutants generated or released from other sources.

(2) Combustion units rated at 2,500,000 or less Btu per hour of heat input.

(3) Combustion units with a rated capacity of less than 10,000,000 Btu per hour heat input fueled by natural gas supplied by a public utility, liquefied petroleum gas or by commercial fuel oils which are No. 2 or lighter, viscosity less than or equal to 5.82 c St, and which meet the sulfur content requirements of 25 Pa. Code § 123.22 (relating to combustion units). For purposes of this permit, commercial fuel oil shall be virgin oil which has no reprocessed, recycled or waste material added.

(4) Space heaters which heat by direct heat transfer.

(5) Laboratory equipment used exclusively for chemical or physical analysis.

(6) Other sources and classes of sources determined to be of minor significance by the Department.

(d) This permit does not authorize de minimis emission increases if the emissions increase would cause one or more of the following:

(1) Increase the emissions of a pollutant regulated under Section 112 of the Clean Air Act except as authorized in Subparagraphs (b)(4) and (5) of this permit condition.

(2) Subject the facility to the prevention of significant deterioration requirements in 25 Pa. Code Chapter 127, Subchapter D and/or the new source review requirements in Subchapter E.

SECTION B. General Title V Requirements

(3) Violate any applicable requirement of the Air Pollution Control Act, the Clean Air Act, or the regulations promulgated under either of the acts.

(4) Changes which are modifications under any provision of Title I of the Clean Air Act and emission increases which would exceed the allowable emissions level (expressed as a rate of emissions or in terms of total emissions) under the Title V permit.

(e) Unless precluded by the Clean Air Act or the regulations thereunder, the permit shield described in 25 Pa. Code § 127.516 (relating to permit shield) shall extend to the changes made under 25 Pa. Code § 127.449 (relating to de minimis emission increases).

(f) Emissions authorized under this permit condition shall be included in the monitoring, recordkeeping and reporting requirements of this permit.

(g) Except for de minimis emission increases allowed under this permit, 25 Pa. Code § 127.449, or sources and physical changes meeting the requirements of 25 Pa. Code § 127.14, the permittee is prohibited from making physical changes or engaging in activities that are not specifically authorized under this permit without first applying for a plan approval. In accordance with § 127.14(b), a plan approval is not required for the construction, modification, reactivation, or installation of the sources creating the de minimis emissions increase.

(h) The permittee may not meet de minimis emission threshold levels by offsetting emission increases or decreases at the same source.

#018 [25 Pa. Code §§ 127.11a & 127.215]

Reactivation of Sources

(a) The permittee may reactivate a source at the facility that has been out of operation or production for at least one year, but less than or equal to five (5) years, if the source is reactivated in accordance with the requirements of 25 Pa. Code §§ 127.11a and 127.215. The reactivated source will not be considered a new source.

(b) A source which has been out of operation or production for more than five (5) years but less than 10 years may be reactivated and will not be considered a new source if the permittee satisfies the conditions specified in 25 Pa. Code § 127.11a(b).

#019 [25 Pa. Code §§ 121.9 & 127.216]

Circumvention

(a) The owner of this Title V facility, or any other person, may not circumvent the new source review requirements of 25 Pa. Code Chapter 127, Subchapter E by causing or allowing a pattern of ownership or development, including the phasing, staging, delaying or engaging in incremental construction, over a geographic area of a facility which, except for the pattern of ownership or development, would otherwise require a permit or submission of a plan approval application.

(b) No person may permit the use of a device, stack height which exceeds good engineering practice stack height, dispersion technique or other technique which, without resulting in reduction of the total amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise be in violation of this permit, the Air Pollution Control Act or the regulations promulgated thereunder, except that with prior approval of the Department, the device or technique may be used for control of malodors.

#020 [25 Pa. Code §§ 127.402(d) & 127.513(1)]

Submissions

(a) Reports, test data, monitoring data, notifications and requests for renewal of the permit shall be submitted to the:

Regional Air Program Manager
PA Department of Environmental Protection
(At the address given on the permit transmittal letter,
or otherwise notified)

SECTION B. General Title V Requirements

(b) Any report or notification for the EPA Administrator or EPA Region III should be addressed to:

Office of Air Enforcement and Compliance Assistance (3AP20)
United States Environmental Protection Agency
Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

(c) An application, form, report or compliance certification submitted pursuant to this permit condition shall contain certification by a responsible official as to truth, accuracy, and completeness as required under 25 Pa. Code § 127.402(d). Unless otherwise required by the Clean Air Act or regulations adopted thereunder, this certification and any other certification required pursuant to this permit shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

#021 [25 Pa. Code §§ 127.441(c) & 127.463(e); Chapter 139; & 114(a)(3), 504(b) of the CAA]

Sampling, Testing and Monitoring Procedures

(a) The permittee shall perform the emissions monitoring and analysis procedures or test methods for applicable requirements of this Title V permit. In addition to the sampling, testing and monitoring procedures specified in this permit, the Permittee shall comply with any additional applicable requirements promulgated under the Clean Air Act after permit issuance regardless of whether the permit is revised.

(b) The sampling, testing and monitoring required under the applicable requirements of this permit, shall be conducted in accordance with the requirements of 25 Pa. Code Chapter 139 unless alternative methodology is required by the Clean Air Act (including §§ 114(a)(3) and 504(b)) and regulations adopted thereunder.

#022 [25 Pa. Code §§ 127.511 & Chapter 135]

Recordkeeping Requirements

(a) The permittee shall maintain and make available, upon request by the Department, records of required monitoring information that include the following:

(1) The date, place (as defined in the permit) and time of sampling or measurements.

(2) The dates the analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of the analyses.

(6) The operating conditions as existing at the time of sampling or measurement.

(b) The permittee shall retain records of the required monitoring data and supporting information for at least five (5) years from the date of the monitoring sample, measurement, report or application. Supporting information includes the calibration data and maintenance records and original strip-chart recordings for continuous monitoring instrumentation, and copies of reports required by the permit.

(c) The permittee shall maintain and make available to the Department upon request, records including computerized records that may be necessary to comply with the reporting, recordkeeping and emission statement requirements in 25 Pa. Code Chapter 135 (relating to reporting of sources). In accordance with 25 Pa. Code Chapter 135, § 135.5, such records may include records of production, fuel usage, maintenance of production or pollution control equipment or other information determined by the Department to be necessary for identification and quantification of potential and actual air contaminant emissions. If direct recordkeeping is not possible or practical, sufficient records shall be kept to provide the needed information by indirect means.

SECTION B. General Title V Requirements

#023 [25 Pa. Code §§ 127.411(d), 127.442, 127.463(e) & 127.511(c)]

Reporting Requirements

(a) The permittee shall comply with the reporting requirements for the applicable requirements specified in this Title V permit. In addition to the reporting requirements specified herein, the permittee shall comply with any additional applicable reporting requirements promulgated under the Clean Air Act after permit issuance regardless of whether the permit is revised.

(b) Pursuant to 25 Pa. Code § 127.511(c), the permittee shall submit reports of required monitoring at least every six (6) months unless otherwise specified in this permit. Instances of deviations (as defined in 25 Pa. Code § 121.1) from permit requirements shall be clearly identified in the reports. The reporting of deviations shall include the probable cause of the deviations and corrective actions or preventative measures taken, except that sources with continuous emission monitoring systems shall report according to the protocol established and approved by the Department for the source. The required reports shall be certified by a responsible official.

(c) Every report submitted to the Department under this permit condition shall comply with the submission procedures specified in Section B, Condition #020(c) of this permit.

(d) Any records, reports or information obtained by the Department or referred to in a public hearing shall be made available to the public by the Department except for such records, reports or information for which the permittee has shown cause that the documents should be considered confidential and protected from disclosure to the public under Section 4013.2 of the Air Pollution Control Act and consistent with Sections 112(d) and 114(c) of the Clean Air Act and 25 Pa. Code § 127.411(d). The permittee may not request a claim of confidentiality for any emissions data generated for the Title V facility.

#024 [25 Pa. Code § 127.513]

Compliance Certification

(a) One year after the date of issuance of the Title V permit, and each year thereafter, unless specified elsewhere in the permit, the permittee shall submit to the Department and EPA Region III a certificate of compliance with the terms and conditions in this permit, for the previous year, including the emission limitations, standards or work practices. This certification shall include:

(1) The identification of each term or condition of the permit that is the basis of the certification.

(2) The compliance status.

(3) The methods used for determining the compliance status of the source, currently and over the reporting period.

(4) Whether compliance was continuous or intermittent.

(b) The compliance certification shall be postmarked or hand-delivered no later than thirty days after each anniversary of the date of issuance of this Title V Operating Permit, or on the submittal date specified elsewhere in the permit, to the Department and EPA in accordance with the submission requirements specified in condition #020 of this section.

#025 [25 Pa. Code § 127.3]

Operational Flexibility

The permittee is authorized to make changes within the Title V facility in accordance with the following provisions in 25 Pa. Code Chapter 127 which implement the operational flexibility requirements of Section 502(b)(10) of the Clean Air Act and Section 6.1(i) of the Air Pollution Control Act:

(1) Section 127.14 (relating to exemptions)

(2) Section 127.447 (relating to alternative operating scenarios)

(3) Section 127.448 (relating to emissions trading at facilities with federally enforceable emissions caps)

(4) Section 127.449 (relating to de minimis emission increases)

SECTION B. General Title V Requirements

(5) Section 127.450 (relating to administrative operating permit amendments)

(6) Section 127.462 (relating to minor operating permit amendments)

(7) Subchapter H (relating to general plan approvals and operating permits)

#026 [25 Pa. Code §§ 127.441(d), 127.512(i) and 40 CFR Part 68]

Risk Management

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the Title V facility. The permittee shall submit the RMP to the federal Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by EPA no later than the latest of the following:

(i) Three years after the date on which a regulated substance is first listed under § 68.130; or,

(ii) The date on which a regulated substance is first present above a threshold quantity in a process.

(2) The permittee shall submit any additional relevant information requested by the Department or EPA concerning the RMP and shall make subsequent submissions of RMPs in accordance with 40 CFR § 68.190.

(3) The permittee shall certify that the RMP is accurate and complete in accordance with the requirements of 40 CFR Part 68, including a checklist addressing the required elements of a complete RMP.

(c) As used in this permit condition, the term "process" shall be as defined in 40 CFR § 68.3. The term "process" means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances or any combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

(d) If the Title V facility is subject to 40 CFR Part 68, as part of the certification required under this permit, the permittee shall:

(1) Submit a compliance schedule for satisfying the requirements of 40 CFR Part 68 by the date specified in 40 CFR § 68.10(a); or,

(2) Certify that the Title V facility is in compliance with all requirements of 40 CFR Part 68 including the registration and submission of the RMP.

(e) If the Title V facility is subject to 40 CFR Part 68, the permittee shall maintain records supporting the implementation of an accidental release program for five (5) years in accordance with 40 CFR § 68.200.

(f) When the Title V facility is subject to the accidental release program requirements of Section 112(r) of the Clean Air Act and 40 CFR Part 68, appropriate enforcement action will be taken by the Department if:

(1) The permittee fails to register and submit the RMP or a revised plan pursuant to 40 CFR Part 68.

(2) The permittee fails to submit a compliance schedule or include a statement in the compliance certification required under Condition #24 of Section B of this Title V permit that the Title V facility is in compliance with the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68, and 25 Pa. Code § 127.512(i).

SECTION B. General Title V Requirements

#027 [25 Pa. Code § 127.512(e)]

Approved Economic Incentives and Emission Trading Programs

No permit revision shall be required under approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this Title V permit.

#028 [25 Pa. Code §§ 127.516, 127.450(d), 127.449(f) & 127.462(g)]

Permit Shield

(a) The permittee's compliance with the conditions of this permit shall be deemed in compliance with applicable requirements (as defined in 25 Pa. Code § 121.1) as of the date of permit issuance if either of the following applies:

(1) The applicable requirements are included and are specifically identified in this permit.

(2) The Department specifically identifies in the permit other requirements that are not applicable to the permitted facility or source.

(b) Nothing in 25 Pa. Code § 127.516 or the Title V permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act, including the authority of the Administrator of the EPA provided thereunder.

(2) The liability of the permittee for a violation of an applicable requirement prior to the time of permit issuance.

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act.

(4) The ability of the EPA to obtain information from the permittee under Section 114 of the Clean Air Act.

(c) Unless precluded by the Clean Air Act or regulations thereunder, final action by the Department incorporating a significant permit modification in this Title V Permit shall be covered by the permit shield at the time that the permit containing the significant modification is issued.

SECTION C. Site Level Requirements

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §121.7]

Prohibition of air pollution.

No person may permit air pollution as that term is defined in the Air Pollution Control Act (35 P.S. Section 4003).

 # 002 [25 Pa. Code §123.1]

Prohibition of certain fugitive emissions

No person may permit the emission into the outdoor atmosphere of fugitive air contaminant from a source other than the following:

(a) construction or demolition of buildings or structures;
(b) grading, paving and maintenance of roads and streets;
(c) use of roads and streets. Emissions from material in or on trucks, railroad cars and other vehicular equipment are not considered as emissions from use of roads and streets;
(d) clearing of land;
(e) stockpiling of materials;
(f) open burning operations, as specified in 25 Pa. Code § 129.14;
(g) blasting in open pit mines. Emissions from drilling are not considered as emissions from blasting;
(h) coke oven batteries, provided the fugitive air contaminants emitted from any coke oven battery comply with the standards for visible fugitive emissions in 25 Pa. Code §§ 123.44 and 129.15 (relating to limitations of visible fugitive air contaminants from operation of any coke oven battery; and coke pushing operations); and
(i) sources and classes of sources other than those identified in (a)-(h), above, for which the permittee has obtained a determination from the Department that fugitive emissions from the source, after appropriate control, meet the following requirements:
(1) the emissions are of minor significance with respect to causing air pollution; and
(2) the emissions are not preventing or interfering with the attainment or maintenance of any ambient air quality standard.

 # 003 [25 Pa. Code §123.2]

Fugitive particulate matter

A person may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in Condition #002 (relating to prohibition of certain fugitive emissions) if such emissions are visible at the point the emissions pass outside the person's property.

 # 004 [25 Pa. Code §123.31]

Limitations

A person may not permit the emission into the outdoor atmosphere of any malodorous air contaminants from any source in such a manner that the malodors are detectable outside the property of the person on whose land the source is being operated.

 # 005 [25 Pa. Code §123.41]

Limitations

A person may not permit the emission into the outdoor atmosphere of visible air contaminants in such a manner that the opacity of the emission is either of the following:

(1) Equal to or greater than 20% for a period or periods aggregating more than three minutes in any 1 hour.

(2) Equal to or greater than 60% at any time.

 # 006 [25 Pa. Code §123.42]

Exceptions

The limitations of 25 Pa. Code §123.41 (relating to limitations) shall not apply to a visible emission in any of the following instances:

(a) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations.

(b) When the emission results from sources specified in Condition #002 of this Section.

SECTION C. Site Level Requirements

 # 007 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Except as provided in Condition #002 of Section C and Condition #001 of Section D for Source ID 111, no fugitive emissions shall be emitted into the outdoor atmosphere from any building or enclosure associated with the combustor(s) at any time.

(b) The VOC emissions from the entire facility shall not exceed 50.0 tons in any 12 consecutive month period.

 # 008 [25 Pa. Code §129.14]

Open burning operations

No person may permit the open burning of material in the Southeast Air Basin except where the open burning operations result from:

(a) a fire set to prevent or abate a fire hazard, when approved by the Department and set by or under the supervision of a public officer;
(b) any fire set for the purpose of instructing personnel in fire fighting, when approved by the Department;
(c) a fire set for the prevention and control of disease or pests, when approved by the Department;
(d) a fire set in conjunction with the production of agricultural commodities in their unmanufactured state on the premises of the farm operation;
(e) a fire set for the purpose of burning domestic refuse, when the fire is on the premises of a structure occupied solely as a dwelling by two families or less and when the refuse results from the normal occupancy of the structure;
(f) a fire set solely for recreational or ceremonial purposes; or
(g) a fire set solely for cooking food.

II. TESTING REQUIREMENTS.

 # 009 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) All test procedures shall be submitted to the Regional Air Quality Manager sixty (60) days prior to any test, but no later than the time frame as established in the Department's Compliance Assurance Policy on Municipal Waste Incinerators and latest amendments.

(b) At least thirty (30) days prior to the test, the Air Quality Manager shall be informed of the date and time of the test.

(c) Within sixty (60) days after the source test(s), two (2) copies of the complete test report shall be submitted to the Regional Air Quality Manager for approval.The test report shall include all operating conditions for all tests required by this Operating Permit and indicate the amount of waste combusted, classification of wastes, amount of each type of waste, Btu content of wastes, and composition of wastes.

(d) If at any time the Department has cause to believe that air contaminant emissions from any source(s) listed in Section A, of this Permit, may be in excess of the limitations specified in this Permit, or established pursuant to, any applicable rule or regulation contained in 25 Pa. Code Article III, the permittee shall be required to conduct whatever tests deemed necessary by the Department to determine the actual emission rate(s).

(e) Such testing shall be conducted in accordance with the provisions of 25 Pa. Code Chapter 139, when applicable, and in accordance with any restrictions or limitations established by the Department at such time as it notifies the permittee that testing is required.

III. MONITORING REQUIREMENTS.

 # 010 [25 Pa. Code §123.43]

Measuring techniques

Visible emissions may be measured using either of the following:

(a) a device approved by the Department and maintained to provide accurate opacity measurements; and
(b) observers, trained and qualified to measure plume opacity with the naked eye or with the aid of any devices approved by the Department.

SECTION C. Site Level Requirements

 # 011 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall monitor the facility, once per operating day, for the following:

(1) odors which may be objectionable (as per 25 Pa. Code §123.31);
(2) visible emissions (as per 25 Pa. Code §§123.41 and 123.42); and
(3) fugitive particulate matter (as per 25 Pa. Code §§ 123.1 and 123.2).

(b) Objectionable odors, fugitive particulate emissions, and visible emissions that are caused or may be caused by operations at the site shall:

(1) be investigated;
(2) be reported to the facility management, or individual(s) designated by the permittee;
(3) have appropriate corrective action taken (for emissions that originate on-site); and
(4) be recorded in a permanent written log.

IV. RECORDKEEPING REQUIREMENTS.

 # 012 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall maintain a file containing all records and other data that are required to be collected pursuant to the various provisions of this Operating Permit. This file shall include, but not be limited to:

(1) all air pollution control system performance evaluations;
(2) records of calibration checks; and
(3) records of adjustments and maintenance performed on all equipment which is subject to this operating permit.

(b) The permittee shall keep daily, monthly and 12 consecutive month records of the quantities and classification of all solid waste combusted and accepted at this facility in a format approved by the Department.

(c) The permittee shall maintain records of all monitoring of fugitive emissions, visible emissions and odors, including those that deviate from the conditions found in this permit. The record of deviations shall contain, at a minimum, the following items:

(1) date, time, and location of the incident(s);
(2) the cause of the event; and
(3) the corrective action taken, if necessary, to abate the situation and prevent future occurrences.

V. REPORTING REQUIREMENTS.

 # 013 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall, within two (2) hours, of becoming knowledgeable, of any occurrence, notify the Department, at (484) 250-5920, of any malfunction of the source(s) or associated air pollution control devices listed in Section A, of this permit, or any forced shutdown of either combustor(s) because of noncompliance with the conditions of this operating permit, results in, or is reasonably expected to result in, the emission of air contaminants in excess of the limitations specified in this permit, or regulation contained in 25 Pa. Code Article III.

(b) The permittee shall immediately upon becoming knowledgeable, of any occurrence, notify the Department at (484) 250-5920 of any malfunction(s) which occur at this Title V facility, and pose(s) an imminent danger to public health, safety, welfare and the environment, and would violate permit conditions if the source were to continue to operate after the malfunction.

(c) A written report shall be submitted to the Department within two (2) working days following the notification of the incident, and shall describe, at a minimum, the following:

(1) the malfunction(s);

SECTION C. Site Level Requirements

(2) the emission(s);
(3) the duration; and
(4) any corrective action taken.

(d) The permittee shall submit an annual certificate of compliance, due by April 1st of each year, for the period covering January 1 through December 31 of the previous year. This certificate of compliance shall document compliance with all permit terms and conditions set forth in this Title V permit as required under condition #24 of section B of this permit; and

 # 014 [25 Pa. Code §135.21]

Emission statements

The permittee shall submit by March 1, of each year, an annual emission statement for the preceding calendar year.

 # 015 [25 Pa. Code §135.3]

Reporting

(a) The permittee shall submit by March 1, of each year, a source report for the preceding calendar year. The report shall include information from all previously reported sources, new sources which were first operated during the preceding calendar year, and sources modified during the same period which were not previously reported, including those sources listed in the Miscellaneous Section of this permit.

(b) The permittee may request an extension of time from the Department for the filing of a source report, and the Department may grant the extension for reasonable cause.

VI. WORK PRACTICE REQUIREMENTS.

 # 016 [25 Pa. Code §123.1]

Prohibition of certain fugitive emissions

A person responsible for any source specified in Condition #002, above, shall take all reasonable actions to prevent particulate matter from becoming airborne. These actions shall include, but not be limited to, the following

(a) use, where possible, of water or suitable chemicals, for control of dust in the demolition of buildings or structures, construction operations, the grading of roads, or the clearing of land;

(b) application of asphalt, water, or other suitable chemicals, on dirt roads, material stockpiles and other surfaces which may give rise to airborne dusts;

(c) paving and maintenance of roadways; and

(d) prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or by other means.

 # 017 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The sources and air pollution control devices listed in this permit shall be operated and maintained in a manner consistent with good operating and maintenance practices, and in accordance with manufacturer's specifications.

(b) The permittee shall immediately, upon discovery, implement measures, which may include the application for the installation of an air cleaning device(s), if necessary, to reduce the air contaminant emissions to within applicable limitations, if at any time the operation of the source(s) identified in Section A, of this permit, is causing the emission of air contaminants in excess of the limitations specified in, or established pursuant to, 25 Pa. Code Article III or any other applicable rule promulgated under the Clean Air Act.

VII. ADDITIONAL REQUIREMENTS.

 # 018 [25 Pa. Code §127.512]

Operating permit terms and conditions.

The permittee may not modify any air contaminant system identified in Sections A or G, of this permit, prior to obtaining Department approval, except those modifications authorized by Condition #017(g), of Section B, of this permit.

VIII. COMPLIANCE CERTIFICATION.

SECTION C. Site Level Requirements

No additional compliance certifications exist except as provided in other sections of this permit including Section B (relating to Title V General Requirements).

IX. COMPLIANCE SCHEDULE.

No compliance milestones exist.

***** Permit Shield In Effect *****

SECTION D. Source Level Requirements

Source ID: 101 Source Name: ROTARY COMBUSTER 1

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

SECTION D. Source Level Requirements

tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

SECTION D. Source Level Requirements

Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

SECTION D. Source Level Requirements

(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

SECTION D. Source Level Requirements

in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

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equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

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control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

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through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 102 Source Name: ROTARY COMBUSTER 2

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

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tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

SECTION D. Source Level Requirements

Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

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(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

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in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

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equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

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through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 103 Source Name: ROTARY COMBUSTER 3

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

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tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

SECTION D. Source Level Requirements

Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

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(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

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in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

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equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

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control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

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through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

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Source ID: 104 Source Name: ROTARY COMBUSTER 4

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

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tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

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Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

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(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

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in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

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control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

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through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

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Source ID: 105 Source Name: ROTARY COMBUSTER 5

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

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tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

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Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

SECTION D. Source Level Requirements

(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

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in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

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equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

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control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

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through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

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Source ID: 106 Source Name: ROTARY COMBUSTER 6

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Nitrogen Oxide (NOx) emissions per combustor, expressed as NO2, shall not exceed any of the following:

(1) 180 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average using CEMs;
(2) 88.56 lbs/hr; and
(3) 0.42 lbs/MMBtu.

(b) The above NOx limits are a result of controlled combustion. This control was determined by the Department as being Reasonably Available Control Technology (RACT) for emissions of NOx (66 FR 54699 and 40 C.F.R. §52.2063).

(c) The NOx emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down, provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The following annual ambient concentrations, expressed in micro-grams/cubic meter (UG/DSCM), shall not be exceeded. To demonstrate compliance with the following annual ambient concentrations, the permittee shall calculate the concentrations using the actual stack emission rates and exhaust parameters from each stack test specified for the combustor(s), and the dispersion modeling techniques used in the application, as approved by the Department. A certification shall be supplied to the Department stating compliance with maximum allowable ambient concentrations with every stack test report.

PCDD & PCDF, expressed as 2,3,7,8 TCDD equalivents* 0.30 x 10E-7
Arsenic and Compounds 0.23 x 10E-3
Beryllium and Compounds 0.42 x 10E-3
Cadmium and Compounds 0.56 x 10E-3
Nickel and Compounds 0.33 x 10E-2
Hexavalent Chromium and Compounds 0.83 x 10E-4
Lead and Compounds 0.09
Mercury and Compounds 0.024
Hydrogen Chloride 7.0
Benzo(a)pyrene 0.59 x 10E-3

(b) Ambient air quality analysis shall be redone if there is a modification in emission limits or for any parameter that exceeds the applicable stack test limitation during any stack test series.

(c) The permittee may be required to resume full modeling if the Department determines that a decrease in either volumetric flow rate and/or stack temperature has a significant adverse impact on the ambient concentration.

* Polychlorinated dibenzo-p-dioxins ("PCDD") and polychlorinated dibenzofurans ("PCDF") expressed as 2, 3, 7, 8

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tetrachlorinated dibenzo-p-dioxins ("TCDD") equivalents using toxicity equivalents factors ("TEFS") as described in the Department's BAT and calculated according to PADEP approved method.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) VOC emissions, expressed as total hydrocarbons, shall not exceed 37.6 pounds per hour as an aggregate emission rate for the six (6) combustors. This VOC emission limit is a determination of RACT for VOC emissions (66 FR 54699 and 40 C.F.R. §52.2063).

(b) Compliance with this limitation shall be based on the average of three (3) consecutive test runs.

(c) This emissions cap does not provide any relief from obtaining a plan approval for any future physical change or change in the method of operation of any of the combustors. Future applicability determinations must consider the baseline actual emissions of the emissions units and not the cap. The latter is true even if the company does not request a change in the compliance cap. Furthermore, by accepting this cap and agreeing to consider the six combustors as one emissions unit for NSR/PSD purposes, any future applicability determinations must involve all six combustors, e.g. should major NSR/PSD be triggered for any one combustor or process change, BACT/LAER is required for all six combustors.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

SO2 emissions, per combustor, shall not exceed any of the following:

(a) 68.45 lbs/hr; and

(b) 29 ppmdv, corrected to 7% oxygen, or shall be reduced by no less than 80% (by weight) on a 24-hour block geometric average using CEMs, whichever is less stringent.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The toxic metal emissions per combustor shall not exceed any of the following:

(1) Emission concentration, measured in ug/dscm and corrected to 7% oxygen:

Arsenic and Compounds 7.2
Beryllium and Compounds 0.2
Cadmium and Compounds 15.8
Hexavalent Chromium and Compounds 2.3
Nickel and Compounds 25.0
Lead and Compounds 166.0
Mercury and Compounds 50 or 15 percent of the potential mercury emission concentration (85-percent reduction by weight),whichever is less stringent.

(2) Emission rate (lbs/hr) was based on an exhaust rate of 68,679 dscfm, at 7% oxygen.

Arsenic and Compounds 0.00185
Beryllium and Compounds 0.000051
Cadmium and Compounds 0.00406
Hexavalent Chromium and Compounds 0.000591
Nickel and Compounds 0.00643
Lead and Compounds 0.0423
Mercury and Compounds 0.029

(b) Compliance with the emission concentration limits shall be documented through stack tests for each combustor. The results shall be based on ppmdv or ug/dscm, as appropriate, and corrected to 7% oxygen.

 # 006 [25 Pa. Code §127.512]

SECTION D. Source Level Requirements

Operating permit terms and conditions.
(a) Visible air contaminants from any combustor stack shall not be emitted in such a manner that the opacity (measured by CEMS) of the emissions is equal to or greater than

(1) 10% for a period aggregating more than three (3) minutes in any one (1) hour; or
(2) 30% at any time.

(b) The above visible emission limitations do not apply in either of the following instances:

(1) when the presence of uncombined water is the only reason for failure of the emission to meet the limitations; or
(2) when the emission results from sources specified in 25 Pa. Code §123.1(a).

 # 007 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total mass dioxin/furan emissions per combustor shall not exceed 30 nanograms per dry standard cubic meter (total mass), corrected to 7% oxygen.

(b) Compliance with this emission limitation shall be based on the average of three (3) consecutive test runs.

 # 008 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Carbon monoxide emissions per combustor shall not exceed any of the folloiwng:

(1) 100 ppmdv, corrected to 7% oxygen, calculated as a 24-hour block arithmetic average using CEMs; and
(2) 29.95 lbs/hr.

(b) The CO emission limit applies at all times when municipal wastes are combusted, except during periods of start-up, and shut-down. Provided that the duration of the start-up or shut-down does not exceed three (3) hours per occurrence.

(c) Compliance with the CO limit shall be determined using a 24-hour block arithmetic average. The 24-hour block arithmetic average shall be calculated from one (1) hour arithmetic averages expressed in ppmdv, corrected to 7% oxygen.

 # 009 [25 Pa. Code §127.512]
Operating permit terms and conditions.
Hydrochloric acid (HCl) emissions per combustor shall be reduced by not less than 95% (by weight), on a 24-hour daily arithmetic basis. This reduction requirement shall be waived if the exhaust concentrations are less than 25 ppmdv, corrected to 7% oxygen, on a 24-hour block arithmetic average, and 36.58 lbs/hr.

 # 010 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) The Department reserves the right to establish and impose more stringent limits than those stated in this permit, based on the test results from each stack test performed, the CEM results and the dispersion modeling techniques as approved by the Department.

(b) Start-up of the combustor commences with the introduction of municipal waste to an empty combustor and does not include any warm up period when the combustor is combusting only a fossil fuel or any other auxiliary fuel, approved by the Department, and no municipal waste is being combusted.

(c) Shutdown of the combustor commences with the cessation of charging municipal waste for the express purpose of shutting down the combustor.

 # 011 [25 Pa. Code §127.512]
Operating permit terms and conditions.
(a) Total particulate matter (PM) emissions per combustor shall not exceed 5.80 lbs/hr and 0.010 gr/dscf, corrected to 7% oxygen.

(b) PM-10 emissions per combustor shall not exceed 0.012 gr/dscf, corrected to 7% oxygen, and 6.96 lbs/hr.

SECTION D. Source Level Requirements

(c) Compliance with the above emission limits shall be based on the average of three (3) consecutive test runs.

Throughput Restriction(s).

 # 012 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Each combustor shall not be operated to exceed 161,000 lbs steam/hr, or 110% of the maximum demonstrated steam load during the most recent annual dioxin/furan performance test, whichever is less, except during the dioxin/furan performance test and the two (2) weeks preceding this test, when the steam load limitations do not apply.

(b) Only the following types of waste are permitted to be burned in the combustors:

(1) municipal waste, as defined in 25 Pa. Code § 287.1;
(2) municipal-like residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit; and
(3) residual waste, as permitted in the Department's Waste Permit No. 400593, and the Miscellaneous Section of this permit.

(c) The residual waste (Form R waste list) accepted at the facility shall not exceed the following on a daily basis:

(1) 10% of the total amount of waste, by weight; or
(2) 500 tons

(d) The daily amount of residual waste and total amount of waste must be documented in accordance with the conditions of the Department's Waste Permit No. 400593.

(e) Any changes to the waste streams or types of waste shall be approved by the Department.

Control Device Efficiencies Restriction(s).

 # 013 [25 Pa. Code §127.503]

Application information.

Emissions from each combustor shall be controlled by individual dry acid gas scrubbers and pulse-jet cleaning type fabric collectors.

 # 014 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Compliance with the parameters set forth in the Conditions below assures compliance with the toxic metal emission limits in Condition #005 of this Section.

(a) Each combustor shall be operated to maintain the combustion gases temperature greater than 1800°F for at least one (1) second, calculated on an hourly average (1-hour block arithmetic). The temperature sensor shall be located at the furnace roof position approved by the Department for each combustor. The temperature at this location shall be maintained at greater than 850°F, (a Department approved reference temperature which corresponds to 1800°F for at least one second). Each combustor auxiliary burners shall be controlled automatically to maintain the combustion gases at the aforementioned temperature whenever refuse is being incinerated. In the event that furnace combustion gas flow rates change significantly from any previous alternate location verification test, or at the Department's request, the permittee shall perform a new alternative location verification and retention test.

(b) The flue gas temperature, measured at the particulate matter control device inlet and averaged arithmetically in 4-hour block, shall not exceed 300°F or 30°F above the maximum demonstrated particulate matter control device temperature, as defined in 40 C.F.R. §60.51b, whichever is lower, except during the annual dioxin/furan or mercury performance test and the 2 weeks preceding the annual dioxin/furan or mercury performance test, when the particulate matter control device inlet flue gas temperature limitation of 300°F is applicable.

(c) The above temperature limits apply and remain enforceable at all times, until and unless the Department grants a waiver

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in writing for the purpose of evaluating system performance, testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

II. TESTING REQUIREMENTS.

 # 015 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall conduct annual performance test on each of the combustors for the the following pollutants:

(1) total particulate matter, and PM-10 (including particle sizing);
(2) arsenic and compounds (expressed as arsenic);
(3) cadmium and compounds (expressed as cadmium);
(4) hexavalent chromium and compounds (expressed as chromium);
(5) nickel and compounds (expressed as nickel);
(6) lead and compounds (expressed as lead);
(7) beryllium and compounds (expressed as beryllium);
(8) mercury and compounds (expressed as mercury);
(9) PCDD and PCDF (expressed as 2,3,7,8 TCDD equivalents calculated according to the Department approved method and as total dioxin and furan);
(10) VOC (expressed as total hydrocarbons);
(11) PAH, including Benzo(a)pyrene;
(12) NOx;
(13) SO2;
(14) HCl;
(15) CO; and
(16) Visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111)

(b) If the emissions of PM, or PM10, or any of the toxic metals from any one of the combustors equal to or exceed 80% of the emission limitations, that combustor(s) shall be tested semiannually for each of the pollutants that equals to or exceeds 80% of the emission limitations. Testing frequency can revert back to annually when the tested emissions are less than 80% of the emission limitations for a consecutive period of 24-months, plus the permittee notifies the Department of such testing schedule reversion.

(c) Performance testing for SO2, NOx, CO, and HCl may be substituted by CEM data to demonstrate compliance with the emission limitations. The permittee shall perform SO2, NOx, CO, HCl CEMS performance audit for each combustor during each annual performance test.

(d) The amount of waste incinerated during a stack test shall be an adequate representation of the waste load to be processed by the facility.

(e) Unless approved by the Department prior to the testing, the following procedures and test methods shall be used to determine compliance with the emission limits:

(1) EPA reference method 1, for the sampling sites and traverse points.
(2) EPA reference method 3 or 3A, for the gas analysis.
(3) EPA reference methods 5, 201A/202 for PM and PM10. Both the front half and back half catches are to be analyzed and reported. However, only the front half catch is to be utilized in determining compliance.
(4) EPA reference method 9, for opacity.
(5) EPA reference method 29, for cadmium, lead and mercury, with a minimum sample volume to be 1.7 cubic meters for mercury. The percent weight reduction for mercury emissions shall be computed using the mercury concentrations measured at the inlet and outlet of the control device, corrected to 7% oxygen, (dry basis).
(6) EPA reference method 26, or 26A, for HCl.
(7) EPA reference method 19, for SO2.
(8) EPA reference method 6, 6A, or 6C, for the RATA tests on the SO2 CEMS.
(9) EPA reference method 19, for NOx.

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(10) EPA reference method 7, 7A, 7C, 7D, or 7E, for the RATA test on the NOx CEMS.
(11) EPA reference method 10, 10A, or 10B, for CO.
(12) EPA reference method 23, for Dioxins/furans.
(13) EPA reference method 22, for visible emissions of fugitive combustion ash from the ash conveying system (Source ID 111).

(f) Each combustor shall be equipped with test ports so that periodic measurement of the 1800°F for one (1) second residence time requirement can be conducted at the Department's request.

III. MONITORING REQUIREMENTS.

 # 016 [25 Pa. Code §127.511]
Monitoring and related recordkeeping and reporting requirements.

(a) The Department approved Continuous Emission Monitors (CEMs) shall be operated and maintained in accordance with 25 Pa. Code Chapter 139, the Department's "Continuous Source Monitoring Manual (CSM Manual)" (Revision No.5 - March 1993), and latest amendments ("CSM Manual") for the following:

(1) CO monitored both upstream and downstream of the air pollution control equipment;
(2) SO2 monitored upstream and downstream of the air pollution control equipment;
(3) NOx monitored downstream of the air pollution control equipment;
(4) HCL monitored downstream of the air pollution control equipment; and
(5) Opacity of the exhaust gases.

(b) The following operating parameters shall be monitored and recorded continuously using the Department approved continuous monitoring system (CMS) for each combustor at the locations, if specified:

(1) Oxygen, at both upstream and downstream of the air pollution control equipment;
(2) Temperature of the gases exiting the combustor monitored at the furnace roof position approved by the Department;
(3) Temperature of the gases at the inlet of each baghouse for the combustors.
(4) The lime slurry injection rate to the dry acid gas scrubber; and
(5) The steam load for each combustor in lb/hr and calculated in 4-hour block arithmetic averages.

(c) The permittee shall replace all thermocouples, at the furnace roof position of each combustor, on a quarterly basis with those that have been certified in accordance with NIST (National Institute of Standards and Testing).

(d) The premittee shall monitor and record supplemental fuel usage on a monthly basis.

(e) The permittee shall ensure that the Data Acquisition System maintains an uninterruptible power supply until the combustors are in a "process down" mode of operation.

(f) The selected parameters that define "normal operations" for CEM reporting purposes are when the dry inlet O2 is less than or equal to 18.0% and the steam flow is greater than or equal to 50,000 lbs/hr. If either of the conditions is not met, the CEM reports the combustor as “process down” for that minute.

(g) The Department reserves the right to require the permittee to install, operate and maintain an uninterruptible power supply (UPS) for the continuous monitoring system at the facility. The requirement to install a UPS will be based on power outages and the loss of data and the affect on the CEM system.

 # 017 [25 Pa. Code §139.111]
Municipal waste incinerator monitoring requirements.

The CEMS and CMS shall be operated and maintained to achieve the following data availability standards:

(a) Carbon Monoxide (CO) and Temperature: 100% valid hours/day, where a valid hour is defined as greater than or equal to 90% valid readings/hour (54 minutes).

(b) Opacity and oxygen (O2): Greater than or equal to 95% valid hours/day, where a valid hour is defined as greater than or

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equal to 75% valid readings/hour (45 minutes).

(c) Hydrochloric Acid (HCl), Sulfur dioxide (SO2), and Nitrogen oxides (NOx): Greater than or equal to 90% valid hours/month, where a valid hour is defined as greater than or equal to 75% valid readings/hour (45 minutes).

IV. RECORDKEEPING REQUIREMENTS.

 # 018 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall maintain, on-site, the following records for a minimum of five (5) years, in either paper copy, or computer-readable format, unless an alternative format is approved by the Department.

(a) the calendar date of each record.

(b) all emission averages from the continuous monitoring systems, which include: all one (1) hour average SO2, NOx, CO, and HCl emission concentrations, combustor unit load measurements, and PM control device inlet temperatures.

(c) all block geometric or arithmetic average concentrations, and percent reductions, as applicable, for SO2, NOx, CO, HCl, combustor unit load level, and PM control device inlet temperatures.

(d) identification of the calendar dates when any of the average emissions, percent reductions, or operating parameters recorded for SO2, NOx, CO, HCl, combustor unit load levels, particulate matter control device inlet temperature, or opacity, are above the applicable limits, with reasons for such exceedances and a description of the corrective action taken.

(e) identification of the calendar dates when the minimum hours of any of the data for SO2, NOx, CO, HCl emissions data, combustor unit load, PM control device inlet temperature and/or opacity have not been obtained, the reason for not obtaining sufficient data, and a description of corrective action taken.

(f) the results of the daily drift tests and quarterly accuracy determinations for the SO2, NOx, CO, HCl CEMs.

(g) results of all performance tests, including supporting calculations, along with maximum demonstrated unit load, and maximum PM control device inlet temperature.

(h) the names of the combustor chief facility operator, shift supervisors, and control room operators who have been fully certified, or provisionally certified, by the American Society of Mechanical Engineers (ASME) or an equivalent State-approved certification, including the dates of initial and renewal certifications and documentation of current certification. This subcondition does not apply to those individuals who have obtained full certification from the ASME on or before August 23, 1999.

(i) the names of the combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a State-approved equivalent course, including documentation of training completion. Those chief facility operators, shift supervisors and control room operators who have obtained full certification prior to August 23, 1999, do not need to be recertified.

(j) the supplemental fuel usage.

V. REPORTING REQUIREMENTS.

 # 019 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall submit, to both the USEPA and the Department, semiannual reports that shall include the following information :

(1) A list of PM, lead, cadmium, opacity, mercury, dioxin/furans, and fugitive ash emission levels achieved during the performance tests.

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(2) A list of the highest emission level recorded for SO2, NOx, CO, HCl, municipal waste combustor unit load level, and PM control device inlet temperature based on the data recorded using CMS.

(3) The highest opacity level measured and recorded.

(4) The total number of hours per calendar quarter and hours per calendar year that valid data for SOx, NOx, CO, HCl, municipal waste combustor unit load, or PM control device inlet temperature data were not obtained.

(5) The total number of hours that data for SO2, NOx, CO, HCl, combustor load, and PM control device inlet temperature were excluded from the calculation of average emission concentrations of parameters.

(b) The semiannual reports shall include information from the preceding calendar year for the year being reported, in order to provide the Department with a summary of the performance of this facility over a 2-year period.

(c) The semiannual report shall include the following information for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit:

(1) SO2, NOx, CO, HCl, combustor load level, PM control device inlet temperature, and opacity.

(2) Any exceedance of the applicable levels for the following: PM, opacity, mercury, cadmium, lead, dioxin/furans, and fugitive ash. A copy of the test report documenting the emission levels and the corrective action taken, shall accompany the report.

(d) The semiannual reports shall be submitted as a paper copy, postmarked on or before August 1 and February 1 following the proceeding 6-month period ending each December and June, respectively.

(e) Temperature values submitted in each quarterly report shall consist of actual temperature values plus 950°F, the difference measured at the surrogate location and the demonstrated 1800°F for one (1) second retention time location.

(f) All CEM reports, including CEMS violations, shall be submitted to the Department within thirty (30) days after each quarter, unless otherwise approved the Department. The Department reserves the right to require the report submissions with a format acceptable to the Department.

(g) The permittee shall submit the following reports:

(1) a semi annual deviation report, due by October 1, of each year, for the period covering January 1 through June 30 of the same year. Note: The annual certification of compliance fulfills the obligation for the second deviation reporting period (July 1 through December 31 of the previous year).

(2) For those contaminants monitored by a Department certified CEMS for which the Department's Enforcement Policy - Continuous Emission Monitoring System (CEMS) established penalties for excess emissions, the aforementioned notification and reporting requirements shall be waived.

VI. WORK PRACTICE REQUIREMENTS.

 # 020 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) Combustor Operation Requirements

(1) No solid waste shall be charged into the combustor(s) until equilibrium has been attained in the furnace zones and the temperature of the combustion gases reach 1800°F (based upon a surrogate temperature of 850°F as displayed on the facility CEMs) for one (1) second of retention time when the combustor is empty. All control equipment shall be operational and functioning properly prior to the introduction of solid waste into the combustor(s).

(2) During the process of all planned shut downs of each combustor, auxiliary burners shall be used to ensure that the temperature of the combustion gases does not drop below 1600°F while any waste material is still being incinerated. All

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control equipment shall be operational and functioning properly until all of the solid waste is incinerated.

(3) The charging of waste to each combustor shall automatically cease through the use of an interlock system, if:

(A) The combustor temperature measured at the furnace roof, at the Department approved location, drops below 650°F, (a Department approved reference temperature which corresponds to 1600°F), for a 15-minute period, or,
(B) The CO emissions exceed 600 ppmv, corrected to 7% oxygen on a dry basis for a period of fifteen (15) minutes (this requirement is waived during the startup periods), or
(C) The flue gas oxygen (as measured at the oxygen monitor upstream of the control device) level drops below 3% (wet basis or equivalent dry) for a 15-minute period, or,
(D) The opacity of the exhaust gases is equal to or greater than 10% for a period of 15 minutes.

(4) An adequate spare parts inventory shall be maintained to ensure timely repairs of major component malfunctions.

(b) Operator Training and Certification Requirements

(1) All personnel involved with the operation and maintenance of the combustors, associated pollution control equipment and monitoring equipment shall complete the comprehensive training program as specified in 40 C.F.R. §§60.56a and 60.54b, and according to the schedules specified in 40 CFR §60.39b(c)(4). This program includes operator training to identify waste material and actions to be taken to correct conditions which result from the initiation of the interlock system.

(2) Each facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the Amercian Society of Mechanical Engineers (ASME) or a state certification program, and each shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers or a State Certification program.

(3) Except as provided in subcondition (i) below, each combustor shall not be operated at any time unless one of the following people is on duty at the source:

(A) A fully certified chief facility operator,
(B) A provisionally certified chief facility operator who is scheduled to take the full certification exam,
(C) A fully certified shift supervisor, or
(D) A provisionally certified shift supervisor who is scheduled to take the full certification exam.

(4) Stand-In Provisions

(A) If one of the persons, listed in Condition (b)(3) above, must leave the facility during their operating shift, a provisionally certified control room operator who is on-site, may stand in.
(B) A provisionally certified control room operator may stand in when the chief facility operator or shift supervisor is off-site for more than twelve (12) hours (a normal work shift), but less than two (2) weeks for normal off-site activities including: attending meetings, conferences, training, work travel, temporary reassignment, personal vacation, sick leave, family leave or similar activities. The permittee shall notify the Department, in writing, (by facsimile), within 24 hours, that the stand-in period will exceed twelve (12) hours (a normal work shift).

(5) In the event that the medical conditions, temporary eassignment, job transfer, resignation, dismissal or other circumstances beyond the permittee's control results in or is expected to result in the absence of the chief facility operator or shift supervisor for a period exceeding two (2) weeks, the permittee shall notify the Department in writing and identify what conditions resulted in such absence and what corrective actions have been taken to correct such absence. At the Department's request, the permittee shall prepare written status summary reports demonstrating that a good faith effort has been made and continues to be made to correct the conditions resulting in the absence of the chief facility operator or shift supervisor.

(6) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustion unit may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Department for up to six months before taking the ASME QRO certification exam.

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(7) The permittee shall review the operating manual with each person who has responsibilities affecting the operation of this facility including, but not limited to: chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load operators.

(8) The operating manual review shall include, but not be limited to: operator training to identify waste materials referred to as large non-combustible bulky materials, combustible bulky materials, unacceptable waste, as defined in this permit, and action to be taken to correct conditions which result from abnormal/emergency operation, running and/or shutdown that would cause the initiation of the interlock system.

(9) Each operator shall undergo initial training the date prior to the day the person assumes responsibilities affecting the combustor unit operation, and annually thereafter.

(10) The operating manual shall be kept in a readily accessible location for all persons required to undergo training, and be available to the USEPA and/or the Department upon request.

(11) The permittee shall keep and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the following:

(A) a summary of the applicable standards under this Operating Permit;
(B) a description of basic combustion theory applicable to the combustor(s);
(C) procedures for handling, receiving, and feeding municipal solid waste;
(D) combustor startup, shutdown, and malfunction provisions;
(E) procedures for maintaining proper combustion air supply levels;
(F) procedures for operating the combustors within the standards established under this Operating Permit;
(G) procedures for responding to periodic upset or off-specification conditions;
(H) procedures for minimizing particulate matter carryover;
(I) procedures for ash handling;
(J) procedures for monitoring combustion emissions;
(K) procedures for reporting and recordkeeping;
(L) procedures for responding to emergency situations; and
(M) procedures for monitoring the degree of waste burnout.

(c) Waste Management

(1) The following wastes or materials shall be removed from the tipping room floor for appropriate disposal:

(A) Unacceptable waste, visible hazardous materials, and visible unapproved residual waste as defined by 25 Pa. Code § 287.1 of the Bureau of Waste Management Regulations;
(B) Large non-combustible bulky materials, including visible automotive batteries;
(C) Combustible bulky materials.

(2) The amount of solid waste material stored in the tipping room shall be less than the amount of solid waste material which can be reasonably incinerated within 120 hours of its delivery. If there is reason to believe that the combustor(s) are not capable of incinerating the solid waste material specified in the time frame above, the Department shall be notified in accordance with the malfunction reporting condition of this permit. No additional waste material shall be accepted and all the solid waste material shall be removed, if needed, to prevent the escape of odor beyond the property line. No air shall be exhausted to the outdoor atmosphere from this building during such an occurence without being treated in the combustor(s) unless otherwise authorized by the Department.

(3) Except recyclable materials, open storage of solid waste outside of a building is prohibited.

(4) All wastes or materials which can be airborne or spilled shall be transported in closed containers or tarped trucks.

(d) Tipping Area Management

(1) The tipping area shall be operated at a negative pressure, when any combustor is in operation. The air passing

SECTION D. Source Level Requirements

through all natural draft openings surrounding the tipping floor, including the MWC charging area, shall flow inward continuously.

(2) To ensure negative pressure on the tipping area, at a minimum, the permittee shall:

(A) limit the number of open entrance and exit doors to the tipping floor to one in each direction;
(B) close all truck delivery doors to the tipping floor between 8:00 pm and 5:00 am every day and all day on Sunday;
(C) use and maintain plastic flaps or other equivalent shielding to reduce the effective opening area on any open truck delivery door to the tipping floor; and
(D) on a daily basis, inspect and log that all roof vents over the tipping floor and combustor charging chutes are closed and that all tipping floor doors and openings not in use that day are closed.

(e) The permittee shall operate and maintain a telephone dial-up telemetry system which has been approved by the Department, and is consistent with the "Air Quality Compliance Assurance Policy for Municipal Waste Incinerators", July 1989, as revised (CAP for MWI).

VII. ADDITIONAL REQUIREMENTS.

 # 021 [25 Pa. Code §127.512]
Operating permit terms and conditions.

(a) The combustors are subject to the Department's Air Quality Compliance Assurance Policy (CAP) for Municipal Waste Incinerators finalized and signed by the Department on July 12, 1989, and it's latest amendments.

(b) The combustors are subject to the provisions of EPA approved State section 111(d)/129 plan implementing 40 C.F.R. 60 subpart Cb for Large Municipal Waste Combustors, dated April 27, 1998 (67 FR 68935).

(c) The design, construction, and operation of each combustor as stated in the Plan Approval Application, in accordance with the Department's BAT for MWI and its subsequent amendments issued up to the issuance of the Plan Approval and the conditions of the Plan Approval shall be adhered to. Department approval must be obtained prior to modification of any of the design, construction, and operation of each combustor.

(d) The combustors are not subject to the provisions of 40 C.F.R. 60 Subpart Db as per 40 C.F.R. §60.40b(k).

***** Permit Shield in Effect. *****

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Source ID: 107 Source Name: VEHICLE TRAFFIC ON ROADS

Source Capacity/Throughput: N/A DUST

PROC 107 → STAC Z01

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §123.1]

Prohibition of certain fugitive emissions

No person may permit the emission into the outdoor atmosphere of a fugitive air contaminant from a source other than the following:

(a) Grading, paving, and maintenance of roads and streets.
(b) Use of roads and streets. Emissions from material in or on trucks, railroad cars, and other vehicular equipment are not considered as emissions from use of roads and streets.
(c) Stockpiling of materials.

 # 002 [25 Pa. Code §123.2]

Fugitive particulate matter

A person may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from this source, if such emissions are visible at the point the emissions pass outside the person's property.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

No additional record keeping requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 003 [25 Pa. Code §123.1]

Prohibition of certain fugitive emissions

The permittee shall take all reasonable actions to prevent particulate matter from becoming airborne from this source. These actions shall include, but not be limited to, the following:

(a) Application of asphalt, water, or other suitable chemicals, on dirt roads, material stockpiles and other surfaces which may give rise to airborne dusts.
(b) Paving and maintenance of roadways.

SECTION D. Source Level Requirements

(c) Prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or by other means.

VII. ADDITIONAL REQUIREMENTS.

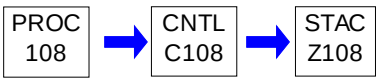
No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 108 Source Name: COOLING TOWER

Source Capacity/Throughput:



I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) PM10 emissions from the cooling tower shall not exceed 2.39 tons per year on a 12-month rolling sum.

(b) The total dissolved solids (TDS) concentration in the circulating water shall not exceed 2,780 ppm, by weight.

Throughput Restriction(s).

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

The cooling tower is permitted to use Chester Water Authority (CWA) water and/or DELCORA secondary effluent as makeup water.

Control Device Efficiencies Restriction(s).

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

If DELCORA secondary effluent is used, the conductivity of the makeup water, measured at Permeate, shall not exceed 200 uS/cm on a daily average basis to be considered the TDS removal efficiency of 95%.

II. TESTING REQUIREMENTS.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall measure cirlculating water TDS concentration at the inlet of the cooling tower water once per calendar quarter.

(b) The permittee shall record the circulating water conductivity measured at the inlet of the cooling tower at the same time when the above samples are taken.

(c) The TDS concentrations shall be measured using methods and/or procedures approved by the Department.

(d) The data of conductivity vs TDS concentration collected may be used for re-establishing the conductivity limit in the future, when the Department believes that an adjustment is necessary.

III. MONITORING REQUIREMENTS.

 # 005 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall operate and maintain devices that continuously monitor and record the following:

(a) The amount of cooling tower circulating water on a monthly basis, or the rated capacity of the pump in gallons per hour and pump operating hours on a monthly basis.

(b) The circulating water conductivity, measured at the inlet of the cooling tower, averaged daily and monthly.

(c) The makeup water conductivity, measured at Permeate, on a daily average.

SECTION D. Source Level Requirements

IV. RECORDKEEPING REQUIREMENTS.

 # 006 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) The permittee shall keep the following records for 5 years:

(1) The PM10 emissions on a monthly basis calculated using the following equation, and 12-month rolling sum:

E = Q (gal/month) x 8.34 (lb/gal) x Drift rate (0.001%) x TDS (ppmw in circulating water) x 53 % mass (smaller than PM10)

Where:

E = Emissions in pounds per month (lb/month)
Q = Circulating water rate (gallons per month)
1 gallon of water = 8.34 lb
% mass smaller than PM10 = 53%

(2) The circulating water conductivity readings on a daily average and monthly average.

(3) The amount of circulating water in gallons per month either recorded directly or calculated through the rated capacity of the pump and monthly operating hours.

(4) The date and the TDS concentrations in ppmw measured each quarter and the conductivities readings at each time of sampling. The purpose of these records is to establish a basis of the conductivity vs TDS concentration.

(5) The makeup water conductivity measured at Permeate as daily average.

(b) The permittee may use TDS concentration of 2,780 ppmw to calculate the PM emissions, if the monthly rolling average conductivity is below 4,000 uS/cm.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 007 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The permittee shall operate the ultrafiltration system and reverse osmosis unit in accordance with the manufacturer's specifications and good air pollution control practices.

(b) The drift eliminators shall be installed, operated, and maintained in accordance with the manufacturer's specifications and good air pollution control practices.

(c) The drift eliminators shall not be modified or repaired without the Department's prior written approval, if the modification or repair will result in change of the eliminators' removal efficiency.

(d) The conductivity of the cooling tower circulating water shall be maintained below 4,000 uS/cm on a monthly average.

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 110 Source Name: LIME STORAGE SILO

Source Capacity/Throughput:

PROC 110 → STAC S110

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §123.13]

Processes

Particulate matter emissions from the exhausts associated with the lime silo(s) shall not exceed 0.02 gr/dscf.

Control Device Efficiencies Restriction(s).

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

The silo fabric filer equipment will be operated below prescribed manufacturer operating pressures during offloading. Compliance with this operating pressure limit deemed compliance with the particulate matter emission limit in Condition #001 for this source.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

 # 003 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

(a) A silo area operator must be present when the silo is being filled.

(b) The silo area operator shall

(1) Monitor the loading operating pressure and observe the silo stack for visible emissions during the silo loading.

(2) Record the silo loading

(i) date;
(ii) visible emissions observed;
(iii) the loading operating pressure;
(iv) correct actions taken, if any; and
(v) initial each record.

IV. RECORDKEEPING REQUIREMENTS.

 # 004 [25 Pa. Code §127.511]

Monitoring and related recordkeeping and reporting requirements.

The permittee shall keep the following records for each silo loading operation:

(a) date;
(b) visible emissions observed;
(c) the loading operating pressure;
(d) correct actions taken, if any; and
(e) initial each record.

SECTION D. Source Level Requirements

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

If visible emissions present during silo loading, the permittee shall

(a) investigate the incident;

(b) take corrective actions; and

(c) record the date of the incident and specify the corrective actions taken.

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 111 Source Name: ASH HANDLING

Source Capacity/Throughput:

PROC 111 → STAC Z111

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Visible emissions of fugitive combustion ash from the ash conveying system shall not be in excess of 5% of the observation period (9 minutes per 3-hour period), as determined by EPA Reference Method 22, except as described below:

(a) the emission limit does not apply to visible emissions discharged inside buildings or enclosures; and

(b) the emission limit does not apply during the maintenance and repair of ash handling systems.

II. TESTING REQUIREMENTS.

 # 002 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Testing requirements for this source (Ash Handling) are specified in Section E - Combustors, Source Group 1.

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Recodkeeping requirements for this source (Ash Handling) are specified in Section E - Combustors, Source Group 1.

V. REPORTING REQUIREMENTS.

 # 004 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Reporting requirements for this source (Ash Handling) are specified in Section E - Combustors, Source Group 1.

VI. WORK PRACTICE REQUIREMENTS.

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

(a) The ash removal equipment including the ash extractors and fly ash conveyors shall be enclosed.

(b) The ash shall be loaded in an enclosed area or handled wet in closed containers.

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 112 Source Name: COLD DEGREASERS (2)

Source Capacity/Throughput: N/A SOLVENT

PROC 112 → STAC Z112

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 001 [25 Pa. Code §129.63]

Degreasing operations

(a) The permittee shall maintain the following information:

(1) The name and address of the solvent supplier.
(2) The type of solvent including the product or vendor identification number.
(3) The vapor pressure of the solvent measured in mm hg at 20°C (68°F).

(b) An invoice, bill of sale, certificate that corresponds to a number of sales, Material Safety Data Sheet (MSDS), or other appropriate documentation acceptable to the Department may be used for compliance status.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 002 [25 Pa. Code §129.63]

Degreasing operations

(a) The immersion cold cleaning machines shall have a freeboard ratio of 0.50 or greater.

(b) The immersion cold cleaning machines shall:

(1) Have a permanent, conspicuous label summarizing the operating requirements in paragraph (c), below. In addition, the label shall include the following discretionary good operating practices:

(A) Cleaned parts should be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts should be positioned so that solvent drains directly back to the cold cleaning machine.
(B) When a pump-agitated solvent bath is used, the agitator should be operated to produce a rolling motion of the solvent with no observable splashing of the solvent against the tank walls or the parts being cleaned.

SECTION D. Source Level Requirements

(C) Work area fans should be located and positioned so that they do not blow across the opening of the degreaser unit.

(2) Be equipped with a cover that shall be closed at all times except during cleaning of parts or the addition or removal of solvent. For remote reservoir cold cleaning machines which drain directly into the solvent storage reservoir, a perforated drain with a diameter of not more than 6 inches shall constitute an acceptable cover.

(c) The cold cleaning machines shall be operated in accordance with the following procedures:

(1) Waste solvent shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.
(2) Flushing of parts using a flexible hose or other flushing device shall be performed only within the cold cleaning machine. The solvent spray shall be a solid fluid stream, not an atomized or shower spray.
(3) Sponges, fabric, wood, leather, paper products and other absorbent materials may not be cleaned in the cold cleaning machine.
(4) Air agitated solvent baths may not be used.
(5) Spills during solvent transfer and use of the cold cleaning machine shall be cleaned up immediately.

(d) The permittee may not use any solvent with a vapor pressure of 1.0 millimeter of mercury (mm Hg) or greater and containing greater than 5% VOC by weight, measured at 20°C (68°F) containing VOCs.

(e) The permittee shall obtain the following written information from the solvent provider:

(1) The name and address of the solvent supplier.
(2) The type of solvent including the product or vendor identification number.
(3) The vapor pressure of the solvent measured in mm hg at 20°C (68°F).

VII. ADDITIONAL REQUIREMENTS.

 # 003 [25 Pa. Code §127.512]

Operating permit terms and conditions.

To avoid being subject to the requirements of 40 CFR Part 63 Subpart T, the permittee shall not use any solvent, in the degreasers, containing methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5) or chloroform (CAS No. 67-66-3), or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent.

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 113 Source Name: EMERGENCY ENGINE

Source Capacity/Throughput:

PROC 113 → STAC S113

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.512]

Operating permit terms and conditions.

Nitrogen Oxides (NOx) emissions from this engine shall not exceed 100lb/hr, 1000 lb/day, 2.75 tons per ozone season, and 6.6 tons per year on a 12-month rolling sum.

 # 002 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4205]

Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

As per 40 CFR §§60.4205(b) and 60.4202(a)(2), the emissions from the engine shall not exceed the following in grams per HP-Hour over the entire life of the engine:

(a) 3.0 for NOx + HC
(b) 2.6 for CO
(c) 0.15 for PM

 # 003 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4206]

Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

The permittee must operate and maintain the engine to achieve the emission standards as required in 40 CFR § 60.4205(b) over the entire life of the engine.

Fuel Restriction(s).

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4207]

Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

The permittee must use diesel fuel that meets the following per-gallon standards:

(1) Sulfur content: 15 ppm maximum;

(2) Cetane index or aromatic content:

(i) A minimum cetane index of 40; or

(ii) A maximum aromatic content of 35 volume percent.

Operation Hours Restriction(s).

 # 005 [25 Pa. Code §127.512]

Operating permit terms and conditions.

The operation of the engine shall not exceed 500 hours per year.

 # 006 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4211]

Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

In order for this engine to be considered an emergency engine, the engine shall be operated in accordance with the

SECTION D. Source Level Requirements

requirements specified in 40 CFR §60.4211(f).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

 # 007 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4209]
Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

The emergency engine must be equipped with a non-resettable hour meter.

IV. RECORDKEEPING REQUIREMENTS.

 # 008 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4214]
Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

The permittee must keep the following records for the engine:

(a) Reason that the engine was in operation; and
(b) Time of each operation of the engine.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 009 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4211]
Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) As per 40 CFR §60.4211(a), the permittee shall

(1) Operate and maintain the engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR Parts 89 and 1068 that apply.

(b) The engine must be installed and configured according to the manufacturer's emission-related specifications.

VII. ADDITIONAL REQUIREMENTS.

 # 010 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4200]
Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
Am I subject to this subpart?

(a) Source ID 113 is an emergency stationary CI RICE purchased and installed in 2011.

Manufacturer: Cummins Inc.

SECTION D. Source Level Requirements

Model No.: QSL9-G2 NR3
EPA Certification No.: CEX-STATCI-11-21 (Date issued: 10/14/2010)
EPA Diesel Engine Family: BCEXL0540AAB
Engine nameplate HP: 364
Displacement: 8.9 liters
Emission control device: Turbocharged and CAC

(b) The permittee fulfilled the requirement of 40 CFR §60.4211(c) by purchasing an engine certified to the emission standards in 40 CFR §60.4205(b).

 # 011 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.4218]

Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

What parts of the General Provisions apply to me?

The permittee shall comply with the General Provisions in 40 CFR §§60.1 through 60.19 that apply.

***** Permit Shield in Effect. *****

SECTION D. Source Level Requirements

Source ID: 114 Source Name: EMERGENCY FIRE PUMP ENGINE

Source Capacity/Throughput:

PROC 114 → STAC S114

I. RESTRICTIONS.

Operation Hours Restriction(s).

 # 001 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6640]
Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?
The permittee must operate the emergency stationary RICE according to the requirements specified in 40 CFR §63.6640(f).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

III. MONITORING REQUIREMENTS.

 # 002 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6625]
Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
What are my monitoring, installation, operation, and maintenance requirements?
The permittee must install a non-resettable hour meter if one is not already installed.

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6655]
Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
What records must I keep?
(a) The permittee must keep records of the maintenance conducted on the stationary RICE.

(b) The permittee must keep records of the hours of operation of the engine recorded through the non-resettable hour meter. The permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this permit including Section B (Title V General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

 # 004 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6602]
Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
What emission limitations must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?
(a) Except during periods of startup, the permittee shall

(1) Change oil and filter every 500 hours of operation or annually, whichever comes first.

SECTION D. Source Level Requirements

(2) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;

(3) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

(b) During periods of startup, the permittee shall minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

 # 005 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6605]

Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

What are my general requirements for complying with this subpart?

(a) The permittee must be in compliance with the requirements in 40 CFR 63 Subpart ZZZZ that apply to this enigne at all times.

(b) At all times the permittee must operate and maintain this engine and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions.

 # 006 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6625]

Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

What are my monitoring, installation, operation, and maintenance requirements?

The permittee shall operate and maintain the stationary RICE according to the manufacturer's emission-related written instructions or develop an own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

VII. ADDITIONAL REQUIREMENTS.

 # 007 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6585]

Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Am I subject to this subpart?

The engine (manufactured by Cummins Engine Company, Inc. Model No. NT-855 F 3) is subject to the provisions of 40 CFR 63 Subpart ZZZZ.

 # 008 [40 CFR Part 63 NESHAPS for Source Categories §40 CFR 63.6665]

Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

What parts of the General Provisions apply to me?

The permittee must comply with the general provisions of 40 CFR 63 Subpart A that apply.

***** Permit Shield in Effect. *****

SECTION E. Alternative Operation Requirements.

No Alternative Operations exist for this Title V facility.

SECTION F. Emission Restriction Summary.

Source Id	Source Description
101	ROTARY COMBUSTER 1

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)
36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10
5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP
5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

Source Id	Source Description
102	ROTARY COMBUSTER 2

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)
36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10
5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP

SECTION F. Emission Restriction Summary.

Source Id	Source Description

5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

103 ROTARY COMBUSTER 3

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)
36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10
5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP
5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

104 ROTARY COMBUSTER 4

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)
36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10

SECTION F. Emission Restriction Summary.

Source Id	Source Description

5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP
5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

105 ROTARY COMBUSTER 5

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)
36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10
5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP
5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

106 ROTARY COMBUSTER 6

Emission Limit			Pollutant
7.200	UG/DSCM	7% O2	Arsenic Coumpounds
0.200	UG/DSCM	7% O2	Beryllium Compounds
29.950	Lbs/Hr	7% O2 dry basis	CO
100.000	PPMV	7% O2 dry basis 24-hr block arithmetic average	CO
15.800	UG/DSCM	7% O2	Cadmium Compounds
2.300	UG/DSCM	7% O2	Chromium Compounds
30.000	UG/DSCM	7% O2	Furan
25.000	PPMV	7% O2 dry basis on a 24 hr daily arithmetic average or 95% weight reduction	Hydrogen Chloride (Anhydrous)

SECTION F. Emission Restriction Summary.

Source Id	Source Description

36.580	Lbs/Hr	7% O2 dry basis	Hydrogen Chloride (Anhydrous)
166.000	UG/DSCM	7% O2	Lead
50.000	UG/DSCM	7% O2, or 85% weight reduction	Mercury Compounds
25.000	UG/DSCM	7% O2	Nickel Compounds
0.010	gr/DRY FT3	7% O2 dry basis	PM10
5.800	Lbs/Hr		PM10
29.000	PPMV	or 80% reduction, 7% O2 dry basis	SOX
68.450	Lbs/Hr	7% O2 and dry basis, per combustor and	SOX
0.010	gr/DRY FT3	7% O2	TSP
0.020	gr/DRY FT3	Lime Silo	TSP
5.800	Lbs/Hr	7% O2	TSP
37.600	Lbs/Hr	Aggregate of 6 combustors	VOC

110 LIME STORAGE SILO

Emission Limit		Pollutant
0.020	gr/CF	PM10

113 EMERGENCY ENGINE

Emission Limit		Pollutant
2.600	GRAMS/HP-Hr	CO
3.000	GRAMS/HP-Hr	NOX
0.150	GRAMS/HP-Hr	PM10

Site Emission Restriction Summary

Emission Limit			Pollutant
50.000	Tons/Yr	12-month rolling sum	VOC

SECTION G. Miscellaneous.

The Department has determined that the emissions from the following activity, excluding those indicated as site level requirements, in Section C, of this permit, do not require additional limitations, monitoring, or recordkeeping:

4,000 gal. fuel oil storage tank
3,000 gal. nitrogen tank
5,200 gal. sodium hypochlorite tank
4,200 gal sulfuric acid tank
300 hp emergency diesel fire pump
2,500 gal diesel tank

_____

The following is a list of wastes approvable for burning at American Ref-Fuel, as noted in the Department's Waste Permit No. 400593:

FORM "R" Residual Wastes Requiring Chemical Analyses

Acidic Chemicals (pH<6) (RWC 301)
Basic Chemicals (pH>8) (RWC 302)
Combustible Chemicals (RWC 303)
Chemical Salts (RWC 304)
Carbon residues (decoloring, filtering) (RWC 305)
Surface Coating (solid, semi-solid paints, polishes, adhesives, ink) (RWC 306)
Filter Aids (only combustible filter aids) (RWC 307)
Filter Media (RWC 308)
Spent dyes (RWC 309)
Detergents, cleaning agents (RWC 310)
Off-spec products, intermediates (RWC 311)
Wood wastes (treated wood) (RWC 403)
Halogenated plastics (PVC, teflon, CPE) (RWC 409)
Agricultural wastes (fertilizers, feed supplements) (RWC 411)
Oil-contaminated waste (spent absorbent, oily rags) (RWC 503)
Spent catalyst (RWC 505)
Spill residues (RWC 506)
On-site generated used oil
Empty containers (processed by a Department approved procedure)

FORM "S" Residual Wastes with Chemical Analyses Waived

Leather scrap wastes
Textile wastes (yarn, fabric, fiber, and elastic)
Carbon filters and carbon residues *
Cosmetic wastes ***
Finished wood waste (painted, stained, non-treated)
Markers and paint stick shavings *
Pharmaceutical waste ***
Photographic waste **
Spent cleaning rags, excluding rags containing solvent *
Glass reinforced plastics
Carpet/fabric scrap waste
Cured resin waste
Foam type waste
Food waste
Fresh air intake filters
Gasket waste (unused)
Labels/packing waste
Non-halogenated plastic waste (polyethlene, polystyrene, polyurathane)
Rubber elastomer waste (including waste tires, whole and processed)
Screen waste
Shingle scrap waste

SECTION G. Miscellaneous.

Styrofoam waste *
Thermal insulation waste
Personal protective equipment (unused or uncontaminated)
Untreated wood, sawdust and shavings (must be from untreated wood)
Empty containers
Linoleum waste
Plant waste
Nylon material waste
Packing/shipping material waste
Paper, cardboard waste

* no more than 10% per truckload, unless a Form S for the generator is approved.
** no more than 5% per truckload, unless a Form S for the generator is approved.
*** Subject to specific Form S approval.

_____
May 2006. APS: 570425, AUTH: 615122. The Department renewed the operating permit for this facility and has made a change in the name of the facility from American Ref-Fuel Company of Delaware Valley, L.P. to Covanta Delaware Valley, L.P. (the federal tax ID remained the same). The following changes have taken place since the permit was last amended on 8-22-2002:

- Source 112, two (2) cold cleaning machines have been added.
- Reference to the combustion efficiency interlock for the combustors has been removed from the permit due to an earlier installation of a CEM for CO.

The facility is not subject to CAM, because the controlled sources either have applicable federal regulations that were proposed after November 15, 1990, or the emissions are monitored by CEMS. Both of these exemptions are qualified by as defined in 40 CFR §63.2(b)(i).

_____
November, 2006. APS: 570425, AUTH: 650636. Minor permit modification to combustors to clarify wording found in the BAT that the combustors are subject to.

December 3, 2010 - AUTH: 861896. OP Renewal.

_____
March 2008. APS: 570425, AUTH: 782425. The Department amended this permit to address a discrepancy between the applicable state BAT policy and the federal regulation for dioxin/furan testing.

_____
January 20, 2009, (APS: 570425; AUTH: 782425) TVOP amendment.

_____
December 2, 2010, (APS: 570425; AUTH 861896) TVOP renewal.

_____
March 30, 2015 (AUTH ID 1067453) TVOP amendment to incorporate Plan Approval No. 23-0004A.

_____
Nov. 6, 2015 (AUTH ID: 1099034) TVOP renewal, and incorporate an emergency engine (Source ID EG01) (RFD No. 2567).

****** End of Report ******

Exhibit 9

Michigan Department of Environmental Quality
Air Quality Division

EFFECTIVE DATE: August 19, 2011

REVISION DATE: September 16, 2014

ISSUED TO

Detroit Renewable Power

State Registration Number (SRN): M4148

LOCATED AT

5700 Russell Street, Detroit, Michigan 48211

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-M4148-2011a

Expiration Date: August 19, 2016

Administratively Complete ROP Renewal Application Due Between February 19, 2015 and February 19, 2016

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-M4148-2011a

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

Wilhemina McLemore, Detroit District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (DEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a source-wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, or is state only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**

- Those conditions that are hereby incorporated in a state only enforceable Source-wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R336.1214a(5))**

- Those conditions that are hereby incorporated in federally enforceable Source- wide PTI No. MI-PTI-M4148-2011a pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**

2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**

3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**

4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
   a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
   c. Inspect, at reasonable times, any of the following:
      i. Any stationary source.
      ii. Any emission unit.
      iii. Any equipment, including monitoring and air pollution control equipment.
      iv. Any work practices or operations regulated or required under the ROP.
   d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.

5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq.,

and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**

7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**

8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**

10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Except as provided in Subrules 2, 3, and 4 of Rule 301, states in part; "a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of Rule 301(1)(a) or (b) unless otherwise specified in this ROP." The grading of visible emissions shall be determined in accordance with Rule 303. **(R 336.1301(1) in pertinent part)**:
    a. A 6-minute average of 20 percent opacity, except for one 6-minute average per hour of not more than 27 percent opacity.
    b. A limit specified by an applicable federal new source performance standard.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
    a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.[1] **(R 336.1901(a))**
    b. Unreasonable interference with the comfortable enjoyment of life and property.[1] **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1). **(R 336.2001)**

14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**

15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(4))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate **(R 336.1213(3)(b))**:
    a. The date, location, time, and method of sampling or measurements.
    b. The dates the analyses of the samples were performed.
    c. The company or entity that performed the analyses of the samples.
    d. The analytical techniques or methods used.
    e. The results of the analyses.
    f. The related process operating conditions or parameters that existed at the time of sampling or measurement.

17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a responsible official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**

19. A responsible official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**

20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**

21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
    a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
    b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
    c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
    a. Submitting a certification by a responsible official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
    b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a responsible official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.

23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**

24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**

25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a responsible official in a manner consistent with the CAA. **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
    a. The applicable requirements are included and are specifically identified in the ROP.
    b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

    Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
    a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
    b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
    c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**

28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
    a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
    b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
    c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
    d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
    e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**

29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**

31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**

32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(9))**

33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
    a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
    b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
    c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
    d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(7))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F.

37. If the permittee is subject to 40 CFR, Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR, Part 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR, Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).

39. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall comply with the requirements of 40 CFR, Part 68, no later than the latest of the following dates as provided in 40 CFR, Part 68.10(a):
    a. June 21, 1999,
    b. Three years after the date on which a regulated substance is first listed under 40 CFR, Part 68.130, or
    c. The date on which a regulated substance is first present above a threshold quantity in a process.

40. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR, Part 68.

41. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR, Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule. [2] **(R 336.1201(1))**

44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA. [2] **(R 336.1201(8), Section 5510 of Act 451)**

45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ. [2] **(R 336.1219)**

46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months, or has been interrupted for 18 months, the applicable terms and conditions from that PTI shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI. [2] **(R 336.1201(4))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA					

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall keep records as outlined in the facility's "Fugitive Dust Management Plan", dated February 2011 and revisions thereto. Any changes to the facility's "Fugitive Dust Management Plan" must be submitted to the Division for approval. If submitted changes have not been rejected within ninety (90) days, they shall be been deemed approved. **(R 336.1213(3))**

2. Permittee shall keep records as outlined in the facility's "Odor Management Plan", dated February 2011 and revisions thereto. Any changes to the facility's Odor Management Plan must be submitted to the Division for approval. If submitted changes have not been rejected within ninety (90) days, they shall be been deemed approved. **(R 336.1213(3))**

3. Permittee shall keep records as outlined in Greater Detroit Resource Recovery Facility's "ABNORMAL CONDITION/STARTUP/SHUTDOWN MALFUNCTION ABATEMENT PLAN", dated February 2011 and revisions thereto. Any changes to the facility's "ABNORMAL CONDITION/STARTUP/SHUTDOWN MALFUNCTION ABATEMENT PLAN" must be submitted to the Division for approval. If submitted changes have not been rejected within ninety (90) days, they shall be been deemed approved. **(R 336.1213(3))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA			

IX. OTHER REQUIREMENT(S)

1. Permittee shall comply with all applicable provisions of New Source Performance Standards (NSPS) 40 CFR Part 60 Subpart Db. **(R 336.1213)**

2. Permittee shall comply with all applicable provisions of New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Eb. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: {40 CFR Part 62 Subpart FFF, 40 CFR Part 60 Subparts Cb and Db, R 336.1932}. **(R 336.1213, 40 CFR 60 Subpart Eb[3])**

3. Permittee shall comply with all applicable provisions of New Source Performance Standards (NSPS) 40 CFR Part 60 Subpart Cb. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: {40 CFR Part 62 Subpart FFF, 40 CFR Part 60 Subparts Db and Eb, R 336.1932}. **(R 336.1213, 40 CFR 60 Subpart Cb)**

4. Permittee shall comply with all applicable provisions of Federal Implementation Plan, 40 CFR Part 62, Subpart FFF. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: {40 CFR Part 60 Subparts Cb, Db, and Eb, R 336.1932}. **(R 336.1213, 40 CFR 62 Subpart FFF)**

5. Permittee shall comply with all requirements of State Administrative Rule - Michigan Air Pollution Control Rule 932 (R 336.1932). Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: {40 CFR Part 62 Subpart FFF, 40 CFR Part 60 Subparts Cb, Db, and Eb}. **(R 336.1213, R 336.1932)**

6. Permittee shall implement the continuous program of fugitive dust control specified in the Greater Detroit Resource Recovery Facility's "Fugitive Dust Management Plan", dated February 2011 and revisions thereto[2]. **(R 336.1201(3), R 336.1221, R 336.1371)**

7. Permittee shall implement the facility's "Odor Control Management Plan", dated February 2011 and revisions thereto.[1] **(R 336.1201(3), R 336.1901)**

8. Permittee shall implement the Greater Detroit Resource Recovery Facility's "ABNORMAL CONDITION/STARTUP/SHUTDOWN MALFUNCTION ABATEMENT PLAN", dated February 2011 and revisions thereto[2]. **(R 336.1201(3), R 336.1221, R 336.1911)**

9. Permittee shall sweep all plant roadways and paved areas using water when weather permits, such that the fugitive dust emissions from the plant roadways and paved areas are minimized. Said sweeping shall be on a daily basis, or more often if required, except during periods of precipitation events or when waste delivery or residue transport activities are not in operation[2]. **(R 336.1201(3), R 336.1221)**

10. Permittee shall pick up debris on the plant yard and along property line fences on a daily basis or other schedule as approved by the Division except during periods when waste delivery or residue transport activities are not in operation.[1] **(R 336.1201(3), R 336.1901)**

11. Permittee shall be allowed to operate the facility independently as a transfer station, as defined in Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended, Michigan Compiled Laws (MCL) § 324.11501 et seq. It shall be permissible to process 20,000 tons of solid waste per week, or the quantity of solid waste delivered, which ever is less, to be reloaded to transfer vehicles[2]. **(MCL § 324.11501, R 336.1201(3))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).
[3]40 CFR 60 Subpart Eb is not directly applicable to this facility. However, certain specific provisions in 40 CFR 60 Subpart Eb become specific applicable requirement in this ROP by either a reference or a requirement from 40 CFR 62 Subpart FFF, 40 CFR 60 Subpart Cb, or Michigan Air Pollution Control Rule 932 adopting by reference the 2000 version of 40 CFR 60 Subpart Cb.

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUASH-HANDLING	This emission unit pertains to the ash handling system including removal of grate siftings, bottom ash, and flyash from the boilers and air pollution control systems. Grate siftings and bottom ash from each boiler are discharged to a quench trough and then removed by submerged scraper conveyors (SSC). Fly ash from the tubular air heater hoppers, economizer hoppers, and fabric filter hoppers, is discharged to drag-flight conveyors (DFC). The flyash is transported via the DFCs to a surge bin and from there to a fly ash conditioning system (i.e., a pugmill where only water is added to wet the dry material). Wetted fly ash from this system is discharged onto the bottom ash conveyors and transported to the ash/loadout storage building prior to off-site disposal. Fugitive particulate emissions from the ash/loadout building are controlled by a ventilation exhaust filter system.	05/06/1986	
EUFACILITY-WIDE	This emission unit was developed to address applicable requirements in the facility's air permit that have facility wide implications/applications such as potential sources of odor and fugitive dust.		
EULIME-FEEDSYS	This emission unit pertains to the Lime Feed System consisting of a lime storage silo with a baghouse fabric filter particulate control system, two lime slakers each equipped with a grit screen, and one lime slurry tank connecting both lines. The lime slurry from the slurry tank is pumped into each boiler's slurry head tank where the slurry is fed by gravity into the spray dry absorber (SDA).	12/17/1992	

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUMSWPROC-LINE1	This emission unit pertains to each process line converting MSW into Refuse Derived Fuel (RDF) consisting of MSW feed conveyor from tipping floor, magnetic separator, primary shredder controlled by a baghouse fabric filter system, screens, secondary shredder controlled by a cyclone followed by a baghouse fabric filter system, conveyor feed to the RDF storage room.	05/07/1986	FGMSWPROC-LINES
EUMSWPROC-LINE2	This emission unit pertains to each process line converting MSW into Refuse Derived Fuel (RDF) consisting of MSW feed conveyor from tipping floor, magnetic separator, primary shredder controlled by a baghouse fabric filter system, screens, secondary shredder controlled by a cyclone followed by a baghouse fabric filter system, conveyor feed to the RDF storage room.	05/07/1986	FGMSWPROC-LINES
EUMSWPROC-LINE3	This emission unit pertains to each process line converting MSW into Refuse Derived Fuel (RDF) consisting of MSW feed conveyor from tipping floor, magnetic separator, primary shredder controlled by a baghouse fabric filter system, screens, secondary shredder controlled by a cyclone followed by a baghouse fabric filter system, conveyor feed to the RDF storage room.	05/07/1986	FGMSWPROC-LINES
EUBOILER011	This emission unit pertains to one of three identical RDF fired spreader-stoker boilers rated at 520 MMBTU/hr heat input and 390,000 lb/hr steam at 900 psig and 825°F. Air contaminant emissions from the combustion process are controlled by a lime slurry injection from the top of each SDA unit followed by a baghouse fabric filter system prior to exhaust into a single common stack. The facility will use natural gas as the primary auxiliary fuel with No. 2 fuel oil as back-up for boiler start up and shutdown and other conditions as necessary.	05/06/1986-05/01/1995	FGBOILERS

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBOILER012	This emission unit pertains to one of three identical RDF fired spreader-stoker boilers rated at 520 MMBTU/hr heat input and 390,000 lb/hr steam at 900 psig and 825°F. Air contaminant emissions from the combustion process are controlled by a lime slurry injection from the top of each SDA unit followed by a baghouse fabric filter system prior to exhaust into a single common stack. The facility will use natural gas as the primary auxiliary fuel with No. 2 fuel oil as back-up for boiler start up and shutdown and other conditions as necessary.	05/06/1986-12/17/1992	FGBOILERS
EUBOILER013	This emission unit pertains to one of three identical RDF fired spreader-stoker boilers rated at 520 MMBTU/hr heat input and 390,000 lb/hr steam at 900 psig and 825°F. Air contaminant emissions from the combustion process are controlled by a lime slurry injection from the top of each SDA unit followed by a baghouse fabric filter system prior to exhaust into a single common stack. The facility will use natural gas as the primary auxiliary fuel with No. 2 fuel oil as back-up for boiler start up and shutdown and other conditions as necessary.	05/06/1986-04/18/1994	FGBOILERS
EUSTORAGETANK	This emission unit pertains to a 500,000 gallon fixed roof storage tank for the storage of No.2 fuel oil.	01/01/1986	
EUPARTS-WASHER	Any existing or future new cold cleaner placed into operation after 07/01/1979 that is exempt from NSR permitting by Rule 336.1281(h) or Rule 336.1285 (r)(iv).		FGCOLDCLEANERS
EURULE290	Any existing or future emission unit that emits air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290.		FGRULE290

EUASH-HANDLING
EMISSION UNIT CONDITIONS

DESCRIPTION

This emission unit pertains to the ash handling system including removal of grate siftings, bottom ash, and flyash from the boilers and air pollution control systems. Grate siftings and bottom ash from each boiler are discharged to a quench trough and then removed by submerged scraper conveyors (SSC). Fly ash from the tubular air heater hoppers, economizer hoppers, and fabric filter hoppers, is discharged to drag-flight conveyors (DFC). The flyash is transported via the DFCs to a surge bin and from there to a fly ash conditioning system (i.e., a pugmill where only water is added to wet the dry material). Wetted fly ash from this system is discharged onto the bottom ash conveyors and transported to the ash/loadout storage building prior to off-site disposal. Fugitive particulate emissions from the ash/loadout building are controlled by a ventilation exhaust filter system.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Enclosures, Ash house vent filter

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emission[a]	No visible emissions, excluding uncombined water vapor[2*]	At all times	EUASH-HANDLING	Section V, VI	**(R 336.1221, R 336.1301(c))**
2. Particulate Matter (PM)[a]	0.10 lb. particulate/1000 lb. of exhaust air	As specified in the applicable test method	EUASH-HANDLING	Section V, VI	**(R 336.1331(1)(a))**

*Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 62 Subpart FFF (§ 62.14106), 40 CRF 60 Subpart Eb (§ 60.55b)[3], R 336.1932, 40 CFR 60 Subpart Cb (§ 60.36b)}**.

[a]The emission limit does not apply to discharges into or within an enclosure or building, or during maintenance and repair of ash conveying systems. However, it does apply to visible emissions discharged to the atmosphere from buildings with ash conveying systems and enclosures of ash conveying systems.
(40 CFR 62.14106((b) and (c)), 40 CFR 60.55b((b) and (c))[3], R 336.1932(1), 40 CFR 60.36b)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA					

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA.

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA.

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. At least once a year (no more than 12 calendar months following the previous performance test and must complete five performance tests in each 5-year calendar period), the permittee shall verify the emission rates of visible fugitive ash from EU-ASHSYSTEM by testing, at the permittee's expense and in accordance with Department requirements. The test shall utilize U.S. EPA Method 22 observations as specified in 40 CFR Part 60 Subpart Eb (§ 60.58b(k)). **(40 CFR 60 Subpart Eb (§ 60.58b(k)) as specified by 40 CFR 62 Subpart FFF (§ 62.14106) and 40 CRF 60 Subpart Eb (§ 60.55b), referenced by R 336.1932(1) and 40 CFR 60 Subpart Cb (§ 60.36b))**

   a) The minimum observation time for the test shall be a series of three one-hour observations. The observation period shall include times when the facility is transferring ash from the combustor unit to the area where ash is stored or loaded into containers or trucks. **(40 CFR 60 Subpart Eb (§ 60.58b(k)(1)))**[3]

   b) The average duration of visible emissions per hour shall be calculated from the three one-hour observations. The average shall be used to determine compliance with 40 CFR 60.55b. **(40 CFR 60 Subpart Eb (§ 60.58b(k)(2)))**[3]

2. Permittee shall conduct particulate matter testing as requested by the Air Quality Division. **(R 336.1213(3))**

   a) Permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 5, or any other methods/protocols as approved by Air Quality Division. **(R 336.2001, R 336.2003, R 336.2004)**

   b) The stack testing shall be at owner's expense, in accordance with Department requirements. Stack testing procedures/protocols, the location of stack testing ports and the emission unit to be tested must have prior approval by the Air Quality Division. All test results shall be submitted to the Air Quality Division in an acceptable format within 60 days following the date the test is completed. **(R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall perform daily visible emissions (VE) observations on all applicable emission points on EUASH-HANDLING by either a certified or non-certified reader and keep records. If a VE is observed, permittee shall initiate necessary action(s) to determine the cause(s) of the VE and come into compliance with the opacity limit promptly. Permittee shall conduct a US EPA Method 22 visible emissions reading by a non-certified VE reader from any applicable emission points if immediate corrective action is not feasible. **(R 336.1213(3), R 336.1303)**

2. The applicable recordkeeping requirements shall include locations, dates and times of VE observations, name and signature of the reader, cause(s) and actions taken when visible emissions are observed, control equipment inspections, malfunctions, repairs, and corrective actions taken. **(R 336.1213(3))**

3. Permittee shall inspect any roof vent filters, insertable dust filters in wall-mounted exhaust fans, and any other applicable particulate control equipment, at a minimum every two weeks, for damages and repair or replace promptly. **(R 3361213(3))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	**NA**

IX. OTHER REQUIREMENT(S)

1. Permittee shall dispose of collected ash in a manner which minimizes the introduction of air contaminants to the outer air[2]. **(R 336.1221, R336.1370)**

2. Permittee shall inspect and clean the covered ash trucks prior to leaving the site to remove exterior accumulations of ash and dirt by water spray or any other method submitted to and approved by the Division to prevent trackout of ash and dirt onto the public right-of-way[2]. **(R 336.1221, R 336.1370)**

3. Permittee shall further control spillage of excess water (free moisture) from the covered ash trucks by discharging the excess water into the sewer system or any other method submitted to and approved by the Division, prior to leaving the site to prevent spillage of excess water onto the public right-of-way[2]. **(R 336.1221, R 336.1370)**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).
[3]40 CFR 60 Subpart Eb is not directly applicable to this facility. However, certain specific provisions in 40 CFR 60 Subpart Eb become specific applicable requirement in this ROP by either a reference or a requirement from 40 CFR 62 Subpart FFF, 40 CFR 60 Subpart Cb, or Michigan Air Pollution Control Rule 932 adopting by reference the 2000 version of 40 CFR 60 Subpart Cb.

EULIME-FEEDSYS
EMISSION UNIT CONDITIONS

DESCRIPTION

This emission unit pertains to the Lime Feed System consisting of a lime storage silo with a baghouse fabric filter particulate control system, two lime slakers each equipped with a grit screen, and one lime slurry tank connecting both lines. The lime slurry from the slurry tank is pumped into each boiler's slurry head tank where the slurry is fed by gravity into the spray dry absorber (SDA).

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Reverse Air Fabric Filter (Baghouse) at Lime Storage Silo

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	10% Opacity[2]	6 – minute average	EULIME-FEEDSYS	Section V, VI	**(R336.1201(3), R 336.1301(1)(c))**
2. Particulate Matter	0.02 grains/dry standard cubic feet exhaust gas[2]	As specified in the applicable test method	EULIME-FEEDSYS	Section V, VI	**(R 336.1201(3))**

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	**NA**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Permittee shall not load the lime and operate the handling equipment unless the installed fabric filter baghouse is operating properly[2]. **((R 336.1201(3), R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall conduct US EPA Method 9 visible emissions reading by a certified or non certified reader per the applicable requirement in Section VI below and/or as requested by the Air Quality Division. **(R 336.1213(3), R 336.1303)**

2. Permittee shall conduct US EPA Method 22 visible emissions reading by a non-certified reader per the applicable requirement in Section VI below and/or as requested by the Air Quality Division. **(R 336.1213(3), R 336.1303)**

3. Permittee shall conduct particulate matter testing as requested by the Air Quality Division. **(R 336.1213(3), R 336.2001)**

   a) Permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 5 or any other methods/protocols as approved by Air Quality Division. **(R 336.2001, R 336.2003, R 336.2004)**

   b) The stack testing shall be at owner's expense, in accordance with Department requirements. Stack testing procedures/protocols, the location of stack testing ports and the emission unit to be tested must have prior approval by the Air Quality Division. All test results shall be submitted to the Air Quality Division in an acceptable format within 60 days following the date the test is completed. **(R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall conduct visible emissions (VE) observation by a non-certified or certified reader from the baghouse during every loading batch and after commencing the loading of lime into the storage silo at least once during the loading cycle. Permittee shall keep records of the VE readings, dates, and times conducted. **(R 336.1213(3), R 336.1303)**

2. If visible emissions are observed per the above condition VI.1, permittee shall immediately cease the loading operations and conduct inspections of the baghouse to determine possible causes of the visible emissions. Details of the inspections are given in Appendix 3 and details of recordkeeping are given in Appendix 4. **(R 336.1213(3), R 336.1910)**

3. Permittee shall correct the causes of the malfunction immediately before resuming the loading operations. **(R 336.1213(3), R 336.1910)**

4. Permittee shall perform daily visible emissions (VE) observations and keep records on all applicable emission points on EULIME-FEEDSYS by either a certified or non-certified reader. If a VE is observed and immediate corrective action is not feasible, permittee shall conduct a US EPA Method 9 visible emissions reading by a certified VE reader or a US EPA Method 22 visible emissions reading by a non-certified VE reader from the applicable emission point where a US EPA Method 9 reading is not feasible. In addition, permittee shall initiate prompt corrective actions to eliminate the cause(s) of the visible emissions and keep records. **(R 336.1213(3), R 336.1303)**

5. The applicable recordkeeping requirements shall include locations, dates and times of VE observations, name and signature of the reader, and actions taken when visible emissions are observed. **(R 336.1213(3))**

6. Any repairs and corrective actions needed to address the causes of malfunction or failure of the control equipment shall be performed immediately. **(R 336.1213(3), R 336.1910)**

7. Recordkeeping of inspections, cause(s) of control equipment malfunctions or failures, repairs, and corrective actions taken for each control equipment shall be maintained on file for a period of at least five years. **(R 336.1213(3))**

See Appendices {3 & 4}

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVLIME-BAG-FILT	12	54	**(R 336.1201(3))**

IX. OTHER REQUIREMENT(S)

1. Permittee shall not substitute any raw material which would result in an appreciable change in the quality or any appreciable increase in the quantity of the emission of an air contaminant without prior notification to and approval by the Division[2]. **(R336.1201(3))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

EUSTORAGETANK
EMISSION UNIT CONDITIONS

DESCRIPTION

This emission unit pertains to a 500,000 gallon fixed roof storage tank for the storage of No.2 fuel oil.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA					

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. True vapor pressure (as defined in R336.1120(i)) of all organic compounds stored, in Kilopascals (kPa) at actual storage conditions. **(R 336.1213(3)(b)(ii))**

2. Readily accessible records showing the dimensions of the storage vessel. **(40 CFR 60.116b(b))**

3. Readily accessible records of the analysis showing the design capacity of the storage vessel. **(40 CFR 60.116b(b))**

See Appendices {3 & 4}

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVSTORAGETANK	NA	NA	**NA**

IX. OTHER REQUIREMENT(S)

1. Permittee shall comply with all applicable provisions of New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Kb. **(R 336.1213(3), 40 CFR 60 Subpart Kb)**

2. Permittee shall not store any volatile organic liquid with a maximum true vapor pressure (as defined in R 336.1120(l)) of more than or equal to 3.5 kilopascals (kPa) at actual storage conditions. **(40 CFR 60.110b(c))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGMSWPROC-LINES	This process group includes all activities from receipt of MSW in the facility, weighing, delivery of MSW into the MSW Process Building, unloading in the tipping floor area, MSW loading into RDF process conveyor lines at the tipping floor, MSW conveying into process room, MSW screening and processing into RDF, RDF conveying into storage room, RDF loading into 2 boiler feed conveyor lines, and conveying RDF from storage room into the Power Block Building. Refuse Derived Fuel (RDF) processing starts from loaders feeding MSW into 3 lines each consisting of a feed conveyor, magnetic separator, primary shredder - controlled by a baghouse fabric filter system, screens, secondary shredder - controlled by a cyclone and a baghouse fabric filter system, and conveyor feed into the RDF storage room. Fugitive particulate emissions in the tipping floor room and RDF storage room are controlled by ventilation exhaust fans with vent filters.	EUMSWPROC-LINE1 EUMSWPROC-LINE2 EUMSWPROC-LINE3
FGBOILERS011-013	This flexible group pertains to the operations in the Power Block Building including three identical RDF fired spreader-stoker boilers rated at 520 MMBTU/hr heat input and 390,000 lb/hr steam at 900 psig and 825°F. The Power Block Building also operates an electric generator rated at 68 Megawatts per hour (MW/hr). Air contaminant emissions from the combustion process are controlled by a lime slurry injection from the top of each SDA unit followed by a designated baghouse fabric filter system. The air streams from each baghouse fabric filter system are exhausted into a single common stack. The facility will use natural gas as the primary auxiliary fuel with No. 2 fuel oil as back-up for boiler start up and shutdown and other conditions as necessary.	EUBOILER011 EUBOILER012 EUBOILER013

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGCOLDCLEANERS	Any new cold cleaner placed into operation after 07/01/1979 that is exempt from NSR permitting by Rule 336.1281(h) or Rule 336.1285 (r)(iv).	EUPARTS-WASHER
FGRULE290	Any existing or future emission unit that emits air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290.	

FGMSWPROC-LINES
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

FGMSWPROC-LINES includes all activities from receipt of MSW in the facility, weighing, delivery of MSW into the MSW Process Building, unloading in the tipping floor area, MSW loading into RDF process conveyor lines, RDF processing, storage, loading into 2 boiler feed conveyor lines, and conveying RDF into the Power Block Building. Refuse Derived Fuel (RDF) processing starts from loaders feeding MSW into 3 lines each consisting of a feed conveyor, magnetic separator, primary shredder - controlled by a baghouse fabric filter system, screens, secondary shredder - controlled by a cyclone and a baghouse fabric filter system, and conveyor feed into the RDF storage room. Fugitive particulate emissions in the MSW Process Building are controlled by ventilation exhaust fans with vent filters.

Emission Units:

EUMSWPROC-LINE1, EUMSWPROC-LINE2, EUMSWPROC-LINE3,

POLLUTION CONTROL EQUIPMENT

Baghouses, Cyclones, Roof vent filters

I. EMISSION LIMIT(S)

	Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1.	Particulate Matter	0.0028 lb. particulate/1000 lb. of exhaust gas[2]	As specified in the applicable test method	EUMSWPROC-LINE1 EUMSWPROC-LINE2 EUMSWPROC-LINE3	Section V, VI	**(R 336.1221, R 336.1331, R 336.1201(3))**
2.	Visible Emission	No visible emissions, excluding uncombined water vapor[2]	At all times	FGMSWPROC-LINES	Section V, VI	**(R 336.1221, R 336.1301(1)(c), R 336.1201(3))**

II. MATERIAL LIMIT(S)

	Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1.	Municipal Solid Waste (MSW)	20,000[2] tons/week	Receive or Process into Refuse Derived Fuel (RDF)	FGMSWPROC-LINES	Section V, VI	**(R 336.1221, R 336.1201(3))**
2.	Municipal Solid Waste (MSW)	1,043,000[2] tons/year	Receive or Process into Refuse Derived Fuel (RDF)	FGMSWPROC-LINES	Section V, VI	**(R 336.1221, R 336.1201(3))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Permittee shall accept, process, and combust only municipal solid waste (MSW) as defined in 40 CFR 60 Subpart Cb (§ 60.31b) and 40 CFR 62 Subpart FFF (§ 62.14101). **(R 336.1213, 40 CFR 62 Subpart FFF (§ 62.14101), R 336.1932(1), 40 CFR 60.31b, 40 CFR 60.51b[3])**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Permittee shall not operate EUMSWPROC-LINE1, EUMSWPROC-LINE2, or EUMSWPROC-LINE3 unless the designated cyclones and baghouses for the process lines are installed and operating properly.[2] **(R 336.1221, R 336.1201(3), R 336.1910)**

2. Permittee shall not operate FGMSWPROC-LINES unless all of the roof exhaust vent filters are in place and operating properly.[2] **(R 336.1221, R 336.1201(3), R 336.1910)**

3. Permittee shall maintain a negative pressure in the solid waste receiving, processing and storage rooms during facility operations to minimize discharges of odor, dust and other materials. A velometer shall be used to periodically check open doors to ensure that inward airflow is maintained. The doors to the tipping floor shall be kept closed to the maximum extent practicable during refuse receiving periods. Each day when the receipt of solid waste has ceased, the doors to the MSW processing facility shall be kept continuously closed until the next morning when solid waste receiving resumes.[2] **(R 336.1221, R 336.1201(3), R 336.1901)**

4. Permittee shall maintain the differential pressure gauge and associated equipment across baghouses in proper operating condition. **(R 336.1910, 40 CFR 64.7(b))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Permittee shall conduct US EPA Method 9 visible emissions reading by a certified or non certified reader per the applicable requirement in Section VI below and/or as requested by the Air Quality Division. **(R 336.1213(3), R 336.1303)**

2. Permittee shall conduct US EPA Method 22 visible emissions reading by a non-certified reader per the applicable requirement in Section VI below and/or as requested by the Air Quality Division. **(R 336.1213(3), R 336.1303)**

3. Permittee shall determine the particulate matter emissions on EUMSWPROC-LINE1, EUMSWPROC-LINE2, and EUMSWPROC-LINE3 according to U.S. EPA Method 17 or other alternative method as approved by the District Supervisor, Air Quality Division, within 180 days of the issuance of this renewal ROP. If all test results demonstrate compliance with the above particulate matter emission limit and show consistency for all three lines, permittee may request testing of only one line for the succeeding 5-year renewal cycle of the ROP. **(R 336.1213(3), 40 CFR 64.4(e), 40 CFR 64.6(d), R 336.2001, R 336.2003, R 336.2004)**

   a) Permittee shall utilize the methods provided in 40 CFR 60 Appendix A and/or methods and protocols as approved by the Air Quality Division.[2] **(R 336.2001, R 336.2003, R 336.2004)**

   b) The stack testing shall be at owner's expense, in accordance with Department requirements. Stack testing procedures/protocols, the location of stack testing ports and the emission unit to be tested must have prior approval by the Air Quality Division. All test results shall be submitted to the Air Quality Division in an acceptable format within 60 days following the date the test is completed.[2] **(R 336.2001, R 336.2003, R 336.2004)**

   c) Permittee shall record the exit velocity and pressure drop across the primary baghouse and secondary baghouse for each of the associated process line while conducting stack testing per the above requirement. **(40 CFR 64.6(c)(1)(i), R 336.1213(3))**

d) Permittee shall conduct US EPA Method 9 visible emissions reading by a certified reader while conducting stack testing per the above requirement and per the approved protocol. (**40 CFR 64.4(e), 40 CFR 64.6(d), R 336.1213(3))**

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1) Permittee shall keep records of individual supplier information, description of waste, and the amount of MSW received on a daily basis. **(R 336.1213(3))**

2) Permittee shall monitor the negative pressure from the solid waste receiving room at least once per day or in a manner and instrumentation acceptable to the Air Quality Division. At a minimum, Permittee shall use a velometer to monitor and record the pressure drop daily. **(R 336.1213(3), 40 CFR 64.6(c)(1))**

3) Permittee shall monitor and keep records, at least once per day, of the pressure drop across each of the three primary and secondary baghouses. Permittee shall not operate the applicable emission unit if the particulate control equipment pressure drop falls out of the range established during the most recent stack test and/or per the manufacturer's recommended operating pressure drop range. **(R 336.1213(3), 40 CFR 64.6(c)(1)(i))**

4) Permittee shall calibrate and conduct maintenance on the pressure drop monitoring equipment per the manufacturer's recommended maintenance plan or as established in the facility's preventative maintenance plan. **(R 336.1213(3), 40 CFR 64.7(c))**

5) Permittee shall measure pressure drop per condition VI.3 at all times when the applicable processing line is in operation except during periodic preventative maintenance. **(R 336.1213(3), 40 CFR 64.7(c))**

6) Permittee shall formally measure the air flow for the primary and secondary baghouses in EUMSWPROC-LINE1, EUMSWPROC-LINE2, and EUMSWPROC-LINE3 at least once a year to show operational consistency with stack testing parameters. The air flow measurement shall be conducted in conjunction with the yearly boiler air emissions testing by the same stack testing contractor. **(R 336.1213(3), 40 CFR 64.6(c)(1)(i))**

7) Permittee shall conduct inspections, at a minimum, at least once a month to determine the operational condition of the cyclones and the baghouses. For the cyclones, the following items shall be checked during this inspection. **(R 336.1213(3), R 336.1910, 40 CFR 64.6(c)(1)(i))**

   a) Fallout of large diameter particulate matter.
   b) Dents and /or weld failures.
   c) Solids discharge problems.
   d) Integrity of internal components

   For the baghouses, the following items shall be checked during this inspection. **(R 336.1213(3), R 336.1910, 40 CFR 64.6(c)(1)(i))**

   a) Visual inspection of the fabric filter bags.
   b) Security of attachment.
   c) Holes or tears in the fabric filter bag.
   d) Evidence of dust leakage.
   e) Metal housings.
   f) Fans
   g) Blowers
   h) Hopper bottom discharge valve.
   i) Reverse air dampers or pulse jets
   j) Access doors and gaskets.

8. Permittee shall inspect the roof exhaust filters in the ventilators, at a minimum, once per month for damages and replace as required. **(R 336.1213(3), R 336.1910, R 336.1901)**

9. Permittee shall keep records on the inspection dates, inspection results, repairs/replacements conducted, and reasons for any malfunctions or failures on the vent filters, cyclones, and the baghouses.. Details of the inspections are given in Appendix 3 and recordkeeping requirements are included in Appendix 4. **(R 336.1213(3))**

10. Permittee shall adhere to facility's preventive maintenance program for the periodic replacement of the air filters. **(R 336.1213(3))**

11. Permittee shall perform at least one daily visible emissions (VE) observations and keep records on all applicable emission points on FGMSWPROC-LINES by either a certified or non-certified reader. If a VE is observed, permittee shall initiate necessary action(s) to determine the cause(s) of the VE and come into compliance with the opacity limit promptly. If a VE is observed and immediate corrective action is not feasible, permittee shall conduct a US EPA Method 9 visible emissions reading by a certified VE reader, or a US EPA Method 22 visible emissions reading by a non-certified VE reader from the applicable emission point where a US EPA Method 9 reading is not feasible. In addition, permittee shall initiate prompt corrective actions to eliminate the cause(s) of the visible emissions and keep records. **(R 336.1213(3), R 336.1303)**

12. The applicable recordkeeping requirements shall include locations, dates and times of VE observations, name and signature of the reader, and actions taken when visible emissions are observed. **(R 336.1213(3))**

13. Any repairs and corrective actions needed to address the causes of malfunction or failure of the control equipment shall be performed immediately. **(R 336.1213(3), R 336.1910)**

14. Recordkeeping of inspections, cause(s) of control equipment malfunctions or failures, repairs, and corrective actions taken for each control equipment shall be maintained on file for a period of at least five years. **(R 336.1213(3))**

See Appendices {3 & 4}

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. The annual and semiannual reporting shall include the following additional information as part of deviation reporting:

   a. summary information on the number, duration and cause (including unknown cause, if applicable) of exceedances and excursions and the corrective actions taken;

   b. summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than for calibration checks);

   c. a description of the actions taken to implement a QIP during the reporting period, per condition IX.7 below. If a QIP has been completed the report shall include documentation that the plan has been implemented and reduced the likelihood of similar levels of excursions or exceedances occurring. **(R 336.1213(3), 40 CFR 64 (§ 64.9))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
SV100-PRIMBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**
SV100-SECBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**
SV200-PRIMBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**
SV200-SECBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**
SV300-PRIMBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**
SV300-SECBAGHSE	45.1[2]	98.4[2]	**(R 336.1221, R 336.1201(3))**

IX. OTHER REQUIREMENT(S)

1. Permittee shall clean the solid waste receiving tipping floor, pit area, and processing equipment on a daily basis, or more often if required, such that odor from these sources is minimized.[2] **(R336.1201(3), R 336.1901)**

2. In the event a visible emission is observed, permittee shall investigate to determine the cause(s) of the VE, effect corrective action to restore the affected emission unit/air pollution control equipment causing the VE to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. **(R 336.1213(3)), 40 CFR64 (§ 64.7(d)))**

3. The permittee shall conduct pressure drop readings and visible emission observations as required in applicable permit conditions in FGMSWPROC-LINES Section VI and record the data. Data collected during malfunctions, repairs, and QA/QC activities shall not be used to satisfy monitoring requirements. **(R 336.1213(3)), 40 CFR 64 (§ 64.6(c)(3), § 64.7(c)))**

4. The permittee shall notify the Southeast Michigan District Office of the AQD for the need to modify the monitoring plan requirements in Section VI if the approved monitoring is found to be inadequate and shall submit a proposed modification to the plan if appropriate. **(R 336.1213(3)), 40 CFR 64 (§ 64.7(e))**

5. The permittee shall, at all times, maintain the monitoring system, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment. **(R 336.1213(3)), 40 CFR 64 (§ 64.7(b)))**

6. The permittee shall comply with all requirements of 40 CFR Part 64. **(R 336.1213(3)), 40 CFR 60 (§ 60.6(c)(3)))**

7. The permittee shall submit a Quality Improvement Plan (QIP) if visible emissions are observed twelve times in a 6-month reporting period, or if pressure drop readings occur outside the range twelve times in a 6-month reporting period. **(R 336.1213(3)), 40 CFR 64 (§ 64.8(a)))**

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).
[3] 40 CFR 60 Subpart Eb is not directly applicable to this facility. However, certain specific provisions in 40 CFR 60 Subpart Eb become specific applicable requirement in this ROP by either a reference or a requirement from 40 CFR 62 Subpart FFF, 40 CFR 60 Subpart Cb, or Michigan Air Pollution Control Rule 932 adopting by reference the 2000 version of 40 CFR 60 Subpart Cb.

FGBOILERS011-013
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

This flexible group pertains to the Power Block operations primarily comprising of three identical RDF fired spreader-stoker boilers rated at 520 MMBTU/hr heat input, 390,000 lb/hr steam at 900 psig, and 825°F. Power Block operates an electric generator with name plate capacity of 68 MWe to convert unsold steam into power for internal consumption and for sale to the grid. Air contaminant emissions from the combustion process are controlled by a lime slurry injection from the top of each SDA unit followed by a baghouse fabric filter system. The air streams from each baghouse are exhausted into a single common stack. The facility will use natural gas as the primary auxiliary fuel with No. 2 fuel oil as back-up for boiler start up and shutdown and other conditions as necessary. The boiler design restricts air flow capacity such that both oil and natural gas cannot be burned simultaneously as the auxiliary fuel. Also included in this flexible group is a cooling tower located on the northwest side of the facility.

Emission Units:

EUBOILER011, EUBOILER012, EUBOILER013

POLLUTION CONTROL EQUIPMENT

Each combustor is equipped with a lime slurry injection into each dry scrubber connected to each baghouse fabric filter system (Three dry scrubbers and Three Baghouses).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter (PM)	a) 0.010 grains/dscf corrected to 7% oxygen[2]. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{R 336.1221, R 336.1201(3), 40 CFR 62 Subpart FFF (§ 62.14103(a)(1)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(1)(i)), 40 CFR 60 Subpart Db (§ 60.43b(d)(1)), and R 336.1932}**.	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(R 336.1221, R 336.1201(3), 40 CFR 62 Subpart FFF (§ 62.14103(a)(1)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(1)(i)), 40 CFR 60 Subpart Db (§ 60.43b(d)(1), R 336.1932, 40 CFR 62.14109, 40 CFR 60 Subpart Eb (§ 60.58b(a)(1))[3])**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
2. Cadmium	a) 37 micrograms per dry standard cubic meter (µg/dscm) corrected to 7% oxygen.[2] Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{R 336.1201(3), R 336.1901, 40 CFR 62 Subpart FFF (§ 62.14103(a)(2)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(2)(i)), R 336.1932}**. (This emission rate will be supplanted on the earlier of: 1) the amendment of the Federal Implementation Plan (FIP) implementing the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.)	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(R 336.1201(3), R 336.1901, 40 CFR 62 Subpart FFF (§ 62.14109 & § 62.14103(a)(2)), R 336.1932(1), 40 CFR 60 Subpart Cb (§ 60.33b(a)(2)(i) & § 60.38b), 40 CFR 60 Subpart Eb (§ 60.58b(a)(1))[3])**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
	b) 35 micrograms per dry standard cubic meter (µg/dscm) corrected to 7% oxygen. (This emission rate will only go into effect for this source on the earlier of: 1) the date when a Federal Implementation Plan (FIP) is revised and becomes effective to implement the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.)	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.			**(40 CFR 62 Subpart FFF (§ 62.14109), 40 CFR 60 Subpart Cb (§ 60.33b(a)(2)(i), § 60.38b, & (§ 60.39b(h)), 71 FR 27324 (May 10, 2006), 40 CFR 60 Subpart Eb (§ 60.58b(a)(1))[3])**
3. Hexavalent Chromium	a) 4.2 µg/dscm corrected to 7% oxygen[2].	Per boiler based on a 2-hour average.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(R 336.1201(3), R 336.1901)**
4. Total Chromium	a) 200 µg/dscm corrected to 7% oxygen[2].	Per boiler based on a 2-hour average.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(R 336.1201(3), R 336.1901)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
5. Lead	a) 0.440 mg/dscm corrected to 7% oxygen.[2] Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{R 336.1201(3), 40 CFR 52 (§ 52.21(j)), 40 CFR 62 Subpart FFF (§ 62.14103(a)(2)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(4), R 336.1932}**. (This emission rate will be supplanted on the earlier of: 1) the amendment of the Federal Implementation Plan (FIP) implementing the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.) b) 0.400 mg/dscm corrected to 7% oxygen. (This emission rate will only go into effect for this source on the earlier of: 1) the date when a Federal Implementation Plan (FIP) is revised and becomes effective to implement the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.)	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b. At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(40 CFR 52 (§ 52.21(j)), R 336.1201(3), 40 CFR 62 Subpart FFF ((§ 62.14109 & § 62.14103(a)(2)), R 336.1932(1), 40 CFR 60 Subpart Cb (§ 60.33b(a)(4) & § 60.38b), 40 CFR 60 Subpart Eb (§ 60.58b(a)(1))[3])** **(40 CFR 62 Subpart FFF (§ 62.14109), 40 CFR 60 Subpart Cb (§ 60.33b(a)(4), § 60.38b, & § 30.39b(h)), 71 FR 27324 (May 10, 2006), 40 CFR 60 Subpart Eb (§ 60.58b(a)(1)[3])**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
6. Mercury	a) 80 µg/dscm corrected to 7% oxygen, or 15 % of the potential mercury emission concentration (85% reduction by weight), corrected to 7% oxygen (dry basis), whichever is less stringent. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{R 336.1201(3), 40 CFR 52.21(j), 40 CFR 62 Subpart FFF (§ 62.14103(a)(3)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(3), R 336.1932}**. (This emission rate will be supplanted on the earlier of: 1) the amendment of the Federal Implementation Plan (FIP) implementing the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.)	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(40 CFR 52 (§ 52.21(j)), R 336.1201(3), 40 CFR 62 Subpart FFF ((§ 62.14109 & § 62.14103(a)(3)), R 336.1932(1), 40 CFR 60 Subpart Cb (§ 60.33b(a)(3) & § 60.38b), 40 CFR 60 Subpart Eb (§ 60.58b(a)(1))[3])**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
	b) 50 µg/dscm corrected to 7% oxygen, or 15 % of the potential mercury emission concentration (85% reduction by weight), corrected to 7% oxygen (dry basis), whichever is less stringent. (This emission rate will only go into effect for this source on the earlier of: 1) the date when a Federal Implementation Plan (FIP) is revised and becomes effective to implement the EPA's emission guidelines promulgated May 10, 2006; or 2) May 10, 2011.)	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil** , **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.			**(40 CFR 62.14103(a)(3), 40 CFR 62.14109, 40 CFR 60.33b(a)(3), 71 FR 27324 (May 10, 2006), 40 CFR 30.39b(h), 40 CFR 60.58b(a)(1), 40 CFR 60.38b, 40 CFR 62 Subpart FFF)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
7. Dioxins/Furans (CDD/CDF) – total mass basis	a) 30 ng/dscm corrected to 7% oxygen.[2] Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 52.21(j), R 336.1201(3), 40 CFR 62 Subpart FFF (§ 62.14103(c)(2)), 40 CFR 60 Subpart Cb (§ 60.33b(c)(1)(iii), and R 336.1932}**.	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 4-hour ave.)	**(40 CFR 52 (§ 52.21(j)), R 336.1201(3), R 336.1932(1), 40 CFR 62.14103(c)(2), 40 CFR 62.14109, 40 CFR 60.33b(c)(1)(iii), 71 FR 27324 (May 10, 2006), 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
8. Hydrogen Chloride (HCl)	a) 25 parts per million by volume (ppmv) of exhaust gases (dry basis) corrected to 7% oxygen[2], or 5% of the potential hydrogen Chloride emission concentration (95% reduction by weight or volume), corrected to 7% oxygen (dry basis), whichever is less stringent[2]. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 52 (§ 52.21(j)), R 336.1201(3), R 336.1901, 40 CFR 62 Subpart FFF (§ 62.14103(b)(2)), 40 CFR 60 Subpart Cb (§ 60.33b(b)(3)(ii), and R 336.1932}**. b) 405 parts per million by volume (ppmv) of exhaust gases (dry basis) corrected to 7% oxygen.[2]	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **except** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b. Per boiler and applicable during scrubber atomizer unit replacement.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(40 CFR 52 (§ 52.21(j)), R 336.1201(3), R 336.1901, R 336.1932(1), 40 CFR 62.14103(b)(2), 40 CFR 62.14109, 40 CFR 60.33b(b)(3)(ii), 71 FR 27324 (May 10, 2006), 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b)** **(R 336.1201(3))**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
9. Sulfur Dioxide (SO2)	a) 29 ppmv of exhaust gases (dry basis) corrected to 7% oxygen[2], or 15% of the potential Sulfur Dioxide emission concentration (85% reduction by weight or volume), corrected to 7% oxygen (dry basis), whichever is less stringent. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{R 336.1201(3), 40 CFR 52.21(j), 40 CFR 62 Subpart FFF (§ 62.14103(b)(1)), 40 CFR 60 Subpart Cb (§ 60.33b(b)(3)(i), and R 336.1932}**.	Per boiler based on a 24-hour daily geometric mean average except during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (CEMS)	**(40 CFR 52.21(j), R 336.1201(3), R 336.1932(1), 40 CFR 62.14103(b)(1), 40 CFR 62.14109, 40 CFR 60.33b(b)(3)(i), 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b)**
	b) 359 parts per million by volume (ppmv) of exhaust gases (dry basis) corrected to 7% oxygen.[2]	Per boiler and applicable during scrubber atomizer unit replacement.			**(R 336.1201(3))**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
10. Total Fluoride	a) 5 ppmv of exhaust gases (dry basis) corrected to 7% oxygen[2], or 5% of the potential Fluoride emission concentration (85% reduction by weight or volume), corrected to 7% oxygen (dry basis), whichever is less stringent[2].	Per boiler based on a 2-hour average.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test: 2-hour ave.)	**(40 CFR 52.21(j), R 336.1201(3))**
	b) 9 ppmv of exhaust gases (dry basis) corrected to 7% oxygen [2].	Per boiler and applicable during scrubber atomizer unit replacement.			**(40 CFR 52.21(j), R 336.1201(3))**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
11. Carbon Monoxide (CO)	a) 200 ppmv of exhaust gases (dry basis) corrected to 7% oxygen. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 62 Subpart FFF (§ 62.14104(a)), 40 CFR 60 Subpart Cb (§ 60.34b, and R 336.1932}**.	Per boiler based on a 24-hour block daily arithmetic average except during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (CEMS)	**(40 CFR 62.14104(a), 40 CFR 62.14109, R 336.1932(1), 40 CFR 60.34b, 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b, R 336.1932)**
	b) 267 ppmv of exhaust gases (dry basis) corrected to 7% oxygen [2].	Per boiler based on a 1-hour block average except during periods of startup or shutdown.			**(R 336.1221, R 336.1201(3))**
	c) 2500 ppmv of exhaust gases (dry basis) corrected to 7% oxygen[2].	Per boiler based on a 3-hour block average during periods of startup or shutdown.			**(R 336.1221, R 336.1201(3))**
12. Volatile Organic Compounds (VOC)	a) 65 ppmv of exhaust gases (dry basis) corrected to 7% oxygen[2]	Per boiler based on a three 1-hour block average.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test)	**(R 336.1702(a), R 336.1201(3))**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
13. Nitrogen Oxides (NOx)	a) 247 ppmv of exhaust gases (dry basis) corrected to 7% oxygen[2]. Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 52.21(j), R 336.1201(3), 40 CFR 62 Subpart FFF (§ 62.14103(d)), 40 CFR 60 Subpart Cb (§ 60.33b(d)), and R 336.1932}**.	Per boiler based on a 1-hour block average except during periods of startup or shutdown.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (CEMS)	**(40 CFR 52.21(j), R 336.1201(3), R 336.1932(1), 40 CFR 62.14103(d), 40 CFR 62.14109, 40 CFR 60.33b(d), 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
14. Visible Emissions (VE)	a) 10% opacity except for uncombined water vapor (6 minute average).[2] Compliance with this term or condition shall be considered compliance with all of the following applicable requirement(s)/limit(s) which have been subsumed under this streamlined requirement: **{40 CFR 52.21(j), R 336.1201(3), 40 CFR 62 Subpart FFF (§ 62.14103(a)(1)), 40 CFR 60 Subpart Cb (§ 60.33b(a)(1)(iii), and R 336.1932}**.	At all times and per boiler while firing **RDF** or a combination of **RDF and natural gas,** or a combination of **RDF and No. 2 Fuel Oil**, **<u>except</u>** during periods of startup, shutdown, and malfunction as explained in 40 CFR 60.58b(a)(1) and referenced by 40 CFR 60.38b.	EUBOILER011, EUBOILER012, EUBOILER013	Section V, VI (Stack Test – COMS)	**(40 CFR 52.21(j), R 336.1201(3), R 336.1932(1), 40 CFR 62.14103(a)(1), 40 CFR 62.14109, 40 CFR 60.33b(a)(1)(iii), 40 CFR 60.58b(a)(1)[3], 40 CFR 60.38b)**
	b) 20% opacity except for uncombined water vapor (6 minute average).[2]	Per boiler and at all times when firing No. 2 Fuel Oil or natural gas.			**(40 CFR 52.21(j), R 336.1201(3), R 336.1301(3))**

II. MATERIAL LIMIT(S)

1. The combined total auxiliary fuels (natural gas and No. 2 Fuel Oil) for EUBOILER011, EUBOILER012, and EUBOILER013 shall not exceed 28,500 MMBtu/yer heat input for starting up a third boiler while operating the other two boilers fired with RDF, based on a 12-month rolling average. If a single fuel is used during the 12-month rolling time period, this limit is equivalent to 28.15 million cubic feet of natural gas or 208,000 gallons of No. 2 fuel oil.[2] **(40 CFR 52.21, R 336.1201(3))**

2. The combined total auxiliary fuels (natural gas and No. 2 Fuel Oil) shall not exceed 10% of the annual capacity factor for all purposes, for each boiler (EUBOILER011, EUBOILER012, and EUBOILER013), calculated on a 12-month rolling average. This condition is necessary to exempt the permittee from the applicability of nitrogen oxide emission limits specified in 40 CFR 60 Subpart Db. **(40 CFR 60.44b(c) & (d), R 336.1213(3))**

3. The steam load to EUBOILER011, EUBOILER012, and EUBOILER013, when firing RDF, shall not exceed 383,000 lb/hr.[2] **(R 336.1201(3)), R 336.1932(1), 40 CFR 62.14104(b), 40 CFR 60.34b(b), 40 CFR 60.53b)**

4. The steam load to EUBOILER011, EUBOILER012, and EUBOILER013, when firing No. 2 fuel oil only or natural gas only, shall not exceed 296,000 lb/hr.[2] **(R 336.1201(3)), R 336.1932(1), 40 CFR 62.14104(b), 40 CFR 60.34b(b), 40 CFR 60.53b)**

5. The steam load to EUBOILER011, EUBOILER012, and EUBOILER013, when firing RDF or natural gas or No. 2 fuel oil only, shall not exceed 110% the highest load level (4-hour arithmetic average) demonstrated during the most recent dioxin/furan testing during which compliance with the emission limit was demonstrated, whichever is most restrictive. Compliance shall be determined on a 4-hour average by a continuous monitoring system, installed and calibrated to be representative of the maximum design capacity.[2] **(R 336.1201(3)), R 336.1932(1), 40 CFR 62.14104(b), 40 CFR 60.34b(b), 40 CFR 60.53b)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Periods of startup or shutdown are defined as the period when the facility commences the process of continuously burning Refuse Derived Fuel (RDF) in a boiler or begins the process of discontinuing the continuous burning of RDF in a boiler, respectively, and does not include any period when the facility is combusting only natural gas or only No. 2 fuel oil. The periods of startup or shutdown shall not exceed three hours per occurrence.[2] In instances of loss of boiler water level or loss of combustion air control, the periods of startup or shutdown shall not exceed fifteen hours. **(R 336.1201(3)), 40 CFR 62 Subpart FFF (§ 62.14109), R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(a)(1)[3])**

2. Permittee shall not fire RDF in any boiler at a combustion zone temperature less than 1800 degrees Fahrenheit, on a 1-hour basis. At no time shall the temperature be less than 1600 degree Fahrenheit. Any time the temperature approaches the minimum temperature or 1600 degrees Fahrenheit, auxiliary fuel, shall be added to the process. In the event that it is not possible to maintain this temperature of at least 1600 degrees Fahrenheit, all RDF feed shall be terminated immediately. Auxiliary fuel shall be used during boiler shutdown process to maintain 1600 degrees Fahrenheit temperature while RDF is still combusting. Compliance with the combustion zone temperature requirements shall be determined by a continuous monitoring system installed and calibrated to be representative of the combustion zone temperature.[2] **(40 CFR 52.21(j), R 336.1201(3))**

3. Permittee shall not operate any boiler with a flue gas oxygen content of less than 4 percent by volume prior to the dry scrubber. Compliance shall be determined on a 1-hour average (dry gas basis), as determined by a continuous monitoring system.[2] **(40 CFR 52.21(j), R 336.1201(3))**

4. The exhaust gas temperature at the fabric filter inlet shall not exceed 400^{o}F or 30 ^{o}F over the maximum demonstrated fabric filter inlet temperature established during the most recent dioxin/furan test which demonstrated compliance with the applicable dioxin/furan limit for municipal combustor, whichever is lower. Compliance with the temperature limitation shall be determined on a 4-hour block arithmetic average.[2] **(40 CFR 52.21(j), 40 CFR 60.34b(b), 40 CFR 60.53b(c)[3], 40 CFR 60.58b(i)(7)[3], R 336.1201(3), R 336.1932, 40 CFR 62.14104(b))**

5. The RDF feed to any boiler shall cease as soon as practicable consistent with the safe operating procedures and the Greater Detroit Resources Recovery Facility "Abnormal Condition Startup/Shutdown Malfunction Abatement Plan", dated February 2011 and revisions thereto, upon initiation of the associated collector bypass. Permittee shall not introduce RDF into a boiler unless the fabric filter for that boiler is installed, on-line, and operating properly, except during emergency conditions which results in any of the following conditions:

    a. A flue gas temperature in excess of 400^{o}F at the inlet to fabric filter; or
    b. A flue gas temperature of less than 200^{o}F at the inlet to the fabric filter; or
    c. A differential pressure across the fabric filter in excess of 10 inches of water.

    Introduction of RDF into the affected boiler, will cease immediately upon initiation of the bypass of the fabric filter. The RDF feed to the boiler shall not restart until the associated collector is back on line and functioning properly. The fabric filter for boiler may be bypassed during start-up in the unit, prior to the introduction of RDF into the boiler. [2] **(R 336.1221, R 336.1201(3), 40 CFR 52.21(j), R 336.1901)**

6. The maximum sulfur content of the fuel oil fired in the boilers shall not exceed 0.3% sulfur content, by weight.[2] **(R 336.1201(3))**

7. The maximum heat input from the combustion of natural gas or No. 2 fuel oil in each boiler shall not exceed 250 million BTUs per hour.[2] **(R 336.1201(3))**

8. Permittee shall not burn any waste oil at the facility.[2] **(R 336.1201(3))**

9. Permittee shall monitor and record the scrubber slurry feed rate on a continuous manner with instrumentation acceptable to the Air Quality Division[2]. **(R 336.1201(3), 40 CFR 52.21(j), R 336.1901)**

10. The lime slurry feed system shall be modulated by interfacing with the sulfur dioxide continuous emission monitor. In the event of a malfunction or failure of the sulfur dioxide continuous emission monitor, the Permittee shall operate the lime slurry feed system such that, at a minimum, 800 pounds per hour of pebble lime shall be added. Once daily, during the period of monitor malfunction or failure, the permittee shall manually determine the slurry density[2]. **(R 336.1201(3), 40 CFR 52.21(j), R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. Permittee shall not operate any individual boiler unless its associated dry scrubber and fabric filter collector are installed and operating properly.[2] **(R 336.1201(3), R 336.1910, R 336.1221, 40 CFR 52.21(j), R 336.1901)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Once each calendar year (no less than 9 months and no more than 15 calendar months following the previous performance test), permittee shall verify the particulate matter, cadmium, hexavalent chromium, total chromium, lead, mercury, dioxin/furan, inlet and outlet sulfur dioxide, inlet and outlet fluorides, carbon monoxide, volatile organic compounds and nitrogen oxide emission rates from each boiler, when firing only RDF at the maximum allowable load level rate, by testing, at owner's expense, in accordance with Air Quality Division requirements. Unless the applicable requirement changes, permittee shall verify the inlet and/or outlet Hydrogen Chloride emission rates (based on permittee's choice of compliance determination) and fugitive dust on an annual basis (no more than 12 calendar months following the previous performance test). Permittee must complete five performance tests in each 5-year calendar period. Verification of emission rates/levels includes the submittal of an executive summary and a complete report of the test results.[2] For applicable pollutants, Permittee can utilize continuous emissions monitoring system (CEMS) data in lieu of stack testing. **(R336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

2. When the limit for a pollutant concentration is adjusted to a specific oxygen concentration, the concentration of oxygen will be determined from a sample that was obtained simultaneously with the pollutant sample. **(R336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

3. Stack testing procedures, testing dates, the location of stack testing ports, test methods, and the emission units to be tested must have prior approval by the Air Quality Division. All test results shall be submitted to the Air Quality Division in an acceptable format within 60 days following the date the test is completed.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    a. For the purposes of demonstrating compliance with the particulate matter emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 5, and shall perform three two hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    b. For the purposes of demonstrating compliance with the hydrogen chloride emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 26 or Reference Method 26A, and shall perform three one hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    c. For the purposes of demonstrating compliance with the cadmium emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 29, and shall perform three two hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    d. For the purposes of demonstrating compliance with the lead emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 29, and shall perform three two hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    e. For the purposes of demonstrating compliance with the mercury emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 29, and shall perform three two hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    f. For the purposes of demonstrating compliance with the non-methane hydrocarbons emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 25a, and shall perform three one hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    g. For the purposes of demonstrating compliance with the total fluorides emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 13B, and shall perform three two hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    h. For the purposes of demonstrating compliance with the hexavalent chromium emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and CARB Method M425, and shall perform three two-hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

    i. For the purposes of demonstrating compliance with the dioxins/furans (PCDD and PCDF) emission limits, the permittee shall utilize the methods provided in 40 CFR 60, Appendix A, specifically EPA Reference Methods 1 through 4 and Reference Method 23, and shall perform three four hour runs of the sampling test.[2] **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

4. The permittee's CEMS will be used to verify compliance with the concentration limits for carbon monoxide when firing only RDF at the maximum allowable load level rate. The permittee shall verify the emission rate/level by utilizing data from the permittee's CO continuous emissions monitor and actual air flow data gathered during stack testing. For the one hour block emission limit, three (3) one hour computations will be made, and averaged. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

5. The permittee's CEMS will be used to verify compliance with the concentration limits for oxides of nitrogen when firing only RDF at the maximum allowable load level rate. The permittee shall verify the emission rate/level by utilizing data from the permittee's NOx continuous emissions monitor and actual air flow data gathered during stack testing. For the one hour block emission limit, three (3) one hour computations will be made, and averaged. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

6. The permittee's CEMS will be used to verify compliance with the concentration limits for sulfur dioxide when firing only RDF at the maximum allowable load level rate. The permittee shall verify the emission rate/level by utilizing data from the permittee's SO2 continuous emissions monitor and actual air flow data gathered during stack testing. **(R 336.1213(3), R 336.2001, R 336.2003, R 336.2004)**

Relative Accuracy Test Audit (RATA)

7. EPA Test Methods 3A, 6C, 7E and 10 are used as the reference test method procedures for the RATA test program. They are conducted in accordance with 40 CFR 60, Appendix B, Performance Specifications 2, 3, 4/4A, and Appendix F. **(40 CFR 60, Appendix B, Performance Specifications 2, 3, 4/4A, and Appendix F, 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b[3], R 336.1213(3))**

8. A sample is continuously extracted from the effluent stack gas stream. A portion of the sample stream is conveyed to each analyzer for the determination of O_2 or CO_2, SO_2, CO and NOx. For each EPA Reference Method determination, the flue gas is sampled at three traverse points. The difference between the reference method sample and the facility's monitor readings are evaluated from a minimum of nine test runs. **(40 CFR 60, Appendix B, Performance Specifications 2, 3, 4/4A, and Appendix F, 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b[3], R 336.1213(3))**

9. Relative accuracies are calculated on a concentration basis (ppm corrected to 7% O_2) for all pollutant parameters. To satisfy the RATA requirements of 40 CFR 60, Appendix B, the relative accuracy must not exceed 20.0 percent of the mean of the reference method or 10.0 percent of the applicable standard for SO_2 and NOx. For CO the relative accuracy must not exceed 10.0 percent of the mean of the reference method or 5.0 percent of the applicable standard for CO. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b[3])**

10. If the permittee elects to comply with sulfur dioxide limits by showing percent reduction and if actual inlet emissions are less than 100 parts per million dry volume, then the relative accuracy criterion for inlet sulfur dioxide continuous emission monitoring systems should be no greater than 20 percent of the mean value of the reference method test data in terms of the units of the emission standard, or 5 parts per million dry volume absolute value the mean difference between the reference method and the continuous emission monitoring systems, whichever is greater. **(R 336.1213(3), 40 CFR 62 Subpart FFF, 40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)[3])**

Particulate Matter and Opacity

11. The procedures and test methods specified in paragraphs 40 CFR 60.58b(c)(1) through (c)(11) shall be used to determine compliance with the emission limits for particulate matter and opacity under 40 CFR 60.52b(a)(1) and (a)(2). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)[3])**

    a. EPA Reference Method 1 shall be used to select sampling site and number of traverse points. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(1)[3])**

    b. EPA Reference Method 3, 3A or 3B, as applicable, shall be used for gas analysis. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(2)[3])**

    c. EPA reference Method 5 shall be used for determining compliance with the particulate matter emission limit. The minimum sample volume shall be 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160 +/- 14 degrees C. An

oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(3)[3])**

d. The permittee may request that compliance with the particulate matter emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph (b)(6) of this section. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(4)[3])**

e. As specified under 60.8 of 40 CFR 60, Subpart A, all performance tests shall consist of three test runs. The average of the particulate matter emission concentrations from the three test runs is used to determine compliance. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(5)[3])**

f. In accordance with paragraphs 40 CFR 60.58b(c)(7) and (c)(11), EPA Reference Method 9 shall be used for determining compliance with the opacity limit except as provided under 60.11(e)(5) of 40 CFR 60, Subpart A. This allows for the use of the continuous opacity monitor to demonstrate compliance in lieu of Method 9. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(c)(6)[3])**

Hydrogen Chloride

12. The procedures and test methods specified in paragraphs 40 CFR 60.58b(f)(1) through (f)(8) shall be used for determining compliance with the hydrogen chloride emission limit under 40 CFR 60.52b(b)(2). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38, 40 CFR 60.58b(f)[3])**

    a. EPA Reference Method 26 or 26A, as applicable, shall be used to determine the hydrogen chloride emission concentration. The minimum sampling time for Method 26 shall be 1 hour per run. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(f)(1)[3])**

    b. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 26 test run for hydrogen chloride required by paragraph 40 CFR 60.58b(f)(1). **(R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(f)(2)[3])**

    c. Equation 2 of 40 CFR 60.58b(f)(3) shall be used to compute percent reduction in potential hydrogen chloride emissions. **(R 336.1213(3), R 336.1932(1); 40 CFR 62 Subpart FFF, 40 CFR 60.38b; 40 CFR 60.58b(f)(3)[3])**

    d. The permittee may request that compliance with the hydrogen chloride emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(f)(4)[3])**

    e. As specified under 60.8 of 40 CFR 60, Subpart A, all performance tests shall consist of three test runs. The average of the hydrogen chloride emission concentrations or percent reductions from the three test runs is used to determine compliance. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(f)(5)[3])**

Cadmium and Lead

13. Procedures and test methods specified in paragraph 40 CFR 60.58b(d)(1) and (d)(2) shall be used to determine compliance with the emission limits for cadmium and lead under 40 CFR 60.52b(a)(3) and (4). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)[3])**

    a. EPA Reference Method 1 shall be used for determining the location and number of sampling points. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(i)[3])**

b. EPA reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(ii)[3])**

c. EPA Reference Method 29 shall be used for determining compliance with the cadmium and lead emission limits. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(iii)[3])**

d. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for cadmium and lead required under paragraph 40 CFR 60.58b(d)(1)(iii). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(iv)[3])**

e. The permittee may request that compliance with the lead or cadmium emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(v)[3])**

f. All performance tests shall consist of a minimum of three test runs conducted under representative full load operating conditions. The average of the cadmium or lead emission concentrations from three test runs or more shall be used to determine compliance. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(1)(vi)[3])**

Mercury

14. Procedures and test methods specified in paragraphs 40 CFR 60.58b(d)(2)(i) through (d)(2)(xi) shall be used to determine compliance with the mercury emission limit under 40 CFR 60.52b(a)(5). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)[3])**

a. EPA Reference Method 1 shall be used for determining the location and number of sampling points. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(i)[3])**

b. EPA reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(ii)[3])**

c. EPA Reference Method 29 shall be used to determine the mercury emission concentration. The minimum sample volume when using Method 29 for mercury shall be 1.7 cubic meters. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(iii)[3])**

d. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 29 test run for cadmium and lead required under paragraph 40 CFR 60.58b(d)(2)(iii). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(iv)[3])**

e. Equation 1 of 40 CFR 60.58b(d)(2)(v) provides the percent reduction in potential mercury emissions. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(v)[3])**

f. All performance tests shall consist of a minimum of three test runs conducted under representative full load operating conditions. The average of the mercury emission concentrations from three test runs or more shall be used to determine compliance. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(vi)[3])**

g. The permittee may request that compliance with the mercury emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(d)(2)(vii)[3])**

Dioxins/furans

15. The procedures and test methods specified in paragraphs 40 CFR 60.58b(g)(1) through (g)(9) shall be used for determining compliance with the dioxin/furan emission limit under 40 CFR 60.52b(c). **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)[3])**

    a. EPA Reference Method 1 shall be used for determining the location and number of sampling points. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(1)[3])**

    b. EPA reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(2)[3])**

    c. EPA Reference Method 23 shall be used to determine the dioxin/furan emission concentration. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(3)[3])**

        i. The minimum sample time shall be 4 hours per test run. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(3)(i)[3])**

        ii. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 23 test run for dioxins/furans. **(R 336.1213(3), R336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(3)(ii)[3])**

    d. As specified under 60.8 of 40 CFR 60, Subpart A, all performance tests shall consist of three test runs. The average of the dioxin/furan emission concentrations from the three test runs is used to determine compliance. **(R 336.1213(3), R 336.1932(1), 40 CFR 62 Subpart FFF, 40 CFR 60.38b, 40 CFR 60.58b(g)(9)[3])**

16. During each performance test of dioxins/furans, permittee shall determine the maximum particulate matter control device inlet temperature and steam load level in accordance with 40 CFR 60.58b(i)(7) and 40 CFR 60.58b(i)(8). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(7), 40 CFR 60.58b(i)(8)[3])**

17. Permittee shall conduct testing for each batch of fuel oil received for sulfur content. **(R336.1213(3)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

For each combustor, the permittee shall install, calibrate, maintain, operate, and monitor on a continuous basis, the following:[2]

Continuous Opacity Monitoring System (COMS)

1. The permittee shall install, calibrate, operate, and maintain a continuous opacity monitoring system (COMS following the baghouse) for measuring opacity and shall follow the methods and procedures specified in paragraphs 40 CFR 60.58b(c)(8)(i) through (c)(8)(iv). The continuous monitoring system shall collect and record data at a minimum of 90% of the operating hours per month in a manner and with instrumentation as approved by the Air Quality Division.[2]

    a) The output of the COMS shall be recorded on a 6-minute average basis.
    b) The COMS shall be installed, evaluated, and operated in accordance with 60.13 of 40 CFR 60, Subpart A.
    c) The COMS shall conform to Performance Specification 1 in Appendix B of 40 CFR 60.
    (R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(c)(8)[3])

Sulfur Dioxide (SO2) Continuous Emission Monitoring System (CEMS)

2. The permittee shall install, calibrate, operate, and maintain a CEMS for sulfur dioxide emissions discharged to the atmosphere and record the output of the system.[2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(5)[3])**

3. If the permittee elects to comply with sulfur dioxide limits by showing percent reduction, the permittee shall install, calibrate, maintain, and operate a CEMS for measuring sulfur dioxide emissions and diluent concentrations entering the dry scrubber.[2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(4)[3])**

4. EPA Reference Method 19, Section 4.3 shall be used to calculate the daily geometric mean sulfur dioxide emission concentration. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(1)[3])**

5. EPA Reference Method 19, Section 5.4, shall be used to determine the daily geometric average percent reduction in the potential sulfur dioxide emission concentration. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(2)[3])**

6. The permittee may request that compliance with the sulfur dioxide emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(3)[3])**

7. Compliance with the sulfur dioxide emission limit shall be determined based on:

   a) the 24-hour daily geometric average of the hourly arithmetic average emission concentrations using CEMS outlet data if compliance is based on an emission concentration; **or**
   b) CEMS inlet and outlet data if compliance is based on a percent reduction.
   (40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(6)[3])

8a. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(e)(7)(i) and (e)(7)(ii) for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting MSW.[2]

   a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.
   b) Each sulfur dioxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(R 336.1213(3), R 336.1932(1)[3])**

8b. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(e)(7)(i) and (e)(7)(ii) for 90% of the operating hours per calendar quarter, and for 95% of the operating hours per calendar year that the affected facility is combusting MSW.[2] **(R 336.1213(3), 40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(e)(7)[3])**

   a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(7)(i)[3])**
   b) Each sulfur dioxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(7)(ii)[3])**

9. The 1-hour arithmetic averages required under paragraph 40 CFR 60.58b(e)(6) of this section shall be expressed in parts per million corrected to 7% oxygen (dry basis) and used to calculate the 24-hour daily geometric average emission concentrations and daily geometric average emission percent reductions. The 1-hour arithmetic averages shall be calculated using the data points required under 60.13(e)(2) of 40 CFR 60, Subpart A. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(8)[3])**

10. All valid CEMS data shall be used in calculating average emission concentrations and percent reductions even if the minimum CEMS data requirements of paragraph 40 CFR 60.58b(e)(7) are not met. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(9)[3])**

11. The procedures of 60.13 of 40 CFR 60, Subpart A shall be followed for the installation, evaluation, and operation of the CEMS. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(10)[3])**

12. The CEMS shall be operated according to Performance Specification 2 in Appendix B of 40 CFR 60. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)[3])**

    a) During each Relative Accuracy Test run of the CEMS required by Performance Specification 2 in Appendix B of 40 CFR 60, sulfur dioxide and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and the test methods specified in paragraphs 40 CFR 60.58b(e)(12)(i)(A) and (e)(12)(i)(B). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)(i)[3])**

        i. For sulfur dioxide, EPA Reference Method 6, 6A, or 6C shall be used. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)(i)(A)[3])**

        ii. For oxygen (or carbon dioxide), EPA Reference Method 3, 3A, or 3B, as applicable shall be used. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)(i)(B)[3])**

    b) The span value of the CEMS at the inlet to the sulfur dioxide control device (if permittee has elected to use the percent reduction to demonstrate compliance) shall be 125% of the maximum estimated hourly potential sulfur dioxide emissions of the combustor. The span value of the CEMS at the outlet of the sulfur dioxide control device shall be 50% of the maximum estimated hourly potential sulfur dioxide emissions of the combustor. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(e)(12)(ii)[3])**

Nitrogen Oxides (NOx) CEMS

13. EPA Reference Method 19, section 4.1, shall be used for determining the daily arithmetic average nitrogen oxides emission concentration. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(1)[3])**

14. The permittee may request that compliance with the nitrogen oxides emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(2)[3])**

15. The permittee shall install, calibrate, operate, and maintain a CEMS for measuring nitrogen oxides discharged to the atmosphere, and record the output of the system.[2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1**), **40 CFR 60.38b, 40 CFR 60.58b(h)(4)[3])**

16. Following the date that the initial performance test for nitrogen oxides is completed or is required to be completed under 60.8 of 40 CFR 60, Subpart A, compliance with the emission limit for nitrogen oxides required under 40 CFR 60.52b(d) shall be determined based on the 24-hour daily arithmetic average of the hourly emission concentrations using CEMS outlet data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(5)[3])**

17a. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(h)(6)(i) and (h)(6)(ii) for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting MSW.[2]

    a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.
    b) Each nitrogen oxides 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(R 336.1213(3), R 336.1932(1))**

17b. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(h)(6)(i) and (h)(6)(ii) for 90% of the operating hours per calendar quarter, and for 95% of the operating hours per calendar year that the affected facility is combusting MSW.[2] **(R 336.1213(3), 40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(h)(6)[3])**

a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(h)(6)(i)[3])**
b) At a minimum, each nitrogen oxides 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(h)(6)(ii)[3])**

18. The 1-hour arithmetic averages required by paragraph 40 CFR 60.58b(h)(5) of this section shall be expressed as parts per million by volume (dry basis) and used to calculate the 24-hour daily arithmetic average concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under 60.13(e)(2) of 40 CFR 60, Subpart A. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(7)[3])**

19. All valid CEMS data must be used in calculating emission averages even if the minimum CEMS data requirements of paragraph 40 CFR 60.58b(h)(6) are not met. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(8)[3])**

20. The permittee shall operate the CEMS according to Performance Specification 2 in Appendix B of 40 CFR 60 and shall follow the procedures and methods specified in paragraphs 40 CFR 60.58b(h)(10(i) and (h)(10)(ii). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(10)[3])**

a) During each Relative Accuracy Test run of the CEMS required by Performance Specification 2 in Appendix B of 40 CFR 60, nitrogen oxides and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and the test methods specified in paragraphs 40 CFR 60.58b(h)(10)(i)(A) and (h)(10)(i)(B). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(10)(i)[3])**

i. For nitrogen oxides, EPA Reference Method 7, 7A, 7C, 7D or 7E shall be used. **(40 CFR 62 Subpart FF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(10)(i)(A)[3])**

ii. For oxygen (or carbon dioxide), EPA Reference Method 3, 3A, or 3B, as applicable shall be used. **(40 CFR 62 Subpart FFF, R 336.1932(1**), **40 CFR 60.38b, 40 CFR 60.58b(h)(10)(i)(B)[3])**

b) The span value of the CEMS shall be 125% of the maximum estimated hourly potential nitrogen oxide emissions of the combustor. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(h)(10)(ii)[3])**

21. When nitrogen oxide emissions data are not obtained because of CEMS system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the administrator or EPA Method 19 to provide, as necessary, valid emissions data for a minimum of 90% of the operating hours per calendar quarter that the affected facility is operated and combusting MSW and for 95% of the operating hours per calendar year that the affected facility is operated and combusting MSW. **(40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(h)(12)[3])**

Carbon Monoxide (CO) CEMS

22. Compliance with the 3-hr block and 24-hr block Carbon Monoxide emission limits shall be determined using a block arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b[3], R 336.1213)**

23. The permittee shall install, calibrate, operate, and maintain a CEMS for measuring carbon monoxide at the combustor outlet and record the output of the system and shall follow the procedures and methods specified in

paragraphs 40 CFR 60.58b(i)(3)(i) through (i)(3)(iii) of this section.[2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)[3])**

a) CEMS shall be operated according to Performance Specification 4A in Appendix B of 40 CFR 60. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)(i)[3])**

b) During each Relative Accuracy Test run of the CEMS required by Performance Specification 4A in Appendix B of 40 CFR 60, carbon monoxide and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and the test methods specified in paragraphs 40 CFR 60.58b(i)(3)(ii)(A) and (i)(3)(ii)(B). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)(ii)[3])**

i. For carbon monoxide, EPA Reference Method 10, 10A, or 10B shall be used. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)(ii)(A)[3])**

ii. For oxygen (or carbon dioxide), EPA Reference Method 3, 3A, or 3B, as applicable shall be used. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)(ii)(B)[3])**

c) The span value of the CEMS shall be 125% of the maximum estimated hourly potential carbon monoxide emissions of the combustor. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(3)(iii)[3])**

24. The 3-hour block and 24-hour daily arithmetic average, specified in paragraphs 40 CFR 60.58b(i)(2) of this section, shall be calculated from 1-hour arithmetic averages expressed in ppmv corrected to 7% oxygen (dry basis.) The 1-hour arithmetic averages shall be calculated using the data points generated by the CEMS. At least 2 data points shall be used to calculate each 1-hour arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(4)[3], R 336.1213)**

25. The permittee may request that compliance with the carbon monoxide emission limit be determined using carbon dioxide measurements corrected to an equivalent of 7% oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in paragraph 40 CFR 60.58b(b)(6). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(5)[3])**

26. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(i)(10)(i) and (i)(10)(ii) for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting MSW.[2]

a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.
b) Each carbon monoxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(R 336.1213(3), R 336.1932(1))**

27. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(i)(10)(i) and (i)(10)(ii) for 90% of the operating hours per calendar quarter, and for 95% of the operating hours per calendar year that the affected facility is combusting MSW.[2] **(R 336.1213(3), 40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(i)(10)[3])**

a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(10)(i)[3])**
b) At a minimum, each carbon monoxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(10)(ii)[3])**

28. All valid CEMS data must be used in calculating the parameters specified under paragraph 40 CFR 60.58b(i) even if the minimum data requirements of paragraph 40 CFR 60.58b(i)(10) are not met. When carbon monoxide CEMS data are not obtained because of CEMS system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved

by the administrator or EPA Method 10 to provide, as necessary, the minimum valid emission data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(11)[3])**

Oxygen or CO2 CEMS

29. Permittee shall install, calibrate, operate, and maintain a CEMS for measuring the oxygen or carbon dioxide content of the flue gas at each location where carbon monoxide, sulfur dioxide, nitrogen oxides emissions, or particulate matter are monitored and record the output of the system and shall comply with the test procedures and test methods specified in 40 CFR 60.58b(b)(1) through 40 CFR 60.58b(b)(8).[2] **(R 336.213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)[3])**

30. The CEMS shall collect and record oxygen (or carbon dioxide) content data for minimum of 90% of the operating hours per month in a manner and as approved by the Air Quality Division.[2] **(R 336.1213(3))**

31. The span value of the oxygen (or carbon dioxide) monitor shall be 25%. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(1)[3])**

32. The monitor shall be installed, evaluated, and operated in accordance with 60.13 of 40 CFR 60, Subpart A. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(2)[3])**

33. The monitor shall conform to Performance Specification 3 in Appendix B of 40 CFR 60 except for section 2.3 (relative accuracy requirement). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(4)[3])**

34. The quality assurance procedures of Appendix F of 40 CFR 60 except for section 5.1.1 (relative accuracy test audit) shall apply to the monitor. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(5)[3])**

35. If carbon dioxide is selected for use in diluent corrections, the relationship between oxygen and carbon dioxide levels shall be established during the initial performance test according to the procedures and methods specified in paragraphs 40 CFR 60.58b(b)(6)(i)through (b)(6)(iv). This relationship may be reestablished during performance compliance tests. **(40 CFR 62 Subpart FFF, R 336.1932(1)**, **40 CFR 60.38b, 40 CFR 60.58b(b)(6)[3])**

    a) The fuel factor equation in Method 3B shall be used to determine the relationship between oxygen and carbon dioxide at a sampling location. Method 3, 3A, or 3B as applicable, shall be used to determine the oxygen concentration at the same location as the carbon dioxide monitor. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(6)(i)[3])**

    b) Samples shall be taken for at least 30 minutes in each hour. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(6)(ii)[3])**

    c) Each sample shall represent a 1-hour average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(6)(iii)[3])**

    d) A minimum of 3 runs shall be performed. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(6)(iv)[3])**

36. The relationship between carbon dioxide and oxygen that is established in accordance with paragraph 40 CFR 60.58b(b)(6) shall be submitted to the EPA Administrator as part of the initial performance test report and, if applicable, as part of the annual test report if the relationship is reestablished during the annual performance test. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(7)[3])**

37. During a loss of boiler water level control or loss of combustion air control malfunction period as specified in 40 CFR 60.58b(a)(1)(iii), a diluent cap of 14 percent for oxygen or 5% for carbon dioxide may be used in the emissions calculations for sulfur dioxide and nitrogen oxides. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(b)(8)[3])**

General – all CEMS and COMS as applicable:

38. Permittee shall comply with applicable monitoring requirements in 40 CFR 60.13. **(40 CFR 60.13)**

39. Permittee shall comply with the calibration requirements of 40 CFR 60.13(d)(2). **(40 CFR 60.13(d)(2))**

40. Permittee must check the zero and span calibration drifts of installed CEMS at least once daily in accordance with a written procedure and fulfill all applicable requirements as provided in 40 CFR 60.13(d)(1). **(40 CFR 60.13(d)(1))**

41. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under 40 CFR 60.13(d), all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation as follows:

    a) Opacity: Permittee shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period; **(40 CFR 60.13(e)(1))**
    b) All other emissions except Opacity: Permittee shall complete one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period; **(40 CFR 60.13(e)(2))(40 CFR 60.13(e))**

42. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B of 40 CFR 60 shall be used. **(40 CFR 60.13(f))**

43. Initial data reduction shall be in accordance with **40 CFR 60.13(h)**. Subsequent data reduction shall be in accordance with **R 336.2175**. **(40 CFR 60.13(h), R 336.2175)**

44a. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(i)(10)(i) and (i)(10)(ii) for 75% of the operating hours per day for 90% of the operating days per calendar quarter that the affected facility is combusting MSW.

    a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.
    b) Each carbon monoxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(R 336.1213(3), R 336.1932(1))**

44b. At a minimum, valid continuous monitoring system hourly averages shall be obtained as specified in paragraphs 40 CFR 60.58b(i)(10)(i) and (i)(10)(ii) for 90% of the operating hours per calendar quarter, and for 95% of the operating hours per calendar year that the affected facility is combusting MSW. **(R 336.1213(3), 40 CFR 62.14109(b), 40 CFR 60.38b, 40 CFR 60.58b(i)(10)[3])**

    a) At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(10)(i)[3])**
    b) At a minimum, each carbon monoxide 1-hour arithmetic average shall be corrected to 7% oxygen on an hourly basis using the 1-hour arithmetic average of the oxygen (or carbon dioxide) CEMS data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(10)(ii)[3])**

45. All valid CEMS data must be used in calculating the parameters specified under paragraph 40 CFR 60.58b(i) even if the minimum data requirements of paragraph 40 CFR 60.58b(i)(10) are not met. When carbon monoxide CEMS data are not obtained because of CEMS system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the administrator or EPA Method 10 to provide, as necessary, the minimum valid emission data. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.58b(i)(11)[3])**

46. Block averages must have valid hourly block data for each hour of the block period for there to be a valid block average calculation. **(R 336.1213(3))**

47. Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 in Appendix F 40 CFR 60. (Note, for determining CEMS availability for quarterly reports or minimum daily data collection or otherwise, daily calibration drift tests shall not be considered either outages or hours of operation. A retest of a failed daily calibration drift test or a quarterly accuracy determination that results in the CEMS being offline shall be counted as downtime.) **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b[3])**

Other Monitoring:

48. To determine compliance with load level requirements under 40 CFR 60.53b(b), Permittee shall comply with applicable procedures specified in 40 CFR 60.58b(i)(6)(i) through (i)(6)(iv). **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(6)[3])**

49. Permittee shall install, calibrate, operate, and maintain a steam flow meter. Permittee shall measure steam flow on a continuous basis and record the output of the monitor. Steam flow shall be calculated in 4-hour block arithmetic averages on a monthly basis in a manner acceptable to the Air Quality Division. The continuous monitoring systems shall collect and record steam rate data at a minimum of 90% of the operating hours per month in a manner and with instrumentation as approved by the Air Quality Division.[2] **(R 336.201(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(6)(i)[3])**

50. To determine compliance with the maximum particulate matter control device temperature requirements under 40 CFR 60.53b(c), the permittee shall install, calibrate, operate, and maintain a device for measuring on a continuous basis the temperature of the flue gas stream at the inlet to each particulate matter control device utilized by the affected facility. Temperature shall be calculated in 4-hour block arithmetic averages. The continuous monitoring system shall collect and record temperature data at the fabric filter inlet, a minimum of 90% of the operating hours per month in a manner and with instrumentation as approved by the Air Quality Division.[2] **(R 336.1201(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.38b, 40 CFR 60.58b(i)(7)[3])**

51. Permittee shall install, calibrate, maintain, and operate a device for measuring on a continuous basis the temperature of the flue gas stream prior to the boiler bank inlet/after the superheater and at the combustion zone. Temperature shall be calculated in 4-hour block arithmetic averages. The continuous monitoring systems shall collect and record temperature data prior to the boiler bank, at the inlet/after the superheater, and at the combustion zone, a minimum of 90% of the operating hours per month in a manner and with instrumentation as approved by the Air Quality Division.[2] **(R 336.201(3))**

52. Permittee shall monitor/calculate and keep records of the hourly natural gas and fuel oil (No. 2 fuel oil) feed rates and if both natural gas and No. 2 fuel oil are used as auxiliary fuels in the same 12 month rolling time period, heat input rates (based on the Higher Heating Value of each fuel) to each boiler and hours of operation of each boiler on a monthly basis in a manner acceptable to the Air Quality Division.[2] **(40 CFR 60.44b(c), R 336.1213(3))**

53. Permittee shall monitor and keep records of the atomizer unit replacement data, including dates, affected boiler emission unit, length of time of replacement, and emission rates during replacement. **(R 336.213(3))**

54. Permittee shall maintain records of the information specified below, as applicable, for each affected facility for at least five (5) years and be available for submittal or on site inspection review by EPA or State inspector: **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)[3])**

    a) Calendar date of each record. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(1)[3])**

    b) Emission concentrations and parameters measured using CMS as specified in 40 CFR 60.59b(d)(2)(i) and (d)(2)(ii). **(R 336.1213(3), 40 FR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)[3])**

i. The following shall be available for submittal or on-site review by an inspector: **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(i)[3])**

A. All 6-minute average opacity levels as specified under 40 CFR 60.58b(c). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(i)(A)[3])**

B. All 1-hour average sulfur dioxide concentrations as specified under 40 CFR 60.58b(e). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(i)(B)[3])**

C. All 1-hour average nitrogen oxides emission concentrations as specified under 40 CFR 60.58b(h). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(i)(C)[3])**

D. All 1-hour average carbon monoxide emission concentrations, MSW combustor unit load measurements, and particulate matter control device inlet temperatures as specified under 40 CFR 60.58b(i). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(i)(D)[3])**

ii. The average concentrations and percent reductions, as applicable, specified in paragraphs 40 CFR 60.58b(d)(2)(ii)(A) through (D), shall be computed, recorded, and be available for submittal or on-site review by an inspector. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(ii)[3])**

A. All 24-hour daily geometric average sulfur dioxide emission concentrations and all 24-hour daily geometric average percent reductions in sulfur dioxide emissions as specified under 40 CFR 60.58b(e). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), CFR 60.39b, 40 CFR 60.59b(d)(2)(ii)(A)[3])**

B. All 24-hour daily arithmetic average nitrogen oxides emission concentrations as specified under 40 CFR 60.58b(h). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(ii)(B)[3])**

C. All 4-hour block or 24-hour daily arithmetic average carbon monoxide emission concentrations, as applicable, as specified under 40 CFR 60.58b(i). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(ii)(C)[3])**

D. All 4-hour block arithmetic average combustor load levels and particulate matter control device inlet temperatures as specified under 40 CFR 60.58b(i). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(2)(ii)(D)[3])**

c) Identification of the calendar dates when any of the average emission concentrations, percent reductions (if applicable), operating parameter(s) recorded under paragraphs 40 CFR 60.59b(d)(2)(ii)(A) through (d)(2)(ii)(D) (see above), or the opacity levels recorded under 40 CFR 60.59b(d)(2)(i)(A) are above the applicable limits (see above), with reasons for such exceedances and a description of corrective actions taken. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(3)[3])**

i. This identification shall be completed quarterly, by the 30th day after the end of each calendar quarter. **(R 336.1213(3))**

d. Identification of the calendar dates and times (hours) for which valid hourly data specified in (40 CFR 60.59b(d)(6)(i) through (d)(6)(v)) have not been obtained including reasons for not obtaining the data and a description of the corrective actions taken. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)[3])**

i. Sulfur dioxide emissions data. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)(i)[3])**

ii. Nitrogen oxide emissions data. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)(ii)[3])**

iii. Carbon monoxide emissions data. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)(iii)[3])**

iv. Unit load data. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)(iv)[3])**

v. Particulate matter control device temperature data. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(6)(v)[3])**

vi. This identification of calendar dates shall be completed quarterly by the 30th day following the end of the calendar quarter. **(R 336.1213(3))**

e. Identification of each occurrence that sulfur dioxide emissions data, nitrogen oxides emissions data, or operational data have been excluded from the calculation of average emission concentrations or parameters, and the reasons for excluding the data. **(R 336.1213(3), 40 CFR 62 Subpart FFF,** R336**.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(7)[3])**

i. This identification shall include all data exclusion due to the failure to have data for an entire block average period. **(R 336.1213(3))**

f. Results of daily drift tests and quarterly accuracy determinations for sulfur dioxide, nitrogen oxides, and carbon monoxide CEMS as required by 40 CFR 60, Appendix F, Procedure 1. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(8)[3])**

g. Test reports documenting the results of the initial performance test and all annual performance tests listed in 40 CFR 60.59b(d)(9)(i) and (d)(9)(ii), shall be recorded along with supporting calculations. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(9)[3])**

i. The results of the initial performance test and all annual performance tests conducted to determine compliance with the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, and fugitive ash emission limits. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(9)(i)[3])**

ii. For the initial dioxin/furan performance test and all subsequent dioxin/furan performance tests, the maximum demonstrated combustor unit load and maximum demonstrated particulate matter control device temperature (for each particulate matter control device.) **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(9)(ii)[3])**

h. The following records as specified in 40 CFR 60.59b(d)(12)(i) through (d)(12)(iv): **(R 336.1213(3), 40 CFR 62.14109(a), R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(12)[3])**

i. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who have been provisionally certified by ASME or state-equivalent certification program as required by 40 CFR 60.54b(a) including the dates of initial and renewal certifications and documentation of the current certification. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(12)(i)[3])**

ii. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who have been fully certified by ASME or state-equivalent certification program as required by 40 CFR 60.54b(b) including the dates of initial and renewal certifications and

documentation of the current certification. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(12)(ii)[3])**

iii. Records showing the names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who have completed the EPA municipal waste combustor operator training course or a state-approved equivalent course as required by 40 CFR 60.54b(d) including documentation of training completion. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(12)(iii)[3])**

iv. Records showing when a certified operator is temporarily off site, which shall include: **(40 CFR 62 Subpart FFF, 40 CFR 60.39b, 40 CFR 60.59b(d)(12)(iv)[3])**:

A. If the certified chief facility operator and certified shift supervisor are off site for more than 12 hours, but for 2 weeks or less, and no other certified operator is on site, record the dates that the certified chief facility operator and certified shift supervisor were off site.

B. When all certified chief facility operators and certified shift supervisors are off site for more than 2 weeks and no other certified operator is on site, keep records of:

a. Time of day that all certified persons are off site.

b. The conditions that cause those people to be off site.

c. The corrective actions taken by the owner or operator of the affected facility to ensure a certified chief facility operator or certified shift supervisor is on site as soon as practicable; and

d. Copies of the written reports submitted every 4 weeks that summarize the actions taken by the owner or operator of the affected facility to ensure that a certified chief facility operator or certified shift supervisor will be on site as soon as practicable.

i. Records showing the names of the persons who have completed a review of the operating manual as required by 40 CFR 60.54b(f) including the date of the initial review and subsequent annual reviews. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(d)(13)[3])**

j. Other monitoring, recordkeeping, and emissions calculations to show compliance with any applicable requirement. **(R 336.1213(3))**

55. Permittee shall maintain records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. **(40 CFR 60.7(b))**

a. For the purposes of the condition above, the definition of startup, shutdown, and malfunction shall be that applicable to 40 CFR Subpart Cb operations. See Appendix 1b. **(R 336.1213(3))**

56. Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part/permit recorded in a "permanent" form suitable for filing and inspection. **(R 336.1213(3), 40 CFR 60.7(f))**

57. Permittee may elect to substitute continuous emission monitoring for stack testing requirements pursuant to 40 CFR 60.58b(c)(10) for PM, 40 CFR 60.58b(d)(4) for Hg, 40 CFR 60.58b(f)(8) for HCl, and/or 40 CFR 60.58b(g)(10) for dioxin/furans. If so, permittee must comply with the provisions of 40 CFR 60.58b(n) through 40 CFR 60.58b(q). **(40 CFR 62 Subpart FFF, 40 CFR 60.58[3])**

58. The permittee shall keep records of the malfunction abatement and preventative maintenance program as specified in the Greater Detroit Resources Recovery Facility "Abnormal Condition Startup/Shutdown

Malfunction Abatement Plan", dated February 2011and revisions thereto.[2] **(R 336.1213(3), R 336.1910, R 336.1911)**

59. Permittee shall record the date, time, and duration of a malfunction event or failure of the sulfur dioxide continuous emission monitor, the amount of pebble lime added per hour, the lime slurry density, and lime slurry flow rate. **(R336.1213(3))**

See Appendices {3 & 4}

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

4. Permittee shall summarize the hourly auxiliary fuel (natural gas and fuel oil) feed rates, hourly steam flow rates, and hours of operation for each boiler and submit to AQD in an acceptable format and within 30 days following the end of each quarter. [2] **(R 336.1213(3)(c)(i))**

5. Permittee shall submit quarterly excess emissions and monitoring systems performance reports, postmarked by the 30th day following the end of each calendar quarter period. [2] **(R 336.1213(3), 40 CFR 60.7(c), R 336.2170)**

   a) This quarterly excess emissions and monitoring systems performance report will relate to the emission limits monitored by CEMS and COMS, the performance of the CEMS and COMS, and any deviations of applicable requirements as contained in this permit. At a minimum, written reports of excess emissions shall include the following information: **(R 336.1213(3), 40 CFR 60.7(c))**

      i. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period. **(R 336.1213(3), 40 CFR 60.7(c)(1))**

      ii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction, the corrective action taken or preventative measures adopted. **(R 336.1213(3), 40 CFR 60.7(c)(2))**

      iii. The date and time identifying each period during which the CMS was inoperative except for zero and span checks and the nature of the system repairs or adjustments. **(R 336.1213(3), 40 CFR 60.7(c)(3))**

      iv. When no excess emissions have occurred or the CMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report. **(R 336.1213(3), 40 CFR 60.7(c)(4))**

   b) The summary report form shall contain the information and be in the format shown in Figure 1 of 40 CFR 60.7(d) or as specified/approved by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility. **(R 336.1213(3), 40 CFR 60.7(d))**

6. Emission test plans and schedules shall meet the requirements of Rules 2001, 2003, and 2004 and have prior approval of the AQD District Supervisor. A complete report of the test results shall be submitted in accordance with AQD requirements. **(R 336.2001, R 336.2002, R 336.2004)**

7. Upon issuance of the permit, Permittee shall submit a semi-annual report, postmarked on or before March 15 (for reporting period July 1 through December 31) and postmarked on or before September 15 (for reporting period January 1 through June 30), (note, this schedule has been altered per 40 CFR 60.59b(l) under the delegated authority to AQD), in compliance with 40 CFR 60.59b(g) that shall include the following: [2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)[3])**

   a) A summary of data collected for all applicable pollutants and parameters regulated, as follows: **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(1)[3])**

      i. A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, and fugitive ash emission levels achieved during any performance tests performed per 40 CFR 60.59b(d)(9) during the applicable period. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(1)(i)[3])**

      ii. A list of the highest emission level recorded for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, and particulate matter control device inlet temperature based on the data recorded under paragraphs 40 CFR 60.59b(d)(2)(ii)(a) through (d)(2)(ii)(d). **(R 336.1213(3), 40 CFR 62 Subpart FFF; R 336.1932(1), 40 CFR 60.39b; 40 CFR 60.59b(g)(1)(ii)[3])**

      iii. List the highest opacity level measured, based on the data recorded under paragraph 40 CFR 60.59b(d)(2)(i)(A). **(R 336.1213(3), 40 CFR 62 Subpart FFF, R336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(1)(iii)[3])**

      iv. The total number of days that the minimum number of hours of data for sulfur dioxide, nitrogen oxides, carbon monoxide, unit load, and particulate matter control device inlet temperature data were not obtained based on the data recorded under paragraph 40 CFR 60.59b(d)(6) of this section. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(1)(iv)[3])**

      v. The total number of hours that data for sulfur dioxide, nitrogen oxides, carbon monoxide, unit load, and particulate matter control device inlet temperature were excluded from the calculation of average emission concentrations or parameters based on the data recorded under paragraph 40 CFR 60.59b(d)(7) of this section. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(1)(v)[3])**

   b) The summary of data reported under paragraph 40 CFR 60.59b(g)(1) shall also include the types of data specified in 40 CFR 60.59b(g)(1)(i) through (v) for the 12-month period preceding the applicable period reported. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(2)[3])**

   c) The summary of data shall also highlight any emission or parameter levels that did not achieve the emission or parameter limits specified under the applicable requirement. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(g)(3)[3])**

      i. For the purposes of the above condition, "highlight" shall mean to list the deviation or limit/applicable requirement exceeded, the duration of the exceedance or deviation, and the date of the exceedance or deviation. Quarterly emission reports may be incorporated by reference. This report does not need to list the reasons for not achieving the emission or parameter limits or corrective actions taken. **(R 336.1213(3))**

   d) Documentation of periods when all certified chief facility operators and certified shift supervisors are off site for more than 12 hours. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), CFR 60.39b, 40 CFR 60.59b(g)(5)[3])**

8. Upon issuance of the permit, Permittee shall submit a semi-annual report, postmarked on or before March 15 (for reporting period July 1 through December 31) and postmarked on or before September 15 (for reporting period January 1 through June 30), (note, this schedule has been altered per 40 CFR 60.59b(l) under the delegated authority to AQD), that includes the information specified in 40 CFR 60.59b(h)(1) through (h)(5) for

any recorded pollutant or parameter that does not comply with the applicable pollutant or parameter limit.[2] **(R 336.1213(3), 40 CFR 62 Subpart FFF, R336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(h)[3])**

a. The semiannual report shall include information recorded under paragraph 40 CFR 60.59b(d)(3) for sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature, and opacity. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(h)(1)[3])**

   i. This will be an identification of calendar dates when the average emission concentrations, percent reductions, or operating parameters were exceeded, reasons for exceedances, and a description of corrective action(s) taken. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), R 336.1213(3), 40 CFR 60.59b(d)(3)[3])**

b. For each date recorded as required by paragraph 40 CFR 60.59b(d)(3) and reported as required by 40 CFR 60.59b(h)(1), the semiannual report shall include the sulfur dioxide, nitrogen oxides, carbon monoxide, municipal waste combustor unit load level, particulate matter control device inlet temperature, or opacity data which was in exceedance, as applicable, recorded under paragraphs 40 CFR 60.59b(d)(2)(ii)(A) through (d)(2)(ii)(D) and (d)(2)(i)(A), as applicable, which shall include data for the entire calendar day. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(h)(2)[3])**

c. If the test reports recorded under paragraph 40 CFR 60.59b(d)(9) document any particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, and fugitive ash emission levels that were above the applicable pollutant limits, the semi-annual report shall include a copy of the test report documenting the emission levels and the corrective actions taken. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(h)(3)[3])**

9. All reports submitted under paragraphs 40 CFR 60.59b(g) and (h), shall be submitted as a paper copy, postmarked on or before the submittal dates specified under these paragraphs, and maintained on-site as a paper copy for a period of 5 years. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(j)[3])**

10. All records specified under paragraphs 40 CFR 60.59b(d) and (e) shall be maintained on site in either paper copy or computer-readable format, unless an alternative format is approved by the Administrator. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(k)[3])**

11. If the permittee would prefer a different annual or semiannual date for submitting the periodic reports required by paragraphs 40 CFR 60.59b(g), and (h), then the dates may be changed by mutual agreement between the owner/operator and the Administrator, in accordance with the procedures specified in 60.19(c) of 40 CFR 60, Subpart A. **(R 336.1213(3), 40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.39b, 40 CFR 60.59b(l)[3])**

12. Permittee shall furnish a written notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. **(40 CFR 60.7(a)(1))**

13. Permittee shall furnish a written notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days (or as soon as practicable) before the change is commenced. **(40 CFR 60.7(a)(4))**

14. If facility proposes to replace components, and the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility, Permittee shall furnish written notification of the proposed replacements, postmarked 60 days (or as soon as practicable) before the construction of the replacement is commenced. **(40 CFR 60.15(d))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
SVBOILER011	102[2]	337.5[2]	**(40 CFR 52.21, R 336.1221, R336.1201(3))**
SVBOILER012	102[2]	337.5[2]	**(40 CFR 52.21, R 336.1221, R336.1201(3))**
SVBOILER013	102[2]	337.5[2]	**(40 CFR 52.21, R 336.1221, R336.1201(3))**

IX. OTHER REQUIREMENT(S)

1. Permittee shall calculate annual capacity factor for combined auxiliary fuel (natural gas and No. 2 fuel oil) using 40 CFR 60.43b(e), for each boiler, for all uses of auxiliary fuel, for the reporting period. The annual capacity factor shall be determined on a 12-month rolling average with a new capacity factor calculated at the end of each month. **(40CFR 60.44b(c), R 336.1213(3))**

2. Permittee shall not operate any boiler unless the malfunction, abatement and preventive maintenance program specified in Greater Detroit Resources Recovery Facility "Abnormal Condition Startup/Shutdown Malfunction Abatement Plan", dated February 2011and revisions thereto, have been implemented and is maintained. **(R336.1201(3), R 336.1910, R 336.1911)**

3. Permittee shall not substitute any fuels or wastes which would result in an appreciable change in the quantity or appreciable change in the quality of the emission of an air contaminant without prior notification to and approval by the Division. **(R336.1201(3))**
4. Permittee shall not fire RDF in more than two of the three boilers at any one time. The Permittee may fire natural gas or No. 2 fuel oil in one boiler while RDF is fired in the other two boilers.[2] **(40 CFR 52.21, R 336.1221, R336.1201(3))**

5. The chief facility operator and each shift supervisor shall obtain and maintain a current provisional operator certificate from either American Society of Mechanical Engineers (ASME) or a state certification program.[2] **(40 CFR 62.14105, R336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(a)[3])**

6. Each chief facility operator and shift supervisor must have completed full certification or must have scheduled a full certification examination with either ASME or a state certification program. **(40 CFR 60.35b, 40 CFR 60.54b(b)[3], R336.1932(1), 40 CFR 62.14105)**

7. The combustors shall not operate unless one of the following persons is on duty and at the affected facility: a fully or provisionally certified chief facility operator; shift supervisor; or control room operator. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(c)[3])**

8. A provisionally certified control room operator on-site may fulfill the requirements of 40 CFR 60.54b(c) to have a certified chief facility operator or shift supervisor (or provisionally certified chief facility operator or shift supervisor) on site at all times for twelve hours or less without notice. A provisionally certified control room operator on-site may fulfill the requirements of 40 CFR 60.54b(c) to have a certified chief facility operator or shift supervisor (or provisionally certified chief facility operator or shift supervisor) on site at all times for more than twelve hours but no more than two weeks without notice or less without further notice, however the period of such fulfillment must be report in the semiannual report under 40 CFR 60.59b(g)(5). Filling in for longer than two weeks requires written notice pursuant to 40 CFR 60.54b(c)(2)(iii).[2] **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(c)(2)[3])**

9. The permittee shall develop and update on a yearly basis a site-specific operating manual that addresses the following: [2] **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(e)[3])**

    a. Summary of applicable Emission Guideline standards
    b. Description of basic combustion theory applicable to a MSW unit
    c. Procedures for receiving, handling and feeding MSW
    d. Procedures for startup, shutdown, and malfunction
    e. Procedures for maintaining proper combustion air levels
    f. Procedures for operating within Emission Guideline standards
    g. Procedures for responding to periodic upset or off-specification conditions
    h. Procedures for minimizing particulate matter carryover
    i. Procedures for handling ash
    j. Procedures for monitoring emissions
    k. Reporting and recordkeeping procedures

10. A current copy of the operating manual referenced above shall be kept at the facility at all times. The manual and records shall be available for inspection upon request. [2] **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(g)[3])**

11. The permittee shall establish a training program to review the operating manual with each person with responsibilities affecting the operation of an affected facility including but not limited to chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load handlers: [2]

    a) by December 19, 1996; **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(f)(1)(iii)[3])**

or

    b) the date prior to the day the person assumes such responsibilities; **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(f)(1)(ii)[3])**

and

    c) annually, following the initial review. **(40 CFR 62 Subpart FFF, R 336.1932(1), 40 CFR 60.35b, 40 CFR 60.54b(f)(2)[3])**

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).
[2]This condition is federally enforceable and was established pursuant to Rule 201(1)(a).
[3] 40 CFR 60 Subpart Eb is not directly applicable to this facility. However, certain specific provisions in 40 CFR 60 Subpart Eb become specific applicable requirement in this ROP by either a reference or a requirement from 40 CFR 62 Subpart FFF, 40 CFR 60 Subpart Cb, or Michigan Air Pollution Control Rule 932 adopting by reference the 2000 version of 40 CFR 60 Subpart Cb.

FGCOLDCLEANERS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

Emission Unit: EUPARTS-WASHER

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use cleaning solvents containing more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. **(R 336.1213(2))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Cleaned parts shall be drained for no less than 15 seconds or until dripping ceases. **(R 336.1611(2)(b), R 336.1707(3)(b))**

2. The permittee shall perform routine maintenance on each cold cleaner as recommended by the manufacturer. **(R 336.1213(3))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The cold cleaner must meet one of the following design requirements:

   a. The air/vapor interface of the cold cleaner is no more than ten square feet. **(R 336.1281(h))**

   b. The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. **(R 336.1285(r)(iv))**

2. The cold cleaner shall be equipped with a device for draining cleaned parts. **(R 336.1611(2)(b), R 336.1707(3)(b))**

3. All new and existing cold cleaners shall be equipped with a cover and the cover shall be closed whenever parts are not being handled in the cold cleaner. **(R 336.1611(2)(a), R 336.1707(3)(a))**

4. The cover of a new cold cleaner shall be mechanically assisted if the Reid vapor pressure of the solvent is more than 0.3 psia or if the solvent is agitated or heated. **(R 336.1707(3)(a))**

5. If the Reid vapor pressure of any solvent used in a new cold cleaner is greater than 0.6 psia; or, if any solvent used in a new cold cleaner is heated above 120 degrees fahrenheit, then the cold cleaner must comply with at least one of the following provisions:

   a. The cold cleaner must be designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7. **(R 336.1707(2)(a))**

b. The solvent bath must be covered with water if the solvent is insoluble and has a specific gravity of more than 1.0. **(R 336.1707(2)(b))**

c. The cold cleaner must be controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the AQD. **(R 336.1707(2)(c))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**

2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**

   a. A serial number, model number, or other unique identifier for each cold cleaner.

   b. The date the unit was installed, manufactured or that it commenced operation.

   c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).

   d. The applicable Rule 201 exemption.

   e. The Reid vapor pressure of each solvent used.

   f. If applicable, the option chosen to comply with Rule 707(2).

3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. **(R 336.1611(3), R 336.1707(4))**

4. As noted in Rule 611(2)(c) and Rule 707(3)(c), if applicable, an initial demonstration that the waste solvent is a safety hazard shall be made prior to storage in non-closed containers. If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20 percent, by weight, is allowed to evaporate into the atmosphere shall be made on a monthly basis. **(R 336.1213(3), R 336.1611(2)(c), R 336.1707(3)(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

FGRULE290
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.

Emission Unit: EURULE290

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

1. Each emission unit that emits only noncarcinogenic volatile organic compounds or noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone if the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively. **(R 336.1290(a)(i))**

2. Each emission unit that the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively, and all the following criteria listed below are met: **(R 336.1290(a)(ii))**

   a. For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 1,000 or 500 pounds per month, respectively. **(R 336.1290(a)(ii)(A))**

   b. For noncarcinogenic air contaminants, excluding noncarcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with initial threshold screening levels greater than or equal to 0.04 microgram per cubic meter and less than 2.0 micrograms per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively. **(R 336.1290(a)(ii)(B))**

   c. For carcinogenic air contaminants with initial risk screening levels greater than or equal to 0.04 microgram per cubic meter, the uncontrolled or controlled emissions shall not exceed 20 or 10 pounds per month, respectively. **(R 336.1290(a)(ii)(C))**

   d. The emission unit shall not emit any air contaminants, excluding non-carcinogenic volatile organic compounds and noncarcinogenic materials which are listed in Rule 122(f) as not contributing appreciably to the formation of ozone, with an initial threshold screening level or initial risk screening level less than 0.04 microgram per cubic meter. **(R 336.1290(a)(ii)(D))**

3. Each emission unit that emits only noncarcinogenic particulate air contaminants and other air contaminants that are exempted under Rule 290(a)(i) and/or Rule 290(a)(ii), if all of the following provisions are met: **(R 336.1290(a)(iii))**

   a. The particulate emissions are controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than

or equal to 0.01 pound of particulate per 1,000 pounds of exhaust gases and which does not have an exhaust gas flow rate more than 30,000 actual cubic feet per minute. **(R 336.1290(a)(iii)(A))**

b. The visible emissions from the emission unit are not more than 5 percent opacity in accordance with the methods contained in Rule 303. **(R 336.1290(a)(iii)(B))**
c. The initial threshold screening level for each particulate air contaminant, excluding nuisance particulate, is more than 2.0 micrograms per cubic meter. **(R 336.1290(a)(iii)(C))**

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The provisions of Rule 290 apply to each emission unit that is operating pursuant to Rule 290. **(R 336.1290)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain records of the following information for each emission unit for each calendar month using the methods outlined in the DEQ, AQD Rule 290, Permit to Install Exemption Record form (EQP 3558) or an alternative format that is approved by the AQD District Supervisor. **(R 336.1213(3))**

   a. Records identifying each air contaminant that is emitted. **(R 336.1213(3))**

   b. Records identifying if each air contaminant is controlled or uncontrolled. **(R 336.1213(3))**

   c. Records identifying if each air contaminant is either carcinogenic or non-carcinogenic. **(R 336.1213(3))**

   d. Records identifying the ITSL and IRSL, if established, of each air contaminant that is being emitted under the provisions of Rules 290(a)(ii) and (iii). **(R 336.1213(3))**

   e. Material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions in sufficient detail to demonstrate that the actual emissions of the emission unit meet the emission limits outlined in this table and Rule 290. **(R 336.1213(3), R 336.1290(c))**

2. The permittee shall maintain an inventory of each emission unit that is exempt pursuant to Rule 290. This inventory shall include the following information. **(R 336.1213(3))**

   a. The permittee shall maintain a written description of each emission unit as it is maintained and operated throughout the life of the emission unit. **(R 336.1290(b), R 336.1213(3))**

   b. For each emission unit that emits noncarcinogenic particulate air contaminants pursuant to Rule 290(a)(iii), the permittee shall maintain a written description of the control device, including the designed control efficiency and the designed exhaust gas flow rate**. (R 336.1213(3))**

3. For each emission unit that emits noncarcinogenic particulate air contaminants pursuant to Rule 290(a)(iii), the permittee shall perform a monthly visible emission observation of each stack or vent during routine operating conditions. This observation need not be performed using Method 9. The permittee shall keep a written record of the results of each observation. **(R 336.1213(3))**

See Appendix 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**

2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**

3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that the requirements identified in the table below are not applicable to the specified emission unit(s) and/or flexible group(s). This determination is incorporated into the permit shield provisions set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii). If the permittee makes a change that affects the basis of the non-applicability determination, the permit shield established as a result of that non-applicability decision is no longer valid for that emission unit or flexible group.

Emission Unit/Flexible Group ID	Non-Applicable Requirement	Justification
FGBOILERS011-013	1. Clean Air Interstate Rule NO_x annual trading program pursuant to Rules 802a, 803, 821, and 830 through 834. 2. Clean Air Interstate Rule NO_x ozone season trading program pursuant to Rules 802a, 803 and 821 through 826. 3. Clean Air Interstate Rule SO_2 annual trading program pursuant to Rule 420.	Per Rule 803(1), the facility, as an existing source, combusts less than 50% fossil fuel (No. 2 fuel oil) as compared to MSW. This renewal ROP contains an enforceable restriction (also in the initial ROP), FGBOILERS011-013(II)(1)(b), that restricts Natural gas or No. 2 fuel oil usage to ≤ 10% based on calculating annual capacity factor when combusting Natural gas or No.2 fuel oil and MSW. Natural gas or No. 2 fuel oil is used as auxiliary fuel for start-up shutdown, malfunction, and to keep combustion temperature from falling below 1600ºF.
FGBOILERS011-013	1. 40 CFR Part 60 Subpart Ea	FGBOILERS011-013 undertook additional installation/replacement work on 5/1/95, 12/1/92, and 4/18/94 respectively to replace an existing 5-stage electrostatic precipitator emission control system (ESP) with a spray/dryer/fabric filter system and a lime injection system that includes lime storage and handling. These changes resulted in significant reductions in emissions and met 40 CFR Part 60 Subpart A (§ 60.14(e)(5)) modification exemption requirements thus excluding the emission units from the applicability requirements of 40 CFR Part 60 Subpart Ea.

APPENDICES

Appendix 1: Abbreviations and Acronyms

The following is an alphabetical listing of abbreviations/acronyms that may be used in this permit.

AQD	Air Quality Division	MM	Million
acfm	Actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	MW	Megawatts
BTU	British Thermal Unit	NA	Not Applicable
°C	Degrees Celsius	NAAQS	National Ambient Air Quality Standards
CAA	Federal Clean Air Act	NESHAP	National Emission Standard for Hazardous Air Pollutants
CAM	Compliance Assurance Monitoring	NMOC	Non-methane Organic Compounds
CEM	Continuous Emission Monitoring	NOx	Oxides of Nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
COM	Continuous Opacity Monitoring	PM	Particulate Matter
department	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns in diameter
dscf	Dry standard cubic foot	pph	Pound per hour
dscm	Dry standard cubic meter	ppm	Parts per million
EPA	United States Environmental Protection Agency	ppmv	Parts per million by volume
EU	Emission Unit	ppmw	Parts per million by weight
°F	Degrees Fahrenheit	PS	Performance Specification
FG	Flexible Group	PSD	Prevention of Significant Deterioration
GACS	Gallon of Applied Coating Solids	psia	Pounds per square inch absolute
gr	Grains	psig	Pounds per square inch gauge
HAP	Hazardous Air Pollutant	PeTE	Permanent Total Enclosure
Hg	Mercury	PTI	Permit to Install
hr	Hour	RACT	Reasonable Available Control Technology
HP	Horsepower	ROP	Renewable Operating Permit
H_2S	Hydrogen Sulfide	SC	Special Condition
HVLP	High Volume Low Pressure *	scf	Standard cubic feet
ID	Identification (Number)	sec	Seconds
IRSL	Initial Risk Screening Level	SCR	Selective Catalytic Reduction
ITSL	Initial Threshold Screening Level	SO_2	Sulfur Dioxide
LAER	Lowest Achievable Emission Rate	SRN	State Registration Number
lb	Pound	TAC	Toxic Air Contaminant
m	Meter	Temp	Temperature
MACT	Maximum Achievable Control Technology	THC	Total Hydrocarbons
MAERS	Michigan Air Emissions Reporting System	tpy	Tons per year
MAP	Malfunction Abatement Plan	µg	Microgram
MDEQ	Michigan Department of Environmental Quality	VE	Visible Emissions
mg	Milligram	VOC	Volatile Organic Compounds
mm	Millimeter	yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 pounds per square inch gauge (psig).

Appendix 1b. Definitions for Terms Used in This Permit

The following are definitions of specific terms used in this ROP to supplement those provided by state and federal rules. Terms not otherwise defined are to be interpreted in a general, common knowledge sense.

MSW

Municipal solid waste or municipal-type solid waste as defined in 40 CFR 60 Subpart Eb (§60.51b) per 40 CFR 60 Subpart Cb (§60.31b) and 40 CFR 62 Subpart FFF (§62.14101).

Emission Guideline(s)

All applicable portions of **40 CFR 60, Subpart Cb** –"Emissions Guidelines and Compliance Times For Large Municipal Waste Combustors That Are Constructed On Or Before September 20, 1994", and the applicable portions of **40 CFR 60, Subpart Eb** – "Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or For Which Modification or Reconstruction is Commenced After June 19, 1996" referenced therein.

Startup (for purposes of Emission Guideline requirements):

The setting in operation of the affected facility for any purpose. **(40 CFR 60.2)**

The Emission Guideline standards do not apply during period of startup. The duration of startup periods is limited to 3 hours per occurrence. **(40 CFR 60.58b(a)(1)[3])**

During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7). **(40 CFR 60.58b(a)(1)(i)[3])**

The startup period commences when the affected facility begins the continuous burning of municipal solid waste and does not include any warm-up period when the affected facility is combusting fossil fuel or other non-municipal solid waste fuel, and no municipal solid waste is being fed to the combustor. **(40 CFR 60.58b(a)(1)[3])**

Shutdown (for purposes of Emission Guideline requirements):

The cessation of operation of an affected facility for any purpose. **(40 CFR 60.2)**

The Emission Guideline standards do not apply during periods of shutdown. The duration of the shutdown period is limited to 3 hours per occurrence, except as allowed by **40 CFR 60.58b(a)(1)(iii)**[3].

During periods of startup, shutdown, or malfunction, monitoring data shall be dismissed or excluded from compliance calculations, but shall be recorded and reported in accordance with the provisions of 40 CFR 60.59b(d)(7). **(40 CFR 60.58b(a)(1)(i))**[3]

The shutdown period commences at the time MSW is no longer being continuously fed to the unit.

The shutdown period ends and the affected facility is "off line" when the oxygen concentration in the flue gas is sustained at a value greater than or equal to 16%. Note, however, for SO_2 and NO_x, 40 CFR 60.58b(b)(8)[3] allows a diluent cap of 14%. This option is available for definition of shutdown periods for these limits.

When the facility is "off line" it shall not be considered to be operating.

Shutdown (for purposes other than Emission Guideline requirements):

The cessation of operation of a source for any purpose. **(R 336.1119(d))**

The shutdown period commences at the time MSW is no longer being continuously fed to the unit.

When the facility is "off line" it shall not be considered to be operating.

Malfunction (for purposes of Emission Guideline requirements):

"Malfunction" means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal, or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(40 CFR 60.2)**

Malfunction (for purposes other than Emission Guideline requirements):

"Malfunction" means any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(R336.1113(d))**

CEM Data Point:

A valid CEM data point is produced when a CEM (except COM) completes a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. **(40 CFR 60.13(e)(2))**

One-Hour Average:

One-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. **(40 CFR 60.13(h))**

At least two data points per hour shall be used to calculate each 1-hour average. **(40 CFR 60.58[3])** [For example, **40 CFR 60.58b(e)(7)(i)[3]**]

If at least two data points are not available to calculate a 1-hour average the period is not considered in determining compliance with a standard.

One-Hour period:

Any 60-minute period commencing on the hour. **(40 CFR 60.2)**

Block Average (General):

A block average is the period that starts on the hour and ends on the hour, and encompasses the same hours each day.

Partial Block Period (for block periods greater than one-hour):

A block period that does not have MSW continuously burning due to start up or shutdown or the unit being off line, or which has an exemption of data use due to startup, shutdown, or malfunction exclusion provisions under the Emission Guidelines. The exemption of data use under the Emission Guidelines may create a partial block period. Emission standards or limitations applicable to block periods are not applicable to partial block periods.

Block Average (for purposes of Emission Guideline requirements):

Four-hour block average or 4-hour block average means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over 4-hour periods of time from 12:00 midnight to 4 a.m., 4 a.m. to 8 a.m., 8 a.m. to 12:00 noon, 12:00 noon to 4 p.m., 4 p.m. to 8 p.m., and 8 p.m. to 12:00 midnight. **(40 CFR 60.51b)**

Twenty Four-hour block average or 24-hour block average means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over the 24 hour period of time from 12:00 midnight to the following 12:00 midnight. **(40 CFR 60.51b)**

Except for "geometric averages or geometric means", block averages shall be determined by dividing the sum of the hourly averages by the number of hours in a block. In the event there is no valid data (or there is only exempt data) for one of the hours in a block period, then a block average cannot be determined for that block period.

In the event that two valid data points cannot be determined for one or more of the hours in a block period, then a block average cannot be determined for that block period, thus creating a "partial block period".

Block Average (for purposes other than Emission Guideline requirements):

A three hour block average means the average of all hourly emission concentrations or mass emissions measured over three hour periods of time for one of the following time blocks: Midnight to 3:00 AM; 3:00 AM to 6:00 AM; 6:00 AM to 9:00 AM; 9:00 AM to Noon; Noon to 3:00 PM; 3:00 PM to 6:00 PM; 6:00 PM to 9:00 PM, and 9:00 PM to Midnight.

Except for "geometric averages or geometric means", block averages shall be determined by dividing by the sum of the hourly averages by the number of hours in a block. In the event there is no valid data for one of the hours in a block period, then a block average cannot be determined for that block period.

In the event that two valid data points cannot be determined for one or more of the hours in a block period, then a block average cannot be determined for that block period, thus creating a "partial block period".

Daily Geometric Mean/Average

When a "24-hour daily geometric mean" [daily geometric average] is to be determined, this shall be done for a single 24 hour period each day, that being the 24 hour block period that runs from midnight to midnight.

24-hour daily arithmetic average

When a "24-hour daily arithmetic average" is to be determined, this shall be done for a single 24 hour period each day, that being the 24 hour block period that runs from midnight to midnight.

Good Combustion Practices (GCP)

As defined by U.S. EPA (1989), good combustion practices (GCP) for municipal waste combustors are designed to prevent and control air pollutant emissions. GCP incorporates numeric limits for three specific combustor operating parameters: CO emissions, maximum operating load, and minimum temperature of flue gases at the PM control device. Each of these parameters is continuously monitored for each combustor.

Appendix 2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. **(R 336.1213(4)(a), R 336.1119(a)(ii))**

Appendix 3. Monitoring Requirements

The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in FGBOILERS011-013, FGMSWPROC-LINES, and EULIME-FEEDSYS. Alternative monitoring procedures, methods, or specifications must be approved by the Air Quality Division.

BAGHOUSE INSPECTIONS

1. Inspections shall be conducted during scheduled outages or downtimes, and immediately or as soon as reasonably possible after observing visible emissions or pressure drops outside the normal range but not less frequently than what is specified in the respective emission unit or flexible group.

2. The operational condition, and if necessary, reasons for failure or malfunction of the bags, metal housings, fans, blowers, hopper bottom discharge valve, reverse air dampers or pulse jets (whichever is applicable), access doors and gaskets shall be determined during the inspection.

3. Any repairs and corrective actions needed to address the causes of malfunction or failure shall be performed promptly.

4. Permittee shall perform as necessary maintenance inspections of the baghouses which shall include visual inspection of the fabric filter bags for security of attachment, holes or tears in the fabric filter bags for security of attachment, holes or tears in the fabric and evidence of dust leakage.

Appendix 4. Recordkeeping

The permittee shall use the following approved formats and procedures for the recordkeeping requirements referenced in EULIME-FEEDSYS and FGMSWPROC-LINES. Alternative formats or procedures must be approved by the Michigan Department of Environmental Quality, Air Quality Division.

BAGHOUSE INSPECTIONS

A. A log of the inspection, cause(s) of malfunction or failure, repairs made and corrective actions taken shall be maintained on file for a period of at least five years. **(R336.1213(3))**

B. Permittee shall keep record of the preventive maintenance inspections. These records shall include the date and time of inspection, name of person making the inspection, identification of unit inspected, condition of unit and description of any corrective action taken. These records shall be maintained for a minimum of five years and made available to the Division upon request. **(R336.1213(3))**

Appendix 5. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6. Permits to Install

The following table lists any PTIs issued since the effective date of previously issued ROP No. 199600235

Permit to Install Number	Description of Equipment	Corresponding Emission Unit(s) or Flexible Group(s)
NA	NA	NA

The following ROP amendments or modifications were issued after the effective date of ROP No. MI-ROP-M4148-2011.

Permit to Install Number	ROP Revision Application Number/Issuance Date	Description of Change	Corresponding Emission Unit(s) or Flexible Group(s)
NA	201400147/ September 16, 2014	Name change to Detroit Renewable Power.	NA

Appendix 7. Emission Calculations

Specific emission calculations to be used with monitoring, testing or recordkeeping data are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible group Special Conditions. Therefore, this appendix is not applicable.

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ Report Certification form (EQP 5736) and MDEQ Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

Exhibit 10

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

June 10, 2016

Mr. Frank Capobianco
Facility Manager
Covanta Fairfax, Inc.
9898 Furnace Road
Lorton, Virginia 22079

Location: Fairfax County
Registration No.: 71920

Dear Mr. Capobianco:

Attached is a renewal Title V permit to operate a municipal solid waste combustion facility pursuant to 9 VAC 5 Chapter 80, Article 1, of the Virginia Regulations for the Control and Abatement of Air Pollution. This permit incorporates provisions from the Prevention of Significant Deterioration (PSD) Permit dated January 12, 1987, as amended February 18, 1988.

In the course of evaluating the application and arriving at a final decision to issue this permit, the Department of Environmental Quality (DEQ) deemed the application complete on April 7, 2016, and solicited written public comments by placing a newspaper advertisement in *The Washington Times* newspaper on April 12, 2016. The thirty-day comment period (provided for in 9 VAC 5-80-270) expired on May 13, 2016.

The permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

This permit approval shall not relieve Covanta Fairfax, Inc. of the responsibility to comply with all other local, state and federal permit regulations.

Issuance of this permit is a case decision. The Regulations, at 9 VAC 5-170-200, provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this permit is mailed or delivered to you. Please consult this and other relevant provisions for additional requirements for such requests. Additionally, as provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal to court by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218

In the event that you receive this permit by mail, three days are added to the period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia, at http://www.courts.state.va.us/courts/scv/rules.html, for additional information including filing dates and the required content of the Notice of Appeal.

If you have any questions concerning this permit, please contact Tom Valentour at (703) 583-3931.

Sincerely,

Thomas A. Faha
Regional Director

Attachment: Permit

c: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)
Chief, Permits and Technical Assessment Branch (3AP11), U.S. EPA, Region III

COMMONWEALTH of VIRGINIA

Molly Joseph Ward
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

Federal Operating Permit
Article 1

This permit is based upon the requirements of Title V of the Federal Clean Air Act and Chapter 80, Article 1 of the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution. Until such time as this permit is reopened and revised, modified, revoked, terminated or expires, the permittee is authorized to operate in accordance with the terms and conditions contained herein. This permit is issued under the authority of Title 10.1, Chapter 13, §10.1-1322 of the Air Pollution Control Law of Virginia. This permit is issued consistent with the Administrative Process Act and 9 VAC 5-80-50 through 9 VAC 5-80-300 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution of the Commonwealth of Virginia.

Authorization to operate a Stationary Source of Air Pollution as described in this permit is hereby granted to:

Permittee Name:	Covanta Fairfax, Inc.
Facility Name:	Covanta Fairfax
Facility Location:	9898 Furnace Road Lorton, Virginia 22079
Registration Number:	71920

Permit Number	Effective Date	Expiration Date
NRO71920	June 10, 2016	June 9, 2021

Thomas A. Faha
Regional Director

June 10, 2016
Signature Date

Permit consists of 55 pages.
Permit Conditions 1 to 157.
Source Test Report Format
Appendix A (Reserved)
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Facility Information

Permittee
Covanta Fairfax, Inc.
445 South Street
Morristown, NJ. 07960

Responsible Official
Frank Capobianco
Facility Manager

Facility
Covanta Fairfax, Inc.
9898 Furnace Road
Lorton, Virginia 22079

Contact Person
Joseph Herrmann
Environmental Specialist
(973) 882-7285

County-Plant Identification Number: 51-059-00560

Facility Description: NAICS 562213/SIC 4953 – Covanta Energy owns and operates a large municipal solid waste combustion facility with energy recovery under an agreement with Fairfax County. The facility maintains four 750 ton per day (nominal) waste combustion units with integrated reciprocating grate stokers and water wall boilers. Each combustor is also equipped with two natural gas-fired auxiliary burners. Products of combustion from each combustor are controlled by good combustion practices, ammonia injection (selective non-catalytic reduction), a combination of spray dyer and fabric filter baghouse, and activated carbon injection to reduce nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM and PM-10), acid gases, metals and complex organics among others. Steam generated by the boilers drive turbines that generate electricity for sale to the local electric company.

The facility operates under the Prevention of Significant Deterioration Permit dated January 12, 1987, as amended February 18, 1988, and a Consent Agreement dated April 3, 1998, implementing Reasonably Available Control Technology. The requirements of the RACT consent agreement have been fulfilled. The facility is also subject to state Rule 4-54 (9 VAC 5-40-7950 et seq.) of the Virginia Air Pollution Control Board's Regulations for the Control and Abatement of Air Pollution. This rule implements various emissions limitations, operating, compliance, and record keeping requirements established by the Emissions Guidelines, Subpart Cb. Rule 4-54 is the approved Clean Air Act Section 111(d)/129 plan for Large Municipal Waste Combustor (MWC) Units regulated under 40 CFR 62, Subpart VV sections 62.11640 through 62.11642 and was approved on October 29, 2004.

Emission Units

Equipment to be operated consists of:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment (Municipal Waste Combustors (MWC) and Auxiliary Burners)							
001-01 through 004-01	001-004	Ogden-Martin MSW Combustor with Martin-Stoker boiler system (4 MWC units)	343.75 MMBtu (heat input) (each MWC unit)	SNCR (ammonia injection); CY2000	---	NOx	PSD permit, dated January 12, 1987, amended February 18, 1988. NOx RACT Consent Agreement, dated April 3, 1998.
				Flakt spray dryer; CY1988	1, 4, 7 & 10	SO2 & MWC acid gases	
				Flakt fabric filter baghouse; CY1988	3, 6, 9 & 12	MWC metals & PM/PM_{10}	
				Activated carbon injection system	---	Mercury	
001-02 A,B through 004-01 A,B	001-004	Zurn natural gas-fired auxiliary burners (2 each MWC unit)	103.125 MMBtu (heat input) (each MWC unit)	Same as for the MWCs	Same as for the MWCs	Same as for the MWCs	Same as for the MWCs
Cold Solvent Degreasers							
005	n/a	Cold solvent degreasers	n/a	None	---	---	---
Emergency Diesel Generator							
IU-10	008-01	Emergency Diesel Engine Generator Set	435 bhp	None	---	---	---

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

Municipal Waste Combustor (MWC) Equipment– (001-01, 001-02, 002-01, 002-02, 003-01, 003-02, 004-01 and 004-02)

1. **MWC Limitations** – Particulate matter and municipal waste combustor (MWC) metal emissions, including cadmium, lead and mercury, from each MWC furnace shall be controlled by fabric filter baghouses. The fabric filter baghouses shall be provided with adequate access for inspection and shall be in operation when the MWC furnaces are operating.
(9 VAC 5-80-110 and Condition 8 and 9 of 1/12/87 PSD Permit)

2. **MWC Limitations** – Carbon monoxide (CO), nitrogen oxides (NO_x) and volatile organic compound (VOC) emissions from each MWC furnace shall be controlled by furnace design, proper operation, and good combustion practices as listed in Condition 12.
(9 VAC 5-80-110 and Condition 10 of 1/12/87 PSD Permit)

3. **MWC Limitations** – Municipal waste combustor organics (dioxins/furans) shall be controlled by proper operation and good combustion practices as listed in Condition 12.
(9 VAC 5-80-110 and Condition 16 of 1/12/87 PSD Permit)

4. **MWC Limitations** – The approved fuel for each municipal waste combustor (MWC) is municipal solid waste (MSW). A change in the fuel may require a permit to modify and operate. Acceptable municipal solid waste includes household waste, commercial/retail waste, institutional waste, incidental quantities of renovation waste, limited quantities of used pharmaceuticals from approved community/government collection events, and other waste with emission characteristics similar to the acceptable wastes as determined by the permittee and approved by the Regional Air Permit Manager, Northern Regional Office, or a combination thereof as defined in this condition. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, non-manufacturing activities at industrial facilities, and other similar establishments or facilities. Any other waste shall be reviewed in accordance with the approved Material Review Process (MRP). All Commercial/retail waste shall be mixed with other approved fuels prior to charging to the combustor, in order to prevent discreet loads from being charged to the boiler. Institutional waste includes material discarded by schools, non-medical waste discarded by hospitals, material discarded by non-manufacturing activities at prisons and government facilities, and material discarded by other similar establishments or facilities. Municipal solid waste does not include hazardous waste, as defined by federal and state waste regulations. In addition, municipal solid waste may not include industrial process or manufacturing waste, used oil, sewage sludge, wood pallets, construction, renovation, and demolition wastes, medical waste, motor vehicles (including motor vehicle parts or vehicle

fluff), unless approved via the approved MRP. The permittee shall monitor the waste delivered to the facility to ensure that only MSW as defined herein is being processed by the facility. This definition of MSW may in the future be expanded to include additional waste types not identified in this condition. To facilitate any revision, the permittee shall submit requests in writing to the Regional Air Permit Manager, Northern Regional Office. Information on waste composition and emissions characterizations shall be included with any submittal. The request and supporting information will be reviewed and evaluated to determine new source review applicability. The permit will be revised in accordance with the procedures established in the appropriate permitting regulations in the Regulations for the Control and Abatement of Air Pollution.
(9 VAC 5-80-110 and Condition 5 and 22 of 1/12/87 PSD Permit)

5. **MWC Limitations** – The approved auxiliary fuel for each MWC is natural gas. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-110 and Condition 11 of 1/12/87 PSD Permit)

6. **MWC Limitations** – The charging rate of each MWC shall not exceed 750 dry tons per day of MSW, adjusted for moisture content. For the purpose of this permit, the moisture adjustment shall be 18 percent by weight, resulting in an effective wet-based limit of 885 tons per day per MWC. Compliance shall be demonstrated based on monitoring conducted in accordance with Condition 21. This limit on charging rate applies on a thirty-day rolling average. The permittee may request the use of alternate moisture content by submitting information to support the use of the alternative. This may consist of an alternative value, or a process or methodology to determine a variable value. The request and supporting information must be submitted to the Air Permit Manager, Northern Regional Office, for consideration and approval prior to use. Appendix A to this permit will serve as the repository of the alternative values and approaches such that changes can be made to the value or approaches without amending the main body of this permit. The permit will be revised in accordance with the procedures established in 9 VAC 5-80-190 as appropriate.
(9 VAC 5-80-110 and Condition 5 of 1/12/87 PSD Permit)

7. **MWC Limitations** – The facility shall process no more than 1,095,000 tons per year of MSW, corrected for moisture. For the purpose of this permit, the moisture adjustment shall be 18 percent by weight, resulting in an effective wet-based limit of 1,292,100 tons per year. Compliance shall be demonstrated based on daily waste monitoring conducted in accordance with Condition 21. The permittee may request the use of alternate moisture content as provided in Condition 6.
(9 VAC 5-80-110 and Condition 5 of 1/12/87 PSD Permit)

8. **MWC Limitations** – The permittee shall operate each MWC at a load level no greater than 110 percent of the maximum demonstrated unit load for that unit. Maximum demonstrated load is defined as the highest 4-hour arithmetic average MWC steam load achieved during four consecutive hours during the most recent dioxin/furan performance test. Exceptions to this requirement are as follows:

   a. During the annual dioxin/furan performance test and the 2 weeks preceding the annual dioxin/furan performance test, the MWC unit load limit is not applicable.

   b. The MWC unit load limit may be waived in accordance with written permission granted by the Air Compliance Manager, Northern Regional Office, for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance, or advancing the state-of-the-art for controlling facility emissions.

   c. During calendar years where no performance test for dioxin/furans are required due to the reduced testing schedule as authorized in Condition 76, the affected MWC unit shall conform to the maximum demonstrated MWC unit load level limit as determined during the most recent performance test.

   d. Compliance shall be demonstrated based on data derived from steam flow or feed water flow measurements required in Condition 23.

   (9 VAC 5-80-110 and 9 VAC 5-40-8120 A)

9. **MWC Limitations** – The permittee shall maintain the temperature at the inlet of each fabric filter baghouse to within but no greater than 17 °C of the maximum demonstrated inlet fabric filter baghouse temperature. Maximum demonstrated inlet fabric filter baghouse temperature is defined as the highest 4-hour arithmetic average flue gas temperature measured at the fabric filter baghouse inlet during four consecutive hours during the most recent dioxin/furan performance testing. Exceptions to this requirement are as follows:

   a. During the annual dioxin/furan performance test and the 2 weeks preceding the annual dioxin/furan performance test, the fabric filter baghouse inlet temperature limit is not applicable.

   b. During calendar years where no performance test for dioxin/furans are required due to the reduced testing schedule as authorized in Condition 76, the affected MWC unit shall conform to the fabric filter baghouse inlet temperature limit as determined during

the most recent performance test.

c. Compliance shall be demonstrated based on data derived from temperature measurements required in Condition 25. These data shall be maintained on site and made available to Department of Environmental Quality (DEQ) personnel in order to determine compliance status.

(9 VAC 5-80-110 and 9 VAC 5-40-8120 B)

10. **MWC Limitations** – The permittee shall maintain the carbon injection system operating parameters that are the primary indicators of carbon mass feed rate to levels equal to or greater than those documented during the most recent mercury performance test. The permittee has identified gravimetric feed rate as the preferred indicator of carbon mass feed rate. Compliance shall be demonstrated based gravimetric feed rate measurements required in Condition 28. These data shall be maintained on site and made available to DEQ personnel in order to determine compliance status. During the annual dioxin/furan performance test and the two weeks preceding the annual dioxin/furan performance test, the MWC carbon injection rate is not applicable.
(9 VAC 5-80-110, 9 VAC 5-40-8140 J and NSPS Subpart Eb §60.53b (b)(2) and §60.53b (c)(2))

11. **MWC Limitations** – The permittee shall monitor and record the pressure drop across each fabric filter baghouse on a daily basis. These data shall be maintained on site and made available to DEQ personnel in order to determine compliance status.
(9 VAC 5-80-110 and Condition 15 of 1/12/87 PSD Permit)

12. **MWC Limitations** – The permittee shall operate and maintain each MWC unit utilizing methods and techniques consistent with proper operation and good combustion practices, and in a manner consistent with good air pollution control practices of minimizing emissions. For the purpose of this permit, at a minimum, proper operation and good combustion practices shall be demonstrated by the following:

a. Compliance with maximum MWC unit load level in Condition 8,

b. Compliance with the fabric filter baghouse inlet temperature level in Condition 9,

c. Maintaining minimum boiler/furnace temperature of 1800 °F averaged over a four-hour block (as determined by boiler roof-top temperature above 1135 °F, four-hour block average). This condition applies when each MWC unit is combusting MSW and does not apply when each MWC unit is only combusting auxiliary fuel.

d. Maintaining appropriate and stable excess air established to accommodate the variable energy and moisture content of the waste, as confirmed by hourly steam generation data,

e. Compliance with the CO emission standard in Condition 13 and CO emission limit in Condition 15, as confirmed by the CO monitoring system required in Condition 51, and

f. Compliance with the opacity limit in Condition 17, as confirmed by the opacity monitoring systems required in Condition 30.

(9 VAC 5-80-110 and Condition 10 of 1/12/87 PSD Permit)

13. **MWC Limitations (Rule 4-54 Emission Standards)** – Emissions from the operation of each MWC unit shall not exceed the limits specified below:

a. Particulate Matter (PM): 27 milligrams per dry standard cubic meter, corrected to 9 percent oxygen (O_2).
(9 VAC 5-40-7970)

b. Carbon Monoxide (CO): 100 parts per million by volume, corrected to 7 percent O2, dry basis, calculated as a 4-hour block arithmetic average. This 4-hour block average is defined as the average of four consecutive one-hour emission concentrations measured over periods of time from 12:00 midnight to 4 a.m., 4a.m. to 8 a.m., 8 a.m. to 12:00 noon, 12:00 noon to 4 p.m., 4p.m. to 8 p.m., and 8 p.m. to 12:00 midnight. (The 4-hour block average calculation should exclude those hours in which no waste was being combusted for the full hour.)
(9 VAC 5-40-7980 and 9 VAC 5-40-7960 C)

c. Sulfur Dioxide (SO_2): 29 parts per million by volume, or 25 percent of the potential SO_2 emission concentration (75 percent reduction by weight or volume), corrected to 7 percent O_2, dry basis, whichever is less stringent. Compliance with this standard is based on a 24-hour daily geometric mean. This 24-hour daily average is defined as the geometric mean of all hourly average emission concentrations measured over a 24-hour period between 12:00 midnight and the following midnight. (The 24-hour average calculation should exclude those hours in which no waste was being combusted for the full hour.)
(9 VAC 5-40-8020 and 9 VAC 5-40-7960 C)

d. Nitrogen Oxides (NOx): 205 parts per million by volume, corrected to 7 percent O_2, dry basis, based on a 24-hour daily arithmetic average. This 24-hour daily average is defined as the arithmetic average of all hourly average emission concentrations measured over a 24-hour period between 12:00 midnight and the following 12:00 midnight. (The 24-hour average calculation should exclude those hours in which no waste was being combusted for the full hour.)
(9 VAC 5-40-8050 and 9 VAC 5-40-7960 C)

e. Hydrogen Chloride (HCl): 29 parts per million by volume or 5 percent of the potential HCl emission concentration (95 percent reduction by weight or volume), corrected to 7 percent O_2, dry basis, whichever is less stringent.
(9 VAC 5-40-8030)

f. Cadmium: 0.040 milligrams per dry standard cubic meter, corrected to 7 percent O_2.
(9 VAC 5-40-7990)

g. Lead: 0.44 milligrams per dry standard cubic meter, corrected to 7 percent O_2.
(9 VAC 5-40-8000)

h. Mercury: 0.080 milligrams per dry standard cubic meter or 15 percent of the potential mercury emission concentration (85 percent reduction by weight), corrected to 7 percent oxygen, whichever is less stringent.
(9 VAC 5-40-8010)

i. Dioxin/Furan: 30 nanograms per dry standard cubic meter, expressed as total mass dioxins/furans, corrected to 7 percent oxygen.
(9 VAC 5-40-8040)

Compliance with these emission standards shall be determined by continuous emissions monitors (CEMs) or performance tests as detailed throughout this permit. The permittee may request that compliance with these emission standards be determined using carbon dioxide (CO_2) measurements corrected to an equivalent of 7 percent O_2. If authorized to do so, the permittee shall establish the relationship between O_2 and CO_2 levels as specified in Condition 35.
(9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

14. **MWC Limitations** – The emission standards in Condition 13 apply at all times except during periods of startup, shutdown, and malfunction. Duration of startup, shutdown, or malfunction periods are limited to three hours per occurrence, except as provided below:

    a. The startup period commences when the MWC unit begins continuous burning of MSW. This does not include any warm-up period when the MWC unit is combusting natural gas and no MSW is being fed to the combustor.

    b. Continuous burning is the continuous, semi-continuous, or batch feeding of MSW for purposes of waste disposal, energy production, or providing heat to the combustion system in preparation for waste disposal or energy production. The use of MSW solely to provide thermal protection of the grate or hearth during the startup period when MSW is not being fed to the grate is not considered to be continuous burning.

    c. For the purpose of compliance with the CO emission limit, if a boiler water level control or loss of combustion air control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is determined to be a malfunction, the duration of the malfunction period is limited to fifteen hours per occurrence.

    d. Maintaining minimum boiler/furnace temperature of 1800 °F averaged over a four-hour block (as determined by boiler roof-top temperature above 1135 °F, four-hour block average). This condition applies when each MWC unit is combusting MSW and does not apply when each MWC unit is only combusting auxiliary fuel.

    e. The selected parameters that define normal operation for the facility is when the dry inlet O_2 is less than or equal to sixteen percent, or steam flow is greater than or equal to 70,000 pounds per hour. If either of these conditions is not met, and CFI has ceased feeding MSW into the combustor, the combustor shall be considered shut down.

    (9 VAC 5-80-110 and 9 VAC 5-40-8100 B.1)

15. **MWC Limitations** – Emissions from the operation of each MWC unit shall not exceed the limits specified below:

SO2	44.4 lbs/hr	176.6 tons/yr
NOx (as NO_2)	206.3 lbs/hr	716.2 tons/yr
CO	158.1 lbs/hr	60.3 tons/yr
PM	7.5 lbs/hr	30.0 tons/yr
Lead	1.7 lbs/hr	6.7 tons/yr

Compliance shall be determined based on CEMS data, compliance with control device operational parameters/limitations, fuel restrictions and steam limits, MWC operational data, results of annual stack tests, record keeping and any other relevant information necessary which can provide credible evidence of emissions performance. Annual emissions shall be calculated on a calendar year basis.
(9 VAC 5-80-110 and Condition 6 of 1/12/87 PSD Permit)

16. **MWC Limitations** – Non criteria pollutant emissions from the operation of each MWC unit shall not exceed the limits specified below:

Cadmium	4.7×10^{-2} lbs/hr	0.19 tons/yr
Mercury	0.33 lbs/hr	1.32 tons/yr
Hydrogen Chloride (HCl)	28.53 lbs/hr	113.6 tons/yr
Total Dioxins & Furans (US EPA Equivalents)	2.0 ng/m^3	2.42×10^{-6} tons/yr
Hydrogen Fluoride (HF)	0.45 lbs/hr	1.78 tons/yr
Sulfuric Acid Mist	7.1 lbs/hr	28.3 tons/yr

Compliance with the limits shall be determined based on compliance with control device operational parameters/limitations, fuel restrictions and steam limits, MWC operational data, results of the annual stack tests, record keeping and any other relevant information necessary which can provide credible evidence of emissions performance. Annual emissions shall be calculated on a calendar year basis.
(9 VAC 5-80-110 and Condition 7 of 1/12/87 PSD Permit)

17. **MWC Limitations** – The permittee shall not cause or permit to be discharged into the atmosphere from each MWC unit any visible emissions in excess of 10 percent opacity during any six-minute period. Compliance shall be demonstrated annually as provided in Condition 71. Continuous opacity monitoring data collected for the purpose of compliance with this condition shall be used as an indicator of proper operation and good combustion practices and as a tool to implement corrective actions as necessary. The permittee may be required to conduct a retest of visible emissions after any corrective actions have been completed.
(9 VAC 5-80-110, 9 VAC 5-40-8060 and Condition 20 of 1/12/87 PSD permit)

18. **MWC Limitations** – The permittee shall not cause or permit to be discharged into the atmosphere visible emissions from combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (9 minutes per 3-hour period) as determined by Reference Method 22 observations as specified in Condition 79, except as provided in a. and b. below:

    a. The emission limit shall not cover visible emissions discharged inside buildings or enclosures of ash conveying systems, however the emission limit shall cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.

    b. The emission limit shall not apply during periods of maintenance and repair of the ash handling system.

    (9 VAC 5-80-110 and 9 VAC 5-40-8070)

19. **MWC Limitations** – The Department of Environmental Quality, Northern Regional Office may notify the permittee when meteorological conditions are favorable for the potential buildup of ozone concentrations in the area for more than 24 hours, when they exceed the National Ambient Air Quality Standard (8-hr standard of 0.08 ppm) and when concentrations are no longer expected to exceed the standard. A Code Red ozone day forecast by the local air quality advisory network shall be considered appropriate notification of such an event. After either of these notifications, the permittee shall take reasonable actions to minimize impact of the facility during periods of expected adverse air quality.
(9 VAC 5-80-110 and Condition 24 of 1/12/87 PSD permit)

20. **MWC Monitoring** – The permittee shall monitor and record daily hours of operation of each MWC unit.
(9 VAC 5-80-110 and Condition 18 of 1/12/87 PSD Permit)

21. **MWC Monitoring** – The permittee shall monitor and record the daily mass (in tons) of MSW combusted in each MWC. This shall be accomplished by measuring waste in delivery trucks as each truck passes over scales upon entering the facility, and subtracting the estimated portion of the daily waste stream that is separated for other disposal options prior to transfer to the pit. The sum of the delivery records minus the separated portion for each day divided by four units shall be used to approximate the quantity of waste that is combusted by each MWC over a rolling thirty-day period. The permittee may request or the DEQ may require the use of steam measurements as a surrogate to waste measured across the scale as the method to demonstrate compliance with the waste capacity and throughput limits in Condition 6 and 7. The request and supporting information must be submitted to the Air Permit Manager for consideration and approval prior to use. At a minimum, the submission should contain the approach, calculation methodology, and procedures to verify the correlation between waste combusted and the steam generated. Appendix B to this permit will serve as the repository of the accepted approach, calculation methodology, and procedures to verify the correlation between waste combusted and the steam generated provided the result utilizing the proposed approach does not trigger state or federal new source review applicability. The permit will be revised in accordance with the procedures established in 9 VAC 5-80-190 as appropriate.
(9 VAC 5-80-110, 40 CFR 60.53 and Condition 18 of 1/12/87 PSD Permit)

22. **MWC Monitoring** – The permittee shall continuously monitor temperature within the furnace to ensure proper operation, good combustion practices and compliance with the temperature requirement in Condition 12.
(9 VAC 5-80-110 and Condition 15 of 1/12/87 PSD Permit)

23. **MWC Monitoring** – The permittee shall demonstrate compliance with load level requirements in Condition 8 based on the procedures specified below:

    a. The permittee shall install, calibrate, maintain, and operate a steam flow meter or a feed water flow meter; measure steam (or feed water) flow in thousand pounds per hour on a continuous basis; and record the output of the monitor. Steam (or feed water) flow shall also be calculated in 4-hour block arithmetic averages. Steam flow measurements shall be made prior to any non-emergency steam venting locations.

    b. Measurement devices such as flow nozzles and orifices are not required to be re-calibrated after they are installed.

c. All signal conversion elements associated with steam (or feed water flow) measurements must be calibrated according to the manufacturer's instructions before each dioxin/furan performance test, and at least once per year.

(9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

24. **MWC Monitoring** – The permittee shall determine the maximum demonstrated MWC unit load during each performance test during which compliance with the dioxin/furan emission standard specified in Condition 13 is achieved. The maximum demonstrated MWC unit load shall be the highest 4-hour arithmetic average load achieved during four consecutive hours during the most recent test during which compliance with the dioxin/furan emission limit was achieved. The measured MWC unit loads and calculated maximum demonstrated MWC unit loads required by this condition shall be displayed in the performance test report(s) submitted in accordance with Condition 69.
(9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

25. **MWC Monitoring** – The permittee shall install, calibrate, maintain, and operate a device for measuring the temperature of the flue gas stream at the inlet to each fabric filter baghouse on a continuous basis. The temperature shall be calculated in 4-hour block arithmetic averages to determine compliance with the maximum fabric filter baghouse, inlet temperature requirements in Condition 9.
(9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

26. **MWC Monitoring** – The maximum demonstrated fabric filter baghouse inlet temperature shall be determined during each performance test for dioxins/furans during which compliance with the dioxin/furan emission standard specified in Condition 13 is achieved. The maximum demonstrated fabric filter baghouse inlet temperature shall be the highest 4-hour arithmetic average temperature achieved at the fabric filter baghouse inlet during four consecutive hours during the most recent test during which compliance with the dioxin/furan limit was achieved.
(9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

27. **MWC Monitoring** – During the performance tests for mercury, the permittee shall estimate an average carbon mass feed rate (as specified below) based on carbon injection system operating parameters such as the gravimetric feed rate, hopper volume, hopper refill frequency, or other parameters appropriate to the feed system being employed.

    An average carbon mass feed rate in kilograms per hour or pounds per hour shall be estimated during each performance test for mercury emissions based on an 8-hour average. The mercury test occurs over an 8-hour period; three 2-hour test runs plus two hours to allow for port changes. Though mercury sampling is not being conducted during port changes, carbon injection is continuing in order to support required mercury removal. To obtain representative injection rates, the permittee must therefore maintain the same injection rate during port changes as maintained during the test period prior to the port changes.
    (9 VAC 5-80-110, 9 VAC 5-40-8140 J. and EPA document 0106-00-002-002, page 9-1)

28. **MWC Monitoring** – The permittee shall estimate the total carbon usage of the plant (kilograms or pounds) for each calendar quarter by two independent methods, according to the procedures specified below:

    a. The weight of carbon delivered to the plant, adjusted for silo inventory.

    b. Estimate the average carbon mass feed rate in kilograms per hour or pounds per hour for each hour of operation for each carbon injection system based on the operating parameters specified in Condition 10, and sum the results for carbon injection systems at the plant for the total number of hours of operation during the calendar quarter.

    (9 VAC 5-80-110 and 9 VAC 5-40-8140 J)

29. **MWC Monitoring** – The provisions of 40 CFR 60.13 – Monitoring Requirements, shall apply with regard to the emission standards and limits contained in Conditions 13, and 15 - 17, and installation, evaluation and operation of each CEMS required in this section.
    (9 VAC 5-80-110, 9 VAC 5-40-8140 A. and 40 CFR 60.13)

30. **MWC Monitoring** – The permittee shall install, calibrate, maintain and operate a continuous opacity monitor system (COMS) for measuring opacity from each MWC stack in accordance with the provisions listed below:

    a. The COMS shall be installed, evaluated, and operated in accordance with 40 CFR 60.13.

    b. The output of the COMS shall be recorded on a 6-minute block average basis.

    c. The COMS shall conform to Performance Specification 1 in Appendix B of 40 CFR 60.

    (9 VAC 5-80-110, 9 VAC 5-40-8140 B. and Condition 15 of 1/12/87 of PSD Permit)

31. **MWC Monitoring** – The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) and record the output of the system for measuring the O_2 or CO_2 content of the flue gas at each location where carbon monoxide, sulfur dioxide, or nitrogen oxides are monitored. The monitor shall be installed, evaluated and operated in accordance with 40 CFR 60.13.
    (9 VAC 5-80-110, 9 VAC 5-40-8150 B. and Condition 15 of 1/12/87 PSD Permit)

32. **MWC Monitoring** – The span value of the O_2 (or CO_2) monitor shall be 25 percent O_2 (or CO_2).
    (9 VAC 5-80-110 and 9 VAC 5-40-8150 B.1)

33. **MWC Monitoring** – All O_2 or CO_2 CEMS shall conform to Performance Specification 3 in appendix B of 40 CFR 60 except for section 2.3 (relative accuracy requirement).
    (9 VAC 5-80-110 and 9 VAC 5-40-8150 B.4)

34. **MWC Monitoring** – The procedures of Appendix F of 40 CFR 60 except for section 5.1.1 (relative accuracy test audit) shall apply to the O_2 or CO_2 CEMS.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 B)

35. **MWC Monitoring** – If CO_2 is selected for use in diluent corrections, the relationship between oxygen and carbon dioxide levels shall be established during performance tests according to the procedures and methods as specified below:

    a. The fuel factor equation in Reference Method 3B shall be used to determine the relationship between oxygen and carbon dioxide at a sampling location. Reference method 3, 3A, or 3B, as applicable, shall be used to determine the oxygen concentration at the same location as the carbon dioxide monitor.

    b. Samples shall be taken for at least 30 minutes in each hour.

    c. Each sample shall represent a 1-hour average.

    d. A minimum of three runs shall be performed.

    (9 VAC 5-80-110 and 9 VAC 5-40-8150 B)

36. **MWC Monitoring** – The permittee shall install, calibrate, maintain, and operate a continuous emissions monitoring systems (CEMS) for measuring sulfur dioxide (SO_2) emissions prior to the spray dryers and discharged from each MWC stack, and record the output of the systems.
    (9 VAC 5-80-110, 9 VAC 5-40-8140 D. and Condition 15 of 1/12/87 PSD Permit)

37. **MWC Monitoring** – Compliance with the SO_2 emission standard contained in Condition 13 shall be determined by using the CEMS specified in Condition 36. The CEMS shall be used to calculate a 24-hour daily geometric average emission concentration or a 24-hour daily geometric average percent reduction using Reference Method 19, sections 4.3 and 5.4, as applicable. Compliance with the SO_2 emission limit shall be determined based on the 24-hour daily geometric average of the hourly arithmetic average emission concentrations using CEMS outlet data if compliance is based on an emission concentration or CEMS inlet and outlet data if compliance is based on a percent reduction.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

38. **MWC Monitoring** – At a minimum, valid SO_2 CEMS hourly averages shall be obtained as specified below, for 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter that each MWC unit is combusting MSW.

    a. At least two data points per hour shall be used to calculate each 1-hour arithmetic average.

    b. Each SO_2 1-hour arithmetic average shall be corrected to 7 percent O_2 on an hourly basis using the 1-hour arithmetic average of the O_2 (or CO_2) CEMS data.

    (9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

39. **MWC Monitoring** – The 1-hour arithmetic averages required under Condition 37 shall be expressed in parts per million corrected to 7 percent O_2 (dry basis) and used to calculate the 24-hour daily geometric average emission concentrations and daily geometric average emission percent reductions. The hourly average shall be calculated based on completion of a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period, as specified in 40 CFR 60.13(e)(2).
    (9 VAC 5-40-8140 D)

40. **MWC Monitoring** – All valid SO_2 CEMS data shall be used in calculating average emission concentrations and percent reductions even if the minimum CEMS data requirements of Condition 38 are not met.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

41. **MWC Monitoring** – When SO_2 emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems, as approved in writing by the Air Compliance Manager, Northern Regional Office and U.S. Environmental Protection Agency (EPA), or Reference Method 19 to provide, as necessary, valid emissions data for a minimum of 75 percent of the hours per day that the facility is operated and combusting MSW for 90 percent of the days per calendar quarter that each MWC is operated and combusting MSW.

    Whenever a continuous emission monitor is malfunctioning or will be out of service for calibration, maintenance or repair for a period of twenty four hours or more, surrogate compliance monitoring of the following parameters may be implemented with approval of the DEQ until such time as the emission monitor is back in operation:

For the sulfur dioxide outlet monitor, the permittee shall maintain slurry flow at the rate at which it was being fed prior to the malfunction or out of service period and will record the slurry feed rate twice per hour.
(9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

42. **MWC Monitoring** – The SO_2 CEMS shall be operated according to Performance Specification 2 in appendix B of 40 CFR 60.

    a. During each relative accuracy test run of the continuous emission monitoring system required by Performance Specification 2 in Appendix B of 40 CFR 60, SO_2 and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and the test methods specified below.

        (i) For SO_2, Reference Method 6, 6A, or 6C shall be used.

        (ii) For oxygen (or carbon dioxide), Reference Method 3, 3A, or 3B, as applicable, shall be used.

    b. The span value of the CEMS at the inlet to the sulfur dioxide control device shall be 125 percent of the maximum estimated hourly potential SO_2 of the MWC unit. The span value of the CEMS at the outlet of the SO_2 control device shall be 50 percent of the maximum estimated hourly potential SO_2 emissions of the MWC unit.

    (9 VAC 5-80-110 and 9 VAC 5-40-8140 D)

43. **MWC Monitoring** – Quarterly accuracy determinations and daily calibration drift tests on the SO_2 CEMS shall be performed in accordance with Procedure 1 in Appendix F of 40 CFR 60.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 D.13)

44. **MWC Monitoring** – The permittee shall install, calibrate, maintain, and operate a CEMS for measuring nitrogen oxides (NO_x) discharged from each MWC stack and record the output of the system.
    (9 VAC 5-80-110, 9 VAC 5-40-8140 G. and Condition 15 of 1/12/87 PSD Permit)

45. **MWC Monitoring** – Compliance with the NO_x emissions limits in Condition 13 shall be determined by using the CEMS specified in Condition 44. The CEMS shall be used to calculate a 24-hour daily arithmetic average emission concentration using Reference Method 19, section 4.1. Compliance shall be determined based on the 24-hour daily arithmetic average of the 1-hour arithmetic average emission concentrations, expressed in parts per million by volume (dry basis), using CEMS outlet data. The hourly average shall

be calculated based on completion of a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period, as specified in 40 CFR 60.13(e)(2).
(9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

46. **MWC Monitoring** – At a minimum, valid NOx CEMS hourly averages shall be obtained as specified below for 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter that each MWC unit is combusting MSW.

    a. At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.

    b. Each NOx 1-hour arithmetic average shall be corrected to 7 percent O_2 on an hourly basis using the 1-hour arithmetic average of the O_2 (or CO_2) CEMS data.

    (9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

47. **MWC Monitoring** – All valid NOx CEMS data must be used in calculating emission averages even if the minimum CEMS data requirements of Condition 46 are not met.
(9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

48. **MWC Monitoring** – When NO_x continuous emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained using other monitoring systems as approved in writing by the Air Compliance Manager, Northern Regional Office and EPA, or Reference Method 19, to provide, as necessary, valid emissions data for a minimum of 75 percent of the hours per day for 90 percent of the days per calendar quarter each MWC unit is operated and combusting MSW.

    Whenever a NOx CEMS continuous emission monitor is malfunctioning or will be out of service for calibration, maintenance or repair for a period of twenty four hours or more, surrogate compliance monitoring of the following parameters may be implemented with approval of the DEQ until such time as the emission monitor is back in operation.

    For the nitrogen oxide monitors, the permittee shall maintain ammonia flow at the rate at which it was being fed prior to the malfunction or out of service period and will record the ammonia feed rate twice per hour.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

49. **MWC Monitoring** – The permittee shall operate the NOx CEMS according to Performance Specification 2 in Appendix B of 40 CFR 60 and shall follow the procedures and methods below.

    a. During each relative accuracy test run of the CEMS required by Performance Specification 2 in Appendix B of 40 CFR 60, NOx and oxygen (or carbon dioxide) data shall be collected concurrently (or within a 30- to 60-minute period) by both the continuous emission monitors and the test methods specified below.

        (i) For NOx, Reference Methods 7, 7A, 7C, 7D or 7E shall be used.

        (ii) For oxygen (or carbon dioxide), Reference Method 3, 3A, or 3B, as applicable, shall be used.

    b. The span value of the CEMS shall be 125 percent of the maximum estimated hourly potential NOx emissions of the MWC unit.

    (9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

50. **MWC Monitoring** – Quarterly accuracy determinations and daily calibration drift tests for the NOx CEMS shall be performed in accordance with Procedure 1 in Appendix F of 40 CFR 60.
    (9 VAC 5-80-110 and 9 VAC 5-40-8140 G)

51. **MWC Monitoring** – The permittee shall install, calibrate, maintain, and operate a CEMS for measuring CO at the combustor outlet or in the exhaust stack and record the output of the system.
    (9 VAC 5-80-110, 9 VAC 5-40-8150 C. and Condition 15 of 1/12/87 PSD Permit)

52. **MWC Monitoring** – Compliance with the CO emissions limit in Condition 13 shall be determined by using the CEMS specified in Condition 51 based on a 4-hour block arithmetic average. The 4-hour block arithmetic average shall be calculated from 1-hour arithmetic averages expressed in parts per million by volume corrected to 7 percent oxygen (dry basis). The 1-hour arithmetic averages shall be calculated using the data points generated by the continuous emission monitoring system.
    (9 VAC 5-40-8150 C)

53. **MWC Monitoring** – At a minimum, valid CO CEMS hourly emissions averages shall be obtained as specified below for 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter that each MWC unit is combusting MSW.

    a. At least 2 data points per hour shall be used to calculate each 1-hour arithmetic average.

    b. Each CO 1-hour arithmetic average shall be corrected to 7 percent O2 on an hourly basis using the 1-hour arithmetic average of the O2 (or CO2) CEMS data.

    (9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

54. **MWC Monitoring** – All valid CO CEMS date must be used in calculating emission averages even if the minimum CEMS data requirements of Condition 53 are not met. (9 VAC 5-40-8150 C)

55. **MWC Monitoring** – When carbon monoxide continuous emission data are not obtained because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained using other monitoring systems, as approved in writing by the Regional Air Compliance Manager, Northern Regional Office and EPA, or Reference Method 10 to provide, as necessary, the minimum valid emission data.
    (9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

56. **MWC Monitoring** – The permittee shall operate the CO CEMS according to Performance Specification 4A in Appendix B of 40 CFR 60 and shall follow the procedures and methods below:

    a. During each relative accuracy test run of the CEMS performed in accordance with Performance Specification 4A, CO and O_2 (or CO_2) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and the test methods specified below:

        (i) For carbon monoxide, Reference Method 10, 10A, or 10B.

        (ii) For oxygen (or carbon dioxide), Reference Method 3, 3A, or 3B, as applicable.

    b. The span value of the CO CEMS shall be 125 percent of the maximum estimated hourly potential CO emissions of the each MWC unit.

    (9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

57. **MWC Monitoring** – Quarterly accuracy determinations and daily calibration drift tests for the CO CEMS shall be performed in accordance with Procedure 1 in Appendix F of 40 CFR 60.
(9 VAC 5-80-110 and 9 VAC 5-40-8150 C)

58. **MWC Recordkeeping** – The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Air Compliance Manager, Northern Regional Office. These records shall include, but are not limited to; those provided in Conditions 59 through 66 below and shall include the calendar date for each record. The records shall be maintained onsite in either paper copy or computer-readable format, unless the Air Compliance Manger approves an alternative format, and shall be available on-site for inspection by DEQ for a period of at least five years.
(9 VAC 5-80-110, 9 VAC 5-40-8160 B, 9 VAC 5-40-8160 B.1., 9 VAC 5-40-8160 H and Condition 7 of Part II of 1/12/87 PSD Permit)

59. **MWC Recordkeeping** – The permittee shall record the emission concentrations, parameter data and calculated emission rates measured and determined as specified below:

    a. All 6-minute block average opacity levels as specified in Condition 30.

    b. All 1-hour average SO_2 emission concentrations as specified in Condition 37.

    c. All 1-hour average NOx emission concentrations as specified in Condition 45.

    d. All 1-hour average CO emission concentrations as specified in Condition 52.

    e. All 24-hour daily geometric average SO_2 emission concentrations and all 24-hour daily geometric average percent reductions in SO2 emissions as specified in Condition 37.

    f. All 24-hour daily arithmetic average NOx emission concentrations as specified in Condition 45.

    g. All 4-hour block or 24-hour daily arithmetic average CO emission concentrations as specified in Condition 52.

    h. All 4-hour block arithmetic average MWC unit load levels and fabric filter inlet temperatures as specified in Condition 9.

    (9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

60. **MWC Recordkeeping** – The permittee shall record each occurrence:

    a. Each calendar date for which the minimum number of hours of any of the data specified in subsections (i) through (v) of this condition have not been obtained including reasons for not obtaining sufficient data and a description of corrective actions taken.
        (i) Sulfur dioxide emissions data;
        (ii) Nitrogen oxides emissions data;
        (iii) Carbon monoxide emissions data;
        (iv) Municipal waste combustor unit load data; and
        (v) Particulate matter control device temperature data.

    b. The SO_2 emissions data, NO_x emissions data, or operational data (i.e., CO emissions, unit load, and fabric filter baghouse inlet temperature) that have been excluded from the calculation of average emission concentrations or parameters, and the reasons for excluding the data.

    (9 VAC 5-80-110 and 9 VAC 5-40-8160 B.5 & B.6)

61. **MWC Recordkeeping** – The permittee shall record the results of daily drift tests and quarterly accuracy determinations for SO_2, NO_x, and CO CEMS, as required under Appendix F of 40 CFR 60, Procedure 1.
    (9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

62. **MWC Recordkeeping** – The test reports documenting the results of all annual performance tests listed below, shall be recorded along with supporting calculations.

    a. The results of all annual performance tests conducted to determine compliance with the particulate matter, opacity, beryllium, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, hydrogen fluoride, sulfuric acid and fugitive ash emission limits.

    b. For all dioxin/furan performance tests, the maximum demonstrated MWC unit load and maximum demonstrated fabric filter baghouse inlet temperature (for each fabric filter baghouse) shall be recorded.

    (9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

63. **MWC Recordkeeping** – The permittee shall record the following data related to the activated carbon injection system.

    a. The average carbon mass feed rate (in kilograms per hour or pounds per hour) estimated as required in Condition 27 during all annual performance tests for mercury

emissions, with supporting calculations. The average carbon mass feed rate shall be based on an 8-hour average.

b. The average carbon mass feed rate (in kilograms per hour or pounds per hour) estimated for each hour of operation as required in Condition 28, with supporting calculations.

c. The total carbon usage for each calendar quarter estimated as specified in Condition 28, with supporting calculations.

d. Carbon injection system operating parameter data for the parameter(s) that are the primary indicator(s) of carbon feed rate (e.g., gravimetric feed rate) as specified in Condition 27.

(9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

64. **MWC Recordkeeping** – The permittee shall record the calendar dates and parameter data when the average carbon mass feed rates were less than the hourly carbon feed rates estimated during performance tests for mercury, with reasons for such feed rates and a description of corrective actions taken.
(9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

65. **MWC Recordkeeping** – The permittee shall record the calendar dates and parameter data when the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate (e.g. gravimetric feed rate) are below the level(s) estimated during the performance tests, with reasons for such occurrences and a description of corrective actions taken.
(9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

66. **MWC Recordkeeping** – The permittee shall record and maintain records of the hours of operation of each MWC unit and refuse combusted by each MWC unit.
(9 VAC 5-80-110, 40 CFR 60.53 and Condition 18 of 1/12/87 PSD Permit)

67. **MWC Testing** – In order to facilitate continuing compliance assessments, the permitted facility shall be constructed so as to allow for safe emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. Test ports shall be provided when requested at the appropriate locations in accordance with the applicable performance specifications and test methods (reference 40 CFR Part 60, Appendix B).
(9 VAC 5-80-110 and Condition 12 of 1/12/87 PSD Permit)

68. **MWC Testing** – The procedures and test methods presented in the Conditions 70 through 84 shall be used to demonstrate compliance with the emission standards provided in Conditions 13 and emission limits in Conditions 15 through 18 for particulate matter, cadmium, mercury, lead, hydrogen chloride, dioxin/furan, hydrogen fluoride, sulfuric acid mist, opacity and fugitive ash following the provisions of 40 CFR 60.8, with the exception of Paragraph (a).
(9 VAC 5-80-110, 9 VAC 5-40-8140 A. and 40 CFR 60.8)

69. **MWC Testing** – The permittee shall submit a test protocol at least thirty days prior to the testing required in Conditions 70 through 80. The protocol(s) may contain notification and information related to one or more performance tests. Results of tests shall be reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Air Compliance Manager, Northern Regional Office. Two copies (one paper copy, and one on removable electronic media) of the test results shall be submitted to the Air Compliance Manager, Northern Regional Office within sixty days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-80-110, 9 VAC 5-50-30 and Condition 14 of 1/12/87 PSD Permit)

70. **MWC Testing** – The permittee shall conduct an emission test for particulate matter from each MWC each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission standard in Condition 13 and emission limit in Condition 15 using the test methods and procedures provided below:

    a. Reference Method 1 shall be used to select sampling site and number of traverse points.

    b. Reference Method 3, 3A, or 3B, as applicable, shall be used for gas analysis.

    c. Reference Method 5 shall be used for determining compliance with the particulate matter emission standard contained in Condition 13 and emission limit in Condition 15. The minimum sample volume shall be 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160 +/- 14 °C. An O2 or CO2 measurement shall be obtained simultaneously with each Reference Method 5 run.

    d. As specified in 9 VAC 5-40-30, all performance tests shall consist of three test runs. The average of the particulate matter emission concentrations from the three test runs, one of which shall include normal soot-blowing operations, shall be used to determine compliance.

    (9 VAC 5-80-110, 9 VAC 5-40-8140 B. and Condition 13 of 1/12/87 PSD Permit)

71. **MWC Testing** – The permittee shall conduct an emission test for opacity from each MWC each calendar year (no more than 12 calendar months following the previous emission test) using Reference Method 9 to demonstrate compliance with the emission limit in Condition 17.
(9 VAC 5-80-110, 9 VAC 5-40-8140 B. and Condition 13 of 1/12/87 PSD Permit)

72. **MWC Testing** – The permittee shall conduct emissions tests for cadmium and lead from each MWC each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission standards in Condition 13 and emission limits in Conditions 15 and 16 using the test methods and procedures provided below:

    a. Reference Method 1 shall be used for determining the location and number of sampling points.

    b. Reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis.

    c. Reference Method 29 shall be used for determining compliance with the cadmium and lead emission standards and limits.

    d. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Reference Method 29 test run for cadmium and lead.

    e. All performance tests shall consist of a minimum of three test runs conducted under representative full load operating. The average of the cadmium or lead emission concentrations from three test runs or more shall be used to determine compliance.

    (9 VAC 5-80-110, 9 VAC 5-40-8140 C. and Condition 13 of 1/12/87 PSD Permit)

73. **MWC Testing** – The permittee shall conduct an emission test for mercury from each MWC each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission standard in Conditions 13 and emission limit in Condition 16 using the test methods and procedures provided below:

    a. Reference Method 1 shall be used for determining the location and number of sampling points.

    b. Reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis.

    c. Reference Method 29 shall be used to determine the mercury emission concentration. The minimum sample volume when using Reference Method 29 for mercury shall be

1.7 cubic meters.

d. An O2 (or CO2) measurement shall be obtained simultaneously with each Reference Method 29 test run for mercury.

e. The percent reduction in the potential mercury emissions ($\%P_{Hg}$) is computed using the following equation:

$$(\%PHg) = \left(\frac{Ei - Eo}{Ei}\right) x\ 100$$

where:

%PHg = percent reduction of the potential mercury emissions achieved.

Ei = potential mercury emission concentration measured at the control device inlet, corrected to 7 percent oxygen (dry basis).

Eo = controlled mercury emission concentration measured at the mercury control device outlet, corrected to 7 percent oxygen (dry basis).

f. All performance tests shall consist of a minimum of three test runs conducted under representative full load operating conditions. The average of the mercury emission concentrations or percent reductions from three test runs or more is used to determine compliance.

(9 VAC 5-80-110, 9 VAC 5-40-8140 C. and Condition 13 of 1/12/87 PSD Permit)

74. **MWC Testing** – The permittee shall conduct and emission test for hydrogen chloride from each MWC each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the hydrogen chloride emission standard in Condition 13 and emission limit in Condition 16 using the test methods and procedures provided below:

a. Reference Method 26 or 26A, as applicable, shall be used to determine the hydrogen chloride emission concentration. The minimum sampling time for Reference Method 26 shall be 1 hour.

b. An O2 (or CO2) measurement shall be obtained simultaneously with each Reference Method 26 test run for hydrogen chloride.

c. The percent reduction in potential hydrogen chloride emissions (% P_{HCl}) is computed using the following equation:

$$(\%PHCl) = \left(\frac{Ei - Eo}{Ei}\right) x\,100$$

where:
%PHCl = percent reduction of the potential hydrogen chloride emissions achieved.

Ei = potential hydrogen chloride emission concentration measured at the control device inlet, corrected to 7 percent oxygen (dry basis).

Eo = controlled hydrogen chloride emission concentration measured at the mercury control device outlet, corrected to 7 percent oxygen (dry basis).

d. All performance tests shall consist of three test runs under representative full load operating conditions. The average of the hydrogen chloride emission concentrations or percent reductions from the three test runs shall be used to demonstrate compliance.

(9 VAC 5-40-8140 E., 9 VAC 5-80-1180 and Condition 13 of 1/12/87 PSD Permit)

75. **MWC Testing** – The permittee shall conduct an emission test for dioxin/furan each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission standard in Condition 13 and emission limit in Condition 16 using the test methods and procedures provided below:

a. Reference Method 1 shall be used for determining the location and number of sampling points.

b. Reference Method 3, 3A, or 3B, as applicable, shall be used for flue gas analysis.

c. Reference Method 23 shall be used for determining the dioxin/furan emission concentration.

d. The minimum sample time shall be 4 hours per test run.

e. All performance tests shall consist of three test runs under representative full load operating conditions. The average of the dioxin/furan emission concentrations from the three test runs is used to demonstrate compliance.

f. An O2 (or CO2) measurement shall be obtained simultaneously with each Reference Method 23 test run for dioxin/furan.

(9 VAC 5-80-110, 9 VAC 5-40-8140 F. and Condition 13 of 1/12/87 PSD Permit)

76. **MWC Testing** – The permittee may elect to conduct annual performance tests for only one MWC unit per year when performance tests over the previous 2-year period indicate that dioxin/furan emissions are less than or equal to 15 nanograms per dry standard cubic meter (total mass) corrected to 7 percent O_2 for all MWC units. At a minimum, a performance test for dioxin/furan emissions shall be conducted annually (no more than 12 months following the previous performance test) for one MWC unit. Each year, one MWC unit shall be tested, and the other MWC units shall be tested in sequence (e.g., unit 1, unit 2, unit 3 and unit 4, as applicable) in the following years. If each annual performance test continues to indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass) corrected to 7 percent O_2, the permittee may continue conducting a performance test on only one MWC per year. If any annual performance test indicates a dioxin/furan emission level greater than 15 nanograms per dry standard cubic meter (total mass) corrected to 7 percent O_2, performance tests thereafter shall be conducted annually on all MWC units until and unless all annual performance tests for all MWC units over a 2-year period indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass) corrected to 7 percent O_2.
(9 VAC 5-80-110 and 9 VAC 5-40-8140 F.5)

77. **MWC Testing** – In the event the permittee intends to follow a reduced dioxin/furan testing schedule, notification of the intent to reduce the testing schedule shall be provided in the report required in Condition 81.
(9 VAC 5-80-110 and 9 VAC 5-40-8140 F)

78. **MWC Testing** – The permittee shall conduct emission tests for hydrogen fluoride and sulfuric acid from each MWC each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission limits in Condition 16 using appropriate test methods and procedures.
(9 VAC 5-80-110 and Condition 13 of 1/12/87 PSD Permit)

79. **MWC Testing** – The permittee shall conduct an emission test for fugitive ash on an annual basis (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission limits in Condition 18 using the test methods

and procedures provided below:

a. Reference Method 22 shall be used for determining compliance with the fugitive ash emission limit. The minimum observation time shall be a series of three 1-hour observations. The observation period shall include times when the facility is transferring ash from the MWC unit to the area where ash is stored or loaded into containers or trucks.

b. The average duration of visible emissions per hour shall be calculated from the three 1-hour observations. The average shall be used to determine compliance with the fugitive ash emission limit.

(9 VAC 5-80-110 and 9 VAC 5-40-8140 H)

80. **MWC Testing** – If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following methods in accordance with procedures approved by the DEQ as follows:

Pollutant	Test Method (40 CFR Part 60, Appendix A)
VOC	EPA Methods 18, 25, 25a
NO_x	EPA Method 7
SO_2	EPA Method 6
CO	EPA Method 10
Hydrogen Fluoride	EPA Method 26
Sulfuric Acid Mist	EPA Method 8

The table above is only required for those pollutants that have emission limits.
(9 VAC 5-80-110)

81. **MWC Reporting** – The permittee shall submit a semi-annual report including the information specified below, as applicable, according to the schedule provided in Condition 83. The time periods covering each semi-annual period shall be January 1st through June 30th and July 1st through December 31st.

a. A summary of data collected for all pollutants and parameters regulated under Rule 4-54 and this permit, including the information specified below:

(i) A list of the particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, hydrogen fluoride, sulfuric acid mist and fugitive ash emission levels achieved during the performance tests recorded under

Conditions 70-80.

(ii) A list of the highest emission level recorded for 24-hr SO_2, 24-hr NO_x, 4-hr CO, 4-hr MWC unit load level, and 4-hr fabric filter baghouse inlet temperature based on the data recorded under Condition 59.

(iii) List the highest opacity level measured based on the data recorded under Condition 59.

(iv) The total number of days that the minimum number of hours of data for SO_2, NO_x, CO, MWC unit load and fabric filter baghouse inlet temperature data were not obtained based on the data recorded under Condition 60.

(v) The total number of hours that data for SO_2, NO_x, CO, MWC unit load and fabric filter baghouse inlet temperature were excluded from the calculation of average emission concentrations or parameters based on the data recorded under Condition 60.

b. The summary of data reported under a above shall also provide the same types of data for the calendar year proceeding the year being reported, in order to provide a summary of performance over a two year period.

c. The summary of data in a. and b. above shall highlight any emission or parameter levels that did not achieve the emission or parameter limits specified in Article 54 and this permit.

d. A notification of intent to begin the reduced dioxin/furan performance testing schedule specified in Condition 76 during the following calendar year.

(9 VAC 5-80-110 and 9 VAC 5-40 8160 D)

82. **MWC Reporting** – The permittee shall submit a semi-annual report which includes the information specified below for any recorded pollutant or parameter that does not comply with the pollutant or parameter limit specified under Article 54 and this permit, according to the schedule specified in Condition 83. The time periods covering each semi-annual period shall be January 1st through June 30th and July 1st through December 31st.

a. Data concerning exceedances of SO2, NOx, and CO emission standards, MWC unit load level, and fabric filter baghouse inlet temperature, and opacity limits recorded under Condition 59 and 60.

b. If the test reports document any NOx, CO, particulate matter, opacity, cadmium, lead, mercury, dioxins/furans, hydrogen chloride, and fugitive ash emission levels that were above the applicable pollutant limits, include a copy of the test report or portion of that report documenting the emission levels and the corrective actions taken.

c. Data recorded under Conditions 64 and 65 for the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate.

(9 VAC 5-80-110 and 9 VAC 5-40-8160 E)

83. **MWC Reporting** – The permittee shall submit the data reports required in Conditions 81 and 82 no later than March 1st and September 1st of each year following the semiannual period in which the data were collected.
(9 VAC 5-80-110, 9 VAC 5-40-8160 D. and 9 VAC 5-40-8160 E)

84. **MWC Reporting** – All reports identified under Conditions 81 and 82 shall be submitted as a paper copy, postmarked on or before the submittal dates specified, and maintained on-site as paper copies for a period of five years.
(9 VAC 5-80-110 and 9 VAC 5-40-8160 G)

85. **MWC Reporting** – The permittee may request an alternative reporting schedule by submitting a written request to the Air Compliance Manager, Northern Regional Office. An alternative schedule may only begin after the permittee has received written authorization by the Department.
(9 VAC 5-80-110 and 9 VAC 5-40-8160 I)

86. **MWC Reporting** – The permittee shall submit a written report of excess emissions and either a monitoring systems performance report or summary report form, or both, in accordance with 40 CFR 60.7 (c), to the Air Compliance Manager, Northern Regional Office. The reports shall cover each calendar quarter and be postmarked by the 30th day following the end of each calendar quarter. The reports shall include the following information:

a. The magnitude of excess emissions computed in accordance with 9 VAC 5-40-41 B.6., any conversion factors used, and the date and time of commencement and completion of each period of excess emissions;

b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the source. The nature and cause of any malfunction (if known), the corrective action taken or preventative measure adopted;

c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

d. When no excess emissions have occurred or the continuous monitoring system have not been inoperative, repaired or adjusted, such information shall be stated in the report.

(9 VAC 5-80-110 and 40 CFR 60.7(c))

Cold Solvent Degreasing

These requirements in Conditions 87 through 91 apply to the use of cold cleaning machines that process metal parts and contain more than 1 liter of volatile organic compounds.

87. **Limitations** – Immersion cold cleaning machines shall have a freeboard ratio of 0.75 or greater unless the machines are equipped with a cover that are kept closed except when parts are being placed into or being removed from the machines.
(9 VAC 5-80-110 and 9 VAC 5-40-6840 A.)

88. **Limitations** – Immersion cold cleaning machines and remote reservoir cold cleaning machines shall:

a. Have a permanent, conspicuous label summarizing the operating requirements in Condition 89.

b. Be equipped with a cover that shall be closed at all times except during cleaning of parts or the addition or removal of solvent. For remote reservoir cold cleaning machines which drain directly into the solvent storage reservoir, a perforated drain with a diameter of not more than six inches shall constitute an acceptable cover.

(9 VAC 5-80-110 and 9 VAC 5-40-6840 A)

89. **Limitations** – Cold cleaning machines shall be operated in accordance with the following procedures:

a. Waste solvent shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

b. Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that solvent drains directly back to the cold cleaning machine.

c. Flushing or parts using a flexible hose or other flushing device shall be performed only within the freeboard area of the cold cleaning machine. The solvent spray shall be a solid fluid stream, not an atomized or shower spray.

d. When the cover is open, the cold cleaning machine shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between one and two meters (3.3 and 6.6 feet) upwind and at the same elevation as the tank lip.

e. Sponges, fabric, wood, leather, paper products and other absorbent materials shall not be cleaned in cold cleaning machines.

f. When a pump-agitated solvent bath is used, the agitator shall be operated to produce a rolling motion of the solvent with no observable splashing of the solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used.

g. Spills during solvent transfer and use of the cold cleaning machine shall be cleaned up immediately, and the wipe rags or other sorbent material shall be immediately stored in covered containers for disposal or recycling.

h. Work area fans shall be located and positioned so that they do not blow across the opening of the degreaser unit.

i. The permittee shall ensure that the solvent level does not exceed the fill line.

(9 VAC 5-80-110 and 9 VAC 5-40-6840 A)

90. **Limitations** – The permittee shall not use, sell, or offer for sale use in a cold cleaning machine any solvent with a vapor pressure of 1.0 millimeters of mercury (mm Hg) or greater, measured at 20 °C (68 °F) containing volatile organic compounds.
(9 VAC 5-80-110 and 9 VAC 5-40-6840 A.)

91. **Limitations** – The permittee shall maintain for not less than two years and shall provide to DEQ personnel, upon request, the information specified below. An invoice, bill of sale, certificate that corresponds to a number of sales, Material Safety Data Sheet, or other appropriate documentation acceptable to the Regional Air Compliance Manager, Northern

Regional Office, may be used to comply with this section.

a. The name and address of the solvent supplier.

b. The type of solvent including the product or vendor identification number.

c. The vapor pressure of the solvent measured in mm Hg at 20 ° C (68 °F).

(9 VAC 5-80-110 and 9 VAC 5-40-6840 A)

Facility Wide Conditions

92. **MWC Operator Training/Certification** – Each chief facility operator and shift supervisor shall obtain and maintain a current provisional operator training certification from the American Society of Mechanical Engineers as provided in the "Standard for the Qualification and Certification of Resource Recovery Facility Operators" (see 9 VAC 5-20-21) or a board-approved certification program, or shall have completed full certification or scheduled a full certification exam with either the American Society of Mechanical Engineers as provided in the "Standard for the Qualification and Certification of Resource Recovery Facility Operators" (see 9 VAC 5-20-21) or a board-approved certification program. The board-approved certification requirement may be met by obtaining a license from the Board of Waste Management Facility Operators provided the training and licensing is conducted in accordance with Chapter 22.1 (§54.1-2209 et seq.) of Title 54.1 of the Code of Virginia, and with 18VAC155 Chapter 20. Chief facility operators and shift supervisors who receive full certification will no longer be required to maintain provisional certification.
(9 VAC 5-80-110, 9 VAC 5-40-8130 A., 9 VAC 5-40-8130 B., 9 VAC 5-40-8130 I)

93. **MWC Operator Training/Certification** – The permittee shall ensure that the facility is operated at all times with a person on duty who is responsible for the proper operation of the facility and has a license from the Board for Waste Management Facility Operators in the correct classification.
(9 VAC 5-80-110 and 9 VAC 5-40-8130 C)

94. **MWC Operator Training/Certification** – The permittee shall ensure that a fully certified chief facility operator or a fully certified shift supervisor, or provisionally certified chief facility operator or shift supervisor who is scheduled to take the full certification exam, staffs the facility at any time the facility is operated. A provisionally certified control room operator or provisionally certified shift supervisor may temporarily stand in for up to twelve consecutive without any notification to DEQ. A provisionally certified control

room operator or provisionally certified shift supervisor may stand in for up to two consecutive weeks and shall notify the Regional Air Compliance Manager, Northern Regional Office in writing within five business days of the beginning of the stand-in period. A provisionally certified control room operator or provisionally certified shift supervisor may stand in for periods longer than two consecutive weeks if the permittee follows the notification procedures above and demonstrates to DEQ that a good faith effort is being made to ensure that a certified chief facility operator or certified shift supervisor is on site as soon as practicable.
(9 VAC 5-80-110, 9 VAC 5-40-8130 D. and John Seitz memorandum "Municipal Waste Combustor – Control Room Operator stand-in Provisions dated 5/14/1998)

95. **MWC Operator Training/Certification** – All chief facility operators, shift supervisors, and control room operators must complete the board-approved MWC operator training course. This requirement does not apply to chief facility operators, shift supervisors, and control room operators who have obtained full certification from the American Society of Mechanical Engineers prior to August 4, 1999. The permittee may request that the board waive this requirement for chief facility operators, shift supervisors, and control room operators who have obtained provisional certification from the American Society of Mechanical Engineers prior to August 4, 1999.
(9 VAC 5-80-110, 9 VAC 5-40-8110 B. and 9 VAC 5-40-8130 E)

96. **MWC Operator Training/Certification** – The permittee shall develop and update on a yearly basis a site-specific operating manual that shall, at a minimum, address the elements of MWC unit operation specified as follows:

    a. A summary of the applicable standards under this permit;

    b. A description of basic combustion theory applicable to a MWC unit;

    c. Procedures for receiving, handling, and feeding municipal solid waste;

    d. MWC unit startup, shutdown, and malfunction procedures;

    e. Procedures for maintaining proper combustion air supply levels;

    f. Procedures for operating the MWC unit within the standards established under this permit;

    g. Procedures for responding to periodic upset or off-specification conditions;

h. Procedures for minimizing particulate matter carryover;

i. Procedures for handling ash;

j. Procedures for monitoring MWC unit emissions;

k. Operating procedures for all air pollution control equipment;

l. Annual maintenance schedule for air pollution control equipment;

m. Reporting and record keeping procedures.

(9 VAC 5-80-110, 9 VAC 5-40-8130 F. and Part II Condition 9 of 1/12/87 PSD permit)

97. **MWC Operator Training/Certification** – The permittee shall establish a training program to review the operating manual annually with each person who has responsibilities affecting operation of the facility. This includes, but is not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane/load handlers.
(9 VAC 5-80-110 and 9 VAC 5-40-8130 G)

98. **MWC Operator Training/Certification** – The operating manual shall be in a location which is readily accessible to all persons required to undergo training. The operating manual and records of training shall be available for inspection by DEQ upon request.
(9 VAC 5-80-110 and 9 VAC 5-40-8130 H)

99. **MWC Operator Training/Certification** – All air pollution control equipment operators shall be trained and certified in the proper operation of all such equipment. Certification shall consist of a statement of time, place and nature of training provided.
(9 VAC 5-80-110 and Part II Condition 8 of 1/12/87 PSD permit)

100. **MWC Operator Training/Certification** – The permittee shall maintain the following records:

a. Records showing the names of the MWC chief facility operator, shift supervisors, and control room operators who have been provisionally certified by the American Society of Mechanical Engineers or an equivalent board-approved certification program as required by Condition 1 including the dates of initial and renewal certifications and documentation of current certification.

b. Records showing the names of the MWC chief facility operator, shift supervisors, and control room operators who have completed the EPA MWC operator training course or a board-approved equivalent course as required by Condition 4 including documentation of training completion.

c. Air pollution control equipment operator training required in Condition 99.

(9 VAC 5-80-110, 9 VAC 5-40-8160 B. and Part II Condition 8 of 1/12/87 PSD permit)

101. **MWC Operator Training/Certification** – The permittee shall record the names of persons who have completed a review of the operating manual as required by Condition 5 including the date of the initial review and subsequent annual reviews.
(9 VAC 5-80-110 and 9 VAC 5-40-8160 B)

102. **Emergency Diesel Engine Generator (IU-10) Limitations** – Except where this permit is more restrictive than the applicable requirement, the emergency diesel engine generator (IU-10) shall be operated in compliance with the requirements of 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and 40 CFR 63, Subpart A – General Provisions.
(9 VAC 5-80-110 A, 40 CFR §63.6665, Table 8 of 40 CFR 63, Subpart ZZZZ, and 40 CFR 63, Subpart A)

103. **Emergency Diesel Engine Generator (IU-10) Limitations** – For the emergency diesel engine generator (IU-10), the permittee shall:

a. Change oil and filter every 500 hours of operation or annually, whichever comes first;

b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Note 1: Sources have the option to utilize an oil analysis program as described in 40 CFR §63.6625 (i) or (j) in order to extend the specified oil change requirement in Condition 103.a
(Table 2c of 40 CFR 63, Subpart ZZZZ).

Note 2: If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in this Permit Condition (Table 2c of 40 CFR 63, Subpart ZZZZ), or if performing the work practice on the required schedule would otherwise pose an unacceptable risk

under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

(9 VAC 5-80-110 A, 40 CFR §63.6603(a), 40 CFR §63.6640 and Table 2c of 40 CFR 63 Subpart ZZZZ)

104. **Emergency Diesel Engine Generator (IU-10) Limitations** – In order for the emergency generator (IU-10) to be considered an emergency stationary reciprocating internal combustion engine (RICE) under 40 CFR 63, Subpart ZZZZ, the operation of the emergency generator (IU-10) is limited to emergency situations as specified in 40 CFR §63.6640(f)(1); maintenance checks and readiness testing for a limited number of hours per year as specified in 40 CFR §63.6640(f)(2)(i); and certain non-emergency situations for a limited number of hours per year as specified in 40 CFR §63.6640(f)(3). If the unit is not operated in accordance with 40 CFR §63.6640(f)(1), §63.6640(f)(2)(i) or §63.6640(f)(3), the emergency generator (IU-10) will not be considered an emergency engine under 40 CFR Part 63, Subpart ZZZZ and must meet the emissions standards and other applicable requirements for a non-emergency engine.
(9 VAC 5-80-110 A and 40 CFR §63.6640 (f))

105. **Emergency Diesel Engine Generator (IU-10) Limitations** – During periods of startup, the permittee shall minimize the time spent at idle for the emergency generator (IU-10) and minimize the generator's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emissions limitations apply.
(9 VAC 5-80-110 A and 40 CFR 63.6625 (h))

106. **Emergency Diesel Engine Generator (IU-10) Limitations** – The permittee shall:

    a. Operate and maintain the emergency generator (IU-10) according to the manufacturer's emission-related written operation and maintenance instructions; or

    b. Develop and follow its own maintenance plan which must provide to the extent practicable for the maintenance and operation of the emergency generator (IU-10) in a manner consistent with good air pollution control practice for minimizing emissions.

    (9 VAC 5-80-110 A, 40 CFR §63.6625(e), 40 CFR 63.6640(a) and Table 6 of 40 CFR 63 Subpart ZZZZ)

107. **Emergency Diesel Engine Generator (IU-10) Monitoring** – The permittee shall install a non-resettable hour meter on the emergency generator (IU-10) if one is not already installed.

(9 VAC 5-80-110 A and 40 CFR §63.6625(f))

108. **Emergency Diesel Engine Generator (IU-10) Recordkeeping** – The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the DEQ. These records shall include but are not limited to:

    a. Records of the maintenance conducted on the emergency generator (IU-10) in order to demonstrate that the engine is operated and maintained according to the maintenance plan required by Condition 106.

    b. Records of the hours of operation of the emergency generator (IU-10) that are recorded on a non-resettable hour meter. The permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency, and how many hours are spent for non-emergency operation, including what classified the operation as non-emergency.

    These records shall be available for inspection by the DEQ and shall be current for the most recent five years.
    (9 VAC 5-80-110 A and 40 CFR 63.6655)

109. **Emergency Diesel Engine Generator (IU-10) Notifications** – The permittee shall meet the applicable notification requirements in §63.6645 and in 40 CFR 63, Subpart A as they pertain to the emergency generator (IU-10).
    (9 VAC 5-80-110 and 40 CFR 63.6595(c))

110. **Emergency Diesel Engine Generator (IU-10) Reporting** – The permittee shall submit the applicable compliance report in Subpart ZZZZ Table 7 per §63.6650(a). The report shall contain the information required by Table 7, §63.6650(c), (e), and (f), and submitted per the schedule required by §63.6650(b).

    Copies of the compliance reports shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO.
    (9 VAC 5-80-110 and 40 CFR 63.6650)

Insignificant Emission Units

111. **Insignificant Emission Units** - The following emission units at the facility are identified in the application as insignificant emission units under 9 VAC 5-80-720:

Emission Unit No.	Emission Unit Description	Citation (9 VAC 5-80-720)	Pollutant(s) Emitted (9 VAC 5-80-720B)	Rated Capacity (9 VAC 5-80-720C)
IU-1a	Fuel Oil UST	720 B	VOC	500 gallons
IU-1b	Fuel Oil AST	720 B	VOC	1000 gallons
IU-2	MSW Building/Pit	720 B	PM and PM10	N/A
IU-3	Non-ferrous Ash Bldg	720 B	PM and PM10	N/A
IU-4	Residue Ash Bldg	720 B	PM and PM10	N/A
IU-5	Lime Slaker Room	720 B	PM and PM10	N/A
IU-6	Ash Removal	720 B	PM and PM10	N/A
IU-7	Grizzly Scalper	720 B	PM and PM10	N/A
IU-8	Hydraulic Shredder (in MSW Bldg.)	720 B	PM and PM10	N/A
IU-9	HVAC Boiler	720 C	PM, PM10, SO2, NOx, CO & VOCs	0.55 MMBtu/hr (heat input)
IU-11	Lime Storage Silo Vent	720 B	PM and PM10	N/A
IU-12	Dolomitic Lime Silo Vent	720 B	PM and PM10	N/A
IU-13	Carbon Silo Vent	720 B	PM and PM10	N/A
IU-14	Pebble Lime Silo Vent	720 B	PM and PM10	5,089 ft^3 (storage capacity)
IU-15	Used Oil Heater	720 B	PM10, SO2, NOx, CO, VOCs & Lead	175,000 Btu/hr (heat input)

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110. (9 VAC 5-80-720 and 9 VAC 5-80-110 C, E, and F)

Permit Shield & Inapplicable Requirements

112. **Permit Shield & Inapplicable Requirements** - Compliance with the provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit and the following requirements which have been specifically identified as being not applicable to this permitted facility:

Citation	Title of Citation	Description of Applicability
NSPS Subpart Db (40 CFR Part 60)	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Covanta is exempt from this since it is covered by an EPA approved State section 111(d)/129 implementing Subpart Cb.
40 CFR Part 63, Subpart T – 40 CFR Subpart 63.460 – 63.471 and appendices	National Emission Standards for Halogenated Solvent Cleaning for the degreasing operation	Covanta is exempt from this since it does not use halogenated solvents in any of the parts washer
40 CFR 97 Subparts AAAAA-CCCCC	Cross-State Air Pollution Rule	The facility has two steam turbines, each rated at more than 25 MWe; however, each of the MWC units qualifies as a solid waste incineration unit with an average annual fuel consumption of fossil fuel of less than 20 percent (on a Btu basis) for any 3 consecutive calendar years.
40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters	40 CFR §63.7491(l) excludes boilers specifically listed as an affected source in any standard(s) established under §129 of the Clean Air Act. Covanta's MWC units are subject to 9 VAC 5-40-7950 et seq. which implements 40 CFR Part 60, Subpart Cb (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors that are Constructed on or before September 20, 1994), which was developed by EPA under sections 111 and 129 of the Clean Air Act.

Nothing in this permit shield shall alter the provisions of §303 of the federal Clean Air Act, including the authority of the administrator under that section, the liability of the owner for any violation of applicable requirements prior to or at the time of permit issuance, or the ability to obtain information by (i) the administrator pursuant to §114 of the federal Clean Air Act, (ii) the Board pursuant to §10.1-1314 or §10.1-1315 of the Virginia Air Pollution Control Law or (iii) the Department pursuant to §10.1-1307.3 of the Virginia Air Pollution Control Law.
(9 VAC 5-80-140)

General Conditions

113. **Federal Enforceability** – All terms and conditions in this permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.
(9 VAC 5-80-110 N)

114. **Permit Expiration** – This permit has a fixed term of five years. The expiration date shall be the date five years from the date of issuance. Unless the owner submits a timely and complete application for renewal to the DEQ consistent with the requirements of 9 VAC 5-80-80, the right of the facility to operate shall be terminated upon permit expiration.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

115. **Permit Expiration** – The owner shall submit an application for renewal at least six months but no earlier than eighteen months prior to the date of permit expiration.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

116. **Permit Expiration** – If an applicant submits a timely and complete application for an initial permit or renewal under this section, the failure of the source to have a permit or the operation of the source without a permit shall not be a violation of Article 1, Part II of 9 VAC 5 Chapter 80, until the Board takes final action on the application under 9 VAC 5-80-150.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

117. **Permit Expiration** – No source shall operate after the time that it is required to submit a timely and complete application under subsections C and D of 9 VAC 5-80-80 for a renewal permit, except in compliance with a permit issued under Article 1, Part II of 9 VAC 5 Chapter 80.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

118. **Permit Expiration** – If an applicant submits a timely and complete application under section 9 VAC 5-80-80 for a permit renewal but the Board fails to issue or deny the renewal permit before the end of the term of the previous permit, (i) the previous permit shall not expire until the renewal permit has been issued or denied and (ii) all the terms and conditions of the previous permit, including any permit shield granted pursuant to 9 VAC

5-80-140, shall remain in effect from the date the application is determined to be complete until the renewal permit is issued or denied.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

119. **Permit Expiration** – The protection under subsections F 1 and F 5 (ii) of section 9 VAC 5-80-80 F shall cease to apply if, subsequent to the completeness determination made pursuant section 9 VAC 5-80-80 D, the applicant fails to submit by the deadline specified in writing by the Board any additional information identified as being needed to process the application.
(9 VAC 5-80-80 B, C, and F, 9 VAC 5-80-110 D and 9 VAC 5-80-170 B)

120. **Recordkeeping and Reporting** – All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following:

    a. The date, place as defined in the permit, and time of sampling or measurements.

    b. The date(s) analyses were performed.

    c. The company or entity that performed the analyses.

    d. The analytical techniques or methods used.

    e. The results of such analyses.

    f. The operating conditions existing at the time of sampling or measurement.

    (9 VAC 5-80-110 F)

121. **Recordkeeping and Reporting** – Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
(9 VAC 5-80-110 F)

122. **Recordkeeping and Reporting** – The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than **March 1** and **September 1** of each calendar year. This report must be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:

    a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31.

    b. All deviations from permit requirements. For purposes of this permit, deviations include, but are not limited to:

        i. Exceedance of emissions limitations or operational restrictions;

ii. Excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or compliance assurance monitoring which indicates an exceedance of emission limitations or operational restrictions; or,

iii. Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.

c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that "no deviations from permit requirements occurred during this semi-annual reporting period."

(9 VAC 5-80-110 F)

123. **Annual Compliance Certification** – Exclusive of any reporting required to assure compliance with the terms and conditions of this permit or as part of a schedule of compliance contained in this permit, the permittee shall submit to EPA and DEQ no later than **March 1** each calendar year a certification of compliance with all terms and conditions of this permit including emission limitation standards or work practices. The compliance certification shall comply with such additional requirements that may be specified pursuant to §114(a)(3) and §504(b) of the federal Clean Air Act. This certification shall be signed by a responsible official, consistent with 9 VAC 5-80-80 G, and shall include:

a. The time period included in the certification. The time period to be addressed is January 1 to December 31.

b. The identification of each term or condition of the permit that is the basis of the certification.

c. The compliance status.

d. Whether compliance was continuous or intermittent, and if not continuous, documentation of each incident of non-compliance.

e. Consistent with subsection 9 VAC 5-80-110 E, the method or methods used for determining the compliance status of the source at the time of certification and over the reporting period.

f. Such other facts as the permit may require to determine the compliance status of the source.

One copy of the annual compliance certification shall be submitted to EPA in electronic format only. The certification document should be sent to the following electronic mailing address:

R3_APD_Permits@epa.gov

(9 VAC 5-80-110 K.5)

124. **Permit Deviation Reporting** – The permittee shall notify the DEQ, within four daytime business hours after discovery, of any deviations from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the discovery, the permittee shall provide a written statement explaining the problem, any corrective actions or preventative measures taken, and the estimated duration of the permit deviation. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to General Condition 122 of this permit.
(9 VAC 5-80-110 F.2 and 9 VAC 5-80-250)

125. **Failure/Malfunction Reporting** – In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall, as soon as practicable but no later than four daytime business hours after the malfunction is discovered, notify the DEQ by facsimile transmission, telephone or telegraph of such failure or malfunction and shall within 14 days of discovery provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. Owners subject to the requirements of 9 VAC 5-40-50 C and 9 VAC 5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9 VAC 5-40-40 and 9 VAC 5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the DEQ.
(9 VAC 5-20-180 C)

126. **Severability** – The terms of this permit are severable. If any condition, requirement or portion of the permit is held invalid or inapplicable under any circumstance, such invalidity or inapplicability shall not affect or impair the remaining conditions, requirements, or portions of the permit.
(9 VAC 5-80-110 G.1)

127. **Duty to Comply** – The permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Air Act or the Virginia Air Pollution Control Law or both and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or, for denial of a permit renewal application.
(9 VAC 5-80-110 G.2)

128. **Need to Halt or Reduce Activity not a Defense** – It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
(9 VAC 5-80-110 G.3)

129. **Permit Modification** – A physical change in, or change in the method of operation of, this stationary source may be subject to permitting under State Regulations 9 VAC 5-80-50, 9 VAC 5-80-1100, 9 VAC 5-80-1605, or 9 VAC 5-80-2000 and may require a permit modification and/or revisions except as may be authorized in any approved alternative operating scenarios.
(9 VAC 5-80-190 and 9 VAC 5-80-260)

130. **Property Rights** – The permit does not convey any property rights of any sort, or any exclusive privilege.
(9 VAC 5-80-110 G.5)

131. **Duty to Submit Information** – The permittee shall furnish to the Board, within a reasonable time, any information that the Board may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Board copies of records required to be kept by the permit and, for information claimed to be confidential, the permittee shall furnish such records to the Board along with a claim of confidentiality.
(9 VAC 5-80-110 G.6)

132. **Duty to Submit Information** – Any document (including reports) required in a permit condition to be submitted to the Board shall contain a certification by a responsible official that meets the requirements of 9 VAC 5-80-80 G.
(9 VAC 5-80-110 K.1)

133. **Duty to Pay Permit Fees** – The owner of any source for which a permit under 9 VAC 5-80-50 through 9 VAC 5-80-300 was issued shall pay permit fees consistent with the requirements of 9 VAC 5-80-310 through 9 VAC 5-80-350. The actual emissions covered by the permit program fees for the preceding year shall be calculated by the owner and submitted to the DEQ by April 15 of each year. The calculations and final amount of emissions are subject to verification and final determination by the Department.
(9 VAC 5-80-110 H and 9 VAC 5-80-340 C)

134. **Fugitive Dust Emission Standards** – During the operation of a stationary source or any other building, structure, facility, or installation, no owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:

    a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;

b. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of them in a clean condition;

c. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty material. Adequate containment methods shall be employed during sandblasting or similar operations;

d. Open equipment for conveying or transporting material likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion; and,

e. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.

(9 VAC 5-40-90 and 9 VAC 5-50-90)

135. **Startup, Shutdown, and Malfunction** – At all times, including periods of startup, shutdown, and soot blowing, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Board, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
(9 VAC 5-50-20 E)

136. **Alternative Operating Scenarios** – Contemporaneously with making a change between reasonably anticipated operating scenarios identified in this permit, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions under each such operating scenario. The terms and conditions of each such alternative scenario shall meet all applicable requirements including the requirements of 9 VAC 5 Chapter 80, Article 1.
(9 VAC 5-80-110 J)

137. **Inspection and Entry Requirements** – The permittee shall allow DEQ, upon presentation of credentials and other documents as may be required by law, to perform the following:

a. Enter upon the premises where the source is located or emissions-related activity is conducted, or where records must be kept under the terms and conditions of the permit.

b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of the permit.

c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit.

d. Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(9 VAC 5-80-110 K.2)

138. **Reopening For Cause** – The permit shall be reopened by the Board if additional federal requirements become applicable to a major source with a remaining permit term of three years or more. Such reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 9 VAC 5-80-80 F.

a. The permit shall be reopened if the Board or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

b. The permit shall be reopened if the administrator or the Board determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

c. The permit shall not be reopened by the Board if additional applicable state requirements become applicable to a major source prior to the expiration date established under 9 VAC 5-80-110 D.

(9 VAC 5-80-110 L)

139. **Permit Availability** – Within five days after receipt of the issued permit, the permittee shall maintain the permit on the premises for which the permit has been issued and shall make the permit immediately available to DEQ upon request.
(9 VAC 5-80-150 E)

140. **Transfer of Permits** – No person shall transfer a permit from one location to another, unless authorized under 9 VAC 5-80-130, or from one piece of equipment to another.
(9 VAC 5-80-160)

141. **Transfer of Permits** – In the case of a transfer of ownership of a stationary source, the new owner shall comply with any current permit issued to the previous owner. The new owner shall notify the Board of the change in ownership within 30 days of the transfer and shall comply with the requirements of 9 VAC 5-80-200.
(9 VAC 5-80-160)

142. **Transfer of Permits** – In the case of a name change of a stationary source, the owner shall comply with any current permit issued under the previous source name. The owner shall notify the Board of the change in source name within 30 days of the name change and shall comply with the requirements of 9 VAC 5-80-200.
(9 VAC 5-80-160)

143. **Permit Revocation or Termination for Cause** – A permit may be revoked or terminated prior to its expiration date if the owner knowingly makes material misstatements in the permit application or any amendments thereto or if the permittee violates, fails, neglects or refuses to comply with the terms or conditions of the permit, any applicable requirements, or the applicable provisions of 9 VAC 5 Chapter 80 Article 1. The Board may suspend, under such conditions and for such period of time as the Board may prescribe any permit for any grounds for revocation or termination or for any other violations of these regulations.
(9 VAC 5-80-190 C and 9 VAC 5-80-260)

144. **Duty to Supplement or Correct Application** – Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrections. An applicant shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete application was filed but prior to release of a draft permit.
(9 VAC 5-80-80 E)

145. **Stratospheric Ozone Protection** – If the permittee handles or emits one or more Class I or II substances subject to a standard promulgated under or established by Title VI (Stratospheric Ozone Protection) of the federal Clean Air Act, the permittee shall comply with all applicable sections of 40 CFR Part 82, Subparts A to F and H.
(40 CFR Part 82, Subparts A-F and H)

146. **Asbestos Requirements** – The permittee shall comply with the requirements of National Emissions Standards for Hazardous Air Pollutants (40 CFR 61) Subpart M, National Emission Standards for Asbestos as it applies to the following: Standards for Demolition and Renovation (40 CFR 61.145), Standards for Insulating Materials (40 CFR 61.148), and Standards for Waste Disposal (40 CFR 61.150).
(9 VAC 5-60-70 and 9 VAC 5-80-110 A.1)

147. **Accidental Release Prevention** – If the permittee has more, or will have more than a threshold quantity of a regulated substance in a process, as determined by 40 CFR 68.115, the permittee shall comply with the requirements of 40 CFR Part 68.
(40 CFR Part 68)

148. **Changes to Permits for Emissions Trading** – No permit revision shall be required under any federally approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.
(9 VAC 5-80-110 I)

149. **Emissions Trading** – Where the trading of emissions increases and decreases within the permitted facility is to occur within the context of this permit and to the extent that the regulations provide for trading such increases and decreases without a case-by-case approval of each emissions trade:

    a. All terms and conditions required under 9 VAC 5-80-110, except subsection N, shall be included to determine compliance.

    b. The permit shield described in 9 VAC 5-80-140 shall extend to all terms and conditions that allow such increases and decreases in emissions.

    c. The owner shall meet all applicable requirements including the requirements of 9 VAC 5-80-50 through 9 VAC 5-80-300.

    (9 VAC 5-80-110 I)

State-Only Enforceable Requirements

150. **Tipping Floor Negative Pressure** – The permittee shall ensure that a negative pressure is maintained on the tipping floor and ensure that air from within the building is used as combustion air as means to minimize odors at the facility.
(Condition 21 of 1/12/87 PSD Permit)

151. **Standard for Odor** – The provisions of 9 VAC 5-40-130 et seq., Emission Standards for Odor, Rule 4-2, apply.
(9 VAC 5-40-8080)

152. **Standards for Toxics** – The provisions of 9 VAC 5-60-200 et seq., Emission Standards for Toxic Pollutants, Rule 6-4, apply.
(9 VAC 5-40-8090)

153. **Metals Emissions Control** – Antimony and arsenic emissions from each MWC furnace shall be controlled by fabric filter baghouses. The fabric filter baghouses shall be provided with adequate access for inspection and shall be in operation when the MWC furnaces are operating.
(Condition 9 of 1/12/87 PSD Permit)

154. **Acid Gas Control** – Hydrogen bromide emissions from each MWC furnaces shall be controlled by air pollution control equipment that will reduce emissions by a minimum of 90 percent.
(Condition 10 of 1/12/87 PSD Permit)

155. **Toxics Emission Limits**– Emissions from the operation of each MWC unit shall not exceed the limitations specified below:

Antimony	0.14 lbs/hr	0.55 tons/yr
Arsenic	7.3×10^{-3} lb/hr	0.03 tons/yr
Beryllium	2.0×10^{-4} lbs/hr	7.94×10^{-4} tons/yr
Hydrogen Bromide	1.93 lbs/hr	7.67 tons/yr

Compliance with the limits shall be determined based on compliance with control device operational parameters/limitations contained, fuel and steam restrictions, MWC operational data, results of the annual stack tests, record keeping and any other relevant information necessary which can provide credible evidence of emissions performance. Annual emissions shall be calculated on a calendar year basis.
(Condition 7 of 1/12/87 PSD Permit)

156. **Performance Tests** – The permittee shall conduct emission tests for antimony, arsenic, and hydrogen bromide each calendar year (no more than 12 calendar months following the previous emission test) to demonstrate compliance with the emission limits in Condition 155. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Air Compliance Manager, Northern Regional Office. The permittee shall submit a test protocol at least thirty days prior to testing using the "Stack Test Protocol – Request for Approval" form attached to this permit. Two copies of the test results, one paper copy and one on electronic removable media, shall be submitted to the Air Compliance Manager, Northern Regional Office within sixty days after the test completion and shall conform to the test report format enclosed with this permit.
(Condition 13 of 1/12/87 PSD Permit)

157. **Record Keeping** – The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Air Compliance Manager, Northern Regional Office. These records shall include, but are not limited to the annual emissions calculations required in Condition 155 and performance test report required in Condition 156.
(Condition 7 of Part II of 1/12/87 PSD Permit)

SOURCE TESTING REPORT FORMAT

Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. *Signed by reviewer

Copy of approved test protocol

Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. *For each emission unit, a table showing:
   a. Operating rate
   b. Test Methods
   c. Pollutants tested
   d. Test results for each run and the run average
   e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results

1. Detailed test results for each run
2. *Sample calculations
3. *Description of collected samples, to include audits when applicable

Appendix

1. *Raw production data
2. *Raw field data
3. *Laboratory reports
4. *Chain of custody records for lab samples
5. *Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

* Not applicable to visible emission evaluations

APPENDIX A – [Reserved]

APPENDIX B – [Reserved]

Pinellas County Board of County Commissioners
Pinellas County Resource Recovery Facility

Facility ID No. 1030117
Pinellas County

Title V Air Operation Permit Renewal

Permit No. 1030117-013-AV
(Renewal of Title V Air Operation Permit No. 1030117-008-AV)

Permitting Authority:

State of Florida
Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road
Mail Station #5505
Tallahassee, Florida 32399-2400

Telephone: (850) 717-9000
Fax: (850) 717-9097

Compliance Authority:

Southwest District Office
13051 N. Telecom Parkway
Temple Terrace, Florida 33637

Telephone: (813) 470-5700

Title V Air Operation Permit Renewal

Permit No. 1030117-013-AV

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Appendix RR, Facility-wide Reporting Requirements.
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Appendix TV, Title V General Conditions.
Appendix U, List of Unregulated Emissions Units and/or Activities.

Referenced Attachments. .....See Appendices Document
Figure 1, Summary Report-Gaseous and Opacity Excess Emission and Monitoring System Performance (40 CFR 60, July, 1996).

Table H, Permit History.
U.S. EPA letter dated July 7, 1999 regarding CAM applicability for MWCs.
U.S. EPA letter dated April 6, 2000 regarding Beryllium Containing Wastes.
U.S. EPA e-mail dated January 22, 2009 regarding Testing Schedule for Fugitive Ash and HCl Emissions.
Attachment 9 of the approved Operation Plan (Odor Monitoring and Abatement Plan)

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

PERMITTEE:
Pinellas County Board of County Commissioners
Department of Solid Waste
3095 114th Avenue North
St. Petersburg, Florida 33716

Permit No. 1030117-013-AV
Pinellas County Resource Recovery Facility
Facility ID No. 1030117
Title V Air Operation Permit Renewal

The purpose of this permit is to renew the Title V air operation permit for the above referenced facility. The existing Pinellas County Resource Recovery Facility is located in Pinellas County at 3001 110th Avenue North, St. Petersburg, Florida. UTM Coordinates are: Zone 17, 335.27 East and 3,084.31 km North. Latitude is: 27° 52' 24.5964'' North; and, Longitude is: 82° 40' 24.0522'' West.

The Title V air operation permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, 62-213. The above named permittee is hereby authorized to operate the facility in accordance with the terms and conditions of this permit.

Executed in Tallahassee, Florida.

1030117-013-AV Effective Date: September 27, 2016
Renewal Application Due Date: February 14, 2021
Expiration Date: September 27, 2021

For:

Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

SA/dlr/sh

SECTION I. FACILITY INFORMATION.

Subsection A. Facility Description.

The Pinellas County Resource Recovery Facility consists of three municipal solid waste combustors (Unit Nos. 1, 2 and 3) with auxiliary burners, lime storage and processing facilities, an activated carbon storage facility, ash storage and processing facilities, a metals recovery system, a cooling tower, ancillary support equipment, and a contiguous municipal solid waste landfill. The gross nominal electric generating capacity of the facility is 75 megawatts (MW). The nominal capacity of the Pinellas County Resource Recovery Facility is 3,000 tons/day (TPD) of municipal solid waste with a nominal higher heating value (HHV) of 5,000 Btu/lb. The maximum capacity of each MSW combustor unit is limited to 275,000 lbs/hour of steam production, based on a 4-hour block average. The facility is owned by Pinellas County and is currently operated by Covanta Projects, LLC.

Units 1 and 2 began commercial operation in 1983, while Unit 3 began commercial operation in 1986. Emissions from each unit are controlled by:

- Good combustion practices (GCP) in the furnaces that minimize formation of carbon monoxide (CO), nitrogen oxide (NO_X) and particulate matter (PM);
- Urea-based Selective Non-Catalytic Reduction (SNCR) systems in each furnace to further control NO_X emissions;
- Spray Dryer Absorbers (SDA), based on lime slurry injection, which absorbs and neutralizes MWC-acid gases including sulfur dioxide (SO_2) and hydrogen chloride (HCl) for subsequent capture as PM;
- Powered Activated Carbon Injection (ACI) systems to control (adsorb) certain metals, such as mercury (Hg), and organic hazardous air pollutants (HAP) including dioxin and furan (dioxin/furan) for subsequent capture as PM; and
- Fabric filters (baghouses) to capture PM originating from combustion, the acid gas reactions and the spent activated carbon.

The facility is equipped with continuous emission monitoring systems (CEMS) for carbon monoxide (CO), SO_2 and NO_X and continuous opacity monitoring systems (COMS) for visible emissions (VE). The three boilers exhaust to a common stack consisting of three separate flues.

The MWC units were constructed under the authority of Permit Nos. PSD-FL-011 and PSD-FL-098 issued in 1979 and 1987, respectively and Florida Power Plant Site Certifications PA78-11 and PA83-18 issued in 1979 and 1984 (revised 1986), respectively. Permit No. 1030117-009-AC(PSD-FL-420) which was issued on November 19, 2012 superseded the previously issued PSD Permit Nos. PSD-FL-011 and PSD-FL-098.

Subsection B. Summary of Emissions Units.

EU No.	Brief Description
Regulated Emissions Units	
001	Municipal Waste Combustor Unit 1
002	Municipal Waste Combustor Unit 2
003	Municipal Waste Combustor Unit 3
005	Residue Storage and Processing Building (RSPB)
006	Activated Carbon Storage Silo
007	Lime Storage Silo for SDA
008	Ash Conditioning Building
009	Municipal Solid Waste Landfill
011	Emergency Generator - Main Lift Station
012	Emergency Fire Pump Engine (EPA Tier 3 Certified)

017	Emergency Generator - Scale House (EPA Tier 3 Certified)
018	Emergency Generator - Administrative Building (EPA Tier 3 Certified)
Unregulated Emissions Units and Activities (see Appendix U, List of Unregulated Emissions Units and/or Activities)	
013	Cooling Tower

Also included in this permit are miscellaneous insignificant emissions units and/or activities (see Appendix I, List of Insignificant Emissions Units and/or Activities).

Subsection C. Applicable Regulations.

Based on the Title V air operation permit renewal application received on December 1, 2015, this facility is a major source of hazardous air pollutants (HAP). The existing facility is a prevention of significant deterioration (PSD) major source of air pollutants in accordance with Rule 62-212.400, F.A.C. A summary of applicable regulations is shown in the following table:

Regulation	EU No(s).
Federal Rule Citations	
40 CFR 60, Subpart A, NSPS General Provisions	001 – 003, 005, 009, 011, 012, 017, 018
40 CFR 60, Subpart Cb, Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors Constructed on or Before September 20, 1994	001 – 003, 005
40 CFR 60, Subparts Cc/WWW, Emission Guidelines and Compliance Times/New Source Performance Standards for Municipal Solid Waste Landfills	009
40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (Auxiliary Burners)	001 – 003
40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	012, 017, 018
40 CFR 61, Subpart A, NESHAP General Provisions	009
40 CFR 61, Subpart M, National Emissions Standards for Asbestos	009
40 CFR 63, Subpart A, NESHAP General Provisions	011
40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	011
State Rule Citations	
Rule 62-204.800, Federal Regulations Adopted by Reference, F.A.C.	001 – 003, 005, 009, 011, 012, 017, 018
Rule 62-212.400, Prevention of Significant Deterioration (BACT), F.A.C.	001 – 003, 005
Rule 62-296.401(2), Existing Incinerators, F.A.C.	001 – 003
Rule 62-296.416, Waste-to-Energy Facilities, F.A.C.	001 – 003

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SECTION II. FACILITY-WIDE CONDITIONS.

The following conditions apply facility-wide to all emission units and activities:

FW1. Appendices. The permittee shall comply with all documents identified in Section IV, Appendices, listed in the Table of Contents. Each document is an enforceable part of this permit unless otherwise indicated. [Rule 62-213.440, F.A.C.]

Emissions and Controls

FW2. Not federally Enforceable. Objectionable Odor Prohibited. No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rule 62-296.320(2) and 62-210.200(Definitions), F.A.C.]

FW3. Odor Remediation Plan. The Bridgeway Acres landfill shall be operated to control objectionable odors in accordance with subsection 62-296.320(2), F.A.C. If objectionable odors are confirmed beyond the property boundary, then upon notification by the Department, the permittee shall develop and implement an odor remediation plan in accordance with the requirements of Rule 62-701.530(3)(b), F.A.C. and Attachment 9 of the approved Operation Plan ("Odor Monitoring and Abatement Plan").

{Permitting Note: The approved odor monitoring and abatement plan from the facility's solid waste operation permit is attached to this Title V permit as a referenced attachment.}

[Rules 62-296.320(2) and 62-701.530(3)(b), F.A.C.]

FW4. General Volatile Organic Compounds (VOC) Emissions or Organic Solvents (OS) Emissions. The permittee shall allow no person to store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. *{Permitting Note: Nothing is deemed necessary and ordered at this time.}* [Rule 62-296.320(1), F.A.C.]

FW5. General Visible Emissions. No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. [Rule 62-296.320(4)(b), F.A.C.]

FW6. Unconfined Particulate Matter. No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction; alteration; demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions. Reasonable precautions to prevent emissions of unconfined particulate matter at this facility include:

Resource Recovery Facility Area

a. Paving and maintenance of roads and parking area. The facility may utilize alternative parking areas that are landscaped with rocks or are sodded.
b. Employment of proper dust-control techniques to prevent fugitive dust emissions during construction activities such as demolition of buildings, grading roads, construction, and land clearing.
c. Periodic sweeping of roads and other paved areas to remove particulate matter and to prevent re-entrainment, and from buildings or work areas, to prevent particulate from becoming airborne.
d. Landscaping or planting of vegetation.

Landfill, Mulching, and other Areas at the Pinellas County Complex

e. Operation of the landfill in accordance with all applicable portions of Chapter 62-701, F.A.C.
f. Quenching and wetting of ash and operation of ash conveyors (including transfer points) within enclosed areas to prevent fugitive dust emissions.
g. Operation of the composting area in accordance with all applicable portions of Chapter 62-709, F.A.C.
h. Landscaping or planting vegetation.

i. Periodic sweeping of paved roads and wetting of unpaved roadways.
j. Covering of off-site transport vehicles for ash and metals.
[Rule 62-296.320(4)(c), F.A.C.; and, proposed by applicant in Title V air operation permit renewal application received December 1, 2015.]

Annual Reports and Fees

See Appendix RR, Facility-wide Reporting Requirements for additional details.

FW7. Electronic Annual Operating Report and Title V Annual Emissions Fees. The information required by the Annual Operating Report for Air Pollutant Emitting Facility [Including Title V Source Emissions Fee Calculation] (DEP Form No. 62-210.900(5)) shall be submitted by April 1 of each year, for the previous calendar year, to the Department of Environmental Protection's Division of Air Resource Management. Each Title V source shall submit the annual operating report using the DEP's Electronic Annual Operating Report (EAOR) software, unless the Title V source claims a technical or financial hardship by submitting DEP Form No. 62-210.900(5) to the DEP Division of Air Resource Management instead of using the reporting software. Emissions shall be computed in accordance with the provisions of subsection 62-210.370(2), F.A.C. Each Title V source must pay between January 15 and April 1 of each year an annual emissions fee in an amount determined as set forth in subsection 62-213.205(1), F.A.C. The annual fee shall only apply to those regulated pollutants, except carbon monoxide and greenhouse gases, for which an allowable numeric emission-limiting standard is specified in the source's most recent construction permit or operation permit. Upon completing the required EAOR entries, the EAOR Title V Fee Invoice can be printed by the source showing which of the reported emissions are subject to the fee and the total Title V Annual Emissions Fee that is due. The submission of the annual Title V emissions fee payment is also due (postmarked) by April 1st of each year. A copy of the system-generated EAOR Title V Annual Emissions Fee Invoice and the indicated total fee shall be submitted to: **Major Air Pollution Source Annual Emissions Fee, P.O. Box 3070, Tallahassee, Florida 32315-3070.** Additional information is available by accessing the Title V Annual Emissions Fee On-line Information Center at the following Internet web site: http://www.dep.state.fl.us/air/emission/tvfee.htm. [Rules 62-210.370(3), 62-210.900 & 62-213.205, F.A.C.; and, §403.0872(11), Florida Statutes (2013)]

{Permitting Note: Resources to help you complete your AOR are available on the electronic AOR (EAOR) website at: http://www.dep.state.fl.us/air/emission/eaor. If you have questions or need assistance after reviewing the information posted on the EAOR website, please contact the Department by phone at (850) 717-9000 or email at eaor@dep.state.fl.us.}

{Permitting Note: The Title V Annual Emissions Fee form (DEP Form No. 62-213.900(1)) has been repealed. ***A separate Annual Emissions Fee form is no longer required to be submitted by March 1st each year.****}*

FW8. Annual Statement of Compliance. The permittee shall submit an annual statement of compliance to the compliance authority at the address shown on the cover of this permit and to the US. EPA at the address shown below within 60 days after the end of each calendar year during which the Title V air operation permit was effective. (See also Appendix RR, Conditions RR1 and RR7.) [Rules 62-213.440(3)(a)2. & 3. and (b), F.A.C.]

U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303
Attn: Air Enforcement Branch

FW9. Prevention of Accidental Releases (Section 112(r) of CAA).

a. As required by Section 112(r)(7)(B)(iii) of the CAA and 40 CFR 68, the owner or operator shall submit an updated Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center. (See paragraph e., below.)

b. As required under Section 252.941(1)(c), F.S., the owner or operator shall report to the appropriate representative of the Division of Emergency Management, as established by department rule, within one working day of discovery of an accidental release of a regulated substance from the stationary source, if the owner or operator is required to report the release to the United States Environmental Protection Agency under Section 112(r)(6) of the CAA.

c. The owner or operator shall submit the required annual registration fee to the Division of Emergency Management on or before April 1, in accordance with Part IV, Chapter 252, F.S., and Rule 27P-21, F.A.C.

d. Any required written reports, notifications, certifications, and data required to be sent to the Division of Emergency Management, should be sent to: Division of Emergency Management, 2555 Shumard Oak Boulevard, Tallahassee, FL 32399-2100, Telephone: (850) 413-9970, Fax: (850) 488-1739.

e. Any Risk Management Plans, original submittals, revisions, or updates to submittals, should be sent electronically through EPA's Central Data Exchange system at the following address: https://cdx.epa.gov. Information on electronically submitting risk management plans using the Central Data Exchange system is available at: http://www2.epa.gov/rmp. The RMP Reporting Center can be contacted at: RMP Reporting Center, Post Office Box 10162, Fairfax, VA 22038, Telephone: (703) 227-7650.

f. Any required reports to be sent to the National Response Center, should be sent to: U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, 1200 Pennsylvania Ave. NW, Mail Code: US EPA (5101T), Washington, DC 20460, Telephone: (800) 424-8802.

g. Send the required annual registration fee using approved forms made payable to: Cashier, Division of Emergency Management, State Emergency Response Commission, 2555 Shumard Oak Boulevard, Tallahassee, FL 32399-2149

[Part IV, Chapter 252, F.S.; and, Rule 27P-21, F.A.C.]

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Subsection A. Emissions Units 001 to 003

The specific conditions in this section apply to the following emissions unit(s):

EU No.	Brief Description
-001	Municipal Waste Combustor Unit 1
-002	Municipal Waste Combustor Unit 2
-003	Municipal Waste Combustor Unit 3

Emissions Unit ID Nos. 001, 002 and 003 are Riley Stoker manufactured municipal solid waste (MSW) combustors designated as "Unit 1," "Unit 2" and "Unit 3," respectively. Each unit consists of a mass burn water wall boiler with two auxiliary natural gas or propane fired burners each rated at 75 MMBtu/hour. The burners are used to fire the MSW combustors during startup, shutdown, and at other times when necessary and consistent with good combustion practices.

Each of the three municipal waste combustors (MWC) has a nominal design capacity of 1,050 tons MSW per day and 256,000 lbs/hour steam production (continuous rating) based on MSW having a heating value of 5,000 Btu/lb. The short-term capacity (peak rating) of each unit is 275,000 lbs/hour of steam production, based on a 4-hour block average. Capacity is limited by steam production, which effectively limits the heat input to each unit. Units 1 and 2 share a common steam turbine and Unit 3 has a separate dedicated steam turbine. The existing two steam turbine/generator (T/G) units have a combined gross nominal electric generating capacity of 75 megawatts (MW).

Odor is controlled by drawing combustion air from the refuse tipping floor area. Emissions from each unit are controlled by:

- Good combustion practices (GCP) in the furnaces that minimize formation of carbon monoxide (CO), nitrogen oxide (NO_X) and particulate matter (PM);
- Urea-based Selective Non-Catalytic Reduction (SNCR) systems in each furnace to further control NO_X emissions;
- Spray Dryer Absorbers (SDA), based on lime slurry injection, which absorbs and neutralizes MWC-acid gases including sulfur dioxide (SO_2) and hydrogen chloride (HCl) for subsequent capture as PM;
- Powered Activated Carbon Injection (ACI) systems to capture (adsorb) certain metals, such as mercury (Hg), and organic hazardous air pollutants (HAP) including dioxin and furan (dioxin/furan) for subsequent capture as PM; and
- Fabric filters (baghouses) to capture PM originating from combustion, the acid gas reactions and the spent activated carbon.

All three boilers exhaust to a common stack consisting of three separate flues. Each of the three flues has an exit diameter of 8.5 feet and height of 165 feet. The design stack gas flow rate of each boiler is 243,117 acfm with an exit temperature of 270 degrees Fahrenheit. The units are also equipped with continuous emission monitoring systems (CEMS) for carbon monoxide (CO), SO_2 and NO_X and continuous opacity monitoring systems (COMS) for visible emissions (VE).

Units 1 and 2 began commercial operation on May 4, 1983 while Unit 3 began commercial operation on August 1, 1986.

{Permitting notes: These emissions units are regulated under 40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors adopted and incorporated by reference in Rule 62-204.800(9)(b), F.A.C.; Rule 62-296.416, F.A.C., Waste-to-Energy Facilities; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) [PSD-FL-420]; Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT); Florida Electrical Power Plant Site Certifications [PA78-11 & PA83-18]; and, Pinellas County Ordinance 97 -05, Section 22, Sec. 58-128.}

Essential Potential to Emit (PTE) Parameters

A.1. Permitted Capacity. The maximum operating rate of each MWC unit shall not exceed the following:

a. Steam flow from each unit shall not exceed 275,000 pounds/hour based on a 4-hour block average;

b. Each unit's throughput shall not exceed 1,100 tons/day (TPD) of MSW; and,

c. Each unit shall not exceed the "maximum demonstrated MWC unit load" defined as 110% percent of the highest 4-hour average MWC unit load achieved during 4 consecutive hours during the most recent successful dioxin/furan performance test.

[Rules 62-4.160(2), 62-204.800, 62-210.200(PTE), Permit No. 1030117-009-AC (PSD-FL-420)]

A.2. MWC Name Plates. Each MWC unit shall have a metal name plate affixed in a conspicuous place on the shell showing the manufacturer, model number, type of waste, rated capacity, and certification number. The metal name plate on the MWC Unit 3 boiler shall also show boiler efficiency. [Permit No. 1030117-009-AC (PSD-FL-420) as amended; Power Plant Siting, Conditions of Certification, as amended]

A.3. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. See the "maximum demonstrated municipal waste combustor unit load" provisions of 40 CFR 60.34b(b) and 40 CFR 60.51b for additional restrictions on operating rate. [Rule 62-297.310(3), F.A.C.; and, 40 CFR 60.34b(b) & 40 CFR 60.51b]

A.4. MWCs - Methods of Operation - Fuels.

a. *Allowable Fuels.*
   (1) The only fuels allowed to be burned in the MWC units are municipal solid waste (MSW), with natural gas or propane as an auxiliary fuel. Other fuels or wastes, not specifically listed herein, shall not be burned without written prior approval from the Department. Fuels or wastes specifically authorized herein do not require prior Department approval before combustion.
   (2) The primary fuel for the facility is MSW, including the items and materials that fit within the definition of MSW contained in either 40 CFR 60.51b or Section 403.706(5), Florida Statutes (2010).

b. *Unauthorized Fuels.* Subject to the limitations contained in this permit, the authorized fuels for the facility also include the other solid wastes that are not MSW which are described in **d.** - **f.**, below. However, the facility
   (1) shall not burn:
      (a) those materials that are prohibited by state or federal law;
      (b) those materials that are prohibited by this permit;
      (c) lead acid batteries;
      (d) hazardous waste;
      (e) nuclear waste;
      (f) radioactive waste;
      (g) explosives;
      (h) beryllium-containing waste, as defined in 40 CFR 61, Subpart C. *{The U.S. EPA letter dated April 6, 2000 (see attached), on 40 CFR 61, Subpart C further addresses the applicability of this federal regulation with regard to beryllium-containing waste(s).}*
   (2) and shall not knowingly burn:
      (a) untreated biomedical waste from biomedical waste generators regulated pursuant to Chapter 64E-16, F.A.C., and from other similar generators (or sources). See the attached Appendix BW, Biomedical Waste Definitions, for definitions of what constitutes biomedical waste;
      (b) segregated loads of biological waste.

c. *Fuel Handling.* The fuel may be received either as a mixture or as a single-item stream (segregated load) of discarded materials. If the facility intends to use an authorized fuel that is segregated non-MSW material, the fuel shall be either:
   (1) well mixed with MSW on the tipping floor; or

(2) alternately charged with MSW in the hopper.

For the purposes of this permit, a segregated load is defined to mean a container or truck that is almost completely or exclusively filled with a single item or homogeneous composition of waste material, as determined by visual observation.

d. *Other Solid Waste.* Subject to the conditions and limitations contained in this permit, the following other solid waste may be used as fuel at the facility:
   (1) Confidential, proprietary or special documents (including but not limited to business records, lottery tickets, event tickets, coupons and microfilm);
   (2) Contraband which is being destroyed at the request of appropriately authorized local, state or federal governmental agencies, provided that such material is not an explosive, a propellant, a hazardous waste, or otherwise prohibited at the facility. For the purposes of this section, contraband includes but is not limited to drugs, narcotics, fruits, vegetables, plants, counterfeit money, and counterfeit consumer goods;
   (3) Wood pallets, clean wood, and land clearing debris;
   (4) Packaging materials and containers;
   (5) Clothing, natural and synthetic fibers, fabric remnants, and similar debris, including but not limited to aprons and gloves; or
   (6) Rugs, carpets, and floor coverings, but not asbestos-containing materials or polyethylene or polyurethane vinyl floor coverings.

e. *Waste Tires.* Subject to the conditions and limitations contained in this permit, waste tires may be used as fuel at the facility. The total quantity of waste tires received as segregated loads and burned at the facility shall not exceed 3%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis.

f. *Non-MSW Material.* Subject to the conditions and limitations contained in this permit, the following other solid waste materials may be used as fuel at the facility (i.e., the following are authorized fuels that are non-MSW material). The total quantity of the following non-MSW material received as segregated loads and burned at the facility shall not exceed 5%, by weight, of the facility's total fuel. Compliance with this limitation shall be determined on a calendar month basis.
   (1) Construction and demolition debris.
   (2) Oil spill debris from aquatic, coastal, estuarine or river environments. Such items or materials include but are not limited to rags, wipes, and absorbents.
   (3) Items suitable for human, plant or domesticated animal use, consumption or application where the item's shelf-life has expired or the generator wishes to remove the items from the market. Such items or materials include but are not limited to off-specification or expired consumer products, pharmaceuticals, medications, health and personal care products, cosmetics, foodstuffs, nutritional supplements, returned goods, and controlled substances.
   (4) Consumer-packaged products intended for human or domesticated animal use or application but not consumption. Such items or materials include but are not limited to carpet cleaners, household or bathroom cleaners, polishes, waxes and detergents.
   (5) Waste materials that:
      (a) are generated in the manufacture of items in categories **f.(3)** or **f.(4)**, above and are functionally or commercially useless (expired, rejected or spent); or
      (b) are not yet formed or packaged for commercial distribution. Such items or materials must be substantially similar to other items or materials routinely found in MSW.
   (6) Waste materials that contain oil from:
      (a) the routine cleanup of industrial or commercial establishments and machinery; or
      (b) spills of virgin or used petroleum products. Such items or materials include but are not limited to rags, wipes, and absorbents.

(7) Used oil and used oil filters. Used oil containing a polychlorinated biphenyls (PCB) concentration equal or greater than 50 parts per million (ppm) shall not be burned, pursuant to the limitations of 40 CFR 761.20(e).
(8) Waste materials generated by manufacturing, industrial or agricultural activities, provided that these items or materials are substantially similar to items or materials that are found routinely in MSW, subject to written prior approval by the Department.
(9) Waste materials generated from wastewater treatment plants such as sewage sludge (biosolids), grease, scum and grit screenings, subject to written prior approval by the Department.

[Rules 62-4.070(1), (3), 62-213.410 & 62-213.440, F.A.C.; Applicant's request in Title V permit renewal application received December 1, 2015; and, Permit No. 1030117-009-AC(PSD-FL-420)]

A.5. Auxiliary Burners. The permittee is authorized to operate two (2) auxiliary fuel burners in each MWC unit. The auxiliary burners shall fire either natural gas or propane and are permitted to be used during startup, shutdown, and at other times when necessary and consistent with good combustion practices. Each burner is rated at 75 MMBtu/hour. The auxiliary burners are subject to 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The notification requirements have been satisfied. [Rule 62-210.200(PTE), F.A.C., Permit No. 1030117-009-AC (PSD-FL-420), and Title V permit renewal application received December 1, 2015]

A.6. Hours of Operation. These emissions unit(s) may operate continuously (8,760 hours/year). [Rule 62-210.200(PTE), F.A.C., and Permit No. 1030117-009-AC (PSD-FL-420)]

A.7. Stack Height. The height of the MWC unit stacks shall not be less than 165 feet above ground level measured from the base of the stack. [Permit No. 1030117-009-AC (PSD-FL-420), as amended; Power Plant Siting, Conditions of Certification, as amended]

Control Technology

A.8. Air Pollution Control Equipment: For each unit, the permittee shall operate and maintain the following equipment as required to comply with the emission standards in Specific Conditions **A.10 – A.21** below:

a. SNCR System: A urea-based SNCR system including storage tank, pumps and injection ports to control emissions of NO_X. Operation is required only to the extent required to comply with emission standards and to avoid a significant emission increase on the basis of baseline to projected actual emissions as the terms are defined in Rule 62-210.200 (Definitions), F.A.C.

b. Spray Dryer Absorber: A spray dryer absorber system including lime storage silo, slaking equipment and lime slurry injection equipment for the purpose of removing MWC-acid gases including HCl and SO_2.

c. Activated Carbon Injection System: A carbon injection system including storage silo for the purpose of removing mercury and MWC-organics such as dioxin/furans. The carbon injection rate operating standard and monitoring requirements set forth in 40 CFR 60.58b(m), incorporated by reference in Rule 62-204.800, F.A.C., shall apply.

d. Fabric Filter (baghouse): A fabric filter (baghouse) for the purpose of removing PM, including ash and the reagent/reaction products from of the spray dryer absorber and carbon injection system.

e. Operation and Maintenance (O&M) Plans. A separate O&M plan shall be on file with the Compliance Authority for each MWC unit and associated air pollution control devices. These emissions units and associated air pollution control devices shall be operated and maintained in accordance with the submitted O&M plans. The O&M documentation logs shall be maintained for a minimum of the most recent five years and be made available for inspection upon request.

[Rules 62-213.440(1), 62-4.070(1) and (3), 62-296.416, 62-210.650 and Rule 62-204.800(9)(b), F.A.C.; and, Pinellas County Ordinance 97-05, Chapter 58, Sec. 58-128]

A.9. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emissions of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging time(s) for Specific Conditions **A.10 – A.21** are based on the specified averaging time of the applicable test method.

A.10. Visible Emissions. As determined by COMS, visible emissions from each MWC unit shall not exceed 10% opacity, based on a 6-minute block average. The COMS shall be calibrated, operated, and maintained in accordance with 40 CFR 60, Appendix B, Performance Specification 1 (PS-1). [Rule 62-204.800(9)(b)3.b., F.A.C.; 40 CFR 60.33b(a)(1)(iii); and, 1030117-009-AC(PSD-FL-420), as amended]

A.11. CO Emissions. As determined by CEMS, carbon monoxide emissions from each MWC unit shall not exceed 100 ppmv, corrected to 7 percent oxygen (dry basis), based on a 4-hour block arithmetic average. The CO CEMS shall be calibrated, operated, and maintained in accordance with 40 CFR 60, Appendix B, Performance Specification 4A (PS-4A) and Appendix F. The permittee shall be in compliance with the CO emission limit by December 31, 2016 (See Appendix CP, *Compliance Plan*). [Rule 62-204.800(9)(b)3.i., F.A.C.; 40 CFR 60.34b(a); and, 1030117-009-AC(PSD-FL-420), as amended]

A.12. NO_X Emissions. As determined by CEMS, nitrogen oxide emissions from each MWC unit shall not exceed 205 ppmv, corrected to 7 percent oxygen (dry basis), based on a 24-hour daily arithmetic average of the hourly emission concentrations. The NO_X CEMS shall be calibrated, operated, and maintained in accordance with 40 CFR 60, Appendix B, Performance Specification 2 (PS-2) and Appendix F. [Rule 62-204.800(9)(b)3.h., F.A.C.; 40 CFR 60.33b(d); and, 1030117-009-AC(PSD-FL-420), as amended]

A.13. SO_2 Emissions. As determined by CEMS, sulfur dioxide emissions from each MWC unit shall not exceed the following emissions standards:

a. *Best Available Control Technology.* Sulfur dioxide emissions shall not exceed 24 ppmv **or** 20 percent of the potential sulfur dioxide emission concentration (80-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with either limitation shall be demonstrated based on a 24-hour daily geometric mean. Compliance with the 24 ppmv limitation shall also be demonstrated on a 30-operating day rolling average.

b. *SIP SO_2 Limit.* Sulfur dioxide emissions shall not exceed 29 ppmv **or** 25 percent of the potential sulfur dioxide emission concentration (75-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance shall be demonstrated based on a 24-hour daily geometric mean. Compliance with this emission limit is demonstrated by showing compliance with the BACT emission limit in **a.** above.

The SO_2 CEMS shall be calibrated, operated, and maintained in accordance with 40 CFR 60, Appendix B, Performance Specification 2 (PS-2) and Appendix F. [Rule 62-204.800(9)(b)3.e., F.A.C.; 40 CFR 60.33b(b)(3)(i); and, 1030117-009-AC(PSD-FL-420), as amended]

A.14. PM Emissions. As determined by reference method stack test, particulate matter emissions from each MWC unit shall not exceed 25 milligrams per dry standard cubic meter, corrected to 7 percent oxygen.

[Rule 62-204.800(9)(b)3.a., F.A.C.; 40 CFR 60.33b(a)(1)(i); and, 1030117-009-AC(PSD-FL-420), as amended]

A.15. $PM_{2.5}$ Emissions. As determined by reference method stack test, emissions of particulate matter less than 2.5 microns from each MWC unit shall not exceed 30 milligrams per dry standard cubic meter, corrected to 7 percent oxygen. [Permit No. 1030117-009-AC (1030117-009-AC(PSD-FL-420), as amended]

A.16. Hydrogen Chloride Emissions. As determined by reference method stack test, hydrogen chloride (HCl) emissions from each MWC unit shall not exceed the following emissions standards:

a. *Best Available Control Technology.* Hydrogen chloride emissions shall not exceed 20 ppmv corrected to 7 percent oxygen (dry basis), averaged across the three MWC units.

b. *SIP HCl Limit.* Hydrogen chloride emissions shall not exceed 29 ppmv **or** 5 percent of the potential hydrogen chloride emission concentration (95-percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with this emission limit is demonstrated by showing compliance with the BACT emission limit in **a.** above.

[Rule 62-204.800(9)(b)3.f., F.A.C.; 40 CFR 60.33b(b)(3)(ii); and, 1030117-009-AC(PSD-FL-420), as amended.]

A.17. Cadmium Emissions. As determined by reference method stack test, cadmium (Cd) emissions from each MWC unit shall not exceed 35 micrograms (μg) per dry standard cubic meter, corrected to 7 percent oxygen.

[Rule 62-204.800(9)(b)3.c., F.A.C. and 40 CFR 60.33b(a)(2)(i)]

A.18. Lead Emissions. As determined by reference method stack test, lead (Pb) emissions from each MWC unit shall not exceed 400 micrograms (μg) per dry standard cubic meter, corrected to 7 percent oxygen.

[Rule 62-204.800(9)(b)3.c., F.A.C.; 40 CFR 60.33b(a)(4); and, 1030117-009-AC(PSD-FL-420), as amended]

A.19. Mercury Emissions. As determined by reference method stack test, mercury (Hg) emissions from each MWC unit shall not exceed the following emissions standards:

a. *Best Available Control Technology*. Mercury emissions shall not exceed 50 micrograms (μg) per dry standard cubic meter, corrected to 7 percent oxygen, **or** 15 percent of the potential mercury emission concentration (85-percent reduction by weight), corrected to 7 percent oxygen, whichever is less stringent.

b. *SIP WTE Mercury Limit*. Mercury emissions shall not exceed 70 micrograms per dry standard cubic meter of flue gas, corrected to 7 percent oxygen, **or** 20 percent by weight of the mercury in the flue gas upstream of the mercury control device (80 percent reduction by weight), whichever occurs first. Compliance with this emission limit is demonstrated by showing compliance with the BACT emission limit in **a.** above.

[Rules 62-204.800(9)(b)3.d. and 62-296.416(3)(a)1., F.A.C.; 40 CFR 60.33b(a)(3); and, 1030117-009-AC(PSD-FL-420), as amended]

A.20. Dioxin/Furan Emissions. As determined by reference method stack test, total mass dioxin/furan (tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans) emissions from each MWC unit shall not exceed 30 nanograms (ng) per dry standard cubic meter (total mass), corrected to 7 percent oxygen. The minimum sample time shall be four hours per test run. [Rule 62-204.800(9)(b)3.g., F.A.C. and 40 CFR 60.33b(c)(1)(iii)]

A.21. Fluoride Emissions. Fluoride emissions from MWC Unit 3 shall not exceed 8.31 lbs/hr. [PSD-FL-098]

{Permitting note: Initial and subsequent fluoride performance tests (following installation of a fabric filter) have been conducted on MWC Unit 3 that demonstrate emissions much less than the respective BACT emission standard. Therefore, no further fluoride performance tests are required.}

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C. cannot vary any requirement of an NSPS, EG, NESHAP or Acid Rain program provision.

A.22. Excess Emissions - Startup, Shutdown or Malfunction. Excess emissions resulting from startup, shutdown or malfunction shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration. Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The Department authorizes:

a. Three hours in any 24-hour period for these emissions units; and

b. For the purpose of compliance with the CO emission limits in Specific Condition **A.11**, if a loss of boiler water level control (e.g., loss of combustion air fan, induced draft fan, combustion grate bar failure) is

determined to be a malfunction, the duration of the malfunction period is limited to 15 hours per occurrence.

[Rules 62-210.700, 62-204.800(9)(b), and 62-212.400(BACT), F.A.C.; and Permit No. 1030117-009-AC (PSD-FL-420)]

A.23. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.; and, Permit No. 1030117-009-AC (PSD-FL-420)]

A.24. Excess Emissions from Malfunctions. In the case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Compliance Authority. [Rule 62-210.700(6), F.A.C.]

Monitoring of Operations

A.25. Continuous Steam Flow Monitoring System: The owner or operator shall install, calibrate, maintain, and operate a steam flow meter or a feedwater flow meter; measure steam flow in lb/hour on a continuous basis; and record the output of the monitor. Steam flow shall be calculated in 4-hour block arithmetic averages. Additionally:

a. The method included in the "American Society of Mechanical Engineers Power Test Codes: Test Code for Steam Generating Units, Power Test Code 4.1-1964 (R1991)" Section 4 shall be used for calculating the steam flow. The recommendations in "American Society of Mechanical Engineers Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th edition (1971)," Chapter 4, shall be followed for design, construction, installation, calibration, and use of nozzles and orifices.

b. All signal conversion elements associated with steam measurements must be calibrated according to the manufacturer's instructions at least once per year.

[Rules 62-213.440 and 62-210.200 (Definitions-PTE), F.A.C.; 40 CFR 60.34b, 40 CFR 60.53b & 40 CFR 60.58b(i)(6); and, 1030117-009-AC(PSD-FL-420), as amended]

A.26. Inlet Temperature to Particulate Matter Control Device (Baghouse). The owner or operator shall calibrate, maintain, and operate a device for measuring on a continuous basis the temperature of the flue gas stream at the inlet to each baghouse utilized. The baghouse inlet temperature shall be maintained at less than 30 degrees Fahrenheit (^{o}F) above the maximum demonstrated particulate matter control device temperature. The maximum demonstrated particulate matter control device temperature is defined as the highest 4-hour arithmetic average flue gas temperature measured at the baghouse inlet during four consecutive hours during the most recent successful dioxin/furan performance test. Temperature shall be calculated in 4-hour block arithmetic averages. [Rules 62-213.440 and 62-296.416(4), F.A.C.; and, 40 CFR 60.34b, 40 CFR 60.53b & 40 CFR 60.58b(i)(7)]

Continuous Emissions Monitoring Requirements

A.27. Continuous Monitoring Systems Required. The owner or operator shall calibrate, operate and maintain continuous emissions monitoring systems (CEMS) and continuous opacity monitoring systems (COMS) on each MWC unit:

a. NO_X and SO_2 - CEMS in accordance with 40 CFR 60, Appendix B, PS- 2 and Appendix F and for the purpose of demonstrating continuous compliance with the emission standards in Specific Conditions **A.12** and **A.13.**

b. CO - CEMS in accordance with 40 CFR 60, Appendix B, PS-4A and Appendix F and for the purpose of demonstrating continuous compliance with the CO emission standard in Specific Condition **A.11.**

c. O_2 or CO_2 diluent CEMS in accordance with 40 CFR 60, Appendix B, PS-3 and Appendix F and for the purpose of correcting the emission standards in Specific Conditions **A.11 – A.20** to the stated oxygen content.

d. A COMS in accordance with 40 CFR 60, Appendix B, PS-1 and for the purpose of demonstrating compliance with the 10% opacity standard in Specific Condition **A.10.**

e. The CEMS for CO, NO_X, SO_2, O_2, CO_2, and the COMS shall comply with all requirements of Section 40 CFR 60.58b.

[Rule 62-213.440, F.A.C.; 40 CFR 60.38b & 60.58b; and, Permit No. 1030117-009-AC (PSD-FL-420)]

Test Methods and Procedures

A.28. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
3, 3A or 3B	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources. At least one of these methods shall be used to determine O_2 or carbon dioxide (CO_2) diluent concentration when conducting relative accuracy test audits (RATA) in conjunction with diluent O_2 or CO_2-CEMS installed, calibrated, maintained and operated in accordance with 40 CFR 60, Appendix B, Performance Specification 3 (PS-3) and Appendix F.
5	Determination of Particulate Matter Emissions from Stationary Sources. The minimum sample volume shall be 1.7 cubic meters (60 dry standard cubic feet). The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160 °F (320 °F). An O_2 or CO_2 measurement shall be obtained simultaneously with each Method 5 run.
Revised 201A and 202	Determination of Filterable $PM_{10}/PM_{2.5}$ and Condensable $PM_{2.5}$ Emissions from Stationary Sources.
6, 6A or 6C	Determination of Sulfur Dioxide Emissions from Stationary Sources. At least one of these methods shall be used to determine SO_2 concentrations when conducting RATA in conjunction with SO_2 CEMS installed, maintained and operated in accordance with 40 CFR 60, Appendix B, PS-2 and Appendix F.
7, 7A, 7B, 7C, 7D or 7E	Determination of Nitrogen Oxides Emissions from Stationary Sources. At least one of these methods shall be used to determine NO_X Emissions when conducting RATA in conjunction with NO_X CEMS installed, calibrated, maintained and operated in accordance with 40 CFR 60, Appendix B, PS-2 and Appendix F.
9	Visual Determination of the Opacity of Emissions from Stationary Sources. *
10, 10A or 10B	Determination of Carbon Monoxide Emissions from Stationary Sources. At least one of these methods shall be used to determine CO emissions when conducting RATA in conjunction with CO CEMS installed, calibrated, maintained and operated in accordance with 40 CFR 60, Appendix B, PS-4A and Appendix F.
13A or 13B	Determination of Total Fluoride Emissions From Stationary Sources

Method	Description of Method and Comments
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates
23	Determination of Polychlorinated Dibenzo-P-Dioxins and Polychlorinated Dibenzofurans (Dioxin/Furan) from Stationary Sources. Authorized to omit methylene chloride rinse.[2]
26, 26A	Determination of Hydrogen Chloride and Halogen Emissions from Stationary Sources. Authorized to substitute full-size impingers in lieu of midget impingers and omit NaOH.[3]
29	Determination of Metals Emissions from Stationary Sources. Specifically, mercury (Hg), cadmium (Cd) and lead (Pb).

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. *EPA Method 9 is used only if the COMS are malfunctioning or otherwise not available for extended periods of time, or during inspection by Department staff. [Chapter 62-297, F.A.C.; Rule 62-204.800(9)(b)7., F.A.C.; PSD-FL-011, PSD-FL-098, & 1030117-009-AC(PSD-FL-420), as amended; and, [2] Appendix ATP, U.S. EPA Alternative Test Procedure Approval dated June 3, 2004; and, [3]Appendix ASP, Alternate Sampling Procedure 15-L-AP dated April 17, 2015.]

A.29. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

A.30. Annual Compliance Tests Required. Except as provided in Specific Condition **A.31.**, during each calendar year (January 1st to December 31st) and during the year prior to renewal, each MWC unit shall be tested to demonstrate compliance with the emissions standards for PM, $PM_{2.5}$, Cd, Hg, Pb, HCl, and Dioxin/Furan. Tests shall be performed no less than 9 calendar months and no more than 15 calendar months following the previous performance test. In addition, five performance tests shall be performed in a 5-year calendar period. [Rules 62-204.800(9)(b)7.a. and 62-297.310(8), F.A.C.; 40 CFR 60.58b; and1030117-009-AC(PSD-FL-420), as amended]

A.31. Alternate Testing Schedule for Dioxin/Furan. Where all performance tests over a 2-year period indicate that dioxin/furan emissions are less than or equal to 15 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen for all MWC units, the owner or operator may elect to conduct annual performance tests for one MWC unit per year. At a minimum, a performance test for dioxin/furan emissions shall be conducted on a calendar year basis (no less than 9 calendar months and no more than 15 months following the previous performance test; and the owner or operator shall complete five performance tests in each 5-year calendar period). Each year a different MWC unit at the municipal waste combustor plant shall be tested, and the affected facilities at the plant shall be tested in sequence (e.g., Unit 1, Unit 2, Unit 3, as applicable). If each annual performance test continues to indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass), the owner or operator may continue conducting a performance test on only one MWC unit per calendar year. If any annual performance test indicates either a dioxin/furan emission level greater than 15 nanograms per dry standard cubic meter (total mass), performance tests shall thereafter be conducted annually on all MWC units at the plant until and unless all annual performance tests for all MWC units at the plant over a 2-year period indicate a dioxin/furan emission level less than or equal to 15 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen. [Rule 62-204.800(9)(b)7.b., F.A.C. and 40 CFR 60.58b(g)(5)(iii)]

Recordkeeping and Reporting Requirements

A.32. Reporting Schedule. The following reports and notifications shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition(s)
Excess Emissions from Malfunctions, if requested by the Compliance Authority	Every 3 months (quarterly), if requested by the Compliance Authority, otherwise every 6 months (semi-annually)	**A.24.**
NSPS Excess Emissions and Monitoring System Performance	Every 6 months (semi-annually), except when more frequent reporting is specifically required	**A.34.**

[Rule 62-213.440(1)(b), F.A.C.]

A.33. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

A.34. Excess Emissions Reporting. Periods of startup, shutdown and malfunction shall be monitored, recorded and reported as excess emissions when emission levels of SO_2, CO, or NO_X, or visible emissions, exceed the standards specified in this permit, following the NSPS format in 40 CFR 60.7(c), Subpart A. In addition, the report shall summarize the CEMS and COMS availability for the reporting period. This report of excess emissions and emissions monitor system performance shall be submitted to the Compliance Authority semi-annually. A full written report on malfunctions, and the excess emissions and exceedances of opacity standards resulting from malfunctions, shall be submitted to the Compliance Authority within 30 days following the end of each calendar quarter, if requested by the Compliance Authority.

[Rule 62-4.130 and 62-210.700(6), F.A.C.; and, Permit No. 1030117-012-AC (PSD-FL-420(B))]

A.35. Records of Non-MSW Materials. The facility owner or operator shall prepare and maintain records concerning the description and quantities of all segregated loads of non-MSW material which are received and used as fuel at the facility, and subject to a percentage weight limitation (see Specific Conditions **A.4.e.** and **A.4.f.**). The following records shall be prepared and maintained to demonstrate compliance with the segregated non-MSW percentage limitations:

a. *Segregated Loads of non-MSW Materials*. Each segregated load of non-MSW materials, that is subject to the percentage weight limitations (see Specific Conditions **A.4.e.** and **A.4.f.**), which is received for processing shall be documented as to the description and weight of the waste. The weight of all waste materials received for processing shall be measured using the facility truck scale and recorded.

b. *Waste Tires*. Each day the total weight of segregated tires received shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of tires shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 3% limitation.

c. *Non-MSW Material*. Each day the total weight of segregated non-MSW materials received that are subject to the 5% restriction shall be computed, and the daily total shall be added to the sum of the daily totals from the previous days in the current calendar month. At the end of each calendar month, the resultant monthly total weight of segregated non-MSW materials subject to the 5% restriction shall be divided by the total weight of all waste materials received in the same calendar month, and the resultant number shall be multiplied by 100 to express the ratio in percentage terms. The percentage computed shall be compared to the 5% limitation.

[Rules 62-4.070(1), (3), 62-213.410 & 62-213.440, F.A.C.]

A.36. Reporting and Recordkeeping. The reporting and recordkeeping requirements applicable to each municipal waste combustor unit subject to Rule 62-204.800(9)(b), F.A.C., shall be the same as set forth in 40 CFR 60.59b, except for the siting requirements under 40 CFR 60.59b(a), (b)(5) and (d)(11). See Appendix 40 CFR 60, Subpart Eb. [Rule 62-204.800(9)(b)7.b, F.A.C.]

Operator Practices, Training and Certification

A.37. Operating Practices. The owner or operator shall comply with the operating practices as set forth in 40 CFR 60.53b(b) and (c). [Rule 62-204.800(9)(b)4., F.A.C.; and, 40 CFR 60.34b & 40 CFR 60.53b.]

A.38. Operator Training and Certification. The owner or operator shall comply with the operator training and certification requirements of 40 CFR 60.54b. Compliance with these requirements shall be conducted according to the schedule specified in 40 CFR 60.39b(c)(4). [Rule 62-204.800(9)(b)5., F.A.C.; and, 40 CFR 60.35b & 40 CFR 60.54b.]

NSPS 40 CFR 60, Subpart A & Cb\Eb Requirements

{Permitting notes: The EG 40 CFR 60, Subpart Cb, cross references conditions (applicable requirements) that are contained in the NSPS 40 CFR 60, Subparts A and Eb.}

A.39. NSPS Requirements - Subpart Cb\Eb. These emissions units are subject to 40 CFR 60, Subpart Cb and certain applicable portions of 40 CFR 60, Subpart Eb, adopted and incorporated by reference at Rules 62-204.800(9)(b) and 62-204.800(8)(b), F.A.C., respectively. Except as otherwise provided in this permit, these emissions units shall comply with the applicable provisions of these rules, which are included in **Appendix 40 CFR 60, Subpart Cb** and **Appendix 40 CFR 60, Subpart Eb**. [Rule 62-204.800(8)(b)7. and (9)(b), F.A.C.]

A.40. NSPS Requirements - Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. This emissions unit shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart A** included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

Other Requirements

A.41. Acid Rain Part Application. For any unit which is a solid waste incinerator, burning less than 20 percent fossil fuel as described in 40 CFR 72.6(b)(7), adopted and incorporated by reference at Rule 62-204.800, F.A.C., the designated representative of the source containing the unit shall submit a complete Acid Rain Part application governing such unit to the Department before March 1st of the year following the three calendar year period in which the incinerator consumed 20 percent or more fossil fuel on a British thermal unit (BTU) basis. [Rule 62-214.320(1), F.A.C.]

A.42. Compliance Plan. Based on the application, this/these emissions unit(s) were not in compliance with all applicable requirements at the time the application was submitted. **Appendix CP, Compliance Plan** is a part of this permit. [Rule 62-213.440(2), F.A.C.]

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Subsection B. Emissions Units 005 to 008

The specific conditions in this section apply to the following emissions unit(s):

EU No.	Brief Description
-005	Residue Storage and Processing Building (RSPB)
-006	Activated Carbon Storage Silo
-007	Lime Storage Silo for SDA
-008	Ash Conditioning Building (ACB)

Emissions Unit ID No. 005 is the Residue Storage and Processing Building (RSPB). The RSPB is a combination of the metals recovery system and ash storage system. The metals recovery system is designed to separate approximately 112 tons per hour of MWC ash residue into ferrous and nonferrous metal streams and an aggregate stream. The bottom ash is wetted in a quench tank. The fly ash is wetted in a pug mill and then combined with the bottom ash. Ash is typically wet when it comes into the RSPB. A baghouse (Donaldson Model No. 225MBWS8) with a design flow rate of 14,000 acfm is utilized to assist in dust control inside the ACB in the ash transfer area. The filtered air is vented through a 30" × 30" rectangular stack that is approximately 16 feet in height. The material captured by the baghouse is mixed in with the mixed ash aggregate stream and sent to the landfill for use as cover material (see Subsection III.C.) The startup date of the RSPB was June 10, 2008.

Emissions Unit ID No. 006 is a 30-ton capacity silo for storage of activated carbon powder manufactured by Chemco. It is part of the activated carbon injection (ACI) system for control of mercury emissions from the municipal waste combustion units. A supply truck pneumatically transfers the activated carbon powder to the silo through a fill line. A baghouse (Wheelabrator Model No. 22WSC-BV) is utilized to filter dust (particulate matter) laden air from the carbon silo during filling operations. The baghouse filters the air at approximately 1,200 acfm and vents directly to a 0.7 feet diameter outlet approximately 43 feet above grade. Material captured by the baghouse is returned to the silo as usable product. The initial startup date of the silo was September 24, 1998.

Emissions Unit ID No. 007 is a 70 ton capacity silo for storage of pebble lime. It is part of the spray dry absorber (SDA) system used for control of acid gases and sulfur dioxide emissions from the municipal waste combustion units. A supply truck pneumatically transfers pebble lime to the silo through a fill line. A baghouse (Wheelabrator Model No. 22WSC-BV) is utilized to filter dust (particulate matter) laden air from the lime silo during filling operations. The baghouse filters the air at approximately 1,200 acfm and vents directly to a 0.7 feet diameter outlet approximately 43 feet above grade. Material captured by the baghouse is returned to the silo as usable product. The initial startup date of the silo was September 24, 1998.

Emissions Unit ID No. 008 is the Ash Conditioning Building (ACB). The ACB contains two 20-ton capacity fly ash surge bins. The fly ash is wetted to minimize fugitive emissions. A high efficiency wet scrubber (Tri-Mer Corporation Model No. 50-H) is utilized for dust control as needed in the ACB. The scrubber is operated when deemed necessary by the operator. The wet scrubber vents the treated air at a design rate of approximately 1,200 acfm through a 1.3-foot diameter stack that is approximately 65 feet in height. The initial startup date of the scrubber was September 24, 1998.

{Permitting note(s): These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required; Permit Nos. 1030117-007-AC and AC52-259351; Pinellas County Ordinance 97-05, Section 22, Sec. 58-128; and, Florida Electrical Power Plant Site Certifications [PA78-11 & PA83-18]. The ash conveying systems of E.U. ID Nos. -005 and -008 are regulated under 40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors.}

Essential Potential to Emit (PTE) Parameters

B.1. Permitted Capacity.

a. *RSPB.* The charging rate for the RSPB shall not exceed 112 tons/hr ash.
b. *ACB.* The charging rate for the ACB shall not exceed 41.7 tons/hr fly ash.

c. *Activated Carbon Silo and Lime Storage Silo for SDA.* The filling rate for the activated carbon and lime storage silos shall not exceed 20,000 and 50,000 lbs/hr, respectively. Compliance with these limitations shall be demonstrated by ensuring the silo loading pressure does not exceed 12 psig, or the design pressure of each silo's pressure relief valve, whichever is less.

{Permitting Note: These design process rates are based on the original design of each emissions unit. Although the above design capacities are not intended as operational restrictions, the permittee shall obtain the appropriate air construction permits before making any physical or operational changes that would increase the maximum design capacity of any emissions unit. The process rates for the emissions units listed above are not measured continuously, but may be determined after-the-fact, as needed for testing purposes. An exceedance of the stated design capacity is not necessarily a violation of this permit.}

[Rules 62-4.160(2), 62-4.070(3), & 62-210.200 (PTE), F.A.C.; Permit Nos. AC52-259351 & 1030117-007-AC; and, Applicant Request.]

B.2. Emissions Unit Operating Rate Limitation After Testing. See the related testing provisions in Appendix TR, Facility-wide Testing Requirements. [Rule 62-297.310(2), F.A.C.]

B.3. Hours of Operation. These emissions units may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging time(s) for Specific Conditions **B.4. – B.6** are based on the specified averaging time of the applicable test method.

B.4. Particulate Matter Emissions. Particulate matter emissions shall not exceed the following emissions standards:

a. *RSPB.* 0.01 gr/dscf from the baghouse stack. *{Permitting Note: For informational purposes, equivalent emissions are 1.2 lbs/hr and 5.3 TPY based on a design flow rate of 14,000 dscfm.}*

b. *Activated Carbon Silo and Lime Storage Silo for SDA.* 0.005 gr/dscf from the baghouse outlet of each silo. *{Permitting Note: For informational purposes, equivalent emissions are 0.0514 lbs/hr and 0.225 TPY based on a design flow rate of 1,200 acfm.}*

c. *ACB.* 0.03 gr/dscf from the wet scrubber system stack. *{Permitting Note: For informational purposes, equivalent emissions are 1.29 lbs/hr and 5.63 TPY based on a design flow rate of 5,000 acfm.}*

[Rules 62-4.160(2), 62-210.200 (PTE), 62-297.620(1)-(3) & 62-297.620(4), F.A.C.; PA78-11 & PA83-18; and, Applicant Request.]

B.5. MWC Fugitive Ash Emissions: The potential for dust generation by ash handling activities from Emission Units 005 and 008 shall be mitigated by reasonable precautions:

a. No owner or operator of an affected facility shall cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5% of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22 observations as specified in Section 40 CFR 60.58b(k), except as provided in paragraphs (b) and (c) of this section.

b. The emission limit specified in paragraph (a) of this section does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit specified in paragraph (a) of this section does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.

c. The provisions specified in paragraph (a) of this section do not apply during maintenance and repair of ash conveying systems.

[Rules 62-296.320(4)(c), Rule 62-204.800(9)(b)6., F.A.C.; 40 CFR 60.36b & 40 CFR 60.55b; and, Permit No. 1030117-009-AC (PSD-FL-420)]

B.6. Visible Emissions. Visible emissions from each silo baghouse (Emissions Units 006 & 007), the RSPB baghouse (Emissions Unit 005), and the ACB scrubber system outlet (Emissions Unit 008) shall not exceed 5% opacity as determined by EPA Method 9. [Rules 62-4.160(2), 62-210.200 (PTE), 62-297.620(1)-(3) & 62-297.620(4), F.A.C.; Permit No. AC52-259351; PA78-11 & PA83-18; and, Applicant Request.]

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C. cannot vary any requirement of an NSPS, EG, NESHAP or Acid Rain program provision.

B.7. Excess Emissions – Startup, Shutdown, or Malfunction. Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

B.8. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

Monitoring of Operations

B.9. Operation and Maintenance Plans. A separate Operation and Maintenance (O&M) plan shall be on file with the Compliance Authority for the emissions units and associated air pollution control devices listed in this subsection. These emissions units and associated control devices shall be operated and maintained in accordance with the submitted O&M plans. The O&M documentation logs shall be maintained for a minimum of the most recent five years and be made available for inspection upon request. [Rule 62-213.440(b), F.A.C.; and, Pinellas County Ordinance 97-05, Section 22, Sec. 58-128.]

Test Methods and Procedures

B.10. Test Methods. When required, tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
EPA Methods 1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
EPA Method 5	Methods for Determining Particulate Matter Emissions
EPA Method 9	Visual Determination of the Opacity of Emissions
EPA Method 22	Visual Determination of Fugitive Emissions from Material Sources

The above methods are described in Chapter 62-297, F.A.C. and/or 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Chapter 62-297, F.A.C.]

B.11. Annual Compliance Tests Required. Except as specified in Specific Condition **B.12.**, during each calendar year (January 1st to December 31st) and during the year prior to renewal, each baghouse exhaust and the wet scrubber system outlet shall be tested to demonstrate compliance with the emissions standards for visible emissions. The EPA Method 9 test shall be a minimum of 30 minutes in duration. In addition, the ACB and RSPB shall be tested annually for visible emissions using EPA Method 22, in accordance with Specific Condition **B.5.a.** *{Permitting Note: EPA Method 9 is specified for each emissions unit equipped with a baghouse or scrubber stack. This requirement is in addition to annual EPA Method 22 testing to demonstrate compliance with the MWC fugitive ash emissions standards for the ACB and RSPB adopted and incorporated by reference at Rule 62-204.800(9)(b), F.A.C}* [Rule 62-297.310(8), F.A.C.]

B.12. Visible Emissions Test in Lieu of PM Stack Test. The owner or operator is permitted to comply with the VE limit and the VE testing requirement in lieu of regularly demonstrating compliance with each PM limitation. If the Department has reason to believe that any particulate matter limitation is not being met, it shall require compliance be demonstrated by conducting a particulate matter test in accordance with EPA Method 5 specified at 40 CFR 60 Appendix A. [Rules 62-4.070(3), 62-4.160(2), 62-210.200 (PTE), 62-297.620(1)-(3) & 62-297.620(4), F.A.C.; Permit No. AC52-259351; PA78-11 & PA83-18; and, Applicant Request.]

B.13. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

B.14. Reporting Schedule. The following reports and notifications shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition(s)
Excess Emissions from Malfunctions, if requested by the Compliance Authority	Every 3 months (quarterly), if requested by the Compliance Authority, otherwise every 6 months (semi-annually)	**B.15.**

[Rule 62-213.440(1)(b), F.A.C.]

B.15. Excess Emissions from Malfunctions. In the case of excess emissions resulting from malfunctions, each owner or operator shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Compliance Authority. [Rule 62-210.700(6), F.A.C.]

B.16. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

*{Permitting Note: Specific conditions **B.17. - B.20.** apply only to the ash conveying systems of E.U. ID Nos. 005 and 008.}*

EG 40 CFR 60, Subpart Cb Requirements

B.17. EG Requirements - General Applicability and Definitions. These emissions units shall comply with all applicable requirements of 40 CFR 60, Emission Guidelines and Compliance Times which have been adopted by reference in Rule 62-204.800(9), F.A.C., except that the term "Administrator," when used in any provision of 40 CFR 60 that is delegated to the Department by the U.S. Environmental Protection Agency, shall mean the Secretary or the Secretary's designee. [Rule 62-204.800(9)(a), F.A.C.]

B.18. EG Requirements - Subpart Cb. These emissions units shall comply with all applicable requirements of 40 CFR 60, Subpart Cb, Emissions Guidelines (EG) and Compliance Times for Large Municipal Waste Combustors, which have been adopted and incorporated by reference in Rule 62-204.800(9), F.A.C. These emissions units shall comply with **Appendix 40 CFR 60 Subpart Cb** included with this permit. [Rule 62-204.800(9)(b), F.A.C.]

NSPS 40 CFR 60, Subpart A & Eb Requirements

{Permitting note(s): The EG 40 CFR 60, Subpart Cb, cross-references conditions (applicable requirements) that are contained in the NSPS 40 CFR 60, Subparts A and Eb.}

B.19. NSPS Requirements - Subpart Eb. Except as otherwise provided in this permit, these emissions units shall comply with the applicable provisions of 40 CFR 60, Subpart Eb, Large Municipal Waste Combustors, adopted and incorporated by reference in Rule 62-204.800(8)(b), F.A.C.; except that the Secretary is not the Administrator for purposes of the authorities cited at 40 CFR 60.50b(n). These emissions units shall comply

with the applicable provisions of **Appendix 40 CFR 60 Subpart Eb** included with this permit. [Rule 62-204.800(8)(b)7., F.A.C.]

B.20. NSPS Requirements - Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. This emissions unit shall comply with all applicable provisions of **Appendix 40 CFR 60 Subpart A** included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

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Subsection C. The specific conditions in this section apply to the following emissions unit(s):

EU No.	Brief Description
-009	Municipal Solid Waste Landfill

The Pinellas County Resource Recovery Facility contains the contiguous Bridgeway Acres (BWA) Class I Landfill. The BWA Class I Landfill (WACS ID No: 46742) is permitted by the Florida Department of Environmental Protection (FDEP) per Permit #34184-022-S0-01, dated April 1, 2016, to operate, monitor and maintain approximately 497 acres of disposal area as a Class I Landfill within the 730 acres of the facility. It has a maximum design capacity of approximately 47 million megagrams (Mg). The BWA Class I Landfill has two distinct areas. The area west of 25th Street North is referred to as the West Landfill. The area east of 25th Street North is referred to as the Sod Farm. Active waste disposal currently occurs in the West Landfill only. The BWA Class I Landfill has a Class I waste disposal area, Class I non-putrescible waste disposal area, asbestos disposal area, special waste management areas, and a yard waste processing area. The landfill primarily receives ash from the WTE Facility and municipal solid waste (MSW). The annual acceptance rates vary, depending on how much total waste is received and the availability of the WTE Facility.

In compliance with 40 CFR 60, Subpart Cc regulations adopted and incorporated by Rule 62-204.800(9)(c), F.A.C., the estimated non-methane organic compounds (NMOC) emission rate for the Bridgeway Acres Class I Landfill is calculated and reported annually. In accordance with 40 CFR 60, Subpart WWW, the site-specific NMOC concentration was determined in year 2012 and the NMOC emission rate was re-calculated to be 8.71 Mg/year. The NMOC emission rate estimate for reporting year 2015 was 9.309 Mg/year. Since the estimated NMOC emission rate was below the threshold of 50 Mg/year, the landfill is currently exempt from the installation of an active gas collection and control system.

{Permitting note(s): This emissions unit is regulated under Rule 62-210.300, F.A.C., Permits Required; 40 CFR 60, Subpart Cc, Emissions Guidelines (EG) and Compliance Times for Municipal Solid Waste Landfills; and, 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Asbestos.}

Essential Potential to Emit (PTE) Parameters

C.1. Hours of Operation. This emissions unit may operate continuously (8,760 hours/year). [Rule 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C.]

Emission Limitations and Standards

Unless otherwise specified, the averaging time for Specific Condition **C.2.** is based on the specified averaging time of the applicable test method.

C.2. NMOC Emission Rate. The owner or operator shall calculate the NMOC emission rate annually and submit a report to the Compliance Authority, to show that the landfill gas emissions are less than 50 Mg/yr. [Rule 62-204.800(9)(c), F.A.C.; and, 40 CFR 60, Subpart Cc - 40 CFR 60.33c(e)]

Test Methods and Procedures

C.3. Test Methods. The owner or operator shall retest the site-specific NMOC concentration using the methods specified in 40 CFR 60.754(a)(3)(iii) adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rule 62-204.800(8), F.A.C.; and, 40 CFR 60, Subpart WWW - 40 CFR 60.754(a)(3)(iii).]

Recordkeeping and Reporting Requirements

C.4. Reporting Schedule. The following report shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition
NMOC Emission Rate Report	Annually	See **Appendix 40 CFR 60 Subpart Cc**, 40 CFR 60.33c(e).

[Rule 62-204.800(9)(c), F.A.C.; and, 40 CFR 60, Subpart Cc.]

C.5. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440, F.A.C.]

EG 40 CFR 60, Subpart Cc Requirements

C.6. EG Requirements - General Applicability and Definitions. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Emission Guidelines and Compliance Times which have been adopted by reference in Rule 62-204.800(9), F.A.C.; except that the term "Administrator," when used in any provision of 40 CFR 60 that is delegated to the Department by the U.S. Environmental Protection Agency, shall mean the Secretary or the Secretary's designee. [Rule 62-204.800(9)(a), F.A.C.]

C.7. EG Requirements – 40 CFR 60, Subpart Cc. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart Cc, Emissions Guidelines (EG) and Compliance Times for Municipal Solid Waste Landfills, which have been adopted by reference in Rule 62-204.800(9), F.A.C. (See Appendix 40 CFR 60, Subpart Cc included with this permit).

NSPS 40 CFR 60, Subpart A & WWW Requirements

{Permitting note: The EG 40 CFR 60, Subpart Cc, cross references conditions (applicable requirements) that are contained in the NSPS 40 CFR 60, Subparts A and WWW.}

C.8. NSPS Requirements - Subpart WWW. Except as otherwise provided in this permit, this emissions unit shall comply with all applicable provisions of 40 CFR 60, Subpart WWW, Municipal Solid Waste Landfills, adopted by reference in Rule 62-204.800(8)(b), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.754(a)(5). This emissions unit shall comply with all applicable provisions of Appendix 40 CFR 60, Subpart WWW included with this permit. [Rule 62-204.800(8)(b)75., F.A.C.]

C.9. NSPS Requirements - Subpart A. This emissions unit shall comply with all applicable requirements of 40 CFR 60, Subpart A, General Provisions, including:

40 CFR 60.7, Notification and Recordkeeping
40 CFR 60.8, Performance Tests
40 CFR 60.11, Compliance with Standards and Maintenance Requirements
40 CFR 60.12, Circumvention
40 CFR 60.13, Monitoring Requirements
40 CFR 60.19, General Notification and Reporting Requirements,

which have been adopted by reference in Rule 62-204.800(8)(d), F.A.C.; except that the Secretary is not the Administrator for purposes of 40 CFR 60.4, 40 CFR 60.8(b)(2) and (3), 40 CFR 60.11(e)(7) and (8), 40 CFR 60.13(g), (i) and (j)(2), and 40 CFR 60.16. This emissions unit shall comply with all applicable provisions of Appendix 40 CFR 60, Subpart A – General Provisions included with this permit. [Rule 62-204.800(8)(d), F.A.C.]

NESHAP 40 CFR 61, Subpart A & M - Asbestos Disposal Site Standards

C.10. NESHAP 40 CFR 61 Requirements - Subpart M [Set A]. The asbestos waste disposal sites shall comply with all applicable requirements of 40 CFR 61, Subpart M, National Emission Standard for Asbestos, which have been adopted by reference in Rule 62-204.800(10)(b), F.A.C.; except that the Secretary is not the Administrator for the purposes of 40 CFR 61.149(c)(2), 40 CFR 61.150(a)(4), 40 CFR 61.151(c), 40 CFR 61.152(b)(3), 40 CFR 61.154(d), and 40 CFR 61.155(a). This emissions unit shall comply with all applicable provisions of Appendix 40 CFR 61, Subpart M included with this permit. [Rule 62-204.800(10)(b)8., F.A.C.]

C.11. NESHAP 40 CFR 61 Requirements - Subpart A. The asbestos waste disposal sites shall comply with all applicable requirements of 40 CFR 61, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(10)(d), F.A.C.; except for 40 CFR 61.08 and except that the Secretary is not the Administrator for the purposes of 40 CFR 61.04, 40 CFR 61.11, and 40 CFR 61.18. In lieu of the process set

forth in 40 CFR 61.08, the Department will follow the permit processing procedures of Rule 62-4.055, F.A.C. The asbestos waste disposal sites shall comply with all applicable provisions of Appendix 40 CFR 61, Subpart A - General Provisions included with this permit. [Rule 62-204.800(10)(d), F.A.C.]

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Subsection D. The specific conditions in this section apply to the following emissions unit(s):

EU No.	Brief Description
-011	Emergency Diesel Generator – Main Lift Station

The emergency generator for the main lift station is a 252 HP Cummins Model DGFA5768846 manufactured in 2006. It is considered an "existing" engine subject to 40 CFR 63, Subpart ZZZZ and Subpart A.

Engine Identification	Engine Brake HP	Date of Manufacture	Displacement liters/cylinder (l/c)	Engine Manufacturer	Model No.
Main Lift Station	252	2006 (Pre-Jun 12)	< 10 l/c	Cummins	DGFA5768846

{Permitting Notes: These CI reciprocating internal combustion engines (CI RICE) are regulated under 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) adopted in Rule 62.204.800(11)(b), F.A.C. This permit section addresses "existing" emergency stationary CI RICE engines with a displacement of less than 10 liters per cylinder that are located at a major source of HAP and that commenced construction before 6/12/2006; and, that have not been modified or reconstructed after this date.

Pursuant to 40 CFR 60, Subpart IIII, NSPS for Stationary Compression Ignition RICE, these are "existing" emergency engines that have not been modified or reconstructed after 7/11/2005. Therefore, they are not subject to 40 CFR 60, Subpart IIII.} Link to 40 CFR 63, Subpart ZZZZ

Essential Potential to Emit (PTE) Parameters

D.1. Hours of Operation.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary RICE in emergency situations. [40 CFR 63.6640(f)(1)]

b. *Other Situations*. You may operate your emergency stationary RICE for maintenance and testing specified in this paragraph for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph c. counts as part of the 100 hours per calendar year allowed by this paragraph. This RICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year. [40 CFR 63.6640(f)(2)(i)]

c. *Non-emergency Situations*. These RICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph b., above. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 63.6640(f)(3)]

D.2. Work or Management Practice Standards.

a. *Oil*. Change oil and filter every 500 hours of operation or annually, whichever comes first. [40 CFR 63.6602 & Table 2c.1.a.]

b. *Air Cleaner*. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first and replace as necessary. [40 CFR 63.6602 & Table 2c.1.b.]

c. *Hoses and Belts*. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63.6602 & Table 2c.1.c.]

d. *Operation and Maintenance*. Operate and maintain the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions or develop and follow your own maintenance plan which must provide, to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution, control practice for minimizing emissions. [40 CFR 63.6625(e), 63.6640(a) & Table 6.9.a.]

e. *Engine Startup*. During periods of startup the owner or operator must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR 63.6625(h)]

f. *Oil Analysis*. The owner or operator has the option of using an oil analysis program to extend the oil change requirement. The oil analysis must be performed at the same frequency specified for changing the oil in paragraph **a**., above. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR 63.6625(i)]

Monitoring of Operations

D.3. Hour Meter. The owner or operator must install a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]

Compliance

D.4. Continuous Compliance. Each unit shall be in compliance with the emission limitations and operating standards in this section at all times. [40 CFR 63.6605(a)]

D.5. Operation and Maintenance of Equipment. At all times the owner or operator must operate and maintain, any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the compliance authority which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.6605(b)]

Reporting Requirements

D.6. Delay of Performing Work Practice Requirements. If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in **Specific Condition D.2.**, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable. [40 CFR 63, Subpart ZZZZ, Table 2c, footnote 1]

Recordkeeping Requirements

D.7. Performance and Compliance Records. The owner or operator must keep:

a. A copy of each notification and report that the owner or operator submitted to comply with this section, including all documentation supporting any Initial Notification or Notification of Compliance Status that the owner or operator submitted. [40 CFR 63.6655(a)(1)]

b. Records of the occurrence and duration of each malfunction of operation. [40 CFR 63.6655(a)(2)]

c. Records of all required maintenance performed on the hour meter. [40 CFR 63.6655(a)(4)]

d. Records of actions taken during periods of malfunction to minimize emissions in accordance with **Specific Condition D.5.**, including corrective actions to restore malfunctioning process and monitoring equipment to its normal or usual manner of operation. [40 CFR 63.6655(a)(5)]

e. Records of the actions required in **Specific Condition D.2.d.** to show continuous compliance with each emission limitation or operating requirement. [40 CFR 63.6655(d)]

f. Records of the Work or Management Practice Standards specified in **Specific Condition D.2.** [Rule 62-213.440(1)(b)2.a., F.A.C.]

g. Records of the maintenance conducted in order to demonstrate that the RICE was operated and maintained according to your own maintenance plan. [40 CFR 63.6655(e)]

h. Records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 63.6655(f)]

[Rule 62-213.440, F.A.C. and 40 CFR 63.6655]

D.8. Record Retention.

a. The owner or operator must keep records in a suitable and readily available form for expeditious reviews.

b. The owner or operator must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660 and 40 CFR 63.10(b)(1)]

General Provisions

D.9. 40 CFR 63 Subpart A - General Provisions. The owner or operator shall comply with the following applicable requirements of 40 CFR 63 Subpart A - General Provisions, which have been adopted by reference in Rule 62-204.800(11)(d)1., F.A.C., except that the Secretary is not the Administrator for purposes of 40 CFR 63.5(e), 40 CFR 63.5(f), 40 CFR 63.6(g), 40 CFR 63.6(h)(9), 40 CFR 63.6(j), 40 CFR 63.13, and 40 CFR 63.14. Link to 40 CFR 63, Subpart A - General Provisions

General Provisions Citation	Subject of Citation
§63.1	General applicability of the General Provisions
§63.2	Definitions (additional terms defined in 43 CFR 63.6675)
§63.3	Units and abbreviations
§63.4	Prohibited activities and circumvention
§63.5	Construction and reconstruction
§63.6(a)	Applicability
§63.9(a)	Applicability and State delegation of notification requirements
§63.9(b)(1)-(5)	Initial notifications (except that §63.9(b)(3) is reserved)
§63.9(i)	Adjustment of submittal deadlines
§63.9(j)	Change in previous information
§63.10(a)	Administrative provisions for recordkeeping/reporting

General Provisions Citation	Subject of Citation
§63.10(b)(1)	Record retention
§63.10(b)(2)(vi)–(xi)	Records
§63.10(b)(2)(xii)	Record when under waiver
§63.10(b)(2)(xiv)	Records of supporting documentation
§63.10(b)(3)	Records of applicability determination
§63.10(d)(1)	General reporting requirements
§63.10(f)	Waiver for recordkeeping/reporting
§63.12	State authority and delegations
§63.13	Addresses
§63.14	Incorporation by reference
§63.15	Availability of information

[40 CFR 63.6645(a), 63.6665 & Table 8 to Subpart ZZZZ of Part 63]

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Subsection E. The specific conditions in this section apply to the following emissions unit(s):

EU No.	Brief Description
-012	Emergency Fire Pump Engine (EPA Tier 3 Certified)
-017	Emergency Generator - Scale House (EPA Tier 3 Certified)
-018	Emergency Generator - Administrative Building (EPA Tier 3 Certified)

The "new" compression ignition (CI) diesel-fired emergency engines provide backup power to various parts of the facility in the event of an outage. Emissions Units 012, 017, and 018 are "new" engines and are subject to 40 CFR 60, Subpart IIII.

The following table provides pertinent details for the engines:

Engine Identification	Engine Brake HP	Date of Manufacture	Displacement liters/cylinder (l/c)	Engine Manufacturer	Model No.
Fire Pump	237	2015	< 10 l/c	Clark	JU6H-UFAD88
Scale House	190	2009	< 10 l/c	Caterpillar	C6.6
Admin	402	2009	< 10 l/c	Caterpillar	C9

{Permitting Notes: These emergency compression ignition reciprocating internal combustion engines (CI RICE) are regulated under 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) and 40 CFR 60, Subpart IIII – Standards of performance for Stationary Compression Ignition Internal Combustion Engines, adopted in Rules 62.204.800(11)(b) & (8)(b), F.A.C., respectively. This permit section addresses "new" stationary emergency CI RICE with a displacement of less than 10 liters per cylinder, located at a major source of HAP, that commenced construction on or after 6/12/2006, and that has a post-2007 model year. In accordance with provisions of 40 CFR 63.6590(c)(6), meeting the requirements of 40 CFR 60, Subpart IIII, satisfies compliance with the requirements of Subpart ZZZZ.} Link to 40 CFR 60, Subpart IIII

Essential Potential to Emit (PTE) Parameters

E.1. Authorized Fuel. This Stationary Internal Combustion Engines (ICE) must use diesel fuel that meets the following requirements for non-road diesel fuel:

a. *Sulfur Content*. The sulfur content shall not exceed = 15 ppm = 0.0015% by weight (ultra low sulfur) for non-road fuel.

b. *Cetane and Aromatic*. The fuel must have a minimum cetane index of 40 or must have a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b), 80.510(b)]

E.2. Restricted Hours of Operation. The owner or operator must comply with the following limitations for this emergency engine. If you do not operate the engine according to the requirements in paragraphs a. through c. of this condition, the engine will not be considered an emergency engine under 40 CFR 60, Subpart IIII and must meet all requirements for non-emergency engines.

a. *Emergency Situations*. There is no time limit on the use of emergency stationary ICE in emergency situations. [40 CFR 60.4211(f)(1)]

b. *Other Situations*. You may operate this emergency stationary ICE for maintenance and testing specified in this paragraph for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph c. counts as part of the 100 hours per calendar year allowed by this paragraph. This emergency stationary ICE is authorized to operate for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The owner or operator may petition the Administrator for

approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year. [40 CFR 60.4211(f)(2)(i)]

c. *Non-emergency Situations*. This emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph b., above. The 50 hours per year for non-emergency situations cannot be used for peak shaving, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
   (1) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
   (2) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
   (3) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
   (4) The power is provided only to the facility itself or to support the local transmission and distribution system.
   (5) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR 60.4211(f)(3)]

Emission Limitations

E.2. NMHC + NO_X Emissions. Emissions of non-methane hydrocarbons plus nitrogen oxide shall not exceed 4.0 grams per kilowatt-hour (g/KW-hr).

[40 CFR 60.4205(b)&(c), 60.4202(a)(2) & 89.112 Table 1, and Table 4 to Subpart IIII]

E.3. CO Emissions. Emissions of carbon monoxide shall not exceed 3.5 g/KW-hr.

[40 CFR 60.4205(b)&(c), 60.4202(a)(2) & 89.112 Table 1, and Table 4 to Subpart IIII]

E.4. PM emissions. Emissions of particulate matter shall not exceed 0.20 g/KW-hr.

[40 CFR 60.4205(b)&(c), 60.4202(a)(2) & 89.112 Table 1, and Table 4 to Subpart IIII]

Monitoring Requirements

E.5. Hour Meter. The owner or operator must install a non-resettable hour meter on each engine if one is not already installed. [40 CFR 60.4209(a)]

Testing and Compliance Requirements

E.6. Operation and Maintenance. The owner or operator must operate and maintain these engines according to the manufacturer's written instructions. In addition, owners and operators may only change those settings that are permitted by the manufacturer. These RICE must be maintained and operated to meet the emissions limits in **Specific Conditions E.2 - E.4.** over the entire life of the engine. [40 CFR 60.4206 & 4211(a)]

E.7. Engine Certification Requirements. The owner or operator must comply with the emissions standards specified above by having purchased an engine certified by the manufacturer to meet those limits. The engine must have been installed and configured according to the manufacturer's emission-related specifications, except as permitted in **Specific Condition E.8.** [40 CFR 60.4211(c)]

E.8. Compliance Requirements Due to Loss of Certification. If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition. if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action. [40 CFR 60.4211(c) & (g)]

E.9. Testing Requirements. In the event performance tests are required pursuant to **Specific Condition E.8.**, the following requirements shall be met:

a. *Testing Procedures*. The performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F. Link to 40 CFR 1039, Subpart F

b. *NTE Standards*. Exhaust emissions from these engines must not exceed the not-to-exceed (NTE) numerical requirements, rounded to the same number of decimal places as the applicable standard (STD) in **Specific Conditions E.2** – **E.4.**, determined from the following equation:

NTE Requirement For Each Pollutant = (1.25) x (STD) (Eq. 1)

[40 CFR 60.4212(a) & (c)]

E.10. Common Testing Requirements. Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]

Records and Reports

E.11. Testing Notification. At such time that the requirements of **Specific Condition E.8.** become applicable, the owner or operator shall notify the compliance authority of the date by which the initial compliance test must be performed. [Rule 62-213.440(1), F.A.C.]

E.12. Hours of Operation Records. The owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner or operator must record the time of operation of the engine and the reason the engine was in operation during that time. [40 CFR 60.4214(b)]

E.13. Maintenance Records. To demonstrate conformance with the manufacturer's written instructions for maintaining the certified engine and to document when compliance testing must be performed pursuant to **Specific Conditions E.8.** & **E.9,** the owner or operator must keep the following records:

a. Engine manufacturer data indicating compliance with the standards.
b. A copy of the manufacturer's written instructions for operation and maintenance of the certified engine.
c. A written maintenance log detailing the date and type of maintenance performed on the engine, as well as any deviations from the manufacturer's written instructions.

[Rule 62-213.440(1), F.A.C.; and, 40 CFR 60.4211(c) & (g)]

E.14. Other Reporting Requirements. See Appendix RR, Facility-Wide Reporting Requirements, for additional reporting requirements. [Rule 62-213.440(1)(b), F.A.C.]

General Provisions

E.15. 40 CFR 60, Subpart A - General Provisions. The owner or operator shall comply with the applicable requirements of 40 CFR 60, Subpart A - General Provisions, as specified below.
Link to 40 CFR 60, Subpart A - General Provisions.

General Provisions Citation	Subject of Citation
§ 60.1	General applicability of the General Provisions
§ 60.2	Definitions (see also § 60.4219)
§ 60.3	Units and abbreviations
§ 60.4	Address
§ 60.5	Determination of construction or modification
§ 60.6	Review of plans
§ 60.8	Performance tests, except that § 60.8 only applies if the manufacturer's written instructions are not followed. (see **Specific Conditions E.8.** & **E.9.**)
§ 60.9	Availability of information
§ 60.10	State Authority
§ 60.12	Circumvention
§ 60.14	Modification
§ 60.15	Reconstruction
§ 60.16	Priority list
§ 60.17	Incorporations by reference
§ 60.19	General notification and reporting requirements

[40 CFR 60.4218 and Table 8]

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Exhibit 12

Removal of Title V Emergency Affirmative Defense Provisions from State Operating Permit Programs and Federal Operating Permit Program Proposed Rule EPA-HQ-OAR-2016-0186

Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs

Table 1 of this document contains a tentative list of state, local, and tribal regulations and statutes that may be affected by the EPA's proposed rulemaking identified above. This list is intended to encompass all affirmative defense provisions contained within EPA-approved part 70 (title V) operating permit programs.[1] Table 2 of this document contains a tentative list of state, local, and tribal EPA-approved title V programs that do not appear to explicitly establish an affirmative defense contrary to the EPA's interpretation of the Clean Air Act (CAA), as reflected in this proposed rulemaking. These lists do ***not*** constitute any type of determination as to the adequacy or inadequacy of any specific program provisions.

As indicated in the proposed rule identified above, the EPA is requesting comment on whether the provisions identified in Table 1 of this document, as well as any additional title V affirmative defense provisions that are not currently identified in Table 1 of this document, may be affected if the proposed rule is finalized. The EPA is presenting and soliciting comment on these lists *for informational purposes only*. For further information, see Section V.A of the preamble to the proposed rule.

Table 1. Part 70 Programs that Appear to Contain Title V Affirmative Defense Provisions

EPA Region	Permitting Authority	Affirmative Defense Provision
1	Connecticut	RCSA § 22a-174-33(p)(2)
	Maine	06-096 CMR 140(2)(AA)
	Massachusetts	310 CMR 7.00: Appendix C(16)
	Rhode Island	APCR § 29.6.11

[1] This list is not intended to include any affirmative defense provisions contained in state regulations or statutes that are not part of an EPA-approved title V program (including state-only regulations, SIP provisions that are not included within a state's EPA-approved title V program, or statutes that are not included within a state's EPA-approved title V program).

Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs

EPA Region	Permitting Authority	Affirmative Defense Provision
2	New Jersey	NJAC 7:27-22.3(nn); NJAC 7:27-22.16(l)
	New York	6 NYCRR 201-1.5; 6 NYCRR 201-6.5(c)
	Puerto Rico	Regla 603, Reglamento para el Control de la Contaminacion Atmosferica
	U.S. Virgin Islands	12 Virgin Islands R. & Regs. § 206-71(d)
3	Delaware	7 DAC 1130.6.7
	District of Columbia	DCMR 20-302.7
	Maryland	COMAR 26.11.03.24
	Virginia	9 VAC 5-80-250
	West Virginia	W. Va. CSR § 45-30-5.7
4	Alabama	ADEM Admin. Code r. 335-3-16-.11(2)
	AL—Huntsville	Huntsville Air Pollution Control R. & Regs. § 3.3.8(b)
	AL—Jefferson Co.	Jefferson Co. Air Pollution Control R. & Regs. § 18.11.2
	Florida	F.A.C. 62-213.440(1)(d)5
	Kentucky	401 KAR 52:020, § 24
	Kentucky—Louisville	LMAPCD Regulation 2.16 § 4.7
	Mississippi	11 Miss. Admin. Code Pt. 2, R. 6.3.G
	South Carolina	S.C. Code Regs. 61-62.70 § 70.6(g)
	Tennessee	Tenn. Comp. R. & Regs. 1200-03-09-.02(11)(e)7
	TN—Chattanooga-Hamilton Co.	Chattanooga City Code § 4-57(g)
	TN—Knox Co.	Knox Co. Air Quality Mgmt. Regs. § 25.70.F.7
	TN—Nashville-Davidson Co.	Metropolitan Health Dept., Div. Pollution Control Regs. § 13-3(g)
	TN—Memphis-Shelby Co.	City of Memphis § 16-77; Shelby County § 3-5

Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs

EPA Region	Permitting Authority	Affirmative Defense Provision
5	Illinois	415 ILCS 5/39.5.7.k
	Indiana	326 IAC 2-7-16
	Michigan	MCL 324.5527
	Minnesota	Minn. R. 7007.1850
	Ohio	OAC 3745-77-07(G)
6	Arkansas	ACA 014.01.93-001 Reg. 26.707
	Louisiana	LAC 33.III.507.J
	New Mexico	20.2.70.304 NMAC
	NM--Albuquerque	20.11.42.12(E) NMAC
	Oklahoma	OAC 252:100-8-6(e)
7	Iowa	567 IAC 22.108(16)
	Kansas	KAR 28-19-512(d)
	Missouri	10 CSR 10-6.065(6)(C)7
	Nebraska	129 NAC Ch. 11
	NE—Lincoln-Lancaster Co.	Lincoln-Lancaster Co. Air Pollution Control Program Art. 2 § 11
	NE—City of Omaha	Omaha Municipal Code § 41-2
8	Colorado	5 CCR 1001-5, Part C, § VII
	Montana	ARM 17.8.1214(5) to (8)
	North Dakota	N.D.A.C. 33-15-14-06.5.g
	South Dakota	ARSD 74:36:05:16.01(18)
	Southern Ute Tribe	Reservation Air Code § 2-117
	Utah	Utah Admin. Code R307-415-6g
	Wyoming	WAQSR Ch. 6, § 3(l)

Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs

EPA Region	Permitting Authority	Affirmative Defense Provision
9	Arizona	A.A.C. R18-2-306.E
	AZ—Maricopa Co.	Maricopa Co. Air Pollution Control Regs. Rule 130
	AZ—Pima Co.	Pima Co. Code §§ 17.12.180.E, 17.12.185.D
	AZ—Pinal Co.	Pinal Co. AQCD Reg. 3-1-081.E
	CA—Sacramento Metropolitan	Sacramento Metropolitan AQMD Rule 207 § 414
	CA—San Joaquin Valley	San Joaquin Valley Unified APCD Rule 2520 § 13.4
	CA—San Luis Obispo Co.	San Luis Obispo Co. APCD Rule 216 § L.5
	CA—Santa Barbara Co.	Santa Barbara Co. APCD Rule 1303 § F
	CA—South Coast	South Coast AQMD Rule 3002(g)
	CA—Ventura Co.	Ventura Co. APCD Rule 33.9 § D
	CA—Yolo-Solano	Yolo-Solano AQMD Rule 3.8 § 314
	Hawaii	HAR § 11-60.1-16.5
	Nevada	NAC 445B.326
10	Alaska	18 AAC 50.235
	Idaho	IDAPA 58.01.01.332
	Oregon	OAR 340-214-0360
	OR—Lane Regional	LRAPA § 36-040
	Washington (including local air authorities)	WAC 173-401-645
	WA—EFSEC	WAC 463-78-005(2)

Title V Affirmative Defense Provisions in State, Local, and Tribal Part 70 Programs

Table 2. Part 70 Programs that Do Not Appear to Contain Title V Affirmative Defense Provisions

EPA Region	Permitting Authority
1	New Hampshire
	Vermont
3	Pennsylvania
	PA—Allegheny Co.
	PA—Philadelphia Co.
4	Georgia
	North Carolina
	NC—Forsyth Co.
	NC—Mecklenburg Co.
	NC—Western
5	Wisconsin
6	Texas

EPA Region	Permitting Authority
9	CA—Amador Co.
	CA—Amador Co.
	CA—Antelope Valley
	CA—Bay Area
	CA—Butte Co.
	CA—Calaveras Co.
	CA—Colusa Co.
	CA—El Dorado Co.
	CA—Feather River Co.
	CA—Glenn Co.
	CA—Great Basin
	CA—Imperial Co.
	CA—Eastern Kern Co.
	CA—Lake Co.
	CA—Lassen Co.
	CA—Mariposa Co.

EPA Region	Permitting Authority
9	CA—Mendocino Co.
	CA—Modoc Co.
	CA—Mojave Desert
	CA—Monterey Bay
	CA—North Coast
	CA—Northern Sierra
	CA—Northern Sonoma Co.
	CA—Placer Co.
	CA—San Diego Co.
	CA—Shasta Co.
	CA—Siskiyou Co.
	CA—Tehama Co.
	CA—Tuolumne Co.
	NV—Clark Co.
	NV—Washoe Co.

Exhibit 13

September 13, 2022

BY EMAIL

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Re: Petition for Rulemaking to Eliminate Startup, Shutdown, and Malfunction Exemptions in Clean Air Act Section 111 Regulations

Dear Administrator Regan:

Community groups and environmental organizations 350 New Orleans, Air Alliance Houston, Alliance for Affordable Energy, Clean Air Task Force (CATF), Deep South Center for Environmental Justice, Downwinders at Risk, Earthjustice, Environment Texas, Environmental Integrity Project (EIP), Green Army, Healthy Gulf, Ironbound Community Corporation, Natural Resources Defense Council (NRDC), RESTORE, RISE St. James, Sierra Club, and Southern Environmental Law Center (SELC) submit this petition for rulemaking to eliminate startup, shutdown, malfunction and/or maintenance ("SSM") exemptions in Clean Air Act section 111 implementing regulations.

I. INTRODUCTION

Federal regulations implementing section 111 of the Clean Air Act ("the Act") unlawfully allow stationary sources to emit air pollution without consequence during startup, shutdown, and malfunction/maintenance ("SSM") events at levels that far exceed emissions during normal operations,[1] and that harm the health and wellbeing of the communities near the polluting facilities. These fenceline and downwind communities tend to be low-income and communities of color that already experience disproportionate exposure to air pollution. The worst of these SSM pollution events often occur during and around natural disasters, hitting climate-vulnerable communities already pummelled by the disasters themselves with additional air pollution burdens. The Biden Administration has brought environmental justice to the forefront of its agenda, recognizing the injustice of the cumulative environmental impacts that nearby communities face from industrial pollution.[2] To meaningfully protect these communities' right to breathe clean air, EPA must eliminate these SSM loopholes.

Section 111 of the Act requires the EPA Administrator to establish "standards of performance" for new and modified stationary sources of air pollution ("New Source Performance Standards" or "NSPS"). 42 U.S.C. § 7411. The NSPS program regulates a series of harmful air pollutants including particulate matter (PM), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOC), hydrogen sulfide (H2S), dioxins/furans, fluorides, and sulfuric acid mist. The types of industrial activities subject to the NSPS include, among others, chemical manufacturing, petroleum refining, oil and gas production, fuel combustion, ferrous metals processing, and battery manufacturing.[3]

The plain text of the Act requires EPA to promulgate standards of performance for new stationary sources that are *continuous*. 42 U.S.C. §§ 7411, 7602(*l*). Yet EPA has not done this.

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[1] *See* Nikolaos Zirogiannis et al, *Understanding Excess Emissions from Industrial Facilities: Evidence from Texas*, 52 ENV. SCI. TECH 2482 (2018).
[2] Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis § 1, Exec. Order 13,990, 86 Fed. Reg. 7,037, 7,037 (Jan. 25, 2021); Protecting the Climate Crisis at Home and Abroad § 219, Exec. Order 14008, 86 Fed. Reg. 7,601, 7629 (Jan. 27, 2021) (stating that the United States must "turn[] disadvantaged communities—historically marginalized and overburdened—into healthy, thriving communities.").
[3] 40 C.F.R. pt. 60.

Instead, EPA has, throughout its regulations implementing section 111 of the Act, carved out blanket exemptions from standards of performance during SSM events. As the D.C. Circuit held in *Sierra Club v. EPA*, 551 F.3d 1019, 1027–28 (D.C. Cir. 2008), SSM exemptions fail to meet the plain text requirement of the Act for continuous application of emissions standards.[4] Nevertheless, at least 23 section 111 subparts contain unlawful loopholes that exempt polluters from standards of performance during SSM events.[5]

EPA must act swiftly to remove all illegal SSM exemptions contained in subparts implementing section 111 of the Clean Air Act. Elimination of these provisions is necessary to bring EPA's regulatory regime into compliance with the Act, and to advance the racial and environmental justice priorities of the Biden administration by "hold[ing] polluters accountable, including those who disproportionately harm communities of color and low-income communities."[6]

II. BACKGROUND

A. The Severe Impacts of SSM Events on Surrounding Communities

The release of high concentrations of air pollution during SSM periods deeply threatens the health and quality of life of surrounding communities. During SSM events, regulated oil, gas, coal, refinery, and petrochemical facilities, as well as other large industrial polluters, release startlingly large quantities of pollutants.[7] The pollutants emitted include various mixes of carbon monoxide, particulate matter, volatile organic compounds, sulfur dioxide, nitrogen oxides, and

[4] EPA has also promulgated illegal affirmative defenses to civil penalties in several section 111 rules. *See NRDC v. EPA*, 749 F.3d 1055, 1062-64 (D.C. Cir. 2014) (holding such defenses are illegal). We do not address affirmative defense provisions in this petition because EPA has already granted a petition from Sierra Club asking the agency to remove such provisions from its regulations. We note, however, that EPA has not finished its work to remove those affirmative defense provisions and urge that it do so expeditiously.

[5] *See* Exhibit 1 for our inventory of these exemptions. Although we have attempted to locate all the NSPS exemptions, EPA should undertake its own search of the section 111 regulations to ensure every loophole is removed.

[6] Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis § 1, Exec. Order 13,990, 86 Fed. Reg. 7,037, 7,037 (Jan. 25, 2021).

[7] *See, e.g.*, ENVIRONMENTAL INTEGRITY PROJECT, BREAKDOWNS IN AIR QUALITY: AIR POLLUTION FROM INDUSTRIAL MALFUNCTION AND MAINTENANCE IN TEXAS (2016).

more.[8] These "excess emissions" events that occur during SSM periods are "frequent, large in magnitude, last from a few hours to several days (or even weeks) and can exceed a facility's routine annual emissions."[9] Texas, for example,[10] experiences excess emissions events involving release of over 10 tons of a criteria pollutant on a daily basis.[11] In 2020, Texas facilities reported 2,980 breakdown or malfunction air pollution events, from which over 46 million pounds of air pollution were emitted.[12] In Houston alone, petrochemical facilities experience, on average, large excess emission events every six weeks.[13] The impact of these frequent, unregulated emissions on human health is devastating.

Excess emissions events degrade air quality in adjacent and downwind residential communities where people live, work, and play, causing devastating and expensive public health impacts. Children, the elderly, and those with preexisting health conditions are particularly vulnerable to this pollution, as are those experiencing socioeconomic disparities.[14] In Texas these frequent excess emissions events cause an average of 42 elderly deaths per year and cost the state upwards of $241 million annually.[15]

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[8] Britney McCoy et al., *How big is big? How often is often? Characterizing Texas petroleum refining upset air emissions*. 44 Atmos. Environ. 4230 (2010).
[9] Alex J. Hollingsworth et al., *The Health Consequences of Excess Emissions: Evidence from Texas*. 108 J. Env. Econ. Mgmt. 102449 (2021) https://doi.org/10.1016/j.jeem.2021.102449; Cynthia Murphy & David Allen, *Hydrocarbon emissions from industrial release events in the Houston-Galveston area and their impact on ozone formation* 39 Atmos. Environ. 3785 (2005); Britney McCoy et al., *How big is big? How often is often? Characterizing Texas petroleum refining upset air emissions*. 44 Atmos. Environ. 4230 (2010).
[10] Texas is one of the only states that requires collection and publication of data on SSM emissions, in contrast to most other states that do not collect such data. As such, this Petition references examples from Texas, the only state where data on SSM emissions is readily available other than Louisiana.
[11] Alex J. Hollingsworth et al., *The Health Consequences of Excess Emissions: Evidence from Texas*. 108 J. Env. Econ. Mgmt. 102449 (2021) https://doi.org/10.1016/j.jeem.2021.102449. The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS) for common air pollutants (also known as "criteria air pollutants"), and EPA has done so for ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide.
[12] Environment Texas, *Illegal Air Pollution in Texas, 2020 COVID recession leads to drop in reported emission*, at 4 (Oct. 2021) ("Illegal Air Pollution Report"). While this represents a 54% drop from 2019, the decrease is due to "a recession across the oil, gas, and petrochemical industries caused in part by the COVID19 pandemic." *Id.* Preliminary data from 2021, however, suggests this drop will be short-lived. *Id.*
[13] Mark Collette and Matt Dempsey, "Dangerous Chemicals Create Hidden Dangers in Houston." Houston Chronicle, July 26, 2018. https://www.houstonchronicle.com/news/investigations/article/Dangerous-chemicals-roadblocks-to-information-7420931.php.
[14] Qian Di et al., *Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults*. 318 J. Am. Med. Assoc. 2446, 2452 (2017).
[15] Hollingsworth et. al., at 2.

The exemption of SSM events from the standards of performance for emissions reduction is a serious environmental justice issue. A long history of social, economic, and political disenfranchisement as well as racism indoctrinated into planning and zoning has meant that communities of color disproportionately live, work, and play in areas adjacent to power plants, oil refineries, chemical and petrochemical manufacturers, and other industrial facilities. As a result, fenceline communities—characterized as communities adjacent to often heavily polluting oil, gas, and industrial operations—are predominantly low income and communities of color.[16] These fenceline communities are too frequently exposed to a laundry list of dangerous air pollutants that wealthier, majority-white communities do not experience.[17] Studies into excess emissions from large industrial facilities have found a correlation between the percentage of Black and Hispanic populations and exposure to excess emissions.[18] As a result, exposure to dangerously high levels of toxic, noxious pollution has become an everyday reality for Black, Hispanic, Indigenous, and low-income communities across the United States.

Fenceline communities tend to face additional socioeconomic challenges, including inadequate access to high-quality health care, insufficient support systems, and other environmental burdens, that magnify and complicate the impacts of excess SSM pollution.[19] The cumulative impact of these exposures has left generations of fenceline communities at higher risk for various cancers, birth defects, mutations, respiratory ailments, and other serious health harms.[20] The COVID-19 pandemic has shone a spotlight on the disproportionate health outcomes of communities with unsafe air quality, as exposure to air pollution has contributed to the disparate impact of the disease on racial minorities.[21]

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[16] Gretchen T. Goldman et al., *Assessment of Air Pollution Impacts and Monitoring Data Limitations of a Spring 2019 Chemical Facility Fire*, Environmental Justice 2021, 2 https://doi.org/10.1089/env.2021.0030.
[17] *Id*. These pollutants include benzene, cyclohexane dioxins, ethylene oxide, formaldehyde, hydrogen cyanide, hydrofluoric acid, naphthalene, chloroprene, sulfuric acid, lead, particulate matter, and many more. *Id.*
[18] Zhengyan Li et al., *Racial, ethnic, and income disparities in air pollution: A study of excess emissions in Texas*, 14 PLOS ONE 8 (Aug. 2, 2019).
[19] Gretchen T. Goldman et al., *Assessment of Air Pollution Impacts and Monitoring Data Limitations of a Spring 2019 Chemical Facility Fire*, Environmental Justice 2021, 2, https://doi.org/10.1089/env.2021.0030.
[20] Jill Johnston, et al., *Chemical Exposures, Health and Environmental Justice in Communities Living on the fenceline of industry*, 7 CURRENT ENVTL. HEALTH REP. 48 (2020).
[21] Eric Brandt, *Air Pollution, Racial Disparities, and COVID-19 Mortality*, 146 J. ALLERGY CLINICAL IMMUNOLOGY 61 (2020).

What is more, the communities bearing the brunt of SSM events also face disproportionate risk and vulnerability to climate impacts. While most SSM events do not result from climate-fueled natural disasters, some of the worst excess emission SSM events occur in the wake of these disasters.[22] Hurricane Harvey, which pummeled Houston's low income communities and communities of color especially hard, is an example of such an event. In the aftermath of the natural disaster, fenceline communities not only faced direct effects of the storm—which itself caused extensive property damage, widespread power outages, and brought toxic wastewater into the streets and people's homes—but also the astounding excess emissions from neighboring industrial facilities.[23] Hurricane Harvey is not an isolated event; as the impacts of climate change worsen,[24] the frequency of high-magnitude natural disasters will increase, and with it the occurrence of SSM excess emissions events.[25]

While release of excess emissions far exceeds regularly-applicable standards of performance and other limits, polluters avoid liability through automatic or discretionary SSM exemptions contained in unlawful EPA rules promulgated under the Clean Air Act and in state implementation plans (SIPs) (which are not addressed in this petition).[26] Where SSM exemptions persist, there exists no limit on emissions during SSM events and little to no transparency around community exposure to pollution. The SSM exemptions permit monitoring gaps during these periods that leave residents with little to no information on what noxious substances they have been exposed to.[27] Instead, facilities self-report estimates of their SSM emissions—if they are even required to report anything at all—with no way for the public to gauge their accuracy.

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[22] Susan C. Anenberg & Casey Kalman, *Extreme weather, chemical facilities, and vulnerable communities in the U.S. Gulf Coast: A disastrous combination*, AGU (2019), https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019GH000197.

[23] *Id.*

[24] Krishna A. Rao et al., Technical Summary, Intergovernmental Panel on Climate Change, 35 (2021), https://www.ipcc.ch/report/ar6/wg1/#FullReport ("There is high confidence that average peak wind speeds and the proportion of Category 4–5 [tropical cyclones] will increase with warming and that peak winds of the most intense [tropical cyclones] will increase.").

[25] These compounded climate and industrial events constitute NaTech events. Wendee Nicole, *A Different Kind of Storm: Natech Events in Houston's Fenceline Communities*, (2021) ("Natech events—short for natural hazard–triggered technological disasters—occur when a natural occurrence such as a hurricane or flood leads to infrastructural failures such as a chemical spill or nuclear reactor meltdown.").

[26] U.S. Environmental Protection Agency. State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup. 2015.

[27] Gretchen T. Goldman et al., *Assessment of Air Pollution Impacts and Monitoring Data Limitations of a Spring 2019 Chemical Facility Fire*, Environmental Justice 2021, 3 https://doi.org/10.1089/env.2021.0030.

SSM loopholes leave fenceline communities with no recourse to put a stop to the repeated pollution spikes. The exemptions allow industrial polluters to release huge amounts of harmful pollution into the lungs of fenceline communities without consequence or any incentive to prevent the problem, even when pollution spikes occur repeatedly. By exempting industrial polluters during these SSM periods, EPA prevents both itself and these communities from taking action to hold polluters accountable for the deadly emissions they spew into the air. EPA must remove these unlawful and devastating exemptions.

B. History of SSM Exemptions

1. Regulatory History of NSPS SSM Exemptions

EPA has afforded polluters unlawful SSM exemptions from the Act's emissions reductions requirements since the 1970s. These loopholes in EPA's own regulations have allowed polluters to contaminate fenceline and downwind communities with harmful emissions during SSM events without any consequences.

In response to a petition from Kennecott Copper Corporation that alleged that the "standards of performance [as promulgated] fail[ed] to provide for excessive emissions during periods of startup, shutdown, and malfunction," EPA promulgated the first SSM exemptions to section 111 standards in 1977.[28] Specifically, the regulation "clarifie[d] that excess emissions during periods of startup, shutdown, and malfunction are not considered a violation of a standard."[29] In place of the standard, EPA stated that source owners or operators were subject only to the "general duty" provision of 40 C.F.R. 60.11(d): "[a]t all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions."[30]

EPA has promulgated at least 97 SSM loopholes that still exist today, each of which violate the Act's clear requirement for continuous emissions reduction.[31] At least 23 of these

[28] *Standards of Performance for New Stationary Sources*, 42 Fed.Reg. 57,125 (Nov. 1, 1977).
[29] Specifically amending the general provisions of the copper smelter standards. "40 C.F.R. 60.8(c) exempts periods of startup, shutdown, and malfunction from performance tests. By implication this means compliance with numerical emissions limits cannot be determined during periods of startup, shutdown, and malfunction." *Id.*
[30] *Standards of Performance for New Stationary Sources*, 42 Fed.Reg. 57,125 (Nov. 1, 1977).
[31] *See* Exhibit 1 for an inventory of these exemptions.

exemptions are found in EPA's NSPS regulations.[32] These include broad exemptions to opacity standards (60.11(c)) and carbon monoxide standards (60.45(b)(6)(iii), as well as exemptions to standards of performance for petroleum refineries (60.104(a)(1)), glass manufacturing plants (60.292(e)), and the polymer manufacturing industry (60.562-1(b)(1)(ii), (c)(1)(i)(B)), among others. Each of these exemptions violates the Act and contradicts EPA's policy, following the D.C. Circuit's ruling in *Sierra Club v. EPA*, that SSM exemptions are unlawful.

2. D.C. Circuit Decisions on SSM Exemptions

In 2008, the D.C. Circuit held that SSM exemptions in Clean Air Act regulations violate the Act's plain text. *Sierra Club v. EPA*, 551 F.3d 1019, 1027–28 (D.C. Cir. 2008). Section 112 of the Act requires EPA to set "emissions standards" for hazardous air pollutants, 42 U.S.C. § 7412, and EPA for many years incorporated SSM exemptions in those standards.[33] 40 C.F.R. Part 63. As with several of the section 111 exemptions,[34] the section 112 SSM provision at issue in *Sierra Club* "exempted [each source] from the numerical limits set for emission control pursuant to section 112" and provided that "only the general duty would apply." *Sierra Club v. EPA*, 551 F.3d at 1022.

The *Sierra Club* court looked to Clean Air Act section 302(k), where "emission standard" is defined as: "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants *on a continuous basis* …." 42 U.S.C. § 7602(k) (emphasis added). Reading sections 112 and 302(k) together, the court found the plain text of the Act requires that "some section 112 standard apply continuously," and determined that SSM exemptions interrupt this required continuity. *Id.* at 1026.

The court rejected EPA's argument that the "general-duty requirement during SSM events is a lawful interpretation of the statute and a reasonable way to reconcile the need to minimize emissions with the inherent technological limitations during SSM events," *id.* The

[32] 40 C.F.R. 60; *See* Exhibit 1 for a list of these exemption provisions.
[33] *E.g.*, *National Emission Standards for Hazardous Air Pollutants for Source Categories: General Provisions*, 59 Fed.Reg. 12,408 (Mar. 16, 1994).
[34] *See e.g.*, 40 C.F.R. §§ 60.8(c), 60.11(c); *see also id.* § 60.11(d) ("At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.").

court held that the general duty did not qualify as a "section 112-compliant standard" because EPA acknowledged that it was neither a "separate and independent standard under CAA section 112(d)" nor a "free-standing emission limitation that must independently be in compliance with section 112(h)."[35] *Id.* at 1027-28. The court concluded: "[b]ecause the general duty that applies during SSM events is inconsistent with the plain text of section 112 of the Clean Air Act … the SSM exemption violates the Act's requirement that some section 112 standard apply continuously." *Id.* at 1021.

3. EPA Policy.

Since this D.C. Circuit case ruling, EPA has taken piecemeal actions to align its policy with the court's conclusion that SSM exemptions are unlawful. It has not, however, initiated a broad action to address the exemptions to section 111 standards of performance.

EPA has slowly begun removing SSM exemptions as section 111 regulations are periodically revised, and has repeatedly acknowledged that section 111 obliges the agency to remove SSM exemptions and promulgate standards of performance that require "continuous system of emission reduction."[36] Immediately following the 2008 *Sierra Club* decision, for example, EPA removed an SSM exemption from the NSPS for hospital/medical/infectious waste incinerators established under section 111 and 129 of the Act.[37] In its response to comments on

[35] Clean Air Act section 112(h) allows EPA to set work practice standards in lieu of numeric standards for harzardous air pollutants in two very limited circumstances.

[36] New Source Performance Standards Review for Nitric Acid Plants; Final rule,'' 77 Fed. Reg. 48433 (August 14, 2012); Standards of Performance for Grain Elevators, 79 Fed. Reg. 39241, 39243 (proposed July 9, 2014); New Source Performance Standards for New Stationary Sources and Emission Guidelines for Existing Sources; Commercial and Industrial Solid Waste Incineration Units, Final rule, 76 Fed. Reg. 15704 (March 21, 2011); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Other Solid Waste Incineration Units Review, 85 Fed. Reg 54178 (Aug. 31, 2020); Review of Standards of Performance for Lead Acid Battery Manufacturing Plants and National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources Technology Review, 87 Fed. Reg. 10134 (Feb. 23, 2022); *see also* State Implementation Plans: Response to Petition for Rulemaking, 80 Fed. Reg. at 33890 n. 44 (June 12, 2015) (EPA has eliminated SSM exemptions in federal rules as those rules come up for review and acknowledged that the D.C. Circuit's reasoning in *Sierra Club* holding that exemptions are "inconsistent with the [Act]… applies equally" to all SSM exemptions, including section 111 exemptions.)

[37] EPA, Standards of Performance for New Stationary Sources and Emissions Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 74 Fed. Reg. 51,368, 51,393 § III.F (Oct. 6, 2009). EPA explained: "In the event that sources, despite their best efforts, fail to comply with applicable standards during SSM events (as defined by the rule), EPA will determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during SSM periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions." Upheld in Medical *Waste Institute and Energy Recovery Council v. EPA*, 645 F.3d 420 (D.C. Cir. 2011). EPA subsequently removed exemptions it inadvertantly failed to eliminate in that first action. Federal Plan Requirements for Hospital/Medical/Infectious Waste Incinerators

its recent NSPS and National Emission Standards for Hazardous Air Pollutants ("NESHAP") for the oil and gas sector, the EPA stated "the reasoning in the D.C. Circuit's decision in *Sierra Club v. EPA* applies equally to section 111," and rejected comments that claimed NSPS provisions can include SSM exemptions.[38] EPA emphasized that "there is nothing in the NSPS provisions of the [Act] that would lead the EPA to treat SSM events differently."[39] Despite EPA's acknowledgement that these loopholes are unlawful, EPA's NSPS still contain at least 23 unlawful SSM exemptions.

III. EPA MUST REMOVE ALL SSM EXEMPTIONS FROM SECTION 111 REGULATIONS.

Many of EPA's regulations setting standards of performance for categories of stationary sources under section 111 include unlawful SSM exemptions. These exemptions are inconsistent with the Act's requirement that a standard of performance apply continuously and with the D.C. Circuit's decision in *Sierra Club*. EPA itself has repeatedly recognized that NSPS SSM exemptions are unlawful. Because these loopholes impose devastating impacts on already-overburdened communities, we request EPA remove all NSPS exemptions immediately.

A. Standards of performance under Clean Air Act section 111 require "continuous emission reduction."

The Clean Air Act unambiguously requires the EPA Administrator to promulgate standards of performance that require continuous emission reduction. Sections 111 and 302 of the Act both define "standard of performance." *See* 42 U.S.C. §§ 7411(a)(1), 7602(*l*).[40] Section

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Constructed on or Before December 1, 2008 and Standards of Performance for New Stationary Sources; Proposed Rule, 77 Fed. Reg. 24272, 24279 (April 23, 2012), final rule at 78 Fed. Reg. 28052 (May 13, 2013).

[38] Final Response to Public Comments on Proposed Rule: Oil and Natural Gas Sector New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 76 Fed. Reg. 52,738, 183 &187 (proposed August 23, 2011) (to be codified at 40 C.F.R. pt. 60 and 63), https://www.regulations.gov/document/EPA-HQ-OAR-2010-0505-4546.

[39] *Id*. at 188.

[40] Section 111's definition is:

> [A] standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

302 defines it as "a requirement of *continuous emission reduction*, including any requirement relating to the operation or maintenance of a source to assure *continuous emission reduction*." 42 U.S.C. § 7602(*l*) (emphasis added). Plainly, this definition mandates that a standard of performance apply continuously.

The definitions in section 302, the Act's general definitions section, apply to section 111, for they apply "[w]hen used in this chapter," meaning the entirety of the Clean Air Act (Chapter 85 of Title 42). *See McEvoy v. IEI Barge Services, Inc.*, 622 F.3d 671, 675 (7th Cir. 2010). When Congress wanted to limit the application of section 302's general definitions, it did so expressly, as it did in section 302(j). 42 U.S.C. § 7602(j) ("Except as otherwise expressly provided, the terms 'major stationary source' and 'major emitting facility'" have certain meanings). Thus, Congress' choice not to limit the Act-wide definition of "standard of performance" in any way means that Act-wide definition applies to standards of performance promulgated under section 111. *See Salinas v. United States R.R. Retirement Board*, 141 S. Ct. 691, 698 (2021) (citations omitted).

Further, sections 111 and 302 must be read together to the extent they do not conflict, and there is no conflict between both sections' definitions of "standard of performance" that would eliminate section 302(*l*)'s express continuity requirement. *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 133 (2000) (courts should "interpret the Act as a "symmetrical and coherent regulatory scheme … and fit, if possible, all parts into an harmonious whole.").

To the contrary, numerous section 111 subsections explicitly require continuity. Section 111(j)(1)(a) only allows waiver from any section 111 requirement with a demonstration that the proposed alternative system of curbing emissions "will achieve *greater continuous emission reduction* than that required ... under the standards of performance which would otherwise apply…." 42 U.S.C. § 7411(j)(1)(a) (emphasis added). Section 111(g)(4) requires revision of standards of performance if a Governor shows that "a new, innovative, or improved technology

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42 U.S.C. § 7411(a)(1). Section 302's is:

> The term "standard of performance" means a requirement of continuous emission reduction, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction.

Id. § 7602(*l*).

or process which achieves *greater continuous emission reduction* has been adequately demonstrated for any category of stationary sources." *Id.* § 7411(g)(4) (emphasis added). And section 111(h)(1) requires alternative work practice standards under section 111 to reflect the "best technological system of *continuous emission reduction*." *Id.* § 7411(h)(1) (emphasis added). Congress could not have plausibly intended to mandate that alternatives to standards of performance—or work practice standards—achieve continuous emission reduction and, at the same time, forego mandating that the original standards of performance themselves achieve continuous reduction.

Similarly, "there is a presumption that a given term is used to mean the same thing throughout a statute." *Mohamad v. Palestinian Authority*, 566 U.S. 449, 456 (2012) (citation and internal punctuation omitted). Nowhere does the Clean Air Act indicate that standards of performance need not require continuous emission reduction. As discussed immediately above, several subsections of section 111 instead explicitly require continuous reduction. Moreover, the terms "emission limitation" and "standard for emission" are found within Section 111's definition of "standard of performance," 42 U.S.C. § 7411(a)(1), and section 302(k) in turn defines"emission limitation" and "emission standard" as requirements that "limit[] the quantity, rate, or concentration of emissions of air pollutants on a continuous basis." *Id.* § 7602(k).

Thus, similar to how the D.C. Circuit read sections 112 and 302(k) together to hold that Congress "has required that there must be continuous section 112-compliant standards," *Sierra Club*, 551 F.3d at 1026, reading sections 111 and 302 together demands the same conclusion: the Act requires continuous section 111-compliant standards of performance. In sum, as EPA has repeatedly recognized when removing the unlawful exemptions from section 111 regulations, *see supra notes* 36-40, the bottomline conclusion of the *Sierra Club* decision—holding SSM exemptions unlawful—applies equally to section 111 regulations.

B. The NSPS general duty provision is not a valid standard of performance.

Like the section 112 regulation *Sierra Club* vacated, EPA's general NSPS regulation includes a general duty provision to, "to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions." 40 C.F.R. § 60.11(d). And as the D.C. Circuit found in *Sierra Club*, a general duty provision is not a valid standard of performance

because it does not meet the definition of standard of performance, nor could it be a design, equipment, work practice, or operational standard established under Section 111(h). *See Sierra Club v. EPA*, 551 F.3d at 1027.

To begin with, the general duty provision does not meet the definition of standard of performance because it does not require continuous emission reduction. Further, the section 111 definition of "standard of performance" requires that the standard "reflects the degree of emission limitation achievable through the application of the best system of emission reduction which ... the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1). The general duty provision, however, does not purport to be the "best" of anything—just a generic call for following "good air pollution control practice."

The general duty provision is also not a design, equipment, work practice, or operational standard under section 111(h). In Section 111(h), Congress built in an exception to EPA's duty to promulgate standards of performance under section 111:

> … if in the judgment of the Administrator, it is not feasible to prescribe or enforce a standard of performance, [they] may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, which reflects *the best technological system of continuous emission reduction* … the Administrator determines has been adequately demonstrated."

42 U.S.C. § 7411(h)(1) (emphasis added). Section 111 further defines "technological system of continuous emission reduction" as "(A) a technological process for production or operation by any sources which is inherently low-polluting, or (B) a technological system for *continuous reduction* of the pollution generated by a source before such pollution is emitted into the ambient air, including precombustion cleaning or treatment of fuels." 42 U.S.C. § 7411(a)(7). The NSPS general duty provision was not established pursuant to Section 111(h), is not a "technological" process or system, and does not ensure continuous reduction of emissions.

Further demonstration that the general duty provision cannot salvage section 111 SSM exemptions comes from the D.C. Circuit's discussion of the very similar exception in section 112(h), 42 U.S.C. § 7412(h). In *Sierra Club*, EPA argued that the section 112 general duty provision sufficed to make the emissions standard continuous despite the exemption from the emissions standard itself. The D.C. Circuit rejected this argument, recognizing that the general duty did not meet section 112 criteria nor did EPA purport to set the general duty provision

pursuant to the 112(h) criteria on a "(1) design or (2) source specific basis," *Sierra Club*, 551 F.3d at 1028 (citing §§ 7412(h)(2)(A), (B)). The court explained that "[b]ecause the general duty is the only standard that applies during SSM events, and accordingly no section 112 standard governs these events—the SSM exemption violates the Act's requirement that some section 112 standard apply continuously." *Id.* at 1027. The same reasoning holds true for section 111 exemptions. The general duty does not constitute a section 111-compliant standard and was not established under section 111(h). Because the section 111 exemptions leave only the general duty during SSM events, no section 111 standard "governs these events." *Id.*

C. EPA must remove the unlawful SSM exemptions.

EPA has acted outside its statutory authority in promulgating unlawful SSM exemptions from NSPS established under section 111. To provide uniformity in national policy and swiftly address the environmental injustice of excess SSM emissions events concentrated in disadvantaged communities, EPA must eliminate all SSM exemptions from the NSPS through a single rulemaking.

We note that EPA has received multiple petitions seeking the related relief of removing SSM exemptions from NESHAP promulgated under section 112 and removing affirmative defense provisions from NSPS and NESHAP. Indeed, EPA granted environmental groups' petition to remove affirmative defense provisions in NSPS and NESHAP in 2014,[41] and has long delayed action on environmental groups' petition for rulemaking pending since 2009 requesting removal of NESHAP exemptions.[42] We do not renew those petitions here, but note that EPA could efficiently coordinate the relief sought by this petition with many or most of the actions that those separate petitions request. EPA also recently granted petitions on the newest type of malfunction exemption (*e.g.*, "force majeure event" exemption) in the work practice standards in the Petroleum Refinery and Ethylene Production Rules.[43] We continue to call for EPA to remove these and similar exemptions through all pending rulemaking or reconsideration processes as expeditiously as possible.

[41] Ltr. From J. McCabe, Acting EPA Administrator, to S. Johnson (Nov. 19, 2014) (attached as Exhibit 2); *see* Petition to Revise Air Emission Regulations Containing Affirmative Defense (Jun. 17, 2014) (attached as Exhibit 3).
[42] Petition to EPA for MACT rulemaking (Jan. 9, 2009) (attached as Exhibit 4).
[43] Ltr. From J. Goffman Principal Dep. Ass't Adm'r to Earthjustice on Petroleum Refinery Sector Rule (Apr. 19, 2022) (attached as Exhibit 5); Ltr. From J. Goffman, Principal Dep. Ass't Adm'r to Earthjustice on Ethylene Production Rule (Apr. 19, 2022) (attached as Exhibit 6).

We emphasize here that for the many rules for which EPA has not even begun the process or for which it has delayed rulemaking for years, the most efficient and effective approach for EPA to take to bring its regulations into compliance with the law and to provide vital public health and welfare protections to communities—especially overburdened communities facing cumulative impacts from multiple types of sources that can rely on various SSM exemptions—is to remove all remaining NSPS and NESHAP loopholes through a single rulemaking. This would ensure EPA finally and fully complies with *Sierra Club v. EPA*, and *NRDC v. EPA* without any further agency delay – after years of stalling action to implement judicial rulings that require EPA to remove blatantly unlawful provisions from these regulations. By contrast, waiting to eliminate the SSM exemptions and affirmative defense provisions through case-by-case rulemakings when each subpart is revised under the Clean Air Act's periodic review and revision provisions, as EPA has been doing to date, would mean that many communities have to wait years or even decades longer for relief from dangerous SSM emissions.[44]

The same legal reasoning applies to each of these unlawful provisions no matter the source category: every SSM exemption and affirmative defense violates the Clean Air Act. There is a strong public interest in EPA following the law and, through a unified rulemaking, prioritizing the removal of all illegal provisions from core Clean Air Act requirements that are essential to protect public health and welfare. We therefore urge EPA to immediately initiate rulemaking to remove all SSM exemptions and affirmative defense provisions to comply with the Act and begin to address the environmental injustices that occur with each unregulated SSM excess-emission event.

[44] The Office of Inspector General recently highlighted the longstanding agency delay in fulfilling these review obligations, finding that the agency has 93 overdue section 112 rulemakings, almost half of which are overdue by more than five years. EPA Ofc. of Insp. Gen., The EPA Needs to Develop a Strategy to Complete Overdue Residual Risk and Technology Reviews and to Meet the Statutory Deadlines for Upcoming Reviews, Report No. 22-E-0026 (Mar. 30, 2022), https://www.epa.gov/office-inspector-general/report-epa-needs-develop-strategy-complete-overdue-residual-risk-and-0.

IV. CONCLUSION

For the reasons discussed above, we petition EPA to initiate a single rulemaking to remove all unlawful SSM regulatory exemptions from its regulations implementing section 111 of the Clean Air Act.

Thank you for your time and consideration of this Petition.

Sincerely,

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Exhibit 1 – Inventory of Existing Section 111 and Section 112 SSM Exemptions

Exhibit 2 - Ltr. From J. McCabe, Acting EPA Administrator, to S. Johnson (Nov. 19, 2014)

Exhibit 3 - Petition to Revise Air Emission Regulations Containing Affirmative Defense (Jun. 17, 2014)

Exhibit 4 - Petition to EPA for MACT rulemaking (Jan. 14, 2009)

Exhibit 5 - Ltr. From J. Goffman Principal Dep. Ass't Adm'r to Earthjustice on Petroleum Refinery Sector Rule (Apr. 19, 2022)

Exhibit 6 - Ltr. From J. Goffman, Principal Dep. Ass't Adm'r to Earthjustice on Ethylene Production Rule (Apr. 19, 2022)

EXHIBIT 1

Inventory of Existing Section 111 and Section 112 SSM Exemptions

Attached as Native File

EXHIBIT 2

Ltr. from J. McCabe, Acting EPA Administrator, to S. Johnson

(Nov. 19, 2014)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 19 2014

OFFICE OF
AIR AND RADIATION

Mr. Seth L. Johnson
Earthjustice
1625 Massachusetts Avenue, NW
Washington, D.C. 20036-2212

Dear Mr. Johnson:

The United States Environmental Protection Agency received your administrative petition for rulemaking dated June 17, 2014, and supplement thereto dated October 6, 2014, requesting that the EPA revise certain regulations promulgated under Clean Air Act (CAA) sections 111, 112 and 129 to delete the affirmative defense against civil penalties.

As you acknowledge in your petition and petition supplement, the EPA has already begun to take action to ensure that rules promulgated under the CAA are consistent with Natural Resources Defense Council v. EPA, 749 F.3d 1055 (D.C. Cir. 2014) (vacating the affirmative defense in the CAA section 112(d) rule establishing emission standards for Portland cement kilns). The EPA takes decisions from Federal courts very seriously, and so will continue to take actions consistent with the court opinion. As you know, the EPA has already issued a proposal to remove the affirmative defense from one of the CAA section 111 regulations listed in your petition - the new source performance standards regulation at 40 CFR part 60, subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution). In addition, the EPA recently withdrew proposals to include an affirmative defense in CAA section 112 regulations at 40 CFR part 63, subparts DDD, NNN and XXX (regulations for Mineral Wool Production, Wool Fiberglass Manufacturing and Ferroalloys, respectively). As Earth Justice's administrative petition requests that the EPA continue on its current course, we do not feel that an EPA response to your administrative petition is necessary to evidence the EPA's commitment to removing affirmative defenses from the remaining rules that are the subject of your petition. However, because a formal response to your petition may limit or resolve the issues in the petition for judicial review you recently filed challenging affirmative defenses in various CAA rules (Sierra Club v. EPA, No. 14-1110, (D.C. Circuit 2014)), the EPA grants your petition for rulemaking. The EPA will continue the ongoing process of removing affirmative defenses from the remaining rules that are the subject of your petition as expeditiously as practicable.

If you have any questions, please contact Debra Dalcher of my staff at (919) 541-2443.

Sincerely,

Janet G. McCabe
Acting Assistant Administrator

cc: James Pew
Earthjustice
1625 Massachusetts Avenue, NW
Washington, DC 20036-2212

EPA
United States
Environmental Protection Agency
Washington, DC 20460

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Mr. Seth L. Johnson
Earthjustice
1625 Massachusetts Avenue, NW
Washington, D.C. 20036-2212

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EXHIBIT 3

Petition to Revise Air Emission Regulations Containing Affirmative Defense

(Jun. 17, 2014)

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

VIA CERTIFIED MAIL -- RETURN RECEIPT REQUESTED

June 17, 2014

Gina McCarthy
Administrator
Environmental Protection Agency
1101A EPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

RE: Petition to Revise Air Emissions Regulations Containing Affirmative Defense

Dear Administrator McCarthy:

This is a petition under *Oljato Chapter of Navajo Tribe v. Train*, 515 F.2d 654 (D.C. Cir. 1975), and for rulemaking. The party submitting this petition is Sierra Club, 85 Second St., 2nd Floor, San Francisco, CA 94105, (415) 977-5500. By this petition, Sierra Club requests that EPA revise the regulations it promulgated under sections 111, 112, and 129 of the Clean Air Act to delete the affirmative defense against civil penalties that it included in them. Those regulations are listed below for your convenience.

I. BACKGROUND

Although the Clean Air Act directs district courts, not EPA, to determine the amount of civil penalties, if any, to assess when a stationary source of air pollution violates an emission standard, 42 U.S.C. §7604(a); *see also id.* §7413(e) (providing list of factors district court must consider in determining what penalties to assess), EPA has been inserting into many of its regulations an affirmative defense against civil penalties when plants claim a violation of emission standards resulted from a malfunction and they meet certain EPA-created conditions. EPA first inserted the affirmative defense into the regulations governing emissions of hazardous air pollutants from Portland cement manufacturing plants. *See* 75 Fed. Reg. 54,970 (Sept. 9, 2010); *see also* 78 Fed. Reg. 10,006 (Feb. 12, 2013) (reaffirming and slightly amending affirmative defense). Several environmental organizations, including Sierra Club, challenged EPA's insertion and retention of the affirmative defense in the cement plants rule. *See Natural Res. Def. Council ("NRDC") v. EPA*, No. 10-1371, 2014 WL 1499825 (D.C. Cir. Apr. 18, 2014).

The agency has since inserted the affirmative defense into the following rules promulgated under Clean Air Act §§111, 112, and 129, 42 U.S.C. §§7411, 7412, and 7429, that govern emissions from numerous categories of sources:

New Source Performance Standards (§111 only):

- Subpart Da: Electric Utility Steam Generating Units
  - 40 C.F.R. §60.48Da
  - 77 Fed. Reg. 9304 (Feb. 16, 2012)
- Subpart Ga: Nitric Acid Plants for Which Construction, Reconstruction, or Modification Commenced After October 14, 2011
  - 40 C.F.R. §60.74a
  - 77 Fed. Reg. 48,433 (Aug. 14, 2012)
- Subpart BBa: Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013
  - 40 C.F.R. §60.286a
  - 79 Fed. Reg. 18,952 (Apr. 4, 2014)
- Subpart OOOO: Crude Oil and Natural Gas Production, Transmission and Distribution
  - 40 C.F.R. §60.5415
  - 78 Fed. Reg. 58,416 (Sept. 23, 2013); 77 Fed. Reg. 49,490 (Aug. 16, 2012)

Incinerator New Source Performance Standards & Emission Guidelines (§§111, 129):

- Subpart CCCC: Commercial and Industrial Solid Waste Incineration Units (new)
  - 40 C.F.R. §60.2120
  - 78 Fed. Reg. 9112 (Feb. 7, 2013); 76 Fed. Reg. 15,704 (Mar. 21, 2011)
- Subpart DDDD: Commercial and Industrial Solid Waste Incineration Units (existing)
  - 40 C.F.R. §60.2685
  - 78 Fed. Reg. 9112 (Feb. 7, 2013); 76 Fed. Reg. 15,704 (Mar. 21, 2011)
- Subpart LLLL: New Sewage Sludge Incineration Units
  - 40 C.F.R. §60.4861
  - 76 Fed. Reg. 15,372 (Mar. 21, 2011)
- Subpart MMMM: Existing Sewage Sludge Incineration Units
  - 40 C.F.R. §60.5181
  - 76 Fed. Reg. 15,372 (Mar. 21, 2011)

National Emission Standards for Hazardous Air Pollutants (§112):

- Subpart N: Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks
  - 40 C.F.R. §63.342
  - 77 Fed. Reg. 58,220 (Sept. 19, 2012)

- Subpart S: Pulp and Paper Industry
  - 40 C.F.R. §63.456
  - 77 Fed. Reg. 55,698 (Sept. 11, 2012)
- Subpart U: Group I Polymers and Resins
  - 40 C.F.R. §63.480
  - 76 Fed. Reg. 22,566 (Apr. 21, 2011)
- Subpart X: Secondary Lead Smelting
  - 40 C.F.R. §63.552
  - 77 Fed. Reg. 556 (Jan. 5, 2012)
- Subpart Y: Marine Tank Vessel Tank Loading Operations
  - 40 C.F.R. §63.562
  - 76 Fed. Reg. 22,566 (Apr. 21, 2011)
- Subpart HH: Oil and Natural Gas Production Facilities
  - 40 C.F.R. §63.762
  - 77 Fed. Reg. 49,490 (Aug. 16, 2012)
- Subpart II: Shipbuilding and Ship Repair (Surface Coating)
  - 40 C.F.R. §63.781
  - 76 Fed. Reg. 72,050 (Nov. 21, 2011)
- Subpart JJ: Wood Furniture Manufacturing Operations
  - 40 C.F.R. §63.800
  - 76 Fed. Reg. 72,050 (Nov. 21, 2011)
- Subpart KK: Printing and Publishing Industry
  - 40 C.F.R. §63.820
  - 76 Fed. Reg. 22,566 (Apr. 21. 2011)
- Subpart CCC: Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants
  - 40 C.F.R. §63.1155
  - 77 Fed. Reg. 58,220 (Sept. 19, 2012)
- Subpart GGG: Pharmaceuticals Production
  - 40 C.F.R. §63.1250
  - 76 Fed. Reg. 22,566 (Apr. 21, 2011)
- Subpart HHH: Natural Gas Transmission and Storage Facilities
  - 40 C.F.R. §63.1272
  - 77 Fed. Reg. 49,490 (Aug. 16, 2012)
- Subpart JJJ: Group IV Polymers and Resins
  - 40 C.F.R. §63.1310
  - 79 Fed. Reg. 17,340 (Mar. 27, 2014)
- Subpart MMM: Pesticide Active Ingredient Production
  - 40 C.F.R. §63.1360
  - 79 Fed. Reg. 17,340 (Mar. 27, 2014)
- Subpart PPP: Polyether Polyols Production
  - 40 C.F.R. §63.1420
  - 79 Fed. Reg. 17,340 (Mar. 27, 2014)

- Subpart TTT: Primary Lead Smelting
  - 40 C.F.R. §63.1551
  - 76 Fed. Reg. 70,834 (Nov. 15, 2011)
- Subpart DDDDD: Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
  - 40 C.F.R. §63.7501
  - 78 Fed. Reg. 7138 (Jan. 31, 2013); 76 Fed. Reg. 15,608 (Mar 21, 2011)
- Subpart UUUUU: Coal- and Oil-Fired Electric Utility Steam Generating Units
  - 40 C.F.R. §63.10001
  - 77 Fed. Reg. 9304 (Feb. 16, 2012)
- Subpart JJJJJJ: Industrial, Commercial, and Institutional Boilers Area Sources
  - 40 C.F.R. §63.11226
  - 78 Fed. Reg. 7488 (Feb. 1, 2013); 76 Fed. Reg. 15,554 (Mar. 21, 2011)
- Subpart VVVVVV: Chemical Manufacturing Area Sources
  - 40 C.F.R. §63.11501
  - 77 Fed. Reg. 75,740 (Dec. 21, 2012)
- Subpart HHHHHHH: Polyvinyl Chloride and Copolymers Production
  - 40 C.F.R. §63.11895
  - 77 Fed. Reg. 22,848 (Apr. 17, 2012)

II. GROUNDS FOR PETITION

On April 18, 2014, the D.C. Circuit ruled that EPA lacked authority to promulgate the affirmative defense in the cement rule and vacated it. *NRDC v. EPA*, No. 10-1371, 2014 WL 1499825, at *7-9 (D.C. Cir. Apr. 18, 2014). The affirmative defense in that rule is indistinguishable from the affirmative defense in the rules listed above. Thus, EPA's insertion of the affirmative defense into the rules for the source categories listed above contravenes the D.C. Circuit's binding caselaw, which was decided after those rules were promulgated.

Accordingly, EPA must remove the affirmative defense from those rules. EPA has already acknowledged that the affirmative defense has no place in air regulations like these because of the *NRDC* decision. For example, in the recent pre-publication version of its proposal for the rule governing air toxics emissions from refineries, EPA declined to include the affirmative defense "[i]n light of *NRDC*." EPA, *Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards* 333 (signed by Administrator on May 15, 2014), epa.gov/ttn/atw/petrefine/20140515fr.pdf. Just as EPA is removing the affirmative defense from rules that are under development, it should also remove it from the rules listed above, where rule development has already concluded. It is identically illegal in all of them, and should not be shielded by happenstance from removal in some of them.

III. PROMPT RESPONSE REQUESTED

As indicated above, this petition raises a purely legal issue. Further, there is no dispute that the affirmative defense is unlawful: EPA has already publicly recognized as much by declining to insert it in the refineries rule proposal.

Moreover, removing the affirmative defense from the rules listed above can be done easily. The affirmative defense is entirely distinct from the emission standards it purports to apply to for each source category. *See NRDC*, 2014 WL 1499825, at *9 (vacating parts of rule relating to affirmative defense but upholding remainder of rule); *see also* Final Brief of Respondents 52, *NRDC*, No. 10-1371 (D.C. Cir. Aug. 23, 2013) (affirmative defense is "an ancillary provision related to implementation" of emission standards, not part of emission standards as Clean Air Act defines them) (attached as Ex.A). Thus, the impact of the *NRDC* decision on the rules at issue is clear without any need for further examination: the affirmative defense in each of these rules is unlawful, is severable from the remaining provisions of each rule, and must be removed. EPA's course on the standards for refineries demonstrates the simplicity of the issue: within four weeks of receiving the *NRDC* decision, EPA simply chose not to insert the affirmative defense. Thus, EPA's own action suggests that the affirmative defense sits on top of emission standards without affecting how they were calculated, and that it can be removed with a minimum of time or difficulty.

Because EPA need not review or evaluate any new technical information, but only must affirm the legal reality it has already acknowledged, EPA can rule on this petition swiftly.

Accordingly, Sierra Club requests that EPA rule within 30 days and promptly begin taking the necessary steps to remove the unlawful affirmative defense from the rules containing it.[1]

If you have any questions, please do not hesitate to contact me at (202) 667-4500.

Sincerely,



Seth L. Johnson
Attorney for Sierra Club

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[1] Some of the regulations listed above are the subject of currently pending litigation. *See, e.g., Am. Chemistry Council v. EPA*, No. 14-1083 (D.C. Cir. filed May 27, 2014) (challenging NESHAP Subpart JJJ: Group IV Polymers and Resins, Subpart MMM: Pesticide Active Ingredient Production, and Subpart PPP: Polyether Polyols Production); *Am. Petroleum Inst. v. EPA*, No. 13-1108 (D.C. Cir. filed Apr. 3, 2013) (challenging NSPS Subpart OOOO: Crude Oil and Natural Gas Production, Transmission and Distribution); *Nat'l Ass'n for Surface Finishing*, No. 12-1459 (D.C. Cir. filed Nov. 19, 2012) (challenging NESHAP Subpart N: Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks); *Am. Petroleum Inst. v. EPA*, No. 12-1405 (D.C. Cir. filed Oct. 16, 2012) (challenging NESHAP Subpart HH: Oil and Natural Gas Production Facilities and Subpart HHH: Natural Gas Transmission and Storage Facilities); *Ass'n of Battery Recyclers v. EPA*, No. 12-1373 (D.C. Cir. filed Sept. 17, 2012) (challenging NESHAP Subpart X: Secondary Lead Smelting); *Mexichem Specialty Resins v. EPA*, No. 12-1260 (D.C. Cir. filed June 14, 2012) (challenging NESHAP Subpart HHHHHHH: Polyvinyl Chloride and Copolymers Production); *Am. Chemistry Council v. EPA*, No. 11-1141 (D.C. Cir. filed May 17, 2011) (challenging NESHAP Subpart JJJJJJ: Industrial, Commercial, and Institutional Boilers Area Sources); *Am. Forest & Paper Ass'n v. EPA*, No. 11-1125 (D.C. Cir. filed Apr. 29, 2011) (challenging incinerator NSPS Subpart CCCC: Commercial and Industrial Solid Waste Incineration Units (new) and Subpart DDDD: Commercial and Industrial Solid Waste Incineration Units (existing)); *U.S. Sugar Corp. v. EPA*, No. 11-1108 (D.C. Cir. filed Apr. 14, 2011) (challenging NESHAP Subpart DDDDD: Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters). Voluntary vacatur of the affirmative defense in these rules would be appropriate, in the interest of efficiency.

EXHIBIT 4

Petition to EPA for MACT Rulemaking

(Jan. 14, 2009)

January 14, 2009

Stephen L. Johnson
Administrator,
Environmental Protection Agency
1101A EPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

BY FIRST CLASS MAIL, FAX, AND EMAIL

To the Honorable Stephen L. Johnson:

On behalf of the Natural Resources Defense Council and Sierra Club ("Environmental Petitioners"), we submit this petition for rulemaking pursuant to the Clean Air Act, 42 U.S.C. §§ 7401-7661, and the Administrative Procedure Act, 5 U.S.C. § 553(e). EPA must amend its Clean Air Act regulations for numerous categories of sources of hazardous air pollutants. National Emission Standards for Hazardous Air Pollutants (NESHAPs), codified in parts 61 and 63 of volume 40 of the Code of Federal Regulations, to correct the failure of numerous part 61 and part 63 standards to comply with the Clean Air Act ("CAA") and controlling precedent of the United States Court of Appeals for the District of Columbia Circuit. As discussed below, these regulations all violate Clean Air Act § 112, 42 U.S.C. § 7412. In addition, Environmental Petitioners hereby petition EPA to undertake a comprehensive assessment of its existing regulations under 40 C.F.R. part 61 and part 63 — including and in addition to those identified herein — to ensure that each standard fully complies with the Act and governing judicial rulings.

A. GOVERNING STATUTORY AUTHORITY AND JUDICIAL PRECEDENT

Under section 112(d) of the Clean Air Act, EPA must establish emission standards for each category or subcategory of major sources of hazardous air pollutants listed in the statute. 42 U.S.C. § 7412(d)(1). Section 112(d)(2) provides that emission standards

> shall require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section . . . that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable . . . through application of measures, processes, methods, systems or techniques including, but not limited to . . . process changes, substitution of materials or other modifications.

§ 7412(d)(2).

"In addition to this general guidance, the statute includes minimum stringency requirements for emission standards that apply without regard to either costs or the other factors

and methods listed in section 7412(d)(2)." *National Lime Ass'n v. EPA*, 233 F.3d 625, 629 (D.C. Cir. 2000) (emphasis added). For new sources, "[t]he maximum degree of reduction in emissions that is deemed achievable . . . shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source." § 7412(d)(3). Emission standards for existing sources "shall not be less stringent" than "the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information)." § 7412(d)(3)(A). Once EPA has set the minimum stringency standards required by section 112(d)(3), which the Agency refers to as "floors," it may then consider the factors enumerated in section 112(d)(1) (e.g., cost) when determining whether more stringent "beyond-the-floor" standards are achievable.

The D.C. Circuit has repeatedly held that EPA has a "clear statutory obligation to set emission standards for each listed HAP," regardless of whether the best-performing sources in a given category are currently using air pollution control technology to limit their emissions. *National Lime*, 233 F.3d at 634; *Mossville Environmental Action Now v. EPA*, 370 F.3d 1232 (D.C. Cir. 2004); *Sierra Club v. EPA*, 479 F.3d 875 (D.C. Cir. 2007). In *National Lime*, the Sierra Club challenged EPA's refusal to set standards for HCl, mercury, and total hydrocarbons emitted by cement manufacturing plants. EPA argued that it had not found any plants using control technologies for those pollutants. The court found that EPA has a "clear statutory obligation to set emission standards for each listed HAP" and that "[n]othing in the statute even suggests that EPA may set emission levels only for those listed HAPs controlled with technology." *Id.* at 633-634. *See also Mossville Environmental Action Now*, 370 F.3d at 1242 (same); *Sierra Club*, 479 F.3d at 878 (same).

The D.C. Circuit has also held that EPA must set emission floors that reflect the emission levels that the best-performing sources in each category actually achieve. In *Cement Kiln*, EPA set out to set floors that would be "achievable" for every source that used a chosen "MACT" technology. 255 F.3d at 861. EPA argued that the floor requirements in § 112(d)(3) were merely a "gloss" on the beyond-the-floor requirements in § 112(d)(2) and that floors under § 112(d)(3) therefore had to satisfy EPA's notions of achievability. *Id.* The Court rejected EPA's statutory interpretation, holding that floors must reflect the emission levels that the best sources actually achieve, not what EPA views as "achievable. *Id.*

In *Cement Kiln*, EPA had set floors based on the performance of the worst-performing plant in the Agency's database that used the same technology as the best-performing plants — a methodology EPA referred to as "the MACT approach." Although EPA admitted in the record that it adopted this approach to ensure "achievable" floors, the agency also claimed the MACT approach yielded a reasonable estimate of the relevant best sources' actual emission levels. Because many factors other than the application of technology affect sources' actual emission levels, however, the Court rejected that claim as well. 255 F.3d at 862-865. It is EPA's obligation to demonstrate — not merely assert — that its floor approach yields an accurate reflection of the best sources' emission levels.

EPA argued that, because it lacked data and because deriving an accurate picture of the best sources' emission levels from the MACT approach is difficult, the agency should be

excused from setting valid floors. 255 F.3d at 865. The Court rejected that line of argument as well:

> Even accepting the proposition that factors affecting source performance — either design features of the control itself (such as the type of fabric used) or non-MACT variables (such as waste composition or use of additional controls) — are difficult to quantify *when defining the MACT control*, nothing in the statute requires the Agency to use the MACT approach. Section 7412(d)(3) requires only that EPA set floors at the emission level achieved by the best-performing sources. If EPA cannot meet this requirement using the MACT methodology, it must devise a different approach capable of producing floors that satisfy the Clean Air Act.

Id. (emphasis in original).

Despite the clarity of the D.C. Circuit's decisions construing it in *National Lime* and *Cement Kiln*, EPA chose to ignore them in the following years. It continued to issue § 112 regulations that failed to include standards for each listed HAP, that set unlawful "no control" standards, and that failed to satisfy § 112(d)(3)'s floor requirements. Again and again, EPA forced public interest groups to challenge its rules and forced the D.C. Circuit to review the same unlawful statutory interpretation and rulemaking approach.

In *Mossville Environmental Action Now*, environmental groups challenged EPA regulations for PVC plastic plants that failed to set standards for any HAP except vinyl chloride. The D.C. Circuit confirmed that EPA has "a 'clear statutory obligation to set standards for each listed HAP' that the source category emits." 370 F.3d at 1242 (*quoting National Lime*, 233 F.3d at 634). The Court found unpersuasive EPA's belated attempt to claim in litigation that its vinyl chloride standard was a "surrogate" for all the other HAPs that PVC plants emit. 370 F.3d at 1242-1243. The agency had not even identified the HAPs for which vinyl chloride was allegedly a surrogate, far less explain why vinyl chloride was a reasonable surrogate for those unidentified pollutants, prompting the Court to note that it could not the agency's claim "under any standard." *Id.* at 1243.

In *Northeast Maryland Waste Disposal Authority*, the D.C. Circuit addressed yet another refusal by EPA to implement the Clean Air Act's mandatory floor provisions — in that instance under the virtually identical language of § 129's provisions for solid waste incinerators. For existing units, EPA had based floors on the emission limits in State air permits and regulations. 358 F.3d at 953-954. The agency claimed that these regulatory limits were reasonable "estimates" of the best sources' performance, but failed to demonstrate that claim with record evidence. *Id.* The agency also complained that it could not set accurate floors for existing units using the actual emissions data it had. 358 F.3d at 954. The Court rejected both of those arguments, making clear that it is EPA's obligation to set floors that accurately reflect the relevant best sources' emission levels and that EPA could not avoid that obligation by claiming that its data were inadequate. *Id.*

For new units, EPA had, once again, adopted the MACT approach of picking a technology and then setting floors at a level it deemed achievable by all units that used that technology. Again, EPA offered the alternative arguments that its floors must be "achievable"

and that the levels it designated as achievable with the chosen technology also happened to accurately reflect the emission level actually achieved by the single best source. 358 F.3d at 954-955. Confronting a rehash of the same arguments it rejected in *Cement Kiln*, the D.C. Circuit rejected them again:

> This is precisely the rationale we rejected in *Cement Kiln*. ... EPA has once again improperly invoked achievability (incorrectly relying on the emission variability of *all* [municipal waste combustors] that use the technology rather than on the variability of the *best performing* unit) to gloss over the actual achievement requirement.

358 F.3d at 955 (emphasis in original). The Court also rejected EPA's claim that its floors were estimates of the best unit's performance, finding that EPA had failed to show that its MACT approach yielded accurate estimates. *Id.*

Apparently dissatisfied with the D.C. Circuit's decisions, however, EPA attempted to circumvent them yet again. In its § 112 standards for brick kilns, EPA once again set "no control" standards for many of the HAPs these sources emit. *Sierra Club*, 479 F.3d at 879-880. Where the agency set standards at all, it attempted to set floors at levels that it regarded as "achievable" rather than the level actually achieved by the best performing sources "simply by redefining 'best performing' to mean those sources with emission levels achievable by all sources." *Id.* at 880-881. Again EPA invoked the alleged difficulty of accounting for variability to excuse its failure to respect § 112's floor language. *Id.* at 881-882. Again, EPA claimed that the performance of a technology reasonably estimates the emission level of the best sources, even where it is undisputed that other factors affect sources' emission level. *Id.* at 882-883. Again EPA insisted that it could set "no control" floors if it does not think that controls are viable. *Id.* at 883. Faced with arguments that it already had rejected repeatedly, the D.C. Circuit confirmed that "section 7412(d)(3) requires floors based on the emission level actually achieved by the best performers (those with the lowest emission levels). *Id.* at 880. It also found it necessary to remind EPA of its role in a constitutional democracy:

> If the Environmental Protection Agency disagrees with the Clean Air Act's requirements for setting emission standards, it should take its concerns to Congress. If EPA disagrees with this court's interpretation of the Clean Air Act, it should seek rehearing en banc or file a petition for a writ of certiorari. In the meantime, it must obey the Clean Air Act as written by Congress and interpreted by this court.

Id. at 884.

In light of the D.C. Circuit's decisions, it is plain that many of the § 112 regulations EPA has issued are flatly unlawful. They fail to include standards for each HAP that a category emits, fail to satisfy § 112(d)(3)'s floor requirements, or both. Accordingly, Environmental Petitioners petition EPA to amend the following regulations and issue new ones that fully comply with Clean Air Act § 112. *See Kennecott Utah Copper Corp. v. Department of Interior*, 88 F.3d 1191, 1213 (D.C. Cir. 1996) ("a claim that agency action was violative of statute may be raised

outside a statutory limitations period, by filing a petition for amendment or rescission of the agency's regulations, and challenging the denial of that petition").

B. LEGALLY DEFICIENT REGULATIONS REQUIRING REVISION

1. Aerospace Manufacturing and Rework Facilities

Surface-coating processes in the aerospace industry produce emissions of HAPs including chromium, cadmium, methylene chloride, toluene, xylene, methyl ethyl ketone, ethylene glycol, and glycol ethers. 60 Fed. Reg. 45,948, 45,948 (Sept. 1, 1995) ("Aerospace NESHAP"). The Aerospace NESHAP fails to regulate HAP emissions from at least ten different emission points: four non-coating-related operations; four coating-related operations; wastewater; and storage tanks.

EPA argues that control of organic HAP emissions from the four non-coating-related operations that EPA declines to regulate (chemical milling, metal finishing, electrodeposition, and composite processing) is "not feasible because no demonstrated control measures could be identified." 59 Fed. Reg. 29,216, 29,239 (June 6, 1994) ("Aerospace Proposal"). EPA has a "clear statutory obligation to set emission standards for each listed HAP," regardless of whether the best-performing sources in a given category are currently using air pollution control technology to limit their emissions. *National Lime*, 233 F.3d at 634. Moreover, the Agency must regulate emissions from all the emission points that it determines are part of the affected source. Neither EPA's claims about the relative significance of HAP emissions from the four non-coating-related operations, nor the agency's failure to identify control measures, justify its refusal to set emission standards for the HAPs emitted from these operations.

EPA also argues that it need not regulate the non-coating operations because their emissions constitute less than 1% of the total organic HAP emissions from aerospace facilities. EPA lacks authority simply to declare that sources of HAP emissions are not worth controlling. In addition, EPA refuses to regulate four coating-related operations: adhesives, adhesive bonding primers, sealants, and specialty coatings. EPA argues that the organic HAP emissions from these processes are "relatively small." Aerospace Proposal, 59 Fed. Reg. at 29,239. EPA also argues that many of the coatings in use are already applied using efficient techniques, and thus there is little room to reduce emissions further. *Id.* EPA discusses the possibility of using coatings with lower organic HAP content, but asserts that it lacked data on organic HAP content of coatings at the time of the proposal, and it did not have time to collect any. *Id.* EPA also refuses to set standards for HAP emissions from wastewater and storage tanks, claiming that none of the facilities in its database were deliberately controlling emissions from these points at the time of proposal. The Agency also speculates that other requirements in the rule might result in reduction of wastewater and storage tank emissions. *Id.*

None of EPA's excuses are even remotely relevant to the agency's well established obligation to set emission standards for each HAP. EPA must set emission standards for each HAP emitted by a source category, regardless of whether the best-performing sources are currently using pollution control technology. It cannot fulfill its obligation by setting standards for some parts of the source category and not others. Moreover, a lack of data to quantify the

effects of non-technology factors on emissions does not excuse the failure to set a floor. *Sierra Club*, 479 F.3d at 882.

Finally, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

2. Asphalt Processing and Asphalt Roofing Manufacturing

Asphalt processing and asphalt roofing manufacturing facilities are major sources of formaldehyde, hexane, hydrogen chloride (HCl), phenol, polycyclic organic matter (POM), and toluene. 66 Fed. Reg. 58,610, 58,610 (Nov. 21, 2001). Because it failed to set an emission standard for HCl, EPA must reopen the Asphalt NESHAP. , 68 Fed. Reg. 24,562, 24,564 (May 7, 2003).

HCl is emitted only by those sources using a chlorinated catalyst in their blowing stills. Asphalt roofing manufacturing plants must use a catalyst if they use certain low-quality asphalt flux feedstocks. Asphalt Proposal, 66 Fed. Reg. at 58619. Of the 91 blowing stills for which EPA had data at the time of the proposed rule, 37 use a chloride-based catalyst. *Id.* EPA acknowledges in the proposed rule that "[w]ell over 12 percent of blowing stills do not use a catalyst." *Id.* Thus, the best-performing sources emit no HCl at all. EPA is required to set a floor that reflects the emission level of the best-performing sources.

In determining a floor for HCl emissions, EPA considered two potential bases for the standard: at-the-stack controls and prohibiting use of a chlorinated catalyst. *Id.* It rejected the former because none of the sources was currently using a control device. It rejected the latter because doing so would require all manufacturers to use higher-quality asphalt flux feedstock, and it asserts that higher-quality feedstock is not consistently available to all sources: "control of HCl emissions through substitution of higher quality asphalt flux is not an achievable means of control, because such higher quality flux is not consistently or reliably available . . . ." *Id.* EPA's justification for its failure to set an emission standard for HCl has been rejected by the D.C. Circuit. EPA has a "clear statutory obligation to set emission standards for each listed HAP." *National Lime*, 233 F.3d at 634. Assertions that "changes in non-technology factors were not 'appropriate' or 'viable'" cannot justify for a "no control" floor. *Sierra Club*, 479 F.3d at 883.

Finally, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

3. Surface Coating of Automobiles and Light-Duty Trucks

The NESHAP for surface coating of automobiles and light-duty trucks regulates only emissions of organic HAPs, although EPA acknowledges that facilities in this source category may emit inorganic HAPs as well. 69 Fed. Reg. 22,602 (Apr. 26, 2004). Coatings used in surface coating operations can contain lead, manganese, and chromium compounds. 67 Fed. Reg. 78,612, 78,620 (Dec. 24, 2002). EPA argues that these inorganic HAPs are unlikely to be emitted

because they are in the coating solids and remain on the surface to which they are applied, but admits that these HAPs may be emitted when coatings are spray-applied: "[D]uring spray application, inorganic compounds become airborne, and they . . . [may] enter the air and become susceptible to transport . . . outside into the ambient air." *Id.* Furthermore, EPA confirms that facilities "that use spray application techniques sometimes apply coatings that contain inorganic HAP compounds, including small quantities of chromium oxide." *Id.*

Because EPA has a statutory obligation to set emission standards for each listed HAP emitted by each category of major sources, EPA must reopen the Auto and Light-Duty Truck NESHAP and set emission standards for inorganic HAPs emitted by these sources.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

4. Cellulose Products Manufacturing

The NESHAP for cellulose products manufacturing addresses emissions from two source categories, miscellaneous viscose processes and cellulose ethers production. 67 Fed. Reg. 40,044 (June 11, 2002). The HAPs emitted by viscose processes include carbon disulfide (CS_2), carbonyl sulfide, and toluene. 65 Fed. Reg. 52,166, 52,168 (Aug. 28, 2000). EPA identifies four different types of emission points in the viscose processes category: equipment leaks, wastewater emissions, CS_2 unloading and storage operations, and process vents. "Because none of the ten viscose process operations control CS_2 emissions from equipment leaks or wastewater," EPA set a floor of "no control" for those emission points, and declined to adopt beyond-the-floor standards. *Id.* at 52172. Similarly, EPA set "no control" standards for four emission points in the cellulose ether production category: storage vessels, equipment leaks, wastewater emissions, and process vents. *Id.* at 52,175. These operations emit HAPs including ethylene oxide, methanol, methyl chloride, and propylene oxide. *Id.* at 52,168.

It is well established that "no control" standards are unlawful. EPA must, at a minimum, set floors for each HAP that a source category emits and those floors must reflect the average emission level actually achieved by the best performing sources, those with the lowest emissions. EPA must reopen the cellulose products manufacturing rule and set emission standards for equipments leaks and wastewater in the viscose processes source category and for storage vessels in the ether production source category.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

5. Engine Test Cells/Stands

Engine test cells/stands emit HAPs including toluene, benzene, mixed xylenes, and 1,3-butadiene. 68 Fed. Reg. 28,774, 28,774 (May 27, 2003). EPA divides engine test cells/stands into four subcategories: (1) Engine test cells/stands used for testing internal combustion engines with rated power of 25 hp or more, (2) engine test cells/stands used for testing internal combustion

engines with rated power of less than 25 hp, (3) engine test cells/stands used for testing combustion turbine engines, and (4) engine test cells/stands used for testing rocket engines. *Id.* at 28,779. Additionally, it divides each subcategory into existing and new/reconstructed sources. Of the eight resulting subcategories, EPA sets emission standards for only one (new/reconstructed sources used for testing internal combustion engines with rated power of 25 hp or more) and adopts "no control" standards for the remaining seven. Because "no control" standards are unlawful, EPA must reopen the engine test cells/stands rule and promulgate the missing standards.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

6. Flexible Polyurethane Foam Fabrication Operations

EPA identifies two subcategories of flexible polyurethane foam fabrication operations: loop slitter HAP-based adhesive use and flame lamination. 68 Fed. Reg. 18,062, 18,063 (Apr. 14, 2003). HAP emissions from the flame lamination process include HCN, TDI, and HCl. 66 Fed. Reg. 41,718, 41,720 (Aug. 8, 2001). Because it failed to set emission standards for existing sources in the flame lamination subcategory, EPA must reopen its rule.

EPA attempts to justify its failure to set emission standards by arguing that three of the alleged five best performing sources do not use control technology. That argument is irrelevant. EPA must set emission standards regardless of whether existing sources are using control technology, and those standards must reflect the average emission level actually achieved by the relevant best performing sources, those with the lowest emissions.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

7. Flexible Polyurethane Foam Production

The NESHAP for flexible polyurethane foam production regulates HAP emissions from facilities that produce slabstock, molded, or rebond flexible polyurethane foam. The rule covers emissions from four types of emission points at slabstock foam facilities: storage vessels, equipment leaks, HAP auxiliary blowing agent use, and equipment cleaning. 61 Fed. Reg. 68,406, 68,410 (Dec. 27, 1996). The HAPs emitted at these points include toluene diisocyanate (TDI) and methylene chloride. EPA reports that the International Agency for Research on Cancer has classified TDI as a possible human carcinogen, EPA, Technology Transfer Network Air Toxics Website: 2,4-Toluene diisocyanate, http://www.epa.gov/ttn/atw/hlthef/toluene2.html, and EPA recognizes that TDI presents health concerns "even at relatively low concentrations." 63 Fed. Reg. 53,980, 53,990 (Oct. 7, 1998).

However, claiming that no facilities in its database deliberately control TDI emissions from the foam production line, EPA set a floor of "no control," for these emissions, and declined to adopt a beyond-the-floor standard.

It is well established that "no control" standards are unlawful. EPA has a "clear statutory obligation to set emission standards for each listed HAP" emitted by a source category, regardless of whether a particular HAP is currently controlled with technology. *National Lime*, 233 F.3d at 634. EPA must reopen the rule and set an emission standard for TDI emissions from the slabstock foam production line.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

8. Friction Materials Manufacturing Facilities

Friction materials manufacturing facilities emit HAPs including n-hexane, toluene, and trichloroethylene. The NESHAP for friction materials manufacturing does not address fugitive emissions, even though the agency acknowledges that they account for approximately 259 tons of HAP emissions each year, almost forty percent of the category's total baseline HAP emissions. 67 Fed. Reg. 64,498, 64,501, 64,503 (Oct. 18, 2002).

EPA attempts to justify its failure to control fugitive HAP emissions by arguing that they occur in later process equipment, such as extruders, granulators, dryers, hot presses, and curing ovens, and that none of the sources in EPA's database currently use technology to control emissions from these pieces of equipment. EPA determined that the floor for these emission points is no control, and declined to adopt beyond-the-floor standards because it does not consider them cost effective. *Id.*

It is well established that "no control" standards are unlawful. EPA has a statutory obligation to set emission standards for each HAP emitted by a source category, regardless of whether a particular HAP is currently controlled with technology. *National Lime*, 233 F.3d at 634. EPA must reopen the rule and set a standard for emissions from the process equipment listed above.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

9. Generic Maximum Achievable Control Technology I: Acrylic and Modacrylic Fiber (AMF) Production

Acrylic and modacrylic fiber (AMF) production facilities is emit acrylonitrile (AN) as well as dimethylformamide, cyanide compounds, vinyl chloride, vinyl bromide, vinylidine chloride, and vinyl acetate. National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology; Proposed Rule, 63 Fed. Reg. 55,178, 55,191 (June 29, 1999). However, EPA set emission standards only for AN and only for pollutant streams containing AN. The rule does not include standards for HAPs other than AN or any standards at all for pollutant streams that do not contain AN. Because it is well established that EPA must set standards for each HAP that AMF facilities emit, the agency's rule is flatly unlawful.

EPA argues that its rule does not address emissions of other HAPs because other HAPs, if present, "would only be associated with those pollutant streams containing AN *with the exception of raw material storage.*" *Id.* (emphasis added). Even if true, that claim would not excuse EPA from setting standards for the other HAPs emitted from pollutant streams containing AN. Nor would it excuse EPA from setting standards for all the HAPs emitted from raw material storage.

The rule also fails to control AN emissions from solution polymerization processes at existing sources. EPA claimed it could not identify a control system that could be applied to the solution process, and it concluded that it will "reexamine the applicability of various control system options for spinning operations using the solution process during the residual risk analysis phase of these standards." 64 Fed. Reg. 34,854, 34,862 (June 29, 1999). However, as discussed above, EPA has a statutory obligation to set emission standards for each HAP emitted by a source category, and it cannot fulfill its obligation by setting standards for some parts of the source category and not others. EPA must reopen the rule and set an emission standard for AN and other HAP emissions from spinning lines using the solution process at existing sources.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

10. Generic Maximum Achievable Control Technology II: Carbon Black Production

Carbon black production facilities emit HAPs including carbon disulfide, carbonyl sulfide, and hydrogen cyanide. Although EPA sets emission standards for one emission point in carbon black production facilities—process vents from the main unit filter—it fails to set standards for another, process vents after the main unit filter. 65 Fed. Reg. 76,408, 76,423 (Dec. 6, 2000); 67 Fed. Reg. 46,258 (July 12, 2002). EPA acknowledges that the best-performing source "reported process modifications that reduce the residual HAP levels in the process after the main unit filter by 98 weight-percent." Nevertheless, EPA determined that the floor for both existing and new sources is no control because "this facility's level of control does not correspond to a control type." 65 Fed. Reg. at 76,423.

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. Here, EPA must set emission standards for new sources that are at least as stringent as the emission level achieved by the single best-performing source. Additionally, EPA must set emission standards for existing sources that are at least as stringent as the average emission limitation achieved by the best-performing five sources (because the source category contains fewer than thirty sources), regardless of whether the average emission limitation corresponds to the use of a particular technology. *Cement Kiln*, 255 F.3d at 861. Thus, EPA must reopen the rule and promulgate emission standards for process vents after the main unit filter in both new and existing sources.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

11. Generic Maximum Achievable Control Technology II: Ethylene Production

Ethylene production facilities emit HAPs including benzene, 1,3 butadiene, toluene, naphthalene, hexane, and xylene. Although the NESHAP for ethylene production controls HAP emissions from some emission points, it fails to control emissions from ethylene cracking furnaces. EPA determined that ethylene cracking furnaces "are expected to have relatively low HAP emissions," but it still considered standards for this emission point because "HAP emissions can result from incomplete combustion, and natural and refinery gas combustion has been shown to result in emissions of formaldehyde." 65 Fed. Reg. at 76,432. Claiming it did not identify any control technologies currently in use to control HAP emissions from ethylene cracking furnaces, however, the Agency set the floor at no control and did not identify any beyond-the-floor options. *Id.* at 76,433.

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. EPA must reopen the rule and set emission standards for the HAP emissions from ethylene cracking furnaces.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

12. Generic Maximum Achievable Control Technology II: Cyanide Chemicals Manufacturing

Cyanide chemicals manufacturing facilities emit HAPs including cyanide compounds (hydrogen cyanide and sodium cyanide), acrylonitrile, and acetonitrile. EPA identifies five HAP emission points in these facilities: process vents, storage vessels, equipment leaks, transfer operations, and wastewater treatment operations. For wastewater treatment operations in existing sources, EPA fails to set any emission standards. 65 Fed. Reg. at 76,418. EPA argues that a numerical emission standard would be impracticable because the performance of biological treatment systems varies from site to site. However, EPA did not set a work practice finding or make the findings that § 112(h) requires if the agency wishes to set work practice standards in lieu of emission standards. Instead, EPA argues oddly that it would be difficult to set a work practice standard "based on the median of the top five of these facilities that would both be achievable across the source category and consistent with continued compliance with effluent discharge permits." *Id.* at 76,419.

The D.C. Circuit has held that EPA must set standards for each HAP and that these standards must reflect the average emission level achieved by the best-performing sources, regardless of what the Agency judges to be "achievable." across the source category. *Cement Kiln*, 255 F.3d at 861. Emission levels between the wastewater treatment operations at different facilities within this category vary. Two of the top five sources in the category treat their process

wastewater with technology that removes approximately 95% of HAPs. EPA must set standards for each HAP emitted by wastewater treatment operations, and those standards must, at a minimum, reflect the emission levels achieved by the relevant best performers.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

13. Hazardous Organic NESHAP

The hazardous organic NESHAP (HON) regulates organic HAP emissions from the synthetic organic chemical manufacturing industry (SOCMI), as well as equipment leaks in several other processes. Besides equipment leaks, the HON addresses four different kinds of emission points: process vents, storage vessels, transfer racks, and wastewater streams. EPA divides each of these emission points into two subcategories: Group 1 and Group 2. Group 1 emission points are subject to emission controls; Group 2 emission points are not. 59 Fed. Reg. 19,402, 19,405 (Apr. 22, 1994).

EPA does not claim that the emission standards it did set, for Group 1 emission points, reflect the emission level actually achieved by the relevant best performing sources. To the contrary, it states

> The information the EPA used in determining the source-wide floor consisted of the estimates of the number and characteristics of the model emission points, the emission control requirements currently in place for each point based on information available to the EPA, and the expected control efficiencies for the control technology. To determine the source-wide floor for existing sources at proposal, the EPA examined the supporting information to identify the emission characteristics of the emission points which had at least 12 percent of the points controlled by the reference control technology. This analysis was done for each kind of emission point.

59 Fed. Reg.

The agency claims that it lacked time to collect the data necessary to set floors that would satisfy this statutory requirement. That excuse is irrelevant. EPA has a statutory obligation to set emission standards for each HAP emitted by a source category, and those standards must, at a minimum, reflect the emission level actually achieved by the relevant best performing sources. Accordingly, EPA must reopen the rule, issue emission standards for each HAP emitted by Group 2 emission points and revise the emission standards for Group 1 emission points to reflect the statutorily required minimum stringency.

14. Hydrochloric Acid Production

Hydrochloric acid (HCl) production facilities emit HAPs including HCl and chlorine. EPA identifies the emission points at these facilities as process vents, storage tanks, transfer operations, equipment leaks, and wastewater. 66 Fed. Reg. 48,174, 48,176 (Sept. 18, 2001).

Although EPA sets emission limitations or work practice standards for four of the five emission points, it fails to regulate HAP emissions from wastewater. For both new and existing sources, EPA set the MACT floor for wastewater was "no emission reduction," claiming did not identify any add-on controls, process modifications, or other pollution-prevention measures currently in use to control HAP emissions from wastewater. *Id.* at 48,181.

"No control" standards contravene EPA's "clear statutory obligation to set emission standards for each listed HAP." *National Lime*, 233 F.3d at 634. EPA found that wastewater is part of the affected source at HCl production facilities. 68 Fed. Reg. 19,076, 19,079 (Apr. 17, 2003). Therefore, the Agency must reopen the rule and set emission standards for wastewater.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

15. Surface Coating of Large Appliances

The NESHAP for surface coating of large appliances fails to regulate emissions of inorganic HAPs. 67 Fed. Reg. 48,254 (July 23, 2002). EPA found that some specialty coatings used in this source category contain such inorganic HAPs as chromium, cobalt, lead, and manganese compounds. 65 Fed. Reg. 81,134, 81,137 (Dec. 22, 2000). The Agency speculates that these inorganic HAPs are not emitted into the ambient air; instead, they remain on the surfaces being coated, or they are deposited onto the floors, walls, and grates of the spray booths in which they are applied. EPA concludes that "inorganic HAP emission levels are expected to be very low, and have not been quantified." *Id.*

If inorganic HAPs are emitted from surface coating operations, EPA must set standards for them. Neither EPA's claim that inorganic HAP emissions have not been quantified nor its speculation that they inorganic HAPs are "expected" to be emitted low levels excuses the agency from this statutory requirement. EPA must reopen the rule and set the missing standards. *National Lime*, 233 F.3d at 634 (emphasis added).

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

16. Lime Manufacturing Plants

The lime manufacturing industry emits HAPs including hydrogen chloride (HCl), metals such antimony, arsenic, beryllium, cadmium, chromium, lead, manganese, mercury, nickel, and selenium, and organic HAPs. The NESHAP for lime manufacturing fails to regulate emissions of HCl based on EPA's claims that "HCl is a 'health threshold pollutant,' and that HCl levels emitted from lime kilns are below the threshold value within an ample margin of safety." 69 Fed. Reg. 394, 397 (Jan. 5, 2004).

Section 112(d)(4) of the Clean Air Act provides that EPA may consider threshold levels with respect to "pollutants for which a health threshold has been established." 42 U.S.C.

§ 7412(d)(4). The language of the statute indicates that the health threshold exception applies only when the scientific community has already accepted a pollutant's health threshold. By allowing EPA to issue standards under § 112(d)(4) only when health threshold has been established, Congress made clear that there must be an established threshold below which no adverse health effects will occur. In particular, it did not intend EPA to invoke § 112(d)(4) for a HAP unless there is no risk that that HAP will cause cancer. "EPA presumptively applies section 112(d)(4) only to HAP's that are not carcinogens because Congress clearly intended that carcinogens be considered nonthreshold pollutants." 63 Fed. Reg. 18,754, 18,765 (Apr. 15, 1998). HCl does not pass this test. EPA has admitted that it does not know whether HCl causes cancer. Further, for non-cancer risk, the level on which EPA relied is merely the lowest observable adverse effects level (LOAEL), *i.e.*, a level at which adverse effects do occur. Because HCl may be a carcinogen, and because a health threshold for HCl has not been definitively established, EPA must regulate HCl emissions from the lime manufacturing industry.

The rule also fails to regulate mercury emissions. In its proposed rule, EPA argues that it has no way of establishing an "achievable" floor standard for mercury "since no source controls mercury emissions using a means of control that can be duplicated by other sources." 67 Fed. Reg. 78,046, 78,057 (Dec. 20, 2002). EPA reiterates this argument in the preamble to the rule: "The only control technique would reflect control of the raw materials and/or fossil fuels. This control is not duplicable or replicable." 69 Fed. Reg. at 398. As discussed above, EPA must set standards based on the emission reductions that the best-performing sources actually achieve, regardless of what the Agency considers to be "achievable." *Cement Kiln*, 255 F.3d at 861. EPA must reopen the rule and set emission standards for HCl and mercury.

EPA violates the Clean Air Act by failing to set emission standards for the organic HAP that lime plants emit. EPA offers no rationale for that failure.

Finally, the standards that EPA does set fail to reflect the emission level actually achieved by the relevant best performing sources. Accordingly, they must be revised to satisfy § 112's minimum stringency requirements.

17. Manufacturing of Nutritional Yeast

Rather than basing floors for the nutritional yeast category on the emission levels achieved by the relevant best performing sources, EPA based them on limits derived from Wisconsin's and Maryland's Reasonably Available Control Technology standards (the RACT approach). 66 Fed. Reg. 27,876, 27,879 (Oct. 19, 1998). EPA does not even claim that the RACT approach yields floors that accurately reflect the relevant best sources' emission levels. Nor would any such claim be plausible. EPA admits that the five facilities with the RACT limits on which its floor is based were, in reality, achieving lower emission levels than the RACT limits required. Indeed, EPA requested "comments and data that support a potentially lower MACT emission limit. This information should also allow us to determine if new sources can achieve an even more stringent MACT, based on the best-performing source." *Id.* at 55,820.

Because EPA failed to show that RACT limits provide an accurate estimate of the relevant best sources performance and because the record shows that they do not provide an

accurate estimate, the agency's reliance on those limits to set floors was unlawful. The agency must reopen the rule and set floors for this category that accurately reflect the average emission level achieved by the best performing sources, as required by the Clean Air Act.

Additionally, EPA's rule fails to control emissions from wastewater. EPA concluded that "the MACT floor for wastewater emissions is no control." It declined to adopt beyond-the-floor standards because it determined that non-air quality health and environmental impacts, energy impacts, and costs were "unreasonably high." Nutritional Yeast NESHAP, 66 Fed. Reg. at 27,880. Further, EPA argued that "levels of acetaldehyde in wastewater are already reduced by process changes upstream." *Id.* at 27,881.

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. Nor is it relevant that one HAP may be reduced to some extent by upstream operations. Because wastewater operations are a source of HAP emissions, EPA must set standards for each HAP these emission points emit, and those standards must, at a minimum, reflect the emission level that the relevant best sources achieve. EPA must reopen the rule and set emission standard for each HAP emitted from wastewater operations.

18. Marine Tank Vessel Loading Operations

EPA divides the marine tank vessel loading operations category into several subcategories. The Agency fails to regulate HAP emissions from two of these subcategories—existing major source terminals that emit less than 10 tons per year of any individual HAP and less than 25 tons per year of combined HAPs from loading of marine tank vessels, and existing offshore terminals (major source terminals located 0.5 miles or more from shore). For both subcategories, EPA set a floor of "no control," claiming that too few sources in its database control emissions from marine tank vessel loading. 60 Fed. Reg. 48,388, 48,395 (Sept. 19, 1995). These "no control" standards contravene EPA's "clear statutory obligation to set emission standards for each listed HAP." *National Lime*, 233 F.3d at 634. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources.

EPA's exemption of sources with actual emissions of less than 10 tons per year of individual HAPs and 25 tons per of combined HAPs also contravenes § 112's definition of major source, which requires MACT standards for any source with the "potential" to emit 10 tons per year or more of any single HAP or 25 tons per year or more of any combination of HAPs. Under this definition, it is irrelevant whether some sources' actual emissions fall below those levels. EPA must reopen the rule and set emission standards based on the emission reductions that the best-performing sources actually achieve, regardless of how many of these sources currently use technology to control HAP emissions.

Finally, the standards EPA did set fail to reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise them to satisfy § 112's minimum stringency requirements.

19. Mercury Cell Chloro-Alkali Plants

Mercury cell chloro-alkali plants emit HAPs including mercury, hydrogen chloride (HCl), and chlorine. 68 Fed. Reg. 70,903, 70,904 (Dec. 19, 2003). EPA's unlawful requirements for mercury emissions are subject to a pending petition for review in the D.C. Circuit and a petition for administrative reconsideration with the agency. In addition, EPA's rule unlawfully fails to include emission standards for HCl and chlorine. *Id.* at 70,906. The Agency claims that HCl and chlorine are "health threshold pollutants" and that the levels emitted by these sources are below the threshold. *Id.* The Agency claims to utilize its authority under section 112(d)(4) of the Clean Air Act not to regulate these HAPs. *Id.*

By allowing EPA to issue standards under § 112(d)(4) only when health threshold has been established, Congress made clear that there must be an established threshold below which no adverse health effects will occur. In particular, it did not intend EPA to invoke § 112(d)(4) for a HAP unless there is no risk that that HAP will cause cancer. "EPA presumptively applies section 112(d)(4) only to HAP's that are not carcinogens because Congress clearly intended that carcinogens be considered nonthreshold pollutants." 63 Fed. Reg. 18,754, 18,765 (Apr. 15, 1998). HCl does not pass this test. EPA has admitted that it does not know whether HCl causes cancer. Further, for non-cancer risk, the level on which EPA relied is merely the lowest observable adverse effects level (LOAEL), *i.e.*, a level at which adverse effects do occur. Because HCl may be a carcinogen and because a health threshold for HCl has not been definitively established, EPA must regulate HCl emissions from mercury cell chloro-alkali plants.

20. Mineral Wool Production

Mineral wool production facilities emit carbonyl sulfide (COS). 64 Fed. Reg. 29,489, 29,490 (June 1, 1999). Yet EPA fails to set emission limits on COS at existing facilities. Id. at 29,491. Because EPA has a statutory obligation to set emission standards for each HAP that mineral wool production facilities emit, its failure to set standards for COS emitted by these facilities is unlawful. See, e.g., National Lime, 233 F.3d at 634. Accordingly, EPA must reopen its regulations for mineral wool facilities and set COS emission standards.

Mineral wool production facilities also emit phenol, formaldehyde, and other organic HAPs. Mineral Wool NESHAP, 64 Fed. Reg. at 29,490. EPA fails to set standards for any HAP except formaldehyde, claiming that formaldehyde is a surrogate for phenol emissions at these facilities. *Id.* at 29,491. Even if that claim were true, EPA does not claim that formaldehyde, or any other pollutant, is a surrogate for the other organic HAPs that mineral wool facilities emit. Accordingly, EPA's failure to set emission standards for such other organic HAPs is unlawful.

To justify its refusal to set standards for phenol, EPA argues that "when the formaldehyde limit is met through use of an incinerator, phenol emissions are also reduced by the same incinerator." 62 Fed. Reg. 25,370, 25,376 (May 8, 1997). Failure to set specific standards for phenol is unlawful, however, unless EPA shows that formaldehyde is a valid surrogate for phenol. Merely claiming that both are reduced by the same incinerator does not suffice. EPA also must show that the only factor affecting phenol emissions is the use of an incinerator to control formaldehyde. EPA makes no such claim. Further, it admits that some

ovens are controlled with technologies other than an incinerator, and does not claim that the use of such other unspecified technology is the only factor affecting phenol emissions at those facilities. To comply with the CAA, EPA must provide an adequate explanation of why formaldehyde is an appropriate surrogate for or each HAP emitted by mineral wool facilities, or set emission limits for each HAP individually.

Finally, EPA's formaldehyde standards do not reflect the actual formaldehyde emission levels achieved by the relevant best sources. Accordingly, EPA must revise these standards to satisfy § 112(d)'s minimum stringency requirements.

21. Oil and Natural Gas Production

EPA fails to regulate major-source glycol dehydration units with actual annual average natural gas throughputs of less than 85 thousand m^3/day or with actual average benzene emissions lower than 0.90 Mg/yr. 64 Fed. Reg. 32,609, 32,613 (June 17, 1999). For these units, EPA sets the MACT floor at no control and determines that a beyond-the-floor regulation is not cost effective. *Id.* EPA justifies this by claiming that it "could not determine any level of emission control for [such units]." 63 Fed. Reg. 6288, 6293 (Feb. 6, 1998). It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. To comply with the Clean Air Act, EPA must set emission standards for each HAP emitted by glycol dehydration units.

Further, the standards that EPA did set fail to reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency requirements.

22. Petroleum Refineries

The HAPs emitted by petroleum refineries include 2,2,4-Trimethylpentane, methyl tert butyl ether, benzene naphthalene, cresols/cresylic acid, phenol, ethylbenzene, toluene, hexane, and xylenes. 60 Fed. Reg. 43,244, 43,245 (Aug. 18, 1995). EPA sets no control or monitoring requirements for wastewater streams located at refineries with total annual benzene loading of less than 10 megagrams per year. *Id.* at 43,247-48.

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. EPA lacks authority to exempt any emission point from emission standards. EPA must set emission standards for all emissions points at the source, including wastewater streams with annual benzene loading less than 10 megagrams per year.

For refineries with total annual benzene loading of more than 10 megagrams per year, EPA only regulates benzene emissions. *Id.* EPA must set standards for each HAP that a category emits. EPA does not claim that benzene is a surrogate for the other HAPs emitted from wastewater streams, far less demonstrate that it is a reasonable one. Accordingly, EPA must

reopen the refineries rule and set emission standards for all the HAPs that are emitted from wastewater streams.

Further, EPA's benzene standards do not reflect the actual benzene emission levels achieved by the relevant best performing units. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency requirements.

EPA sets no control or monitoring requirements for miscellaneous process vents with VOC emissions less than 33 kilograms per day for existing sources and 6.8 kilograms per day for new sources. 60 Fed. Reg. at 43,247. EPA also states that no controls or inspections are required for so-called Group 2 storage vessels, which are all vessels that do not have a design storage capacity and a maximum true vapor pressure above the values specified in the regulation. *Id.* It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources. EPA must reopen the rule and set an emission standard for these vents and storage vessels.

Further, EPA completely exempts hydrogen plant vents from any control requirements, even those that emit more than 33 kilograms per day of VOCs. 63 Fed. Reg. 31,358, 31,359 (1998). In justifying this exemption, EPA claims that implementing controls would be too costly. However, the CAA "includes minimum stringency requirements for emission standards that apply without regard to either costs or the other factors and methods listed in section 7412(d)(2)." *National Lime*, 233 F.3d at 629. EPA must reopen this rule to set emission standards for hydrogen plant vents.

23. Phosphoric Acid Manufacturing and Phosphate Fertilizers Production

The HAPs emitted by these facilities include hydrogen fluoride, arsenic, beryllium, cadmium, chromium, manganese, mercury, and nickel. EPA fails to set emission standards for any of these HAPs, and claims particulate matter is a surrogate for all metal HAPs, including mercury. Proposed Rule, 61 Fed. Reg. 68,429, 68,435 (Dec. 27, 1996).

EPA's failure to set emission standards for specific HAPs is unlawful absent a valid showing that particulate matter is a reasonable surrogate for each one of them. EPA provides no evidence showing why particulate matter is a valid surrogate for any metal HAP emitted by this category. In particular, the agency fails to show that controlling PM is the only means by which facilities achieve reductions in emissions of metal HAPs, as D.C. Circuit precedent requires. Further, particulate matter is plainly not an appropriate surrogate for mercury, as EPA itself has recognized repeatedly. Accordingly, EPA's failure to set emission standards for mercury and the other metal HAPs is unlawful.

In addition, EPA's PM standards do not reflect the actual PM emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

EPA also fails to set emission standards for hydrogen fluoride output in dryers and metal HAP emitted by various process lines. 64 Fed. Reg. 31,358, 31,361 (June 10, 1999). If HF and

metal HAPs are emitted by these processes, the agency must set emissions standards for them, and those standards must, at a minimum, reflect the average emission level achieved by the relevant best performing sources. Accordingly, EPA must reopen the phosphoric acid manufacturing and phosphate fertilizers production rule, and set all of the emission standards required by the Clean Air Act.

24. Polyether Polyols Production

Polyether polyols production facilities emit several organic HAPs, including ethylene oxide, propylene oxide, hexane, and toluene. 64 Fed. Reg. 29,419, 29,420 (June 1, 1999). EPA fails to set standards for nonepoxide organic HAPs from vents at facilities where the total vent output of nonepoxide organic HAPs is less than 11,800 kilograms per year. *Id* at 29,425. Because EPA must set an emission standard for each listed HAP at each major source in this category, and lacks authority to exempt any sources, the agency's rule violates the Clean Air Act and must be reopened and corrected. *See National Lime*, 233 F.3d at 634.

In addition, the standards EPA did set, for vents at facilities with a total organic HAP output greater than 11,800 kilograms per year, do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

25. Polymers and Resins I

According to EPA, manufacturers of Group I polymers and resins emit organic HAPs including n-hexane, styrene, 1,3-butadiene, acrylonitrile, methyl chloride, hydrogen chloride, carbon tetrachloride, chloroprene, and toluene. 60 Fed. Reg. 30,801, 30,801 (June 12, 1995). For the butyl rubber (BR), halobutyl rubber (HBR), epichlorohydrin elastomers (EPI), Hypalon (HYP), neoprene (NEO), nitrile butadiene rubber (NBR), nitrile butadiene latex (NBL), polysulfide rubber (PSR), and styrene butadiene latex (SBL) subcategories, EPA fails to set emission standards for HAPs emitted through back-end processes at existing sources. 61 Fed. Reg. 46,906, 46,910 (Sept. 5, 1996). For the BR, EPI, HBR, HYP, NEO, NBL, NBR, and SBL subcategories, EPA fails to control HAPs emitted through back-end processes at new sources. *Id.* at 46,911. And, for the EPR, BR, and HBR subcategories at existing sources, EPA exempts halogenated vent streams that were controlled by flare or boiler before June 12, 1995. *Id.* at 46,910.

EPA lacks authority to exempt any emission points or to decline to set emission standards for any HAP. Accordingly, EPA must reopen the rule and set emission standards for each HAP and emission point in these subcategories, as mandated by the CAA.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Therefore, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

26. Polymers and Resins III

Manufacturers of Group III polymers and resins emit organic HAPs, including formaldehyde, methanol, phenol, xylene, and toluene. 65 Fed. Reg. 3275, 3276 (Jan. 20, 2000). Yet EPA sets no emission standards for HAPS emitted by storage vessels and continuous process vents at existing sources. *Id.* at 3279. EPA argues that because, for continuous process vents, only one existing source uses control technology at the time of proposal, it is not required to set an emission standard. National Emission Standards for Group 3 Polymers and Resins; Proposed Rule, 63 Fed. Reg. 68,831, 68,843 (Dec. 14, 1998). To the contrary, EPA has a "clear statutory obligation to set emission standards for each listed HAP," even if the best-performing sources are not using control technology to limit their emissions. *National Lime*, 233 F.3d at 634. Accordingly, EPA must reopen the rule and set an emission standard for storage vessels and continuous process vents at existing sources.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

27. Polymers & Resins IV

EPA acknowledges that many organic HAPs are emitted during the manufacture of Group IV polymers and resins. 61 Fed. Reg. 48,208, 48,208 (Sept. 12, 1996). However, EPA fails to set emission standards for HAPs released into the air through wastewater from facilities using the ASA/AMSAN process. *Id.* at 48,212. EPA also fails to set emission standards for HAPs emitted from equipment leaks at facilities with a PET–TPA continuous high viscosity multiple end finisher. *Id.* at 48,212-13. For new SAN Batch facilities, EPA fails to set emission standards for HAPs emitted through wastewater. *Id.* at 48,213.

EPA has a "clear statutory obligation to set emission standards for each listed HAP" emitted by a source category, regardless of whether a particular HAP is currently controlled with technology. *National Lime*, 233 F.3d at 634. EPA must reopen the rule and set an emission standard for wastewater in the ASA/AMSAN process and new SAN Batch facilities, as well as equipment leaks at facilities using PET–TPA continuous high viscosity multiple end finisher.

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

27. Primary Lead Smelting

Primary lead smelters emit arsenic, antimony, cadmium, lead, and other metal HAPs. 64 Fed. Reg. 30,193, 30,194 (June 4, 1999). EPA's rule, however, provides an emission standards for only one HAP, lead. The agency claims that lead is a surrogate for all the others, including volatile metals like mercury, acid gases, and volatile organic compounds.

EPA's failure to set standards for the HAPs other than lead, absent a showing that lead is a valid surrogate for those HAPs, is unlawful. In particular, EPA must show that lead control "is

the only means by which facilities 'achieve' reductions" in the pollutants for which it allegedly serves as a surrogate. *National Lime Ass'n*, 233 F.3d at 639. In the primary lead smelting rule, EPA does not even so claim. EPA must reopen the rule and either provide a valid explanation for why lead is a reasonable surrogate for all the other HAPs that primary lead smelters emit, including volatile metals like mercury, acid gases, and volatile organic compounds, or issue emission standards for additional HAPs.

Further, EPA's PM standard does not reflect the emission level achieved by the relevant best performing sources. Accordingly, the agency must reopen the rule and set floors for PM in accordance with Clean Air Act § 112(d)(3).

28. Publicly Owned Treatment Works (POTW)

EPA fails to regulate HAP emissions of non-industrial POTW as required by section 112 of the Clean Air Act, 42 U.S.C. § 7412. 64 Fed. Reg. 57,572, 57,575 (Oct. 26, 1999). EPA must issue standards for each HAP that these facilities emit, and such standards must not be less stringent than emission level actually achieved by the relevant best performing sources.

Of the five non-industrial POTW sources EPA considers to be best controlled, only one uses control devices with the intent of removing HAP emissions. 63 Fed. Reg. at 66,090. EPA claims the remaining four do not implement any control technology designed to remove HAP emissions. *Id.* EPA further claims "[c]omputation of an arithmetic average of the performance among the one POTW treatment plant with HAP emission controls and the four POTW treatment plants without controls would be meaningless because there is no continuum of performance among the sources." *Id.* The agency further argues that using either the median or the mode, based on control technology, would result in a MACT floor of no control. *Id.* Based on those arguments, EPA set the floor at no control. *Id.*

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources — *i.e.*, those with the lowest emissions — regardless of whether sources are using technology to control their emissions.

EPA further argues that pretreatment by dischargers is the only viable option for controlling HAP emissions to achieve a meaningful HAP reduction at a reasonable cost that EPA has identified. POTW Proposal, 63 Fed. Reg. at 66,090. However, section 112 of the Clean Air Act "includes minimum stringency requirements for emission standards that apply without regard to either costs or the other factors and methods." *National Lime*, 233 F.3d at 629. EPA must set emissions standards for existing non-industrial POTW.

With respect to industrial POTW, EPA argues oddly that under each "industrial discharger's MACT, the POTW provides air pollution control, generally under a contractual agreement." 64 Fed. Reg. at 57575. EPA further states that, under its rule, whatever the discharger's requirements are will become directly enforceable against the POTW. *Id.* Under Clean Air Act § 112, standards covering HAP emissions from industrial POTW's must include standards for each HAP emitted by such facilities and must reflect the emission level actually achieved by the relevant best performing sources. Contrary to EPA's argument, the existing

controls for the dischargers do not satisfy this requirement regardless of whether they are reflected in a contract between the discharger and the industrial POTW and regardless of whether they are directly enforceable against the POTW. EPA must reopen the POTW rule to set standards for industrial POTW that fully satisfy the Clean Air Act.

29. Pulp and Paper Mills.

EPA failed to regulate emissions of HCl from new and existing sources used in chemical recovery processes at pulp and paper mills. Because EPA has not satisfied its "'clear statutory obligation to set emission standards for each listed HAP,'" *Sierra Club*, 479 F.3d at 883 (quoting *National Lime*, 233 F.3d at 634), the agency must reopen the standards and set MACT floors for HCl emissions.

EPA attempts to justify its failure to regulate HCl emissions by arguing that "no further control is necessary because HCl is a 'health threshold pollutant,' and HCl levels emitted from recovery furnaces are below the threshold value within an ample margin of safety." 63 Fed. Reg. at 18,765. Section 112(d)(4) of the Clean Air Act provides "[w]ith respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold, with an ample margin of safety, when establishing emission standards under this section." 42 U.S.C. § 7412(d)(4). Thus it does not allow EPA to decline to set emission standards, as the agency did here, but only to consider established health thresholds, with an ample margin of safety, "when establishing emission standards." *Id.* For this reason alone, EPA's rule is unlawful and must be reopened.

Further, § 112(d)(4) does not apply at all to pollutants such as HCl for which a health threshold has not been established. EPA itself has recognized that § 112(d)(4) applies "only to HAP's that are not carcinogens because Congress clearly intended that carcinogens be considered nonthreshold pollutants." 63 Fed. Reg. at 18,765.

EPA has acknowledged repeatedly that it does not know whether HCl is carcinogenic, HCl is not a pollutant for which a health threshold has been established. In 2006, for example, EPA stated "the data are inadequate to make a determination as to whether HCl is carcinogenic in either humans or animals, so EPA has not developed an assessment for the carcinogenicity of HCl." 71 Fed. Reg. 76518, 76542 (December 20, 2006). Because EPA does not know whether or not HCl causes cancer, it cannot plausibly claim that HCl is a threshold pollutant. Significantly, the agency has admitted that the purpose of § 112(d)(4)'s "established health threshold" requirement is to ensure that EPA does not issue standards under § 112(d)(4) unless there is "no risk" of adverse health effects. *NRDC v. EPA*, 489 F.3d 1250 (D.C. Cir. 2007), EPA Br. at 53-54 (*quoting* 5 Legislative History at 8516).

EPA's attempts to rely on its statements about HCl in previous rules are unfounded and, indeed, merely weaken its arguments further. In the 1998 rule on which the agency primarily relies, the agency states that is classifying HCl as a "Group D pollutant" — i.e., one for which EPA lacks data about carcinogenicity — for the purposes of that rule only. It bears emphasis that because classification as a Group D pollutant merely underscores that EPA does not know whether a pollutant can or cannot cause cancer, it cannot possibly support a finding that that pollutant is a threshold pollutant with respect to cancer. But even if such a classification

somehow supported EPA's position, the agency made clear in the 1998 rule that it was making that classification "[f]or the purposes of this action" only. 63 Fed. Reg. 18754, 18766 (April 15, 1998) (emphasis added). Thus, it does not even purport to support making such a classification in other actions.

Nor has EPA identified a threshold for non-cancer effects. The threshold EPA claims to have identified as the RfC — i.e., the long term threshold — must be a level below which no adverse health effects occur. The level that EPA claims is a threshold does not purport to meet that requirement. To the contrary, the 1998 rulemaking makes clear that it was: (1) "based on a single animal study which only used one dose"; (2) looked only at respiratory effects, not effects on other bodily systems; and (3) identified only a lowest observed adverse effects level (LOAEL) at which adverse effects did occur, not a threshold below which adverse effects do not occur. 63 Fed. Reg. 18766-18767 (*citing* EPA, 1995, Integrated Risk Information System (IRIS) RfC for HCl), Ex. __ hereto.

Effectively acknowledging that exposure to HCl does damage people's health, EPA has argued that

> The existence of a threshold for noncancer effects of HCl is established by general toxicological principles, i.e., that organisms are able to repair some amount of corrosive tissue damage of the type caused by HCl. If the damage does not exceed an organism's ability to repair it, then no adverse effects will occur.

71 Fed. Reg. at 76542. Thus, EPA stakes out a position truly astonishing for an agency tasked with protecting public health and the environment: that it does not matter if pollution damages Americans' lung tissue so long the damage does not exceed our ability to repair it. Apart from the ethical issues that sort of argument raises, it is beyond obvious that Congress did not intend EPA to invoke § 112(d)(4) when doing so would lead to tissue damage — whether that damage was permanent or repairable. As EPA has conceded elsewhere, Congress intended EPA to invoke § 112(d)(4) only when there is "no risk" of adverse health effects. Damage to an "organism's" tissue — *e.g.* the lung tissue of a child — is an adverse health effect

In direct violation of § 112's well established mandate to set standards for each listed HAP that a category emits, EPA also failed to set emissions standards for pulp and paper mills' mercury emissions. It is undisputed that pulp and paper mills emit mercury. EPA notes that "[a]lmost all metals appearing on the section 112(b) list," including mercury, are emitted by pulp and paper combustion sources, but the rule regulates only PM HAP emissions and/or total gaseous organic HAP emissions.

In addition, EPA failed to set standards for dioxins. EPA does not mention dioxins anywhere in the rule, but kraft recovery furnaces do emit dioxins, according to EPA's Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements. 63 Fed. Reg. 17,838, 17,848 tbl.1 (Apr. 10, 1998). EPA uses methanol as a surrogate to regulate total gaseous organic HAP emissions from kraft recovery furnaces. The agency does not claim that it is using methanol as a surrogate for dioxins. Such a claim would fail because, as EPA has acknowledged,

> Wet and dry air pollution control systems are generally not considered to be dioxin/furan control systems because their primary function is to remove metals and/or total chlorine from the combustion gas. They generally do not remove dioxin/furans from the incinerator flue gas unless they are used in tandem with carbon injection systems or carbon beds.

69 Fed. Reg. at 21,214. By failing to set dioxin standards, EPA violated its "'clear statutory obligation to set emission standards for each listed HAP.'" *Sierra Club*, 479 F.3d at 883 (quoting *National Lime*, 233 F.3d at 634). EPA must reopen the standards and set MACT floors for dioxin emissions.

Where EPA set standards at all, they fail to satisfy § 112(d)(3)'s floor requirements. EPA's PM standard for existing NDCE and DCE recovery furnaces does not reflect "the emission level actually achieved by the best performers (those with the lowest emission levels)." *Sierra Club*, 479 F.3d at 880. Instead, EPA selected floors equivalent to a new source performance standard (NSPS) promulgated in 1978. EPA does not even claim that this NSPS limit reflects the performance of the relevant best sources. To the contrary, EPA defends its floor approach by arguing that the floors "reasonably reflect the level of performance achievable in practice by the average of the best-performing 12 percent of sources." CITE. Thus, the record makes clear that EPA's floors reflect an emission level that the agency regards as "achievable" through the use of a chosen control technology rather than the level actually achieved by the relevant best sources. This is precisely the floor approach rejected repeatedly as unlawful by the D.C. Circuit. *Sierra Club*, 479 F.3d at 880; *Cement Kiln*, 255 F.3d at 861.

Further, the record indicates that the NSPS limit does not reflect the best sources' emission level. As a "number of commenters" pointed out to EPA during the rulemaking, "the technology reflected in the NSPS . . . is an old technology and . . . numerous sources are achieving emissions reductions well beyond the NSPS." EPA does not dispute this point, but insists that its floors reflect what is "achievable in practice by the average of the best-performing 12 percent of sources." EPA's unlawful achievability argument cannot excuse its failure to set floors reflecting the best sources' emission level.

EPA attempts to defend its floor approach for NDCE recovery furnaces by arguing that it has long-term PM emission data for only 8 of the 128 NDCE recovery furnaces operating at U.S. kraft and soda pulp mills. Seven of the eight furnaces "consistently met the NSPS limit" of 0.10 g/dscm of flue gas corrected to 8 percent oxygen. Emissions from these seven sources "ranged from 0.002 to 0.10 g/dscm." If the information from these eight sources is the only data that EPA considers adequate for setting a MACT floor, then EPA must begin by identifying the best-performing 12 percent of these sources—in this case, a single source. Monthly emissions from the best-performing source "varied from 0.002 to 0.025 g/dscm." The highest emission level recorded by the best-performing source is merely one-quarter of EPA's chosen floor. Alternatively, if EPA believes that it needs more data to set a lawful floor, the agency must gather such data. It is up to EPA to devise a floor approach capable of satisfying section 112's floor requirements. *Cement Kiln*, 255 F.3d at 865. Regardless of which approach it takes, EPA cannot avoid its obligation to set a floor that reflects "the emission level actually *achieved* by the best performers." *Sierra Club*, 479 F.3d at 880.

EPA's defense of its floor approach for DCE recovery furnaces is equally unavailing. EPA has long-term emission data for only four of the eighty-three DCE recovery furnaces operating at U.S. kraft and soda pulp mills. The agency concludes that data from these sources "show an ability to achieve the NSPS level." EPA argues that "[t]he combination" of these four DCE recovery furnaces and three additional furnaces subject to the NSPS limit indicates that "greater than 6 percent of DCE recovery furnaces are capable of meeting the NSPS PM limit on a long-term basis with ESP's." Once again, EPA makes clear that its floor reflects an emission level that the agency regards as achievable through the use of a chosen control technology rather than the level actually achieved by the relevant best sources. Because the D.C. Circuit has repeatedly rejected this floor approach as unlawful, EPA must reopen the standard and set a MACT floor reflecting the emission level actually achieved by the relevant best performers.

Nor do EPA's PM floors for new NDCE and DCE recovery furnaces reflect the emission levels actually achieved by the relevant best performer. In setting the floor, EPA identified the best performing of the eight NDCE recovery furnaces for which it had long-term PM emission data. Monthly emissions from this source "varied from 0.002 to 0.025 g/dscm" corrected to 8 percent oxygen over a six-year period. "Taking the variability of the data into consideration," EPA selected a MACT floor of 0.034 g/dscm, a 36 percent increase over the highest recorded emission level from the best-performing source. Although the D.C. Circuit has recognized that "'a given control can experience operational variability,'" EPA's chosen floor must "reasonably estimate[] the actual variability of the best-performing source," *Sierra Club*, 479 F.3d at 881-882; *see also Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 954 (D.C. Cir. 2004) ("EPA must 'demonstrate with substantial evidence—not mere assertions' that the chosen floors 'represent "a reasonable estimate of the performance of the [best-performing] units."'" (quoting *Cement Kiln*, 255 F.3d at 866) (alteration in original)). EPA does not even claim that its chosen floor reflects the actual performance of the best source.

EPA failed to set any standard at all for total gaseous organic HAP emissions for existing NDCE recovery furnaces. Initially, EPA argued that too few NDCE recovery furnaces ("approximately 5 percent") were using dry ESP systems; nearly all the remaining furnaces were using less effective wet ESP systems. After a commenter "provided a list of 13 NDCE recovery furnaces equipped with dry ESP systems, which is a sufficient number of recovery furnaces to define the MACT floor," EPA declined once again to set a standard. This time it argued that adopting a MACT floor based on the performance of the best technology currently in use "would create disincentives that would discourage possible conversion to [an] even more promising gasification technology." Neither of these rationales can excuse the agency's failure to set a standard. The D.C. Circuit has repeatedly held that EPA has a "clear statutory obligation to set emission standards for each listed HAP," *Sierra Club*, 479 F.3d at 883. Moreover, "'[s]ection 7412(d)(3) requires only that EPA set floors at the emission level achieved by the best-performing sources. If EPA cannot meet this requirement using the [maximum achievable control technology] methodology, it must devise a different approach capable of producing floors that satisfy the Clean Air Act.'" *Sierra Club*, 479 F.3d at 882 (quoting *Cement Kiln*, 255 F.3d at 865). EPA must reopen the standard, identify the best-performing sources—which it made no effort to do here—and set a MACT floor reflecting the emission level actually achieved by the relevant best performers.

For total gaseous organic HAP emissions from new NDCE and DCE recovery furnaces, EPA failed to set a MACT floor reflecting "the emission control that is achieved in practice by the best controlled similar source." § 7412(d)(3). Instead, EPA first chose a particular control technology to "represent the best-controlled source for total gaseous organic HAP emissions." It then selected as the MACT floor an emission level that it regards as "achievable" through the use of the chosen control technology. EPA does not even claim, however, that its chosen floor reflects "the emission level actually *achieved*" by the single best source. Further, any such claim would be at odds with the record. EPA had emission data from three sources equipped with the chosen control technology—a dry ESP system—but the agency based its floor on data from the worst-performing of these sources. ("The methanol emission level corresponds to the highest three-run average obtained for a dry ESP system on an NDCE recovery furnace plus an additional amount to account for the variability in the dry ESP system data set and the lack of long-term data." CITE.) EPA must reopen the standard and set a MACT floor reflecting the emission level actually achieved by the best-performing similar source.

EPA failed to set any standard at all for total gaseous organic HAP emissions from existing DCE recovery furnaces. The DCE recovery furnace system includes a black liquor oxidation (BLO) system; forty-six of the forty-eight pulp mills with DCE recovery furnaces also have BLO systems. Forty-two of the BLO systems are air-based; only two of these systems control gaseous organic HAP emissions with technology. EPA attempts to justify its floor of "no control" by arguing that "the two air-based BLO units with controlled emissions represent less than 6 percent of DCE recovery furnace systems." This justification is unavailing. EPA has a "'clear statutory obligation to set emission standards for each listed HAP,' which does not allow it to 'avoid setting standards for HAPs not controlled with technology.'" *Sierra Club*, 479 F.3d at 883 (quoting *National Lime Ass'n v. EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000)). Moreover, "'[s]ection 7412(d)(3) requires only that EPA set floors at the emission level achieved by the best-performing sources. If EPA cannot meet this requirement using the MACT methodology, it must devise a different approach capable of producing floors that satisfy the Clean Air Act.'" *Sierra Club*, 479 F.3d at 882 (quoting *Cement Kiln*, 255 F.3d at 865). EPA must reopen the standard, identify the best-performing sources, and set a MACT floor reflecting the emission level that those sources actually achieve.

For PM emissions from existing lime kilns, EPA failed to set a MACT floor reflecting "the emission level actually *achieved* by the best performers (those with the lowest emission levels)." *Sierra Club*, 479 F.3d at 880. Instead, the agency first chose a particular control technology—ESP—and then identified an emission level that it considers "achievable by the technology that represents the MACT floor." EPA does not even claim that its chosen floor reflects "the emission level actually *achieved*" by the relevant best performers. Further, any such claim would be at odds with the record. Rather than attempting to identify the average of the best-performing 12 percent of sources, EPA points to a wide range of emission levels that, based on available data from compliance tests, lime kilns equipped with ESP "can achieve." EPA chose as the MACT floor the highest emission level recorded by a lime kiln using ESP. The agency attempts to justify its choice by citing a need to "[a]ccount for . . . variability" in the data, but it does not claim that its chosen emission level reflects the variability experienced by the best-

performing sources. EPA must reopen the standard, identify the best-performing sources, and set a MACT floor reflecting the emission level that those sources actually achieve.

For PM emissions from new lime kilns, EPA failed to set a MACT floor reflecting the emission level actually achieved by the relevant best performer. EPA has long-term data for only 4 of the estimated 192 lime kilns operating at U.S. kraft and soda mills. Monthly emissions from the best-performing of these four lime kilns "varied from 0.002 to 0.018 g/dscm" corrected to 10 percent oxygen over a seven-year period. Thus, EPA does not even know — and made no serious effort to determine — what emission level the single best kiln is achieving. Further, EPA selected a MACT floor of 0.023 g/dscm, a 28 percent increase over the highest of the four emission tests it had. The agency argues that "the variability in the data" justifies its choice, but it does not even claim that its chosen floor reflects the actual variability of the best-performing source. Although the D.C. Circuit has recognized that "'a given control can experience operational variability,'" EPA's chosen floor must "reasonably estimate[] the actual variability of the best-performing source," *Sierra Club*, 479 F.3d at 881-882; *see also Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 954 (D.C. Cir. 2004) ("EPA must 'demonstrate with substantial evidence—not mere assertions' that the chosen floors 'represent "a reasonable estimate of the performance of the [best-performing] units."'" (quoting *Cement Kiln*, 255 F.3d at 866) (alteration in original)). EPA must either provide evidence as to how a 28 percent increase over the highest emission level recorded in seven years could accurately reflect the best performer's actual variability, or it must choose another standard that can satisfy this requirement.

EPA failed to set any standard at all for gaseous organic HAP emissions from new and existing lime kilns and smelt dissolving tanks. EPA argues that gaseous organic HAP emissions from lime kilns and smelt dissolving tanks are "primarily attributable" to the use of HAP-contaminated process waters, and "[t]hese process waters are being regulated as part of the final NESHAP for noncombustion sources at pulp and paper mills." EPA has a statutory duty to set emission standards for each HAP emitted from lime kilns and smelt dissolving tanks, and such standards must, at a minimum, match the emission levels actually achieved by the relevant best sources. It is irrelevant whether emissions from lime kilns and smelt dissolving tanks are primarily attributable to wastewater from other processes or whether those other processes are regulated. It is undisputed that lime kilns and smelt dissolving tanks are sources, and EPA must set emission standards for these sources that fully satisfy the Clean Air Act. EPA must reopen the standards and set MACT floors for gaseous organic HAP emissions from new and existing lime kilns and smelt dissolving tanks.

For PM emissions from existing smelt dissolving tanks, EPA failed to set MACT floors reflecting "the emission level actually *achieved* by the best performers (those with the lowest emission levels)." *Sierra Club*, 479 F.3d at 880. Instead, EPA selected floors equivalent to a new source performance standard (NSPS) promulgated in 1976. EPA does not even claim that this NSPS limit reflects the performance of the relevant best sources. To the contrary, EPA argues that "no long-term PM emission data are available for SDT's equipped with wet scrubbers that are subject to the NSPS limit [but] the prevalence of wet scrubbers . . . and the high PM removal efficiencies achieved with this technology are sufficient to establish wet scrubbers as the proposed MACT floor PM control technology" for existing sources. Thus, the record makes

clear that EPA's floor reflects an emission level that the agency regards as achievable through the use of a chosen control technology rather than the level actually achieved by the relevant best performers. This is precisely the floor approach rejected repeatedly as unlawful by the D.C. Circuit in *Sierra Club* and *Cement Kiln.*

Further, the record indicates that the NSPS limit does not reflect the best sources' emission level. Although EPA has no long-term emission data from sources equipped with wet scrubbers and subject to the NSPS limit, it does have long-term data from three sources subject to a state permit limit 40 percent lower than the NSPS. In setting the MACT floor, EPA cannot ignore data from these sources, which achieve emission reductions well beyond the NSPS. EPA must reopen the standard and set a MACT floor reflecting the emission level actually achieved by the best-performing sources. If the agency believes that it needs more data to set a lawful floor, then it must gather such data. It is up to EPA to devise a floor approach capable of satisfying section 112's floor requirements. *Cement Kiln*, 255 F.3D at 865.

For PM emissions from new smelt dissolving tanks, EPA failed to set a MACT floor reflecting the emission level actually achieved by the relevant best performer. Rather than identifying the best-performing similar source, EPA identified a particular control technology—high-efficiency wet scrubbers used by three sources subject to a state permit limit more stringent than the national new source performance standard—to "represent the best-performing PM control systems." EPA then set the MACT floor at the same emission level as the state permit limit. It does not even claim that this floor reflects the performance of the relevant best source. Instead, EPA attempts to justify its floor approach by arguing that smelt dissolving tanks equipped with high-efficiency wet scrubbers "can achieve" the state permit limit it has adopted as the MACT floor. This is precisely the floor approach rejected repeatedly as unlawful by the D.C. Circuit in *Sierra Club* and*Cement Kiln.*

Further, the record indicates that the state permit limit does not reflect the best source's emission level. EPA reviews long-term emission data from three sources subject to the state permit level—rather than the single best-performing source—and reports that "[c]ollectively," monthly emissions from the three sources "varied from 0.0045 to 0.055 kg/Mg" of black liquor solids fired over a two- to six-year period. The agency adopted a MACT floor of 0.06 kg/Mg of black liquor solids fired; the only explanation it provides is that smelt dissolving tanks equipped with high-efficiency wet scrubbers "can achieve" that emission level. EPA must reopen the standard and set a MACT floor reflecting the emission level actually achieved by the best-performing similar source.

For PM emissions from existing sulfite pulp mills, EPA failed to set a MACT floor reflecting "the emission level actually *achieved* by the best performers (those with the lowest emission levels)." *Sierra Club*, 479 F.3d at 880. To begin with, EPA selected a particular technology—fiber-bed demister systems—as the "best-performing control technology." In setting the MACT floor, the agency considered only data from sources equipped with that technology. EPA's floors must reflect the emission level achieved by the best performing sources (those with the lowest emissions) not a level achieved by sources using a chosen control technology. *Sierra Club*, 479 F.3d at 880.

EPA does not even claim that its floor reflects the emission level actually achieved by the relevant best performers. Because there are fewer than thirty sources in the subcategory, EPA must set a MACT floor reflecting the "average emission limitation achieved by the best performing 5 sources." Rather than identifying the best-performing five sources, EPA selected a floor that it considers achievable through the use of a technology that "at least five sources are equipped with." Further, the record indicates that the floor does not reflect the best sources' emission level. EPA considered data from only two sources, both of which use fiber-bed demister systems. Emissions from these sources "ranged from 0.005 to 0.088 g/dscm" corrected to 8 percent oxygen over a six- to seven-year period. EPA selected a MACT floor of 0.092 g/dscm, arguing only that it must "account for variability in the data." EPA must reopen the standard, identify the best-performing sources, and set a MACT floor reflecting the emission level that those sources actually achieve.

For PM emissions from new sulfite pulp mills, EPA failed to set a MACT floor reflecting the emission level actually achieved by the relevant best performer. To begin with, EPA considered only data from sources equipped with fiber-bed demister systems, its chosen "MACT floor control technology." Because EPA must set a floor reflecting the performance of the source with the lowest emission levels, not the best performer using a particular technology, it cannot decline to consider data from sources using other technologies.

Monthly emissions from "the best-performing sulfite combustion unit equipped with a fiber-bed demister system" ranged from 0.009 to 0.039 g/dscm corrected to 8 percent oxygen over a six-year period. EPA selected a MACT floor of 0.046 g/dscm, an 18 percent increase over the highest emission level recorded by the best-performing source. The agency argues that "the variability in the data" justifies its choice, but it does not even claim that its chosen floor reflects the actual variability of the best-performing source. EPA's chosen floor must "reasonably estimate[] the actual variability of the best-performing source," *Sierra Club*, 479 F.3d at 881-882; *see also Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 954 (D.C. Cir. 2004) ("EPA must 'demonstrate with substantial evidence—not mere assertions' that the chosen floors 'represent "a reasonable estimate of the performance of the [best-performing] units."'" (quoting *Cement Kiln*, 255 F.3d at 866) (alteration in original)). EPA must either provide evidence as to how an 18 percent increase over the highest emission level recorded in six years could accurately reflect the best performer's actual variability—rather than the emission level that the agency believes is achievable through the use of a particular control technology—or it must choose another standard that can satisfy this requirement.

EPA failed to set any standard at all for PM emissions from new and existing chemical recovery combustion units at stand-alone semichemical pulp mills. EPA attempts to justify its failure to set a standard by arguing that "insufficient PM data . . . are available to establish MACT floors for PM." This argument is unavailing. EPA has a "'clear statutory obligation to set emission standards for each listed HAP.'" *Sierra Club v. EPA*, 479 F.3d 875, 883 (D.C. Cir. 2007) (quoting *National Lime Ass'n v. EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000)). It is up to EPA to devise a floor approach capable of satisfying section 112's floor requirements. CITE CKRC, 255 F.3D at 865. EPA must reopen the standards, collect the necessary data, and set MACT floors for new and existing sources.

EPA also failed to set standards for total gaseous organic HAP emissions from new and existing semichemical pulp mills. EPA defends its failure to set floors by arguing that "none of the existing semichemical mills are currently controlling gaseous organic HAP emissions from semichemical combustion sources." Again, this argument fails. The D.C. Circuit has repeatedly held that EPA has a "'clear statutory obligation to set emission standards for each listed HAP,' which does not allow it to 'avoid setting standards for HAPs not controlled with technology.'" *Sierra Club*, 479 F.3d at 883 (quoting *National Lime*, 233 F.3d at 634). Instead of setting floors, EPA adopts beyond-the-floor standards "based on the use of" a particular control technology. EPA cannot rely on beyond-the-floor standards to satisfy its obligation to "'set floors at the emission level achieved by the best-performing sources.'" *Sierra Club*, 479 F.3d at 882 (quoting *Cement Kiln*, 255 F.3d at 865). EPA must reopen the standards and set MACT floors for new and existing sources.

EPA's "bubble compliance alternative" is contrary to the Clean Air Act and must be removed from the rule. The bubble compliance alternative allows kraft and soda pulp mills "to set PM emissions limits for each existing process unit in the chemical recovery system at the mill such that, if these limits are met, the total emissions from all existing process units are less than or equal to a mill-specific bubble limit." 66 Fed. Reg. at 3184. The mill-specific bubble limit is calculated based on the promulgated emission standards for each process unit. Because the standards for individual process units are unlawful for the reasons given above, any plant specific bubble limits are unlawful as well. Further, the bubble compliance alternative allows mill owners to set PM emission limits for some process units that are less stringent than the promulgated standards, as long as they are able to offset the excess emissions with PM emission reductions elsewhere in the chemical recovery system. This compliance alternative is plainly contrary to the section 112(d)(3), which requires EPA to set emission standards for existing sources that "shall not be less stringent . . . than the average emission limitation achieved by the best performing 12 percent of the existing sources."

EPA's site-specific alternative emission standard for Weyerhaeuser Paper Company's Cosmopolis, Washington, sulfite pulp mill is contrary to the Clean Air Act and must be removed from the rule. The alternative standard allows Weyerhaeuser "to reduce HAP metals emissions from an onsite emission source called a hog fuel dryer in lieu of complying with the HAP metals standard for existing sulfite combustion units." 68 Fed. Reg. at 7708. EPA promulgated the alternative standard rather than developing a MACT standard for the hog fuel dryer, which "is not regulated under a NESHAP and appears to be unique." *Id.* EPA may not excuse Weyerhaeuser from complying with the HAP metals standard for existing sulfite combustion units, and it must develop a MACT standard for the hog fuel dryer. EPA cannot satisfy its obligation to establish emission standards "for each category or subcategory of major sources" by regulating some emission points and not others. § 112(d)(1).

EPA defends its Weyerhaeuser loophole by arguing that it "achieves greater emissions reductions of the same HAP metals and does so by controlling a source otherwise unregulated under subpart MM or any other NESHAP." This argument is irrelevant. EPA lacks authority to exempt the Weyerhaeuser plant or any other plant from MACT standards. Further, the agency is required to develop a MACT standard for the hog fuel dryer, in keeping with its "'clear statutory obligation to set emission standards for each listed HAP.'" *Sierra Club*, 479 F.3d at 883 (quoting

National Lime, 233 F.3d at 634). EPA also attempts to rely on its defective bubble compliance alternative, which as promulgated does not even apply to sulfite combustion units, to suggest that it is not required to regulate individual emission points such as the hog fuel dryer. It argues that "EPA typically develops MACT standards for a series of aggregated plant operations, not for individual emission points," and that the Weyerhaeuser exemption is "an alternative means of complying with" the PM MACT limit in the rule. That argument fails for the reasons discussed in the previous section. Finally, EPA argues that even if it were to develop a MACT standard for the hog fuel dryer, the standard "would likely be some type of beyond-the-floor, given the absence of this emission point at other facilities," and "EPA would thus be compelled to consider the cost, non-air quality environmental and health impacts and energy requirements of a standard (as required by section 112(d)(2)), and would not be obligated to promulgate a standard based upon consideration of those factors." EPA must set a floor for the hog fuel dryer even if it is unique. Further, that EPA must consider cost and other factors in setting beyond-the-floor standards and may conclude that such standards are not achievable does not excuse the agency from determining the maximum degree of reduction that is achievable.

30. Secondary Lead Smelters

EPA fails to set emission standards for organic HAP output from existing reverberatory, rotary, and electric furnaces that are not collocated with blast furnaces. 62 Fed. Reg. 32,210, 32,211 (June 13, 1997). EPA claims that "[r]otary furnaces, electric furnaces, and reverberatory furnaces not collocated with blast furnaces have relatively low potentials for organic HAP emissions and no standards are being proposed to limit organic HAP emissions from these furnace configurations." 59 Fed. Reg. 29,750, 29,761 (June 9, 1994). EPA then claims that there is not any justification for a more stringent standard than no control, due to the small amounts of organic HAPs emitted by these sources. This is contrary to the CAA. EPA has a "clear statutory obligation to set emission standards for *each* listed HAP." *National Lime*, 233 F.3d at 634 (emphasis added).

In addition, the standards EPA did set do not reflect the actual emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise these standards to satisfy § 112(d)(3)'s minimum stringency provisions.

31. Stationary Combustion Turbines

Stationary Combustion Turbines are a major source of HAP emissions such as formaldehyde, toluene, benzene, and acetaldehyde. 69 Fed. Reg. 10,511, 10,512 (Mar. 5, 2004). EPA set emission standards only for formaldehyde, claiming "formaldehyde is an appropriate and valid surrogate for each of the organic HAP[s] that can be controlled by a catalyst, and . . . the standard for such organic HAP[s] can be reasonably expressed in terms of formaldehyde emissions measure after exiting any control device." *Id.* at 10,522. However, EPA does not show, as it must, that controlling formaldehyde is the only means by which facilities achieve reductions in the other organic HAPs. Accordingly, EPA must reopen the rule and either explain why formaldehyde is a valid surrogate for all the other organic HAPs that stationary combustion turbines emit or set emission standards for those other HAPs.

In addition, EPA's formaldehyde standard does not reflect the formaldehyde emission level achieved by the relevant best performing sources. Accordingly, even if formaldehyde is a reasonable surrogate for all the other organic HAPs that primary lead smelters emit, the agency must reopen the rule and set floors for formaldehyde in accordance with Clean Air Act § 112(d)(3).

Further, stationary combustion turbines emit metal HAPs, which will not be controlled at all by the standard. 69 Fed. Reg. at 10,530. EPA argues that controlling metal HAPs is not required since no combustion turbines or similar sources used technology to control these HAPs prior to promulgation of the rule, and EPA does not believe it would be practical or cost effective to require control. However, EPA has a "clear statutory obligation to set emission standards for each listed HAP," regardless of whether the best-performing sources in a given category are currently using air pollution control technology to limit their emissions. *See National Lime*, 233 F.3d at 634. EPA must set a control for these metal HAPs, regardless of whether sources are currently using control technology.

Finally, EPA failed to set any standards for the acid gases that stationary combustion turbines emit. Thus, EPA must reopen the rule to set these standards as well.

32. Taconite Iron Ore Processing

For the regulation of taconite iron ore processing, EPA failed to set an emissions standard for mercury, formaldehyde, hydrogen chloride, and hydrogen fluoride. 68 Fed. Reg. 61,867, 61,869 (Oct. 30, 2003). Mercury from the ore is volatilized as the taconite pellets at these facilities are heated in the furnace. 67 Fed. Reg. 77,561, 77,571 (Dec. 18, 2002). Claiming that it had not identified any preexisting controls at existing sources, the agency asserted that it could set the no emission reduction floors. *Id.* EPA also refused to set standards for the formaldehyde, hydrochloric acid, and hydrofluoric acid emitted by indurating furnaces, claiming that it is not aware of any feasible control technology for reducing formaldehyde at these levels without further increasing exhaust temperature and thus burning more fuel. 67 Fed. Reg. at 77,570-77,571. *Id.*

It is well established that "no control" floors are unlawful. EPA must set standards for each HAP that a category emits, and these standards must, at a minimum, reflect the average emission level actually achieved by the best performing sources — *i.e.*, those with the lowest emissions — regardless of whether sources are using technology to control their emissions. Because EPA must set standards for each HAP a source category emits, regardless of whether it is currently controlled with a technology, *National Lime*, 233 F.3d at 634, EPA's refusal to set standards for these HAPs is unlawful and the agency must reopen its rule to set standards for each of them at levels that, at a minimum, reflect the average formaldehyde emission level actually achieved by the relevant best performing sources.

Although EPA set standards for PM as a surrogate for non-mercury metal HAP emissions, those standards do not reflect the actual PM emission levels achieved by the relevant best performing sources. Accordingly, EPA must revise them to satisfy § 112(d)(3)'s minimum stringency provisions.

33. Wet Formed Fiberglass Mat Production

In this standard, EPA uses formaldehyde as a surrogate for total HAP emissions. 67 Fed. Reg. 17,823, 17,826 (Apr. 11, 2002). Other HAPs emitted by these facilities include methanol and vinyl acetate. *Id.* at 17,824. In justifying its use of formaldehyde as a surrogate, EPA says that "formaldehyde by thermal oxidation will also result in control of vinyl acetate and methanol." *Id.* Even if this is true, EPA does not show, as it must, that control of formaldehyde is the only means by which sources achieve reductions in the other HAPs that wet formed fiberglass mat production facilities emit.

In addition, even if formaldehyde were a valid surrogate for all the other HAPs that wet formed fiberglass mat production facilities emit, EPA's formaldehyde standard does not reflect the formaldehyde emission level achieved by the relevant best sources.

For all of the above reasons, EPA must reopen its rule and, for all the HAPs that wet formed fiberglass mat production facilities emit, set standards that fully comply with the Clean Air Act.

34. Wool Fiberglass Manufacturing

In the summary of the Wool Fiberglass Manufacturing, EPA lists three organic HAPs emitted by these facilities, formaldehyde, phenol, and methanol. 64 Fed. Reg. 31,695, 31,695 (June 14, 1999). However, EPA set a standard only for formaldehyde, claiming that formaldehyde is a surrogate for the remaining organic HAPs. 62 Fed. Reg. 15,228, 15,239 (Mar. 31, 1997). Nowhere in the rule does EPA show that control of formaldehyde is the only means by which sources achieve reductions in the other organic HAPs that wool fiberglass manufacturing facilities emit. Further, EPA does not even claim that formaldehyde is a valid surrogate for the non-organic HAPs that wool fiberglass manufacturing facilities emit, such as metals and acid gases.

In addition, even if formaldehyde were a valid surrogate for all the other HAPs that wool fiberglass manufacturing facilities emit, EPA's formaldehyde standard does not reflect the formaldehyde emission level achieved by the relevant best sources.

For all of the above reasons, EPA must reopen its rule and, for all the HAPs that wool fiberglass manufacturing facilities emit, set standards that fully comply with the Clean Air Act.

C. STARTUP, SHUTDOWN, AND MALFUNCTION EXEMPTION

In the General Provisions governing all air toxics regulations in Part 63 of the Code of Federal Regulations, EPA included a blanket exemption from emission limits during periods of startup, shutdown, and malfunction (SSM). It provided "[t]he non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart." 40 C.F.R. § 63.6(f)(1) (emphasis added). It further provided "[t]he opacity and visible emission standards set forth in this part must apply at all times except during periods of startup, shutdown, and malfunction and as otherwise specified in an applicable subpart." 40 C.F.R. § 63.6(h)(1) (emphasis added).

The D.C. Circuit has vacated EPA's SSM exemption as unlawful. *Sierra Club v. EPA*, D.C. Cir. No. 02-1135 (December 19, 2008). It held that Clean Air Act § 112 and § 302(k), read together, require "continuous section 112-compliant standards." *Id.*, slip op. at 15. Therefore, the SSM exemption "violates the CAA's requirement that some section 112 standard apply continuously." *Id.*

The D.C. Circuit's vacatur of the SSM exemption renders this exemption null and void in every Part 63 regulation that contains it. Thus, once the mandate issues in *Sierra Club*, no source subject to a Part 63 regulation will be exempted from compliance with emission standards during SSM. If any source subject to a Part 63 regulation fails to comply with emission standards during SSM, it will have violated such standards. To conform its specific Part 63 regulations to governing law and to avoid misleading the public, however, the agency must now to delete the SSM exemption from all such regulations in which it appears. *Sierra Club* makes clear that any exemption from continuous compliance with § 112 emission standards violates Clean Air Act.

In some instances EPA's Part 63 regulations for specific source categories include specific SSM provisions in addition to or instead of the SSM exemption in the General Provisions. Because *Sierra Club* holds that the Clean Air Act requires continuous compliance with § 112 emission standards, it makes clear that any exemption from such standards during periods of SSM is unlawful. Therefore, EPA must delete any provision in any specific Part 63 regulation that provides any SSM exemption from continuous compliance with § 112 emission standards.

CONCLUSION

Pursuant to the Clean Air Act and the Administrative Procedure Act, Environmental Petitioners hereby petition the Administrator to reopen EPA's Clean Air Act § 112 regulations for each source category discussed above to:

1. ensure that such regulations include emission standards for each listed hazardous air pollutant the category emits and that such standards fully comply with the Clean Air Act;
2. eliminate unlawful exemptions and alternative standards promulgated under Clean Air Act § 112(d)(4);
3. eliminate unlawful or invalid use of surrogates; and,
4. delete all SSM exemptions from any Part 63 regulation in which any such exemption appears.

Environmental Petitioners further petition the Administrator to undertake a comprehensive assessment of all of its existing part 61 and part 63 regulations — including and in addition to those identified herein — to ensure that each standard fully complies with the Act and governing judicial rulings.

EPA is required by law to give this petition prompt consideration. Environmental Petitioners request a substantive response to this petition within 180 calendar days. In the absence of an affirmative response, Environmental Petitioners will be compelled to consider litigation to achieve the agency actions requested.

Respectfully submitted,

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EXHIBIT 5

Ltr. from J. Goffman Principal Dep. Ass't Adm'r to Earthjustice on Petroleum Refinery Sector Rule

(Apr. 19, 2022)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 19, 2022

OFFICE OF
AIR AND RADIATION

Ms. Emma C. Cheuse
Earthjustice
1001 G. Street, NW, Suite 1000
Washington, D.C. 20001
echeuse@earthjustice.org

Mr. James S. Pew
Earthjustice
1001 G. Street, NW, Suite 1000
Washington, D.C. 20001
jpew@earthjustice.org

Dear Ms. Cheuse and Mr. Pew:

This letter concerns the U.S. Environmental Protection Agency's (EPA) reconsideration of the final rule, "Residual Risk and Technology Review of the National Emission Standards for Hazardous Air Pollutants: Petroleum Refinery Sector Rule" (85 FR 6064, February 4, 2020).

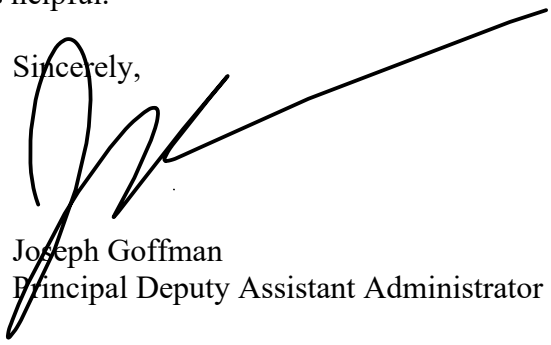
On April 6, 2020, Earthjustice submitted a petition for reconsideration of the final rule pursuant to Clean Air Act section 307(d)(7)(B) on behalf of Air Alliance Houston, California Communities Against Toxics, Clean Air Council, Coalition For A Safe Environment, Community In-Power & Development Association, Del Amo Action Committee, Environmental Integrity Project, Louisiana Bucket Brigade, Sierra Club, Texas Environmental Justice Advocacy Services, and Utah Physicians for a Healthy Environment.

EPA previously denied the April 6, 2020, petition for reconsideration (85 FR 67665, October 26, 2020). After further consideration, EPA will be undertaking reconsideration on provisions related to work practice standards for pressure relief devices and emergency flaring.

EPA intends to issue a *Federal Register* notice initiating public review and comment on the issues described in this letter. We are continuing to review all issues raised in the petition for reconsideration and may choose to initiate reconsideration of additional issues in the future. If you have any questions regarding the reconsideration process, please contact Ms. Angie Carey at (919) 541-2187 or by email at *carey.angela@epa.gov*.

Thank you for your continued interest in this rule. I appreciate the opportunity to be of service and trust the information provided is helpful.

Sincerely,



Joseph Goffman
Principal Deputy Assistant Administrator

EXHIBIT 6

Ltr. from J. Goffman, Principal Dep. Ass't Adm'r to Earthjustice on Ethylene Production Rule

(Apr. 19, 2022)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 19, 2022

OFFICE OF
AIR AND RADIATION

Ms. Emma Cheuse
Earthjustice
1001 G Street, NW, Suite 1000
Washington, D.C. 20001
echeuse@earthjustice.org

Mr. Brendan Mascarenhas
Director, Regulatory and Technical Affairs
American Chemistry Council
700 2nd Street, NE
Washington, D.C. 20002
Brendan_Mascarenhas@americanchemistry.com

Mr. David Friedman
Vice President, Regulatory Affairs
American Fuel & Petrochemical Manufacturers
1800 M Street NW
Suite 900 North
Washington, D.C. 20036
DFriedman@afpm.org

Dear Ms. Cheuse and Messrs. Mascarenhas and Friedman:

The U.S. Environmental Protection Agency (EPA) received two petitions for administrative reconsideration of the final rule, "National Emission Standards for Hazardous Air Pollutants: Generic Maximum Achievable Control Technology Standards Residual Risk and Technology Review for Ethylene Production" (85 FR 40386, July 6, 2020), submitted pursuant to section 307(d)(7)(B) of the Clean Air Act.

On September 4, 2020, Earthjustice submitted a petition on behalf of RISE St. James, Louisiana Bucket Brigade, Louisiana Environmental Action Network, Texas Environmental Justice Advocacy Services, Air Alliance Houston, Community In-Power & Development Association, Clean Air Council, Center for Biological Diversity, Environmental Integrity Project, and Sierra Club. On September 11, 2020, the American Chemistry Council (ACC) and American Fuel & Petrochemical Manufacturers (AFPM) also submitted a joint petition.

With this letter, EPA is informing you that it will grant reconsideration on at least one issue raised in each of the submitted petitions. The Agency will reconsider the provisions related to the work practice standards for pressure relief devices and emergency flaring raised in the petition submitted by Earthjustice and the provisions related to the work practice standards for degassing of floating roof storage vessels raised in the joint ACC/AFPM petition.

EPA intends to issue a *Federal Register* notice initiating public review and comment on the issues described in this letter. We are continuing to review all issues raised in the petitions for reconsideration and may choose to initiate reconsideration of additional issues in the future. If you have any questions regarding the reconsideration process, please contact Mr. Andrew Bouchard at (919) 541-4036 or by email at *bouchard.andrew@epa.gov*.

Thank you for your continued interest in this rule. I appreciate the opportunity to be of service and trust the information provided is helpful.

Sincerely,

Joseph Goffman
Principal Deputy Assistant Administrator

Part	Subpart	Subpart Title
60	A	General Provisions
60	D	Standards of Performance for Fossil-Fuel-Fired Steam Generators
60	Da	Standards of Performance For Electric Utility Steam Generating Units
60	Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
60	Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
60	Ea	Standards of Performance for Municipal Waste Combustors for Which Construction is Commenced After December 20, 1989 and on or Before September 20, 1994
60	Eb	Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996
60	Ec	Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators
60	Ga	Standards of Performance for Nitric Acid Plants for Which Construction, Reconstruction, or Modification Commenced After October 14, 2011
60	J	Standards of Performance for Petroleum Refineries
60	Ja	Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007
60	BBa	Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013
60	CC	Standards of Performance for Glass Manufacturing Plants
60	VVa	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
60	DDD	Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
60	QQQ	Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems
60	WWW	Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification on or After May 30, 1991, but Before July 18, 2014
60	AAAA	Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001
60	BBBB	Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999
60	CCCC	Standards of Performance for Commercial and Industrial Solid Waste Incineration Units
60	DDDD	Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units
60	EEEE	Standards of Performance for Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006
60	FFFF	Emission Guidelines and Compliance Times for Other Solid Waste Incineration Units that Commenced Construction on or Before December 9, 2004
60	LLLL	Standards of Performance for New Sewage Sludge Incineration Units
60	MMMM	Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units
60	OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015
63	F, G, H	Synthetic Organic Chemical Manufacturing
63	L	Coke Ovens: Charging, Top Side, and Door Leaks
63	N	Chromium Electroplating
63	O	Ethylene Oxide Sterilization Facilities
63	S	Pulp and Paper
63	U	Group I Polymers and Resins (including Neoprene Production)
63	W	Group II Polymers and Resins
63	X	Secondary Lead Smelting
63	Y	Marine Tank Vessel Loading Operations
63	CC, UUU	Petroleum Refineries
63	HH	Oil and Natural Gas Production
63	II	Shipbuilding and Ship Repair (Surface Coating)
63	JJ	Wood Furniture Manufacturing Operations
63	KK	Printing and Publishing Industry
63	MM	Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, Stand-Alone Semichemical Pulp Mills
63	SS	Closed Vent Systems, Control Devices, Recovery, Routing to Fuel Gas System
63	TT	Equipment Leaks-Control Level 1
63	UU	Equipment Leaks-Control Level 2
63	YY	Ethylene Production
63	YY	Generic MACT I, II, Acetal Resins, Carbon Black, Cyanide Chemicals Manufacturing, Hydrogen Fluoride, Spandex Production
63	CCC	Steel Pickling--HCl Process Facilities and Hydrochloric Acid Regeneration Plants
63	EEE	Hazardous Waste Combustors
63	GGG	Pharmaceuticals Production
63	HHH	Natural Gas Transmission and Storage
63	JJJ	Polymers & Resins IV
63	MMM	Pesticide Active Ingredient Production
63	PPP	Polyether Polyols Production
63	QQQ, EEEEEE	Primary Copper Smelting (major and area sources)
63	TTT	Primary Lead Smelting
63	VVV	Publicly Owned Treatment Works
63	AAAA	Municipal Solid Waste Landfills
63	DDDD	Plywood and Composite Wood Products
63	EEEE	Organic Liquids Distribution (non-gasoline)
63	FFFF	Miscellaneous Organic Chemical Manufacturing
63	GGGG	Solvent Extraction for Vegetable Oil Production
63	HHHH	Wet Formed Fiberglass Mat Production
63	IIII	Surface Coating of Automobiles and Light-Duty Trucks
63	JJJJ	Paper and Other Web Coating

63	KKKK	Surface Coating of Metal Cans
63	MMMM	Surface Coating of Miscellaneous Metal Parts and Products
63	NNNN	Surface Coating of Large Appliances
63	OOOO	Printing, Coating, and Dyeing of Fabrics and Other Textiles
63	PPPP	Plastic Parts Surface Coating
63	QQQQ	Surface Coating of Wood Building Products
63	SSSS	Metal Coil Surface Coating
63	TTTT	Leather Finishing Operations
63	UUUU	Cellulose Products Manufacturing
63	VVVV	Boat Manufacturing
63	WWWW	Reinforced Plastic Composites Production
63	XXXX	Rubber Tire Manufacturing
63	YYYY	Stationary Combustion Turbines
63	AAAAA	Lime Manufacturing
63	BBBBB	Semiconductor Manufacturing
63	CCCCC	Coke Ovens: Pushing, Quenching, and Battery Stacks
63	EEEEE	Iron and Steel Foundries (major sources)
63	FFFFF	Integrated Iron and Steel Manufacturing
63	GGGGG	Site Remediation
63	HHHHH	Miscellaneous Coating Manufacturing
63	IIIII	Mercury Cell Chlor-Alkali Plants
63	LLLLL	Asphalt Processing and Asphalt Roofing Manufacturing
63	MMMMM	Flexible Polyurethane Foam Fabrication Operation
63	NNNNN	Hydrochloric Acid Production
63	PPPPP	Engine Test Cells/Stands
63	RRRRR	Taconite Iron Ore Processing
63	SSSSS	Refractory Products Manufacturing
63	TTTTT	Primary Magnesium Refining
63	ZZZZZ	Iron and Steel Foundries (area sources)
63	GGGGGG	Primary Nonferrous Metals Area Sources - Zinc, Cadmium, Beryl Primary Zinc Production
63	SSSSSS	Glass Manufacturing (area sources)
63	VVVVVV	Chemical Manufacturing Area Sources
63	HHHHHHH	Polyvinyl Chloride and Copolymers Production

40 C.F.R. Section	Loophole Version
60.8(c); 60.11(c)	SSM exemption
60.45(b)(6)(iii)	SSM exemption
60.48Da(a), (d), (f), (o)(2)(iv), (o)(3)(iii), (o)(4)(v), (s); 60.49Da(u)(3)	SSM exemption + Malfunction affirmative defense
60.43b(g); 60.45b(a); 60.46b(a); 60.48b(j)(4)(iii)	SSM exemption
60.43c(d); 60.47c(e)(3)	SSM exemption
60.58a(a)	SSM exemption
60.55b(c); 60.58b(a)(1), (a)(1)(iii), (a)(2)	SSM exemption + malfunction exemption
60.52c(e)	Malfunction exemption
60.74a	Malfunction affirmative defense
60.104(a)(1)	SSM exemption
60.102a(f)(3); 60.103a(h)	SSM exemption
60.284a(d)(4)(ii), (d)(5)(ii), (d)(5)(iv), (e)(3); 60.286a	SSM exemption + Malfunction affirmative defense
60.292(e)	SSM exemption
60.482-1a(e)	SSM exemption
60.562-1(b)(1)(ii), (c)(1)(i)(B)	SSM exemption
60.692-1(a)	SSM exemption
60.755(e)	SSM exemption
60.1205(a); 60.1220(a); 60.1445(b)	SSM exemption
60.1695(a); 60.1710(a); 60.1920(b)	SSM exemption
60.2235(d)	Malfunction reporting ex
60.2795(d)	Malfunction reporting ex
60.2918; 60.2971(b)	SSM exemption
60.3025; 60.3066(b)	SSM exemption
60.4861	Malfunction affirmative defense
60.5181	Malfunction affirmative defense
60.5420a(b)(14)	Malfunction reporting ex
63.102(a)(1)-(4); 63.119(f)(3)	SSM exemption
63.300(e); 63.310(i)	SSM exemption
63.342(b)(1)	Malfunction affirmative defense
63.362(b); 63.363(f)	SSM exemption
63.456	Malfunction affirmative defense
63.480(j)(4)	Malfunction affirmative defense
63.526(c)	SSM exemption
63.552	Malfunction affirmative defense
63.562(e)(7)	Malfunction affirmative defense
63.648(j)(3)(iv)-(v); 63.655(h)(10)(ii); 63.670(o)(7); 63.641; 63.1575(l)(2)	Malfunction exemption + reporting ex
63.762(d)	Malfunction affirmative defense
63.781(d)	Malfunction affirmative defense
63.800(j)	Malfunction affirmative defense
63.820(c)	Malfunction affirmative defense
63.867(d)(4)	Malfunction reporting ex
63.984(a), 63.985(a)	SSM exemption
63.1007(e)(1)(ii)(A); 63.1009(e)(1)(i)(A); 63.1012(b)(1)	SSM exemption
63.1026(e)(1)(ii)(A); 63.1028(e)(1)(i)(A); 63.1031(b)(1)	SSM exemption
63.1103(e)(2), (4) (cross-ref. 63.670); 63.1107(h)(3)(iv), (v); 63.1110(a)(10)(iv)	Malfunction exemption + reporting ex
63.1108(a)(1), (2), (5)	SSM exemption
63.1155(d)	Malfunction affirmative defense
63.1206(b)(1)(i); 63.1206(c)(2)(v)(A)(2); 63.1206(c)(2)(v)(B)(4)	SSM exemption
63.1250(g)(4)	Malfunction affirmative defense
63.1272(d)	Malfunction affirmative defense
63.1310(k)	Malfunction affirmative defense
63.1360(k)	Malfunction affirmative defense
63.1420(i)	Malfunction affirmative defense
63.1448(a); 63.11148(b)(3), (f)(4); 63.11149(d)	SSM exemption
63.1551	Malfunction affirmative defense
63.1590(h)	Malfunction reporting ex
63.1981(n)	Malfunction reporting ex
63.2281(l)	Malfunction reporting ex
63.2386(j)	Malfunction reporting ex
63.2480(e)(3)(iv)-(v); 63.2520(i); 63.2550	Malfunction exemption + reporting ex
63.2861(i)	Malfunction reporting ex
63.3000(g)	Malfunction reporting ex
63.3120(h)	Malfunction reporting ex
63.3400(j)	Malfunction reporting ex

63.3511(h)	Malfunction reporting ex
63.3920(h)	Malfunction reporting ex
63.4121(e)	Malfunction reporting ex
63.4311(h)	Malfunction reporting ex
63.4520(h)	Malfunction reporting ex
63.4720(d)(4)	Malfunction reporting ex
63.5181(e)	Malfunction reporting ex
63.5420(c)(5)	Malfunction reporting ex
63.5580(k)	Malfunction reporting ex
63.5765(f)	Malfunction reporting ex
63.5912(f)	Malfunction reporting ex
63.6010(j)	Malfunction reporting ex
63.6150(i)	Malfunction reporting ex
63.7131(j)	Malfunction reporting ex
63.7185(a)	SSM exemption
63.7310(a); 63.7336(b)(1)	SSM exemption
63.7751(i)	Malfunction reporting ex
63.7841(f)	Malfunction reporting ex
63.7923(f); 63.7951(h); 63.7957	Malfunction exemption + reporting ex
63.8075(k)	Malfunction reporting ex
63.8226(a); 63.8248(b)	SSM exemption
63.8693(i)	Malfunction reporting ex
63.8794(b); 63.8812(d)	SSM exemption
63.9050(n)	Malfunction reporting ex
63.9350(i)	Malfunction reporting ex
63.9641(h)	Malfunction reporting ex
63.9792(a); 63.9810(e)(2)	SSM exemption
63.9910(a); 63.9925(b)(1)	SSM exemption
63.10899(g)	Malfunction reporting ex
63.11162(k); 63.11163(i)	SSM exemption
63.11455(a)	SSM exemption
63.11501(e)	Malfunction affirmative defense
63.11895	Malfunction affirmative defense

Exhibit 15

KEEP PERMIT AT SITE

CONTROL NO. B - 07121

Larry Hogan
Governor

State of Maryland

Horacio Tablada
Secretary

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Administration
1800 Washington Boulevard, Suite 720
Baltimore, MD 21230

[ ] Construction Permit

[X] Part 70 Operating Permit

PERMIT NO. 24-031-1718

DATE ISSUED JUN 2 0 2022

PERMIT FEE To be paid in accordance with COMAR 26.11.02.19B

EXPIRATION DATE October 31, 2026

LEGAL OWNER & ADDRESS

Northeast MD Waste Disposal Authority
(NMWDA)
100 S. Charles Street, Tower II, Suite 402
Baltimore, MD 21201-2705
Attn: Mr. Andrew Kays Executive Director

SITE

Montgomery County Resource Recovery Facility
(MCRRF)
21204 Martinsburg Road
Dickerson, MD 20842
Montgomery County
AI # 17118

SOURCE DESCRIPTION

The facility consists of three (3) waste combustion trains, each with a separate air pollution control system, storage silos, and dry lime injection systems.

This Permit supersedes Part 70 Operating Permit No. 24-031-01718 issued on January 1, 2019.

This source is subject to the conditions described on the attached pages.

Program Manager

Director, Air and Radiation Administration

(NOT TRANSFERABLE)

MONTGOMERY COUNTY RESOURCE RECOVERY FACILITY
21204 MARTINSBURG ROAD
DICKERSON, MD 20842
PART 70 OPERATING PERMIT NO. 24-031- 1718

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(11) Opacity CEM allowance for unscheduled downtime and downtime for scheduled maintenance and performance checks required by regulation shall be in accordance with TM 90-01. **[Authority: 111(d) plan-COMAR 26.11.08.08B(3)]**

(12) The HCl CEMS data will be used by the Department for informational purposes only until certification procedures are approved by the Department. **[Authority: PTC 15-1718-2-0132 N]**

(13) The HCl CEMS shall comply with the following: **[Authority: COMAR 26.11.03.06C(3)-Periodic monitoring]**

(a) The requirements in paragraphs (7) and (10); except as noted in (b) and (c) below (as applicable)

(b) The 1-hour arithmetic averages shall be used to calculate a 3-hour block average.

(c) At a minimum, valid CEMS data shall be obtained for 75 percent of the hours per day for 75 percent of the days per month the affected facility is operating and combusting MSW.

(d) The Permittee shall perform four (4) cylinder gas audits (CGAs) annually in addition to daily calibrations that include zero and span checks.

(e) Upon the installation of certified HCl CEMS the Permittee shall complete a RATA and three (3) CGAs annually, pursuant to the applicable provisions of 40 CFR Part 60, Appendix F.

(14) In order to ensure that the MWC units are in continuous compliance with the prescribed HCl standards, the Permittee shall implement the most recent "HCl Control Plan" approved by MDE-ARA.

(15) The Permittee shall install HCl CEMS on the inlet and outlet of each MWC unit and have them operational and certified by June 30, 2022. Once the HCl CEMS are operational, the requirements in paragraphs (12), (13)(b), (c) and (d) and (14) above shall no longer be applicable.

B. Annual Emission Limits:

Same as A above.

Exhibit 17

COVANTA
Powering Today. Protecting Tomorrow.

Covanta Essex Company
183 Raymond Boulevard
Newark, NJ 07105
Tel: 973-344-0900
Fax: 973-344-4999

May 10, 2022

Mr. Anthony Fontana, Chief
NJ Department of Environmental Protection
Bureau of Solid Waste Permitting
P.O. Box 420
Mail Code: 401-02C
401 East State Street
2nd Floor, West Wing
Trenton, NJ 08625-0420

Subject: Application for a Solid Waste Facility Permit Renewal
Covanta Essex Company
Essex County Resource Recovery Facility
Program Interest Number: 133546
Permit No. RRF200001
Response to Second Technical Notice of Deficiency

Dear Mr. Fontana:

On behalf of Covanta Essex Company, the following responses are being provided to the questions and comments received in the Second Technical Notice of Deficiency letter dated April 7, 2022 and received on April 12, 2022 regarding the above referenced permit application. The comments and responses are provided below:

Comment No. 1
O&M Manual, Operating Procedure No. 3, page OP3-7:
Section 3.0 number 6 states, "Maximum flue gas temperature at the ESP inlet (4-hour average) shall not exceed 17 degrees C (30 degrees F) above the maximum demonstrated temperature (4-hour average) observed during the most recent dioxin/furan compliance test." Please revise or delete this item as the electrostatic precipitator has been replaced by the baghouse at the facility.

Covanta Response:
Section 3.0 item 6 has been revised to replace "ESP" with "baghouse" as follows (bolded text has been added and text in strikeout has been deleted):

6.0 **Flue Gas Temperature:** Maximum flue gas temperature at the ~~ESP~~ **baghouse** inlet (4-hour average) shall not exceed 17 degrees C (30° F) above the maximum demonstrated temperature (4-hour average) observed during the most recent dioxin/furan compliance test. Compliance shall be determined through continuous monitoring and 4-hour block averages.

The revised page OP3-7 is included as Attachment 1.

Comment No. 2
O&M Manual, Waste Flow Control Plan, page API3-7:

a. Section C.1.f, number 4 states, "The sealed containers containing the used baghouse filter bags are to be transported to the tipping floor and discharged into the refuse pit as soon as possible." In order to avoid RCRA hazardous waste applicability, please revise this language to include a clear time limit for the baghouse filter disposal, instead of the indeterminate language of "as soon as possible."

b. Section C.1.f. – Please add a provision in this section to specify a limit on the number of baghouse filters that can be replaced and discharged into the refuse pit at once. Also include a provision that the replacement of the baghouse filters shall be staggered in order to prevent potential emission spikes if all the baghouse filters are replaced and burned at the same time.

Covanta Response:
Section C.1.f has been revised as follows (bolded text has been added and text in strikeout has been deleted):

f. Used filter bags from the boiler baghouses

1) When disposing of used filter bags from any of the boiler baghouses, bags must be shaken, blown or pulsed prior to removal to remove as much loose ash residue as possible.
2) Bags are to be removed from the cell plate and placed into sealed containers (double plastic bags or fiber drums) within the baghouse compartment or within an enclosure that prevents direct release of ash to the environment. During removal of bags, procedures must be in place to avoid the emission or spillage of any loose ash into the environment.
3) The baghouse module qualifies as "preventing a release" if the filter bags are immediately rolled up and placed in plastic bags or drums.
4) The sealed containers containing the used baghouse filter bags are to be transported to the tipping floor and discharged into the refuse pit ~~as soon as possible~~ **no longer than 48 hours after the filter bags are removed from the baghouse module**. The transporting of bags to the tipping floor shall only be performed by facility personnel. Third-party contractors shall not be used for this task.
5) The container or bag that the used filter bags are placed into should be marked with a red X using spray paint or similar markings to allow for easy identification by the refuse crane operator once placed in the refuse pit.
6) **A maximum of 608 baghouse filter bags (equivalent to 2 full baghouse modules) are to be replaced and transported to the tipping floor for destruction per day. When feeding the used baghouse filter bags to a boiler for destruction, feeding of the bags must be staggered in order to prevent potential emission spikes from combustion of the used filter bags.**

The revised section API3, Waste Flow Control Plan, is included as Attachment 2.

Comment #3
O&M Manual, Purple Plume Mitigation Plan: Attachment 1, Section A.3.2 – Other Type 10 and Type 27 Waste Inspections states the goal is to, "Prevent iodinated waste from industrial or commercial generators from being mixed in the pit." Please indicate whether Covanta has updated its Type 27 Waste approval protocol to include iodinated waste as a prohibited substance for acceptance at the facility. Also, please include in the Purple Plume Mitigation Plan a copy of Covanta Material Characterization Forms for Type 27 Waste approvals and the Industrial Waste Survey for Type 27 Waste approvals.

Covanta Response:
The Covanta Type 27 waste approval protocol does include iodinated waste as a prohibited substance for acceptance at the facility. As part of the protocol, customers that request approval to dispose of their Type 27 waste at any Covanta facility must submit a Material Characterization Form (MCF) to the Covanta Environmental Solutions (CES) Environmental team that is responsible for screening all waste types for destruction at Covanta Waste to Energy (WtE) facilities. A copy of the Covanta MCF is included as Attachment 3. If iodine in any concentration is identified in Section 4 of the form as being in the waste, the waste is determined to be an unacceptable waste type for destruction in any WtE facility which includes the Covanta Essex facility. Additionally, for any waste that is proposed to be disposed of at the Covanta Essex facility, approval from the Environmental Specialist and the Facility Manager must also be given to the CES Environmental team after an additional review of the MCF and any other relevent information before the customer is given an approval to bring their waste to the facility. A copy of the MCF is now included in the Purple Plume Mitigation Plan, Section API3A, as Attachment 8 along with a copy of the 1993 Industrial Waste Survey for Type 27 waste conducted by the Essex County Utilities Authority (ECUA). Also, a new section 1.8 has been added to the Purple Plume Mitigation Plan, Section API3A, to outline the Type 27 waste approval protocol as follows:

1.8 Type 27 Profiled Waste

Profiled Waste, also referred to as Special Waste, is Type 27 waste that is delivered to the Covanta Essex facility for destruction. Prior to being approved for delivery to the Covanta Essex facility, this waste is screened by the Covanta Environmental Services (CES) Environmental team to ensure that it does not contain any prohibited substances.

As part of the approval protocol, customers that request approval to dispose of their Type 27 waste at any Covanta facility must submit a Material Characterization Form (MCF) to the Covanta Environmental Solutions (CES) Environmental team that is responsible for screening all waste types for destruction at Covanta Waste to Energy (WtE) facilities. A copy of the Covanta MCF is included as Attachment 8 along with the ECUA Industrial Waste Survey for Type 27 waste. If iodine in any concentration is identified in Section 4 of the form as being in the waste, the waste is determined to be an unacceptable waste type for destruction in any WtE facility which includes the Covanta Essex facility. Additionally, for any waste that is proposed to be disposed of at the Covanta Essex facility, approval from the Environmental Specialist and the Facility Manager must also be given to the CES Environmental team after an additional review of the MCF and any other relevent information before the customer is given an approval to bring their waste to the facility.

The revised Purple Plume Mitigation Plan is included as Attachment 3 to this response.

If you have any questions regarding these responses, please do not hesitate to contact me.

Sincerely,

Patricia Earls
New Jersey Regional Environmental Manager

cc: Kimberly Beccia, Bureau of Solid Waste Permitting
Tom Byrne, Bureau of Solid Waste Permitting
Gina Lugo, Bureau of Solid Waste Compliance & Enforcement
Rajendra Gandhi, Bureau of Solid Waste Compliance & Enforcement
Jeffrey Meyer, Bureau of Air Compliance & Enforcement - Northern

APPLICANT'S CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I understand that, in addition to criminal penalties, I may be liable for a civil administrative penalty pursuant to N.J.A.C. 7:26-5 and that submitting false information may be grounds for denial, revocation or termination of any solid waste facility permit or vehicle registration for which I may be seeking approval or now hold.

David Blackmore
Print/Type Applicant/Owner Name

Signature of Applicant/Owner

5/9/22
Date

Facility Manager
Title

David Blackmore
Print/Type App./Operator Name

Signature of Applicant/Operator

5/9/22
Date

Facility Manager
Title

Print/Type Co-Applicant Name

Signature of Co-Applicant

Date

Title

Attachment 1

3.0 Precautions and Limitations (Cont')

4. **Nitrous Oxides**: Maintain NO_x emissions less than 300 ppm on a one (1) hour average when there is an equipment malfunction and < 155 ppmdv for 24-hour average.

5. **Maximum Load Level:** Maximum load (4-hour average) shall not exceed 110 percent of the maximum load (4-hour average), demonstrated during the most recent dioxin/furan compliance test.

6. **Flue Gas Temperature:** Maximum flue gas temperature at the baghouse inlet (4-hour average) shall not exceed 17 degrees C (30° F) above the maximum demonstrated temperature (4-hour average) observed during the most recent dioxin/furan compliance test. Compliance shall be determined through continuous monitoring and 4-hour block averages.

I. Per the NJDEP regulations, the following conditions require that you **stop feeding refuse to the boiler.**

1. Failure of a baghouse which results in an opacity reading exceeding 10% for any 6 minute period. Note if only one of the baghouse modules fails and can be isolated from service so that there is no excess opacity, waste feeding to the boiler can resume.

J. Take action to ensure that the scrubber system is repaired immediately should the sulfur dioxide ($S0_2$) emissions:

1. Exceed 94 ppmdv SO_2 average and not achieve 70% removal SO_2 removal (average) during any one (1) hour period.

2. Exceed 29 ppmdv SO_2 average for a 24-hour geometric and less than 75% removal.

K. Within one (1) hour after charging and igniting refuse on start up, the temperature of the flue gas, three second downstream of the secondary air injection point, must be 1136°F.

Attachment 2

COVANTA
ENERGY
for a cleaner world

WASTE FLOW CONTROL PLAN

Revision 7, April 2015
Revision 8, June 2021
Revision 9, January 2022

VOLUME IX, CHAPTER 3

Approved by: _____ **Date:** 1/10/22

COVANTA ESSEX COMPANY
OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3

ESSEX COUNTY RESOURCE RECOVERY FACILITY
WASTE FLOW CONTROL PLAN

Revision 9, January 2022

Waste Flow Control

The following contains a discussion of the waste delivery and flow path through the facility. Included in this discussion are measures utilized to minimize the processing of prohibited waste, to handle incoming waste flow during periods of emergencies and/or equipment breakdown or shutdown, and to describe the management of internally generated plant wastes.

A. Waste Deliveries

A.1 Permitted Waste Types

The following solid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) may be accepted for disposal:

TYPE 10 Municipal Waste (household, commercial and institutional)

TYPE 23 Vegetative Waste (except bulk quantities)

TYPE 25 Animal and Food Processing Waste (small quantities only, not large quantities or full truck loads)

TYPE 27 Dry Industrial Waste (except asbestos and asbestos containing wastes; dry non-hazardous pesticides; contaminated soils; hazardous waste; radioactive waste; and Type 27 from districts which have complied with an Industrial Waste Survey.

A.2 Prohibited Waste Types

The following solid and liquid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) and (h), regulated medical waste classes as defined in N.J.A.C 7:26-3A.6(a), and bulk recyclables as defined in N.J.A.C. 7:26A are specifically prohibited from disposal at the facility:

TYPE 12 Dry Sewage Sludge
TYPE 13 Bulky Wastes
TYPE 23 Vegetative Waste (Bulk quantities)
TYPE 25 Animal and Food Processing Waste (Large quantities or full truck loads)
TYPE 27 Dry Industrial Wastes
TYPE 72 Bulk liquid and Semi-Liquids
TYPE 73 Septic Tank Clean-out Wastes
TYPE 74 Liquid Sewage Sludge
Regulated Medical Waste (RMW), all classes, N.J.A.C 7:26-3A.6 (a)
Bulk Recyclables N.J.A.C. 7:26A
Iodine containing waste of any kind

A.3. Waste Flow

On-site traffic control is maintained to provide for orderly vehicular movement on the Facility grounds. Lane delineations, signals, signs, barriers ensure a controlled flow of traffic delivering waste to the Facility through the scales to the tipping floor, then leaving the tipping floor and exiting the Facility through the scale. Trucks carrying ash residue, recovered metals, unprocessible wastes, bypass wastes and/or chemical deliveries are similarly controlled and directed to minimize waste delivery traffic. Signs are posted indicating the maximum speed limit. A Facility traffic flow is represented in Appendix 1.

The control of prohibited waste is a multi—layered approach incorporating the cooperation of customers, the haulers, and Covanta Essex. One mechanism is through the guidance of the Essex County Solid Waste Management Plan, through which the company has determined which industrial wastes are prohibited at the Essex County Resource Recovery Facility.

In order to minimize prohibited waste from entering the facility, a HAULERS HANDBOOK (**copy attached as Appendix 2a**) has been developed which outlines and explains the waste acceptance criteria at the facility. This Handbook has been sent to all registered haulers utilizing the facility. The Handbook will be provided to new haulers. An abstract (as provided in Appendix 2) to the handbook pertaining to waste acceptance will be available at the scale house.

In addition, signs have been prominently posted on the facility's access road to indicate which wastes are acceptable. The signs read as follows:

THIS FACILITY RECEIVES AND BURNS ONLY HOUSEHOLD WASTE, COMMERCIAL WASTE AND INDUSTRIAL WASTE THAT DOES NOT CONTAIN HAZARDOUS WASTE – AS IDENTIFIED UNDER RCRA. INSPECTIONS WILL BE DONE TO ENSURE COMPLIANCE.

THIS FACILITY IS NOT PERMITTED TO ACCEPT BULKY WASTE. INSPECTIONS WILL BE PERFORMED TO ENSURE COMPLIANCE.

The first review of the paperwork and delivery vehicles is provided by the facility's scale house personnel. The origin and disposal (O&D) form, shown in Appendix 3, carried by the hauler denotes the origin and waste type of the material being delivered. At this time, the delivery vehicle is also checked for weight, proper registration, decals and is automatically scanned for radioactivity. If the review of documents and vehicle requirements proves satisfactory, the load information is entered into the scale house computer and the truck is released to proceed to the tipping bay. The scales are integrated into a computerized weighing system and weights of each load are recorded. Any problems encountered are brought to the attention of the appropriate supervisor.

If a delivery vehicle arrives at the facility's scale house and the O&D form indicates that it is a full truck load of Type 25 waste, the driver will be notified that the truck will be prohibited from dumping the load for processing at the facility and must be diverted to another location. The driver will receive instructions based on a previously determined agreement with the hauling company for delivering the waste to one of Covanta's New Jersey transfer stations which are permitted to accept Type 25 waste.

A.4. Tipping Floor Inspections:

Once the load has exited the scale and proceeded to the tipping floor (the waste receiving area), the load is subject to a visual inspection. Inspections are performed on a random basis by trained plant personnel on a minimum of 10% of trucks received at the facility per day. The purposes of the inspection are twofold: 1) to identify and remove prohibited or unprocessible materials prior to initiation of processing and 2) to ensure that the waste delivery vehicle is properly registered and decaled.

Under the visual inspection program, a truck being inspected will be observed for proper decals and for prohibited or unprocessible waste types as the truck unloads onto the tipping bay floor. For palletized loads of waste materials, a random sampling of the waste material will be checked against the approval paperwork (see Section D). With the inspection program, any hauler may be requested to unload contents of their truck on the tipping floor for visual inspection of waste. Once the inspection is completed, the acceptable portion of the load is pushed into the refuse pit by use of heavy equipment. Prohibited or unprocessible materials are handled as described below in Section 4. If the entire portion of the load is acceptable, the truck is released and returned to the scale house to weigh out.

All MSW loads received from hospitals are subject to inspection to check for iodine containing material in the waste which is prohibited. The procedure for these inspections includes pictures of typical items that may be found in hospital waste that could contain iodine to educate and train tipping floor operators. The waste will be raked as thinly as possible so that most of the waste is visible while performing these inspections. The current Hospital Load inspection procedure is included in Appendix 5 to this Plan.

Inspections will be conducted where they will least interfere with existing operational demands and flow of truck traffic. This provides for use of the tipping floor relative to the distribution of waste in the bunker and provides flexibility with regard to activities on the tipping floor.

All inspections will be recorded and these records will be used to evaluate carrier compliance and performance. An example of an inspection form in provided in Appendix 5. The enforcement of the inspection program is conducted primarily by Covanta Essex personnel. Regularly scheduled inspections by the NJDEP Solid Waste Enforcement Division also serve as a spot check of the inspection program.

A.5 Procedure for Removing Prohibited or Unprocessible Waste:

If prohibited or unprocessible waste is identified during the visual inspection, it will be separated or isolated as required.

If bulk recyclables as defined in N.J.A.C. 7:26A are identified, the vehicle will be reloaded and the material will be rejected. Class A materials consist of metals, glass, plastics and corrugated cardboard. Class B, C, and D materials would also not be acceptable at the facility due to the fact that they fit the description of ID 13, ID 23 (bulk) and ID 72.

If suspected hazardous waste, regulated medical waste (RMW) or prohibited dry industrial (Type 27) is identified, Tipping Hall personnel will initiate action to ensure proper handling of the material. If practicable and can be done safely, this material is separated from the acceptable portion of waste. If the generator can be identified and the NJDEP grants approval, the prohibited material can be rejected to the original generator. If the generator is not positively identified, the material will be secured and moved to the secured prohibited waste storage area (identified in Appendix 3) that is located a safe distance from the active disposal area. Arrangements for identification and disposal will be handled through qualified vendors.

In the case of bulky waste, the waste will be separated manually or by the use of a front-end loader. The bulky waste either be immediately rejected to the hauler or placed into the bulk storage/transport container. This container is routinely delivered to the authorized bulk acceptance site. The container is stored on the south side of the tipping floor next to Bay 15. (See Appendix 3 for arrangement drawing).

If a visual inspection spots an unidentifiable industrial container in the refuse pit, it can be removed with the overhead crane and lowered to the extended bucket of the front-end loader. The container will be separated using all necessary precautions and moved to the unprocessible or bulky waste storage area as identified in Appendix 3. Upon the identification of a bulky item in the refuse pit, the item will be picked-up by the overhead crane and deposited on the charging deck. Bulky items would be removed as described above.

If a visual inspection indicates a small quantity of Type 25 waste in the load on the floor, the front end loader operator will be notified and the load would be pushed into the pit immediately by the front end loader. After the load has been removed from the tipping floor, a bleach solution will be applied to the affected tipping floor area and front end loader bucket for disinfection.

If iodine containing material is discovered in a waste load on the tipping floor, the waste will be separated manually or by the use of a front-end loader if needed. The iodine containing waste will either be immediately rejected to the hauler with clear instructions that this waste is not to be delivered the the facility again or other arrangements will be made to have the waste transported to a landfill that can accept the waste.

A.6. Special Waste

The Facility offers secured destruction for a variety of materials including APHIS waste, pharmaceuticals, health care products, documents and non-hazardous industrial wastes.

a. Animal and Plant Health Inspection Services (APHIS) waste generated from international sources. These loads may originate from the numerous airports or shipping ports located in the area. A separate procedure for handling (attached here as Appendix 6) APHIS wastes is located in the Safe Operating Procedures (SOP) Manual.

b. Pharmaceuticals, Health Care Products & Industrial Wastes are accepted at the Facility for assured destruction. This material is screened for acceptability prior to approval and receipt at the Facility. A procedure for handling this type of material is located in the Safety Manual, Volume 10

of the O&M Manual. Provided in Appendix 7 is Plant Specific Operating Procedure #42 Handling Special Waste Deliveries.

B. Refuse Flow By—Pass Procedure

Since the majority of the potential equipment malfunctions or emergencies are not expected to affect waste flow, the Facility will first utilize the capacity of the waste pit to handle incoming waste flow in the event of an unplanned malfunction or outage. The bunker is designed to store an estimated 14,000 tons of refuse, enough for approximately four days of operation.

In the event that the Facility is unable to accept and dispose of Acceptable Waste whether as a result of scheduled downtime for maintenance or otherwise and the permits do not authorize use of the Facility (or a portion thereof) for transfer operations (or if the permits do authorize such use, such as transfer facilities are not operational), the Essex County Utilities Authority (ECUA) will arrange for Alternate Disposal Facilities to be available for disposal of such Acceptable Waste. After being informed by Covanta Essex that waste is unable to be accepted at the Facility, the ECUA would in turn call individual municipalities and contracted haulers to redirect to the appropriate by-pass site. The haulers are instructed as to the proper procedures to follow under this condition. They will be supplied with routes from Covanta Essex and from their respected origin sites to the by-pass location. Covanta Essex will supply the ECUA with updates as to when waste acceptance will resume.

During a short term situation which may affect the acceptance of waste into the tipping hall (i.e., pit fire, two cranes down, truck accident) no waste will be kept on the floor, other than what has been thrown—down for routine inspections, without seeking approval from the NJDEP. Space restrictions inside the facility limit staging of trucks in case of short term outages to road "A", which leads to the tipping hall, as shown in Appendix 4.

During a situation which may affect the acceptance of waste into the tipping hall (i.e., bunker (pit) fire, hazardous material release, trucking accident) the refuse trucks will first be held at the entrance gate. The trucks in line will remain in place. If it appears that the situation will not be solved quickly, NJDEP will be consulted as part of the decision making process.

C. Plant Waste Management -All Sources

Management of internally generated facility waste is best categorized in terms of waste disposal methods. The Essex facility has the capacity to safely process certain amounts and types of waste materials. Other waste types, including recyclables, will be handled through off-site disposal.

C.1. INTERNAL DISPOSAL

a. Use of incineration for waste types ID 10 non— recyclable trash, ID 23 vegetative waste (except for leaves), ID 25 animal and food processing waste, and ID 27 (dry industrial waste) allowed by the Solid Waste Permit.

b. Use of process design and water balance to absorb normally generated industrial wastewater for wetting of ash. The storm water retention system is also used to provide water for low quality use.

c. Waste bulk liquid oils generated from equipment maintenance will be disposed off site to Class D used oil facilities in the State of New Jersey, or other similarly licensed facilities located outside of the State of New Jersey.

d. Use of incineration for waste oil debris and solids generated from spills, equipment maintenance and housekeeping.

e. Use of incineration for disposal of various sump contents.

f. Used filter bags from the boiler baghouses

1) When disposing of used filter bags from any of the boiler baghouses, bags must be shaken, blown or pulsed prior to removal to remove as much loose ash residue as possible.
2) Bags are to be removed from the cell plate and placed into sealed containers (double plastic bags or fiber drums) within the baghouse compartment or within an enclosure that prevents direct release of ash to the environment. During removal of bags, procedures must be in place to avoid the emission or spillage of any loose ash into the environment.
3) The baghouse module qualifies as "preventing a release" if the filter bags are immediately rolled up and placed in plastic bags or drums.
4) The sealed containers containing the used baghouse filter bags are to be transported to the tipping floor and discharged into the refuse pit no longer than 48 hours after the filter bags are removed from the baghouse module. The transporting of bags to the tipping floor shall only be performed by facility personnel. Third-party contractors shall not be used for this task.
5) The container or bag that the used filter bags are placed into should be marked with a red X using spray paint or similar markings to allow for easy identification by the refuse crane operator once placed in the refuse pit.
6) A maximum of 608 baghouse filter bags (equivalent to 2 full baghouse modules) are to be replaced and transported to the tipping floor for destruction per day. When feeding the used baghouse filter bags to a boiler for destruction, feeding of the bags must be staggered in order to prevent potential emission spikes from combustion of the used filter bags.

C.2. EXTERNAL DISPOSAL

a. Use of solid waste disposal contractor for waste Types ID 13 (bulky waste), through the appropriate transfer station.

b. Use of sanitary sewer system for sanitary/gray discharge and "upset condition" industrial wastewater (with approval from PVSC).

c. Use of recycling contractor for designated Essex County recyclables including newspapers, glass containers, aluminum, old corrugated containers, office paper and ferrous scrap.

d. Use of appropriately licensed vendors for:

1) waste degreaser (D001);
2) spent batteries;
3) fluorescent lamps/bulbs and other mercury containing devices;
4) spent phosphoric acid sludge (D002).

e. Use of one or combination of the following methods for non—hazardous empty drum disposal: (1) return to supplier; (2) establishment of reuse procedure; and/or (3) deheading of container and crushing prior to recycling disposal as ferrous scrap.

f. Use of contract for Essex County ash residue disposal. Ash will be loaded and transported 24 hours per day, six days a week. Ash residue and recovered metals (contained in truck bodies or containers) can be stored on the tipping floor during Sundays only.

g. All refuse hauler trucks, ash hauler trucks, metal hauler trucks, and bulky waste hauler trucks leaving the facility shall scale out on one of the outbound truck scales at the scalehouse. All other hauler trucks leaving the site for any reason are required to stop at the scale house for authorization from the scale house attendant to leave prior to departing from the site.

WASTE FLOW CONTROL PLAN

APPENDIX 1

(Appendix 1)

UNACCEPTABLE/UNPROCESSIBLE WHICH CANNOT BE ACEPTED AT THE ESSEX COUNTY RESOURCE RECOVERY FACILITY.

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE SOLID WASTE MANAGEMENT PLAN OF ESSEX COUNTY REGULATES THE PERMIT OF THE ESSEX COUNTY RESOURCE RECOVERY FACILITY TO ACCEPT ONLY HOUSEHOLD, NON-HAZARDOUS INDUSTRIAL/COMMERCIAL WASTE, CERTAIN VEGETATIVE WASTE (LEAVES ARE EXCLUDED), AND ANIMAL AND FOOD PROCESSING WASTE (EXCEPT LARGE QUANTITIES OR FULL LOADS). UNACCEPTABLE/UNPROCESSIBLE WASTE WHICH CANNOT BE RECEIVED INCLUDES ALL HAZARDOUS WASTE, CERTAIN NON-HAZARDOUS WASTES AND ALL MEDICAL/INFECTIOUS WASTES.

UNACCEPTABLE NON-HAZARDOUS INCLUDE BUT ARE NOT LIMITED TO:

BATTERIES such as dry cells, mercury batteries, vehicle batteries.

WHITE GOODS such as refrigerators, stoves, dishwashers, washers and dryers.

BULKY GOODS such as bed springs, mattresses, air conditioners, hot water heaters, water storage tanks, furnaces, oil storage tanks, any compressed storage tank, children swing sets, vehicle frame parts, crank cases, transmissions, engines, lawn equipment, snow blowers, bikes, file cabinets, metal furniture, clean fill, metal piping, fuel containers.

LARGE QUANTITIES OR FULL TRUCK LOADS OF TYPE 25 WASTE

WASTE CONTAINING IODINE IN ANY QUANTITY

UNACCEPTABLE MEDICAL/INFECTIOUS WASTES INCLUDE BUT ARE NOT LIMITED TO:

SURGICAL AND OBSTETICAL WASTES

PATHOLOGICAL WASTES such as human tissue, human anatomical parts.

BIOLOGICAL WASTES such as excretions, suctionings, secretions, disposable medical supplies that have come into contact with such wastes.

BLOOD SOILED MATERIALS

RENAL DIALYSIS WASTES such as tubing and needles.

UN-AUTOCLAVED OR UNSTERILIZED serums or vaccines, lab waste, sharp instruments such as hypodermic needles intravenous needles and tubing.

UNACCEPTABLE HAZARDOUS WASTE INCLUDING BUT NOT LIMITED TO:

DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC CONTAINERS.

BULK SLUDGES OR WET SOLIDS NOT CHARACTERISTIC TO MUNICIPAL WASTE.

LARGE AMOUNTS OF LIQUIDS OR OIL SOAKED SOLIDS OR SORBENTS, EXCEPT FOR SOLIDS OR SORBENTS CONTAINING OILY RESIDUE WHICH HAVE BEEN CERTIFIED BY THE GENERATOR OF THE WASTE TO BE NON-HAZARDOUS.

MILITARY ORDINANCE OR OTHER EXPLOSIVES.

PRESSURIZED CONTAINERS.

ANY SUSPECT CLOSED INDUSTRIAL PACKAGING.

COVANTA ESSEX COMPANY

WASTE FLOW CONTROL PLAN - APPENDIX 2

COVANTA ESSEX WASTE LOAD INSPECTION REPORT

INSPECTION TYPE: (CIRCLE ONE) VISUAL (ON FLOOR) CAMERA (TIPPING BAY OFFICE)

BAY ASSIGNMENT: 2 3 4 5 6 7 8 9 10 11 12 13 14 15 CIRCLE BAY # ASSIGNED

INSPECTOR:	VEHICLE DATA:		COMPANY VEHICLE #	
DATE:	TYPE OF VEHICLE #	NJDEP DECAL	TRUCK #	NJ DEP # *(Painted)*
TIME:	TRUCK			
HAULER:	ROLL-OFF		LIC PLATE # FRONT	REAR
TAG#:	TRANSFER			
WASTE TYPE:	ACCT. #		HOSPITAL WASTE?	YES NO

UNACCEPTABLE WASTE TYPES AND IDENTIFIERS

POTENTIALLY HAZARDOUS:

LIQUID SOAKED DEBRIS ____
EXPLOSIVES ____
INDUSTRIAL CONTAINERS ____
RADIOACTIVE MATERIAL ____
DRY/POWDERED MATERIAL ____
PRESSURIZED VESSELS ____
WARNING LABELS ____
MOTORS ____
PAINTS ____
WET SOLIDS ____
UNUSUAL ODOR ____

IODINE WASTE:

LIQUID IODINE ____
ANTISEPTIC IODINE ____
- BETADINE ANTISEPTIC ____
- POVIDONE IODINE ____

MEDICATIONS W/IODINE ____
DYES OR INKS ____
PHOTO FILM/CHEM ____
INDUSTRIAL CHEMICALS ____
OTHER ____

REGULATED MEDICAL WASTE:

CULTURES AND STOCKS (CLASS 1) ____
PATHOLOGICAL WASTE (CLASS 2) ____
HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) ____
SHARPS (CLASS 4) ____
ANIMAL WASTE (CLASS 5) ____
ISOLATION WASTE (CLASS 6) ____
UNUSED SHARPS (CLASS 7) ____

RECYCLABLES:

ALUMINUM ____ CARDBOARD ____ PLASTIC ____ GLASS ____ BULK LOAD (100%) ____

BULKY WASTE (TYPE 13):

APPLIANCES ____
TAR PAPER/SHINGLES ____
METAL PRODUCTS ____
SHEET ROCK ____
BALES ____
BED SPRINGS ____
RUBBER PRODUCTS ____
C & D WASTE ____
AUTO PARTS ____
OTHER (SEE COMMENTS) ____
CEILING TILES ____

TYPE 27 - UNACCEPTABLE PORTIONS

NJDEP PROHIBITED WASTE ____
NON-RESPONDENT/INSUFFICIENT TO SURVEY ____
HAZARDOUS IMPACT ON EMISSIONS ____
HAZARDOUS WASTE ____
HAZ. EFFECT ON ASH ____
NON-COMBUSTIBLES ____

OVERALL RESULTS:

ACCEPTABLE LOAD ____ UNACCEPTABLE LOAD ____ DRIVER SAFETY VIOLATION ____

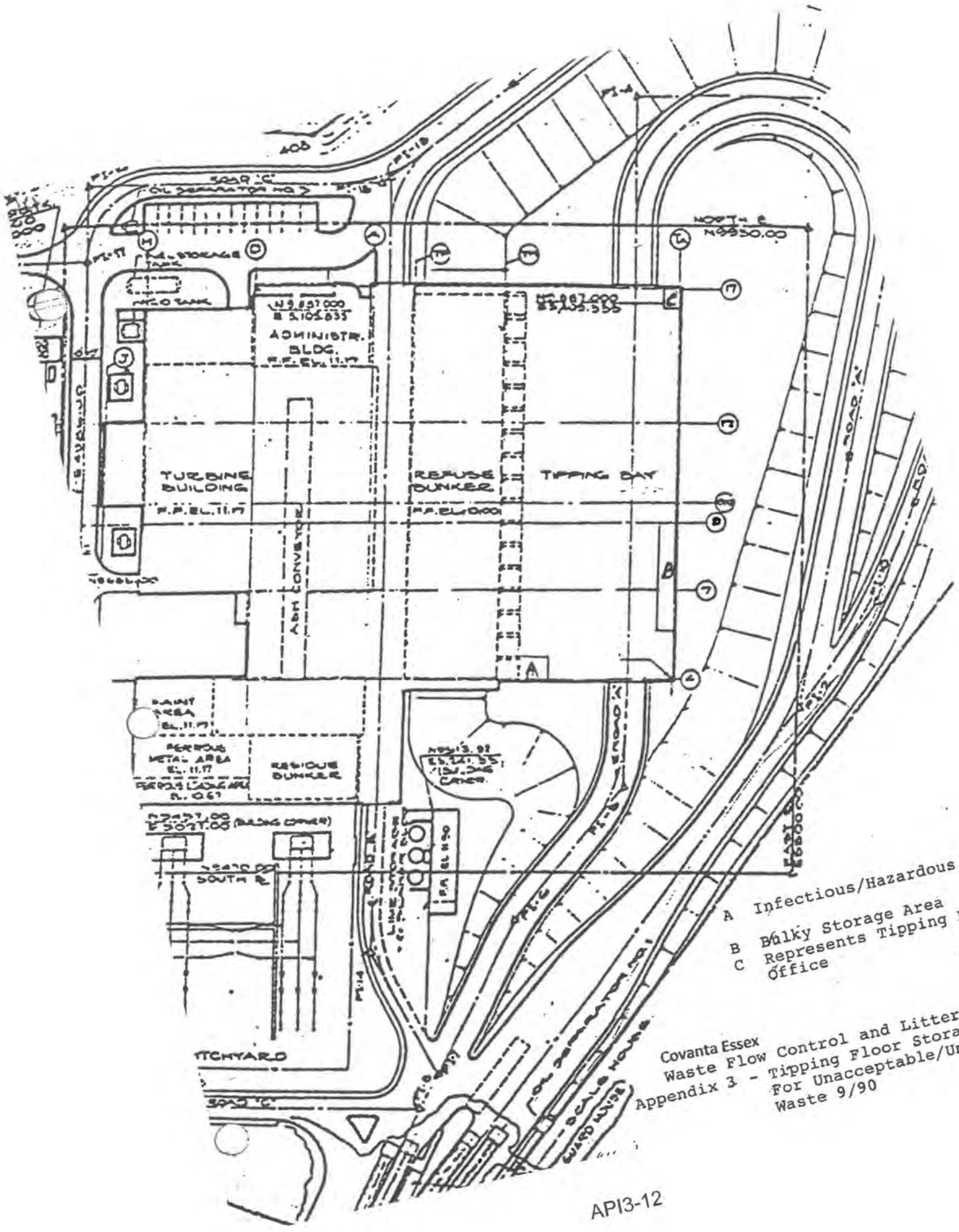
COMMENTS:

FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:

1) SHIFT SUPERVISOR ON DUTY		
2) ENVIRONMENTAL SPECIALIST		
2) OPERATIONS MANAGER		

*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED

PLEASE INCLUDE PICTURES OF ALL UNACCEPTABLE WASTE

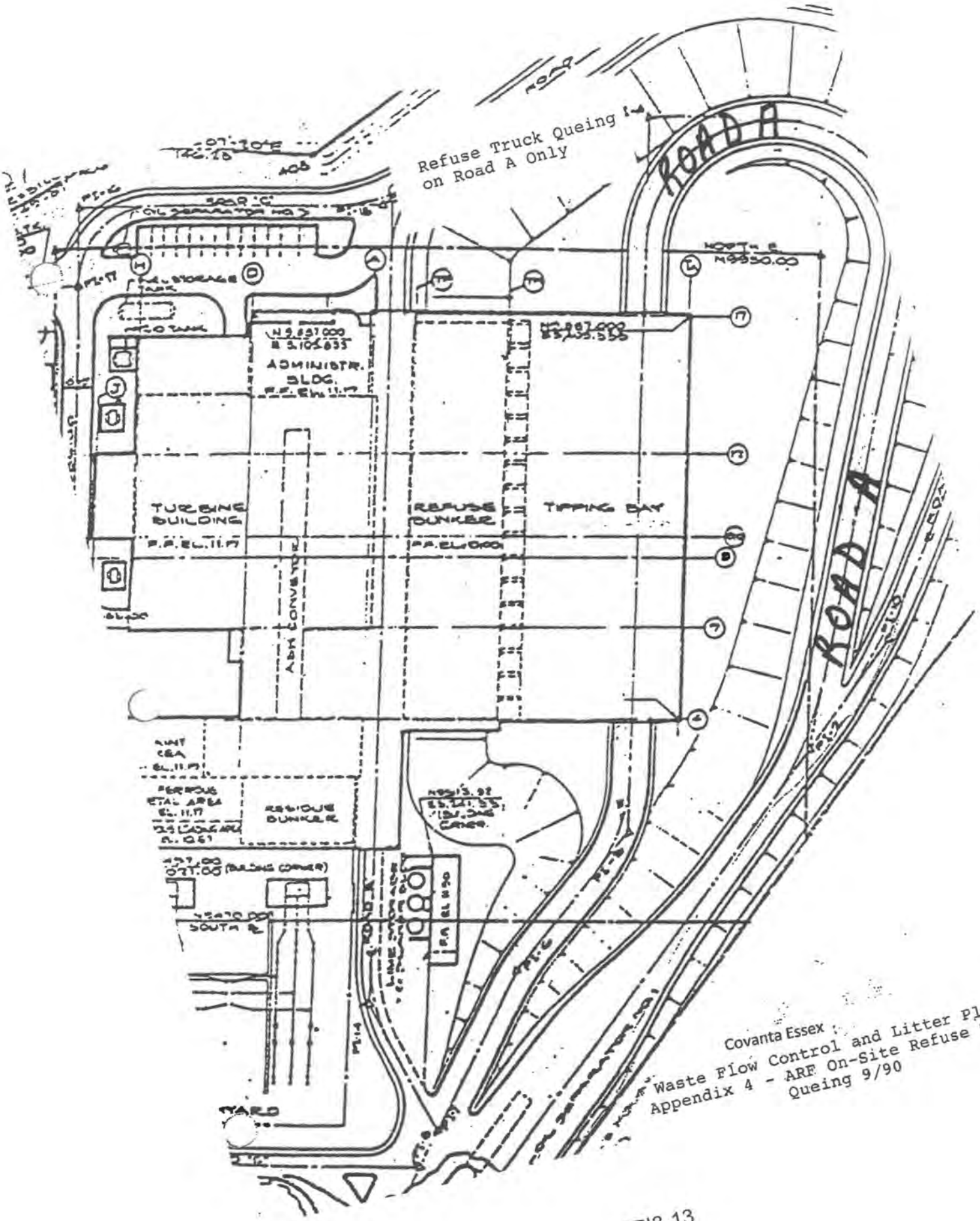


A Infectious/Hazardous Waste Area

B Bulky Storage Area

C Represents Tipping Floor Office

Covanta Essex
Waste Flow Control and Litter Plan
Appendix 3 - Tipping Floor Storage Area For Unacceptable/Unprocessed Waste 9/90



Covanta Essex
Waste Flow Control and Litter Plan
Appendix 4 - ARF On-Site Refuse Truck Queing 9/90

COVANTA ESSEX HOSPITAL LOAD INSPECTION PROCEDURE

1. FLAGGING LOADS AT SCALEHOUSE

a. Haulers delivering from hospitals in Essex County will be identifying loads from hospitals on the O&D forms going forward. The current known haulers are but not limited to:
   i. Interstate Waste Services (IWS)
   ii. T. Farese
   iii. LT Roselle; and
   iv. Giordano Company
b. These loads are typically compactor loads that contain 100% hospital waste.
c. The scalehouse operator is to make a note on the stage ticket that the load is from a hospital by marking "Hospital" on the ticket for the tipping floor operator.

2. WASTE INSPECTIONS ON THE TIPPING FLOOR

a. Once a notification is received from the scale house or the "Hospital" notation is observed on the stage ticket at the North entrance door, the tipping floor operator will have Bay #4 cleared if there is waste in the bay so that the hospital load can be dumped into Bay #4 for a closer inspection. Hold the truck at the door until Bay 4 is ready to receive the load.
b. Once the load is dumped into Bay 4 and the truck has left the bay and it is safe to do so, the tipping floor operator will walk over to Bay 4 for a closer visual inspection of the load. The "Covanta Essex Hospital Load Inspection Form" (attached) will be used to document the inspection. To provide for the operator's safety, no loads are to be dumped in Bay 3 or Bay 5 during the inspection.
c. A visual inspection of the load will be conducted to determine if there are any containers of iodine containing material or any medications which contain iodine. The operator will use the visual aids provided for examples of this material to determine if it is visibly present in the load.
   i. The inspector will conduct a visual inspection only and will not handle the load or the materials directly.
   ii. The inspector may use a long handled tool such as a fire hook to move materials as needed. The waste will be raked as thinly as possible so that most of the waste is visible.
d. If nothing is observed that appears to contain iodine, the operator will note that the load is acceptable on the inspection form and the load can be pushed into the refuse pit.
e. If material is identified that may contain iodine, the operator will note this on the inspection form and will contact the Shift Supervisor, Chief Engineer, and/or Environmental Specialist for further instructions. The load is to be left in Bay 4 until the material can be examined by one of the above supervisors.
f. If it is determined that the material does appear to contain iodine, the material will be isolated in the unacceptable waste container on the tipping floor for alternate disposal.
g. The customer, hauler, and Essex County will be notified of the material observed in the compactor.

COVANTA ESSEX COMPANY
SAFE OPERATING PROCEDURE #41
APHIS COMPLIANCE AGREEMENT

Revision 8 – September 2018

I. INTRODUCTION

1. International waste brought into the United States may contain certain dangerous plant diseases and/or insect pests. This waste is referred to as **"regulated garbage"** which is regulated by the Department of Homeland Security, Customs and Border Protection (CBP) under the authority of the Animal and Plant Health Inspection Service (APHIS). The purpose of this SOP is to alert Covanta Essex personnel to that fact and to instruct personnel how to minimize potential uncontrolled contamination.

2. This does not include U.S. Customs seizures, which are typically packaged and palleted, unless packages are broken open. If packages open, exposing waste, equipment and floor must be disinfected, as necessary. Seizures are handled as Special Waste.

II. SPECIAL SAFETY ASPECTS/PRECAUTIONS

1. Do not handle APHIS regulated garbage – especially with bare hands. Use hand tools to inspect or manipulate the load.

2. Equipment used to manipulate regulated garbage must be disinfected after use. This includes tools, loader bucket, and the floor. Grapple should be disinfected prior to maintenance or repair activities if feasible or at least once at the end of each shift.

3. A mixture of the disinfectant is to be kept on the floor at all times. An APHIS authorized disinfectant must be used which includes either of the following:
   a. Clorox bleach (chemical name: sodium hypochlorite). Undiluted Clorox bleach must be 8.25% sodium hypochlorite.
   b. Virkon S, which is a livestock disinfectant, in a 1% solution.

4. Either disinfectant must be mixed into a dilute solution – Virkon S comes in powder form while bleach comes in liquid form. Due to the handling hazards of Virkon S in powder form, bleach will be used to disinfect the waste.

5. According to the Compliance Agreement with USDA, the bleach solution is a mixture of 1.0 part bleach (which is 8.25% sodium hypochlorite) in 9.0 parts water (example: 8 ounces Clorox to 72 ounces water) and must be prepared each day for maximum effectiveness. A typical garden sprayer will be used for application.

6. In the event of a spill of APHIS regulated garbage outside the facility, APHIS/CBP will be notified by calling (908) 986-9200. Cleaning and disinfection of the area of the spill with the above listed disinfectant must be performed immediately using the procedures listed in section V.

III. PERSONAL PROTECTIVE EQUIPMENT

1. Standard PPE (safety glasses, safety shoes, hearing protection).

2. Safety vest (for tipping floor).

3. Required disinfecting PPE: Tyvek suit with hood, disposable boot covers, yellow hard hat, nitrile gloves, chemical resistant gloves, face shield, and N95 respirator.

Note: Review Donning/Removal of PPE procedure – Attachment 1

IV. PROCEDURE

1. Fuel Handling Supervisor or designee and Control Room should be notified when load arrives on site.

2. Bay 4 will be used for all APHIS regulated loads, if available, and disinfectant should be staged in the area. This bay does not have to be dedicated to APHIS regulated loads.

3. Bay 12 will be used only when the North Refuse Crane is out of service and the South Refuse Crane will be used to charge waste.

4. Once the truck is accepted, the crane operator is to be notified as to which bay the material will be dumped into.

5. When possible, before the material is dumped into the pit, the crane operator must dig down into the trench area where the material will be dumped to create a hole for the APHIS regulated waste to be dumped into.

6. The APHIS regulated load should be pushed into the pit as soon as possible.

7. When unloading the APHIS regulated waste on the tipping floor, stage other dry, non-APHIS regulated waste in the area in front of bay 4 or 12 so that this dry waste can be mixed with the APHIS regulated waste if wet using the front end loader. The mixed waste should then be treated as APHIS regulated waste and pushed into the pit as soon as possible. In no case should APHIS waste be held for more than 72 hours.

8. Once in the pit, the load should be charged to a boiler as soon as possible. The crane operator must notify the Control Room before feeding any APHIS regulated waste. Ensure that the entire load is charged by digging down in the trench as necessary. Check that there is no residual material left on tipping floor.

9. If the APHIS regulated waste is wet and requires further mixing with dry waste, the waste should be taken from another area of the pit to the area where the APHIS regulated waste is and mixed in the trench. The APHIS regulated waste is not to be moved to any other areas of the pit once it has been dumped into the pit. Ensure that the entire mixed load is charged by digging down in the trench as necessary.

10. At least once per shift, the front end loader bucket, the floor, and any tools used to manipulate the APHIS regulated waste must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

11. Before performing any maintenance on the front end loader, the loader bucket must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

12. Before using the premixed bleach solution as a disinfectant, agitate the solution thoroughly.

13. If any residual material is observed on the floor, it should be pushed into the pit immediately. The crane operator will be notified and Steps 5-10 will be repeated as necessary.

14. At least once per shift and before performing maintenance/inspections/greasing, the grapple of the refuse crane that has charged APHIS regulated waste to a boiler must be disinfected with the bleach solution described in section II.5 using the sprayer and this must be documented in the logsheet.

15. When disinfecting the grapple, the following procedure will be used:

    a. Place the grapple on the charging deck in the open position.
    b. Using the sprayer, spray the interior surface of the grapple tines starting at the top pivot point and working down.
    c. Spray the overhead center hub as a last step in interior disinfection.
    Note: While spraying, do not stand under surfaces being sprayed.
    d. Spray the exterior surface of the grapple tines to complete the grapple disinfection.

V. SPILL RESPONSE PROCEDURES

1. The Fuel Handling Supervisor and Environmental Engineer or designee should be notified when a spill of regulated waste occurs in an area other than the tipping floor.

2. When a spill occurs, sweep up or scrape off as much of the contaminant as possible with a whisk broom and dust pan or shovel.

3. Apply absorbent material if needed (paper towel, etc.).

4. Place the sweepings, scrapings, and absorbent material in a 3 mil leak-proof plastic bag for incineration.

5. Free surfaces of grease or dirt when applicable.

6. Scrub the contaminated area or areas where the spill occurred using a detergent solution.

7. Flush the scrubbed surfaces with clean water.

8. When using the premixed bleach solution described in section II.5 as a disinfectant, agitate the solution thoroughly

9. Apply disinfectant generously covering the entire area and allow it to remain on the surface for at least 5 minutes.

10. Rinse the surface with clean water and allow the surface to dry

11. Dispose of all refuse, sweepings, and scrapings that are in the plastic bag in the pit for incineration.

VI. RECORDKEEPING REQUIREMENTS

1. When the APHIS approved hauler arrives at the scale house at the facility entrance, the origin and disposal (O&D) form carried by the hauler must be presented to the scale house personnel. This denotes the hauler name and origin and waste type of the material being delivered. If the review of documents and vehicle requirements proves satisfactory, the load information is entered into the scale house computer, a loop ticket is issued and highlighted as APHIS regulated waste, and the truck is released to proceed to the tipping bay. The scales are integrated into a computerized weighing system and weights of each load are recorded. Also recorded are the date and time the load of regulated garbage was received, the hauler name, and identification of the waste as international waste so that it is processed according to the USDA Compliance Agreement requirements.

2. Records must be kept of the dates that the bleach solution disinfectant is used in association with the handling of regulated garbage. Log sheets (shown on pages 5 and 6) will be maintained on the tipping floor and in the North Refuse Crane which will include the following information on disinfectant use:

   a. Date of use
   b. Location of use
   c. Name of disinfectant used
   d. Volume and concentration of sanitizer used

3. Documentation including date and time of notification of APHIS and US Customs and Border Protection (CBP) if there is any spillage of regulated garbage outside of the facility and the name of the employee making the notification must be maintained.

4. Records must be kept for three (3) years from the date of disinfectant or sanitizer usage.

VII. EMERGENCY BACK-UP PLAN

In the event that the facility is not able to accept waste due to a malfunction or outage, the local APHIS/CBP office will be notified immediately at (908) 986-9200 and will be advised in advance, as to the use of the following pre-arranged approved backup system:

Covanta Union, Inc.
1499 Route 1 North
Rahway, NJ 07065
(732) 499-0101

APPROVED:

Plant Manager	9/19/18 Date
Operations Manager	9/13/18 Date
Safety & Training Supervisor	9/13/2018 Date
Environmental Specialist	9/13/18 Date

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: Tipping Floor – Front End Loader Bucket and Bay 4 Floor

Date of Use	Volume Used (gallons)

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: North Refuse Crane – Grapple

Date of Use	Volume Used (gallons)

DISINFECTION OF APHIS REGULATED WASTE HANDLING EQUIPMENT

Disinfectant Used: Bleach Solution (1 part bleach, 9 parts water)
Location of Use: South Refuse Crane – Grapple

Date of Use	Volume Used (gallons)

ATTACHMENT 1
CORRECT DONNING AND REMOVAL OF PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR EBOLA

For most work tasks requiring PPE to protect a worker from exposure to Ebola virus, put on personal protective equipment in the following order:

1. Gown or Tyvek (if using double gloves, put on first pair before gown or Tyvek)
2. Mask (or respirator, when appropriate)
3. Face shield or goggles
4. Gloves

Remove PPE in a way to avoid self-contamination. This may include removing outer gloves simultaneously with the gown or Tyvek suit, decontaminating PPE between removal steps, or other measures. The order of PPE removal may vary depending on the type of PPE a worker uses, the nature of the work tasks being performed, and which devices or garments are contaminated, among other factors.

After use, remove and place suits, gloves, and disposable masks in a labeled waste container, as appropriate. Wash hands with soap and water, or use an alcohol-based hand gel if soap and water are not available. Reusable goggles, face shields, respirators, and other equipment must be decontaminated before re-use.

COVANTA ESSEX COMPANY
WASTE FLOW CONTROL PLAN
APPENDIX 7

Plant Specific Operating Procedure #42

Attachment 3

COVANTA

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PURPLE PLUME MITIGATION PLAN

Original, January 2022

VOLUME IX, CHAPTER 3A

Approved by: _____ **Date:** 1/10/22

COVANTA ESSEX COMPANY

OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3A

PURPLE PLUME MITIGATION PLAN

Original, January 2022

Purple Plume Mitigation

On December 20, 2019, Covanta Essex submitted a Purple Plume Prevention Plan to NJDEP (see Attachment 1) outlining planned efforts to eliminate the occurrence of purple plumes which occur when iodine containing waste is combusted. This was the basis of the requirements included in this Purple Plume Mitigation Plan (Plan) outlined below.

Iodine containing waste is prohibited from being delivered to the Covanta Essex facility. The following plan includes protocols and procecures to prevent the delivery of iodinated waste to Covanta Essex and procedures and training at Covanta Essex to prevent processing of any iodinated waste delivered to Covanta Essex and deposited in the tipping floor area.

1.0 Procedures to increase education and outreach

1.1 Distribution of Flyers

Covanta Essex distributes informational flyers (see Attachment 2) to the Essex County Utility Authority (ECUA) at least annually which ECUA includes in their billing invoices to all Essex county haulers to alert them of the problem created by the presence of iodine in waste delivered to Covanta Essex. Flyers are also sent to all the commercial haulers and the Department of Sanitation of New York (DSNY) at least annually that deliver waste to Covanta Essex.

These informational flyers may also be sent to local businesses identified using the Virtual Drive-By Procedure described in Section 2.1 below to educate them about iodine containing materials in the waste stream, and Covanta will also offer assistance to interpret any reagent SDS sheets.

1.2 Hospital Outreach

The following hospitals are known to deliver waste to the facility and will be sent the informational flyers referenced in section 1.1 above on an annual basis to continue to inform them that iodine containing waste is prohibited from being delivered to the Covanta Essex facility:

- St. Barnabas Medical Center, Livingston NJ
- Clara Mass Medical Center, Belleville, NJ
- Beth Israel Medical Center, Newark, NJ
- St. Michael's Medical Center, Newark, NJ
- UMDNJ Hospital, Newark, NJ
- East Orange General Hospital, East Orange NJ
- VA Medical Center, East Orange, NJ

1.3 Essex County Solid Waste Advisory Committee (SWAC) Outreach

When necessary, Covanta Essex will solicit route information from members of the Essex County SWAC where commercial stops are incorporated into municipal routes. This information is used in the "Virtual Drive-By" procedure discussed in Section 2.1 below.

1.4 Website Link

A website link has been created by Covanta Essex that lists all waste types that are prohibited from being accepted at Covanta Essex including waste that contains iodine. This link will be maintained on the website with the most current informaiton. This link will be included on all correspondence with ECUA, DSNY and all haulers delivering waste to the Covanta Essex facility. The link address is https://info.covanta.com/prohibited-wastes.

1.5 Troy Chemical Outreach

Covanta Essex used the "Virtual Drive-By" procedure discussed in Section 4.2 to identify Interstate Waste Services (IWS) as the waste hauler for Troy Chemical who was identified as the source of the iodinated waste after the April 7, 2020 purple plume event. Covanta Essex has reached out to Troy Chemical numerous times since then to inform them that IPBC and any other iodine containing compounds in their waste are not acceptable to be delivered to Covanta Essex. Troy Chemical has not responded to Covanta Essex. After receiving no response, Covanta Essex contacted IWS and instructed them to divert all waste from Troy Chemical to another disposal location. Future attempts to contact Troy Chemical will only be made in the event that waste from their Newark facility is discovered in any loads delivered to the facility.

1.6 Outreach via Covanta Invoicing

Covanta Essex has created invoice templates for its non-Essex County commercial waste haulers and other haulers that are billed directly by Covanta which include the above referenced website link for prohibited waste types. These will be used for all future billing cycles. The website link address is listed in section 1.4 above. A copy of an invoice containing the website link is included as Attachment 3 to this Plan.

1.7 Plant Signage for Prohibited Waste

The signs posted on the scalehouse that list all the prohibited waste types for the Covanta Essex facility shall include iodine containing waste as a prohibited waste type. The signage shall be updated as needed.

1.8 Type 27 Profiled Waste

Profiled Waste, also referred to as Special Waste, is Type 27 waste that is delivered to the Covanta Essex facility for destruction. Prior to being approved for delivery to the Covanta Essex facility, this waste is screened by the Covanta Environmental Services (CES) Environmental team to ensure that it does not contain any prohibited substances.

As part of the approval protocol, customers that request approval to dispose of their Type 27 waste at any Covanta facility must submit a Material Characterization Form (MCF) to the Covanta Environmental Solutions (CES) Environmental team that is responsible for screening all waste types for destruction at Covanta Waste to Energy (WtE) facilities. A copy of the Covanta MCF is included as Attachment 8. If iodine in any concentration is identified in Section 4 of the form as being in the waste, the waste is determined to be an unacceptable waste type for destruction in any WtE facility which includes the Covanta Essex facility. Additionally, for any waste that is proposed to be disposed of at the Covanta Essex facility, approval from the Environmental Specialist and the Facility Manager must also be given to the CES Environmental team after an additional review of the MCF and any other relevent information before the customer is given an approval to bring their waste to the facility.

2.0 Procedures to identify potential generators/sources of iodine containing waste, to ensure these wastes are not included in the waste streams coming to the facility and inspection/interception protocols to ensure these waste types are not processed through the facility

2.1 Virtual Drive-By Procedure

Covanta Essex has developed a detailed procedure to identify potential generators/sources of iodinated wastes in the facility's service area. These steps are summarized below:

Step	Action	Output	Covanta Essex Responsibility
1	Conduct Virtual Drive-By using Google Maps and going street by street and documenting: • the location (town, city) • business name and type • website address • contact information • list of products that may contain iodine.	List of businesses that potentially use iodine in their operation. Business types may include: • Large scale chemical companies; • Hospitals/Medical Labs • Printing companies • Veterinary clinics • College chemistry labs • Research facilities • Photography studios	Covanta support staff
2	Identify businesses that have waste delivered to Covanta Essex	Smaller pool of companies/haulers to investigate	Business Manager
3a	Contact hauler/generator to confirm that they delivered iodine-containing waste. If confirmed, then develop a plan to re-route source to a transfer station, ban their deliveries, or remove the iodine material from their waste stream	Confirmation of source	Business Manager

3b	Use the New Jersey's Community Right To Know database to check the inventory of target businesses for iodinated compounds	Confirmation of iodine-containing compounds on site	Environmental Specialist
4	Distribute flyers to customers/haulers	Educate waste generators/sources	Business Manager
5	Update waste screening protocols and train Covanta business units in screening non-residential waste approvals for targeted businesses and iodine containing wastes	Updated waste approvals	Covanta Business Units/Environmental Specialist

This procedure will be implemented in the event of any future purple plume events at the facility to identify the generator of the iodine containing waste.

2.2 Increased Hospital Load Inspections and Throwdown Inspections

All MSW loads received from hospitals are subject to inspection to check for iodine containing material in the waste which is prohibited. The procedure for these inspections includes pictures of typical items that may be found in hospital waste that could contain iodine to educate and train tipping floor operators. In a letter dated November 5, 2019 to NJDEP, Covanta Essex submitted its Hospital Waste Load inspection procedure and the original form used to identify loads of iodinated waste received at the facility. The Hospital Waste Load inspection procedure has been updated and now includes the following additional requirement that the waste will be raked as thinly as possible so that most of the waste is visible while performing the inspection. The current Hospital Load inspection procedure is included as Attachment 4 to this Plan. The standard throwdown inspection form for all waste load inspections has been updated and now also includes a section for identification of iodine containing waste as unacceptable waste and can also be used to document all hospital waste inspections. This form will now be used to document all waste load inspections, including Hospital waste load inspections. The updated form is included in Attachment 5.

Throwdown inspections are required to be performed on a minimum of 10% of all waste loads received per day. The inspections shall be done on a random basis throughout each shift.

2.0 Digital Camera Use

Between 2018 and 2019, Covanta Essex installed 10 HD digital cameras on the tipping floor. Four of the 10 cameras have additional pan, tilt and zoom (PTZ) capability. This PTZ capability allows for greater visual observation of loads. Additionally, 3 new HD digital cameras were installed over each of the three boiler feed chute hoppers. All recorded video footage by the cameras is stored and available for review for 40 days.

Covanta Essex plans to also install 7 additional HD digital cameras on the East Wall of the tipping floor, 4 additional HD digital cameras on the North side of the refuse pit, and 3 additional HD digital cameras on the South side of the refuse pit as part of the planned fire system upgrade to be installed in 2022. A diagram of the current and proposed loccations of all

cameras on the tipping floor and refuse pit are included as Attachment 6 to this Plan.

3.1 Tipping Floor Monitoring

The tipping bay office is located inside the North entrance of the tipping floor. For each operations shift, one tipping floor operator is stationed at the North entrance and a second operator operates the front end loader. Once the load has exited the scale and proceeded to the North entrance to the tipping floor (the waste receiving area), the truck is required to present a scale ticket to the operator at the entrance and is inspected for proper decals. Once approved, the truck is then assigned a bay where it can deposit its load of waste.

The computer monitor located in the tipping bay office displays all tipping floor camera views which allows the tipping floor operator that is stationed at the North entrance to view all bays where waste is deposited. The operator can zoom in on any load using the cameras equipped with PTZ capability and can visually inspect the load for prohibited or unprocessible waste types as the truck unloads onto the tipping bay floor. The use of the cameras in addition to the throwdown inspections allows for greater visibility of all loads delivered to the tipping floor so that unprocessible waste can be identified and prevented from being processed.

3.0 Training

4.1 Annual Environmental Training

A training program is conducted annually to review all sections of the Environmental Compliance Operating Manual (ECOM) and is provided by the Environmental Specialist to all Covanta Essex employees who have responsibilities affecting the operation of the facility, including, but not limited to chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Section 3 of the ECOM covers types of waste that are acceptable and unacceptable at the facility, including waste with iodine, and required procedures for inspecting waste loads on the tipping floor, handling any unacceptable waste that is identified on the tipping floor, and management of the refuse pit by the refuse crane operators.

4.2 Waste Inspection and Camera Use Training

Refresher training will be provided to tipping floor attendants and refuse crane operators on completing inspections focused on MSW loads from hospitals on both the tipping floor and within the refuse pit on an annual basis. Training will include a review of inspection methods and proper completion of the throwdown inspection sheet and procedures for rejecting unacceptable and prohibited waste including iodine containing waste. The training will also include a review of the use of the cameras on the tipping floor for monitoring of loads.

4.3 Control Room Operator Purple Plume Response Procedure

All Control Room Operators (CROs) have been provided a procedure detailing response steps to be taken if a purple plume event occurs to minimize the impact of the event on opacity. The procedure is in a binder that is kept in the control room for easy access to all CROs when

needed if an event occurs. This procedure is also included in Attachment 7 to this plan.

5.0 Annual Review of Plan

The Purple Plume Mitigation Plan shall be reviewed on an annual basis to assess whether further improvements or enhancements could be made to ensure that iodine containing waste is not processed at the Covanta Essex facility.

Attachment 1

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Covanta Essex Company
183 Raymond Blvd
Newark, NJ 07105
Tel 973 344 0900

VIA E-MAIL AND CERTIFIED MAIL

December 20, 2019

Richelle B. Wormley, Director
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Release Prevention
New Jersey Department of Environmental Protection
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Trenton, New Jersey 08625-0420
michael.hastry@dep.nj.gov

Re: Covanta Essex Company – Draft Purple Plume Prevention Plan

Dear Ms. Wormley and Mr. Hastry:

On behalf of Covanta Essex Company ("Covanta"), I am writing in furtherance of our meeting on December 10th to discuss Covanta's ongoing efforts to prevent purple (iodinated) plumes at the Essex County Resource Recovery Facility ("Facility") located at 183 Raymond Boulevard in Newark. Covanta understands and appreciates the concerns expressed by the Ironbound Community Corporation and the New Jersey Department of Environmental Protection ("DEP") regarding these atypical visible emissions, and we are committed to finding a solution to prevent their occurrence.

As explained in the presentation that we shared with you last week, a copy of which is attached, a plume with a pink to purple color is caused when sufficient quantities of iodine are present in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in the Facility's boilers. Covanta has been working rigorously to develop a two-pronged solution to prevent the occurrence of purple plumes: (1) develop a robust set of plans and procedures to prevent delivery of iodinated waste to the Facility in the first instance, and (2) in the event that iodinated waste nevertheless makes its way into the boilers, to have a system in place to reduce iodine emissions and thus minimize the formation of a purple plume.

The purpose of this letter is to present in DRAFT form our proposed strategy to address the five (5) specific action items identified by DEP for inclusion in Covanta's Purple Plume Prevention Plan:

1. Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2. Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility.
3. Evaluate potential human health risks associated with purple plume emissions.
4. Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume event.
5. Review and evaluate the safety and efficacy of the proposed purple plume mitigation system

In response to DEP's request, Covanta will secure the services of independent contractors to review past and present efforts to prevent purple plume events, results obtained to date, and other ideas for consideration. Purple plumes are not acceptable to us and we welcome all efforts to prevent delivery of iodinated waste to the Facility.

Covanta's proposed approaches to the five action items, further detailed in Covanta's Purple Plume Prevention Plan attached, are as follows:

- The attached responses to action items 1 and 2 identify a wide range of efforts already implemented by the Facility to identify potential sources of iodinated waste, to prevent delivery of such waste to the Facility, and to detect the presence of iodinated waste on the Facility's tipping floor to keep it from reaching the boilers. Those efforts are continuing; however, to date we have not identified a generator of iodinated waste that can be linked to the plume events at the facility. We are also installing high resolution digital cameras that will record all waste charged to a boiler. If a purple plume should develop, those cameras and back up files would assist in identifying the nature of the waste and potential identification of the source (hauler/generator). Other technology-based solutions under consideration include iodine monitors in the pit area.

- The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on a recently completed facility-wide risk screening assessment completed in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. The report includes ambient impacts determined from dispersion modeling using the U.S. Environmental Protection Agency AERMOD model, and was designed to correlate facility operating conditions with short term and long term ground level impacts. The results from Part 1 will be compared to established iodine exposure standards and will serve as the foundation for a timely and complete evaluation of potential human health risks associated with purple plumes.

- The Facility's response to action item 4 identifies all recent community outreach efforts. With regard to purple plume events, Covanta has engaged with local and regional media including the *Star-Ledger*, *Newark Patch*, News 12 NJ and CBS 2 New York to educate the public and explain the events. The facility also created an educational flyer/poster used for outreach to customers, haulers and hospitals that explains the type of waste that may contain iodine and provides

contact information to discuss alternative disposal options. We will be formulating a plan for alerting the local community in the event of a purple plume. In the meantime, the annual Open Public Meeting for the Facility occurred at the Blueprint Café (369 Raymond Boulevard, Newark), on December 18, 2019, during which we responded to questions from the public based on currently available information.

- In response to action item 5, the Facility has been actively involved in the development of a possible purple plume prevention technology. A test skid for one boiler (unit) is currently scheduled for delivery in the January-February time frame with testing scheduled to occur sometime in the 1st quarter of 2020. Testing would be limited to demonstrating that the injection of sodium thiosulfate solution promotes the formation of sulfur dioxide, which in turn reacts with iodine to prevent a plume from developing. This mitigation technology is in the development phase and would only be used when a plume is developing; it would not be in operation on a continuous basis. Implementation on all 3 combustion units at the Facility would occur only following a complete evaluation of the technology, and subject to any necessary DEP approvals.

We are evaluating qualified independent contractors so that we can implement their review as soon as we arrive at a final plan. We expect that each action item may require its own contractor or contractors and that each action will also have its own implementation schedule. The plan is to implement each as soon as possible.

We look forward to your feedback on this draft action plan however that does not mean that we have stopped researching the issues. Efforts on each of the five action items are continuing and will continue as we wait for your response. We are available to discuss at your convenience.

If you have any questions, please contact Patricia Earls at 973-817-7322 or pearls@covanta.com.

Sincerely,

David Blackmore
Facility Manager

Cc: Anthony Fontana, Solid Waste Permitting
(anthony.fontana@dep.nj.gov)
Jeffrey Meyer, Northern Regional Air Enforcement Field Office
(jeffrey.meyer@dep.nj.gov)
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Brian Bahor, Covanta
Jack Bernardino, Covanta
Patricia Earls, Covanta

DRAFT

Covanta Essex Purple Plume Prevention Plan

Action Item	Action
1	Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2	Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP's) to screen/manage waste once it arrives at the Facility.
3	Evaluate potential human health risks associated with purple plume emissions.
4	Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume.
5	Review and evaluate the safety and efficacy of the proposed purple plume mitigation system.

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DRAFT Action Item # 1

1.0 Action

Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.

1.1 Purpose

An independent contractor will review past and ongoing efforts to identify generators who could be the source of iodinated waste causing colored plumes.

1.2 Goal

Prevent further deliveries of iodinated waste.

1.3 Scope of contractor review

1.3.1 Background

Table 1 summarizes the outreach and inspection plan including a brief summary of efforts to date by Covanta Essex to investigate generators and haulers and inspections at Covanta Essex. This plan is an evolving work-in-progress and is updated to include lessons learned and new information and ideas.

1.3.2 Scope of contractor review

The independent contractor will review efforts outlined in Table A to identify and contact generators and to inspect deliveries of hospital waste and other non-hazardous waste known as Type 10 & 27. Contractor's review should consider any new ideas or approaches that would improve that outreach effort to prevent deliveries and/or activities at site to inspect waste deliveries.

Table A Outreach and Inspection Plan for Iodine Bearing Waste

A.1 Purpose

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Facility, the following actions have been and continue to be implemented by Covanta Essex:

A.2 Outreach to generators

Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) and has been included in their billings to all Essex County haulers
	That same flyer was mailed to all the commercial haulers that deliver waste to the Facility
	That same flyer has also been sent to the Department of Sanitation of New York (DSNY)
	Covanta hosted its annual Hauler Day at the Facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.
Transfer Station waste	Transfer stations in Paterson and Totowa owned by Covanta affiliates separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to the Facility.
Direct outreach by phone to hospitals that have waste delivered to the Facility. Major hospitals include;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael's Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for:	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
	IWS is to distribute our iodine flyer to the hospitals
Other hospitals	Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear. With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the Facility.
Findings to date	One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection

Identify other sources of iodinated waste.

Goal	Activity
Identify other generators beyond hospitals	Evaluating generators in Essex County, Passaic County and New York City
	Medical service providers including dental offices, veterinary hospitals and offices, urgent care facilities, surgery centers, dialysis centers, doctor's offices, and X-ray contrast media producers
	Adding chemical companies and food manufacturers
	Compare waste delivery schedule with past plume events

A.3 Facility Inspections

A.3.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified on the form and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked "Hospital"
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

A.3.2 Other Type 10 and Type 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked "Type 27" by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types. This is in addition to the normal inspections which is performed on 10% of the incoming trucks per day.

(a) Iodine has many uses including as an additive to nutrition products, and a wide range of medical, agricultural, and industrial applications. The leading application of iodine is in the production of X-ray contrast media (22%). Another application of iodine is in polarizing film in liquid crystal display (LCD) screens, where iodine is incorporated as a polyiodide (I_3^- or I_5^-). Potassium iodide is used in iodine tablets to be taken during nuclear accidents to protect the thyroid against exposure to radioactive iodine. Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application. Other applications include pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis. An additional use of iodine is in Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

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DRAFT Action Item # 2

2.0 Action

Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility

2.1 Purpose

Evaluate existing practices to investigate content of trucks delivered to the facility.

2.2 Goal

If an iodinated waste is delivered to the facility, prevent it from being combusted.

2.3 Scope of contractor review

Review existing practices and procedures. Review must consider health and safety of personnel on site while facility is conducting normal business practices.

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DRAFT Action Item # 3

3.0 Action

Evaluate potential human health risks associated with purple plumes.

3.1 Purpose

An independent contractor will review results from the recent dispersion modeling report to determine the ground level impacts of iodine and possible health impacts.

3.2 Goal

Estimate the ground level impact of iodine and how it compares with documented heath-based standards.

3.3 Scope of contractor review

3.3.1 Background

Covanta recently completed a facility-wide risk screening assessment in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. This report is described as a second-level risk screening assessment which determined ambient impacts from dispersion modeling from application of U.S. Environmental Protection Agency's AERMOD model. Second-level screening is a more rigorous evaluation as compared to first-level screening which uses dispersion look-up tables and DEP's risk screening spreadsheet.

The report was designed to correlate facility operating conditions with short term and long term ambient impacts. The results provide the ability to estimate ambient level iodine concentrations for comparison with established iodine exposure standards.

3.3.2 Scope of contractor review

The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on the recently completed facility-wide risk screening assessment "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" completed in connection with the Facility's Title V operating permit renewal.

Part 2 will include a survey of recognized exposure standards for iodine for comparison with estimate ground level impacts.

DRAFT Action Item # 4

4.0 Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume.

4.1 Purpose

Ensure effectiveness of community outreach practices, including timely communication in the event of a purple plume.

4.2 Goal

Covanta, along with Corporate Outreach and Communication resources will continue to plan community outreach activities as has been done historically. In addition, Covanta will investigate methodologies for communicating relevant operational information, including incidents involving a purple plume, to the community.

4.3 Scope

Develop outreach activities and present options on an immediate notification in the event of a purple plume.

4.3.1 Background

Community Outreach is typically targeted at developing long term, meaningful relationships with various members and groups within the community. Covanta has participated in a number of events to support various initiatives and address issues within its community.

Historically, operational information, whether routine or a deviation have not been communicated to the community directly, unless triggered as part of a specific incident with possible immediate impacts to the community or environment.

4.3.2 Scope of Contractor Review – general community outreach

An Agency with expertise in Marketing and Communications will review the Facility's outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Plan Community Outreach Activities	Follow past practice to develop an outreach strategy appropriate for the facility stakeholders and local community.
Investigate Communication Methodologies	Determine what information and what timeframe is appropriate to communicate to the community.
	Investigate communication technologies appropriate for large scale communication of information.

Examples of previous outreach activities in 2018 and 2019 that would be reviewed to determine appropriateness for 2020 include:

1.0 Meet periodically with stakeholders:
- Essex County Utilities Authority
- Essex County Executive
- City of Newark
- Ironbound Community Corporation
- Ironbound Business District
- Newark Board of Education

2.0 Member Essex County Solid Waste Advisory Committee

3.0 Member Newark Regional Business Partnership

4.0 Accept Pharmaceutical Takeback:
- Newark Police
- Essex County
- New Jersey Field Office DEA

5.0 Board member and Participant in NJ Clean Communities Program (includes litter cleanup at Valisburg Park)

6.0 Food Drive to benefit Pierre Toussaint Food Pantry Newark

7.0 Event Sponsor
- Millburn Township Earth Day
- Essex County Parks Earth Day
- Holiday Lights at Turtleback Zoo
- Giraffe Exhibit at Turtleback Zoo

8.0 Coordinate with Go Green Initiative pilot in Newark City School District. Provide support for Sustainable Jersey School Certification

9.0 Sustainable Jersey Sponsor

10.0 Donated reusable water bottles to Miller Street School for field trip and to teach about waste reduction

11.0 Conduct tours for visitors from NJIT, Rutgers, other community groups

12.0 Host Annual Open House

13.0 Sponsor 4E-waste collection events (1 in Ironbound)

14.0 Install Rain Garden at St. Benedict's School in Newark

15.0 Newark Sustainability Summit Participant

16.0 Hosted a 4-week summer program for Boys and Girls Club

17.0 Publish Quarterly Newsletter to the Community & Stakeholders

4.3.3 Scope of Contractor Review – community outreach for an event

An Agency with expertise in Marketing and Communications will review Covanta's proposed outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Evaluate Outreach and Communication Plan	Engage an Agency with Marketing and Communications expertise to review Covanta Essex's proposed outreach activities and communication actions, which will include an option for notification in the event of a plume.

DRAFT: Action Item # 5

5.0 Review and evaluate the safety and efficacy of the proposed purple plume prevention system

5.1 Purpose

An independent contractor will review the plan to use sodium thiosulfate to prevent a purple plume. Note that the addition of sodium thiosulfate is proposed only during a purple plume event and would not be in continuous operation.

5.2 Goal

Evaluate viability of sodium thiosulfate and other possible options for preventing the plume.

5.3 Scope of contractor review

5.3.1 Background

A colored plume with a pink to purple color is due to iodine in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in a municipal waste combustor (MWC) at the Facility. Iodine is converted to a component of flue gas including I_2 which is the form that promotes a pinkish/purplish plume. Control of I_2 requires mitigation technology in an addition to the existing air pollution control systems. The proposed sodium thiosulfate (ST) system would only inject a ST solution when needed, it would not be in continuous operation.

ST prevention was initially used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber only when iodinated waste is incinerated. That facility has the advantage of knowing when iodinated waste is being combusted because such waste is accepted for disposal as part of that company's normal business. In contrast, Covanta does not purposefully accept iodinated waste for disposal and any delivery of iodine occurs as a constituent of MSW. Application of ST at a MWC was initially evaluated at Covanta's sister facility in Lancaster, PA as a "proof of concept" that ST would breakdown and form SO_2 which is known to react with I_2. Initial efforts at the Covanta Lancaster facility have demonstrated the potential for ST as a prevention strategy however there are significant design differences between the Covanta Lancaster and Covanta Newark facilities including the equipment (grate, furnace and boiler), MSW quantity and origin and flue gas residence time and temperature through the system. We are not assuming that the ST prevention technology information from Covanta Lancaster translates directly to the Newark Facility and are therefore proposing to implement ST technology on one unit to confirm its potential as an I_2 mitigation technology.

Covanta has conducted R&D tests to evaluate the optimum injection location however that is a work in progress. Covanta is also using three consultants affiliated with universities to evaluate the basic ST prevention strategy and other issues that may impact its effectiveness.

5.3.2 Scope of contractor review

Independent contractors have already been involved in various aspects of the prevention design and optimization. The new independent contractor will be tasked to review the entire strategy and to consider alternative solutions. The scope of the contractor's review will include but not be limited to general mitigation chemistry, ST injection strategy and alternative prevention strategies.

AGENDA

Covanta Essex Purple Plume Management Plan
December 10, 2019 Meeting
Covanta Essex and NJDEP

Purpose - provide responses to questions posed by NJDEP -

- What actions Covanta has taken to date to identify source(s) of iodine
- Describe why SO2 levels drop to near zero right before and during purple plume events. Is the SO2 being converted to sulfuric acid for example?
- Can Covanta quantify how much iodine would be needed to generate a purple plume for about 3 hours (e.g. June 2019 event)?
- Background info on sodium thiosulfate contemplated for mitigation of purple plumes. What type of emissions are produced?

Goals:

- Identify underlying knowledge about iodine plume – its origin and mitigation
- Identify steps to prevent and mitigate purple plumes from iodinated waste
- Solicit NJDEP feedback on mitigation with generators

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Covanta Essex : Purple plume management strategy

Situation:
Opacity exceedances correlated with purple plumes are presumably due to iodine in MSW delivered to the facility

Remedy: A two part solution

Part 1: Prevent delivery of iodinated waste to Covanta Essex

Refer to handout “Outreach and Inspection Plan for Iodine Bearing Waste Covanta Essex County Resource Recovery Facility (ECRRF)

Part 2 : Evaluate plume mitigation technology

a. Theory and Research
b. Field program results
c. Next steps

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Part 1: Outreach as purple plume management strategy

Purpose of outreach plan

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Essex County Resource Recovery Facility (ECRRF), the following actions have been and continue to be implemented by Covanta Essex Company.

Plan Outline

1.0 Outreach to generators

- Direct contact with generators and haulers where possible

2.0 Inspections

- Other Type 10 and 27 Waste Inspections
- Hospital Waste Inspections

3.0 Other

- Managing any collected iodine Waste
- Technology Upgrades

Part 1: Outreach as purple plume management strategy

1.0 Outreach to generators - Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) which has been included in their billings to all Essex county haulers
	That same flyer was mailed to all the commercial haulers that deliver waste to the ECRRF
	That same flyer was also been sent to the Department of Sanitation of New York (DSNY)
	Covanta hosted its annual Hauler Day at the Essex facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.
Transfer Station waste	Covanta owned transfer stations in Paterson and Totowa separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to ECRRF.
Direct outreach by phone to hospitals that have waste delivered to Covanta Essex. Major hospitals include;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael's Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for;	• St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
	IWS is to distribute our iodine flyer to the hospitals
Other hospitals	Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear. With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the ECRRF.
Findings to date	One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection

Part 1: Outreach as purple plume management strategy

-

2.0 Inspections

2.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked "Hospital"
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

2.2 Other Type 10 and 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked "Type 27" by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Essex facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types.
	Based on research on other uses of iodine, we've notified commercial haulers to note customers that manufacture X-ray contrast solution, film and food products.

Part 1: Outreach as purple plume management strategy

2.2 Continued

(a) Possible sources of iodine from medical, agricultural, and industrial applications include; 1) iodine is in the production of X-ray contrast media, 2) polarizing film in liquid crystal display (LCD) screens, 3) Potassium iodide is used in iodine tablets to be taken during nuclear accidents, 4) Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application, 5) pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis and 6) Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

3.0 Other

3.1 Managing any collected iodine Iodine Waste

- Iochem Coporation, the largest producer of medical grade iodine in North America, has offered to take any recovered iodine in BULK quantities for free at their facility in Oklahoma. They will consider smaller quantities in bottles depending on the quantity.
- In the event that Covanta identifies hospitals or other sources that need assistance with disposal of any expired iodine containing material, this can be an alternative for disposal of that material in an environmentally sound way.

3.2 Technology Upgrades

Goal	Activity
Hi definition cameras on tipping bay and hoppers	Installed one camera over Bay 2 on tipping floor with high definition zoom capability to provide an additional tool to see waste in tipping bays. Can also record footage for review after a purple plume event. Plan is to install additional cameras on tipping floor and over boiler feed hoppers.

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Part 2: Plume mitigation technology – theory and research -

Background:

- Iodine is known to generate a pink/purple plume when it is present as diatomic iodine - I_2
- Observations at Covanta Essex and elsewhere have identified a unique characteristic of iodine where it reacts with SO_2
- The primary chemical reaction under consideration;

EQN 1 : $I_2 (g) + SO_2 (g) + 2 H_2O = 2 HI + H_2 SO_4$

- Equation 1 establishes that iodine (I_2) reacts with SO_2 on a 1:1 molar basis
- Equation 1 explains why SO_2 goes to "zero" when a purple plume develops (see following slide of Oct 10th event as an example)
- If H_2SO_4 was generated, it would be removed by the semi dry scrubber system
- Hydrogen iodide (HI) is a very reactive gas (similar to HCl) and would dissolve quickly in water and react with calcium hydroxide

Additional research;

1. Utilization of corporate resources and independent 3rd parties to research;
   - Potential causes of colored plumes
   - Potential mitigation technology/chemistry for colored plumes
   - Iodine behavior
2. Effectiveness of sodium thiosulfate at Covanta Lancaster

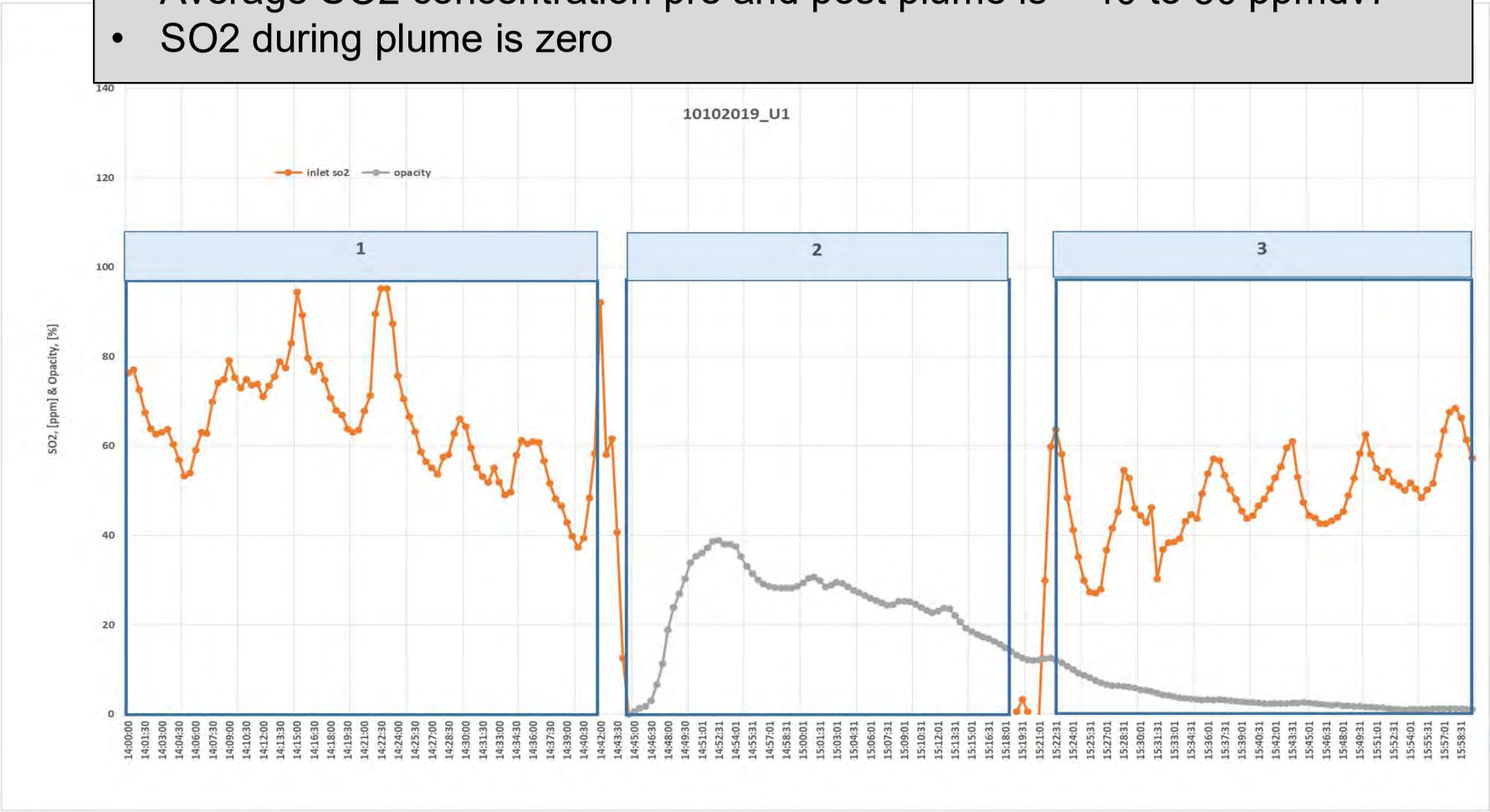
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Part 2: Plume mitigation technology

– October 10, 2019 as example of SO_2 and I_2 reaction -

Observations

- Average SO2 concentration pre and post plume is ~ 40 to 50 ppmdv7
- SO2 during plume is zero



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Part 2: Evaluation of June 19, 2019 Opacity event

OPACITY DATA					Average
CEM time	L1	L2	L3	Average	
12:12	0	2	1	1	
12:18	0	12	3	5	
12:24	0	27	13	13	
12:30	1	34	20	18	18.5
12:36	1	25	15	14	
12:42	1	32	16	16	
12:48	2	50	21	24	
12:54	3	39	39	27	
13:00	6	27	35	23	
13:06	6	23	32	20	
13:12	7	22	25	18	
13:18	8	18	22	16	
13:24	7	16	18	14	
13:30	7	16	15	13	
13:36	7	15	16	13	
13:42	5	15	16	12	
13:48	4	12	15	10	
13:52	4	11	18	11	
14:00	3	13	17	11	
14:06	3	17	10	10	
14:12	3	17	10	10	
14:18	2	26	9	12	
14:24	2	17	9	9	
14:30	2	12	10	8	
AVG	3.5	20.8	16.9	13.7	

Overview

- All 3 MWC units had elevated opacity readings and pink or purple colored plume
- Unit 2 and 3 had opacity above the opacity limit of 10 % as a 6-minute average
- The maximum 1-hour average opacity was estimated to be 18.5 % and correlated to 30 ppm of I_2 at actual stack conditions
- 30 ppm of stack I2 was initially estimated to create a maximum 1-hour ground level concentration of 0.0045 ppm when using dispersion modeling results from a recent air toxics analysis (March 2019).
- Ambient impacts were below NJ DOH workplace references for I_2 (OSHA, NIOSH and ACGIH)
- Current estimate of average I_2 was ~ 18 ppm, actual concentration, during maximum hour
- I_2 behavior is being researched

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Covanta Essex : Essex test plan

Background

- Sodium thiosulfate (ST) is used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber
- Application of ST at a municipal waste combustor at Covanta Lancaster was novel idea that was based on adding SO_2 to facilitate reduction of I_2
- Grate/furnace design of Covanta Lancaster and Covanta Essex are different (see next slide)
- Covanta Lancaster has semi dry scrubbing technology, somewhat similar to Covanta Essex however details are different
- "full scale" R&D test has demonstrated the potential to mitigate purple plumes though not conclusive. Questions remain which is the driving force behind additional test program.

ST strategy

- Chemical reaction: $Na_2S_2O_3 + 2HCl \rightleftharpoons 2NaCl + S + SO_2 + H_2O$
- Store ST as 30 weight % solution
- Inject only when necessary

Covanta Essex Plan

- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO_2
- Continue to learn from other ongoing efforts at Covanta Lancaster.

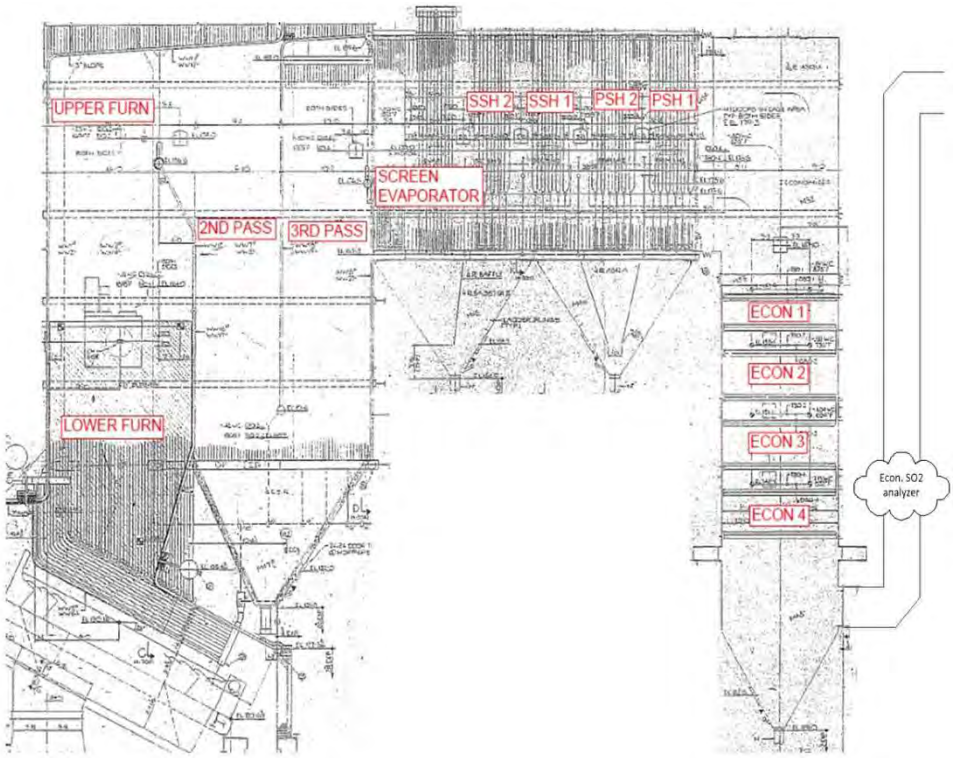
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Grate/furnace/boiler: Covanta Lancaster and Essex

Different design, waste and operating conditions create different flue gas velocities, residence time and temperature profile through unit – therefore separate evaluation required

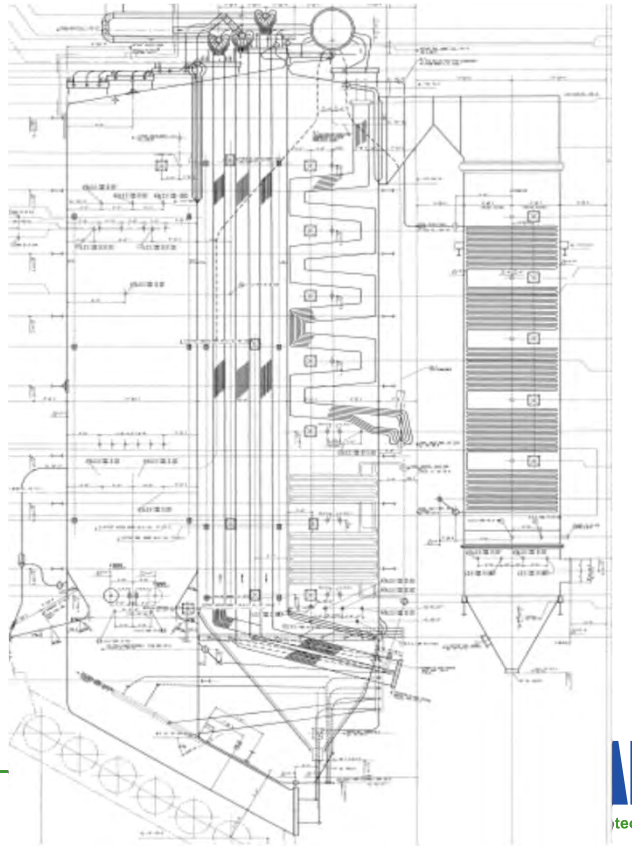
Covanta Lancaster

- Martin Gmbh grate/furnace/boiler
- Three units, each rated at nominal 400 TPD



Covanta Essex

- DBA roller grate/furnace/boiler
- Three units, each rated at nominal 933 TPD



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Covanta Essex : Summary and Conclusions

Summary

- A 2-part program is being implemented to prevent purple plumes at Covanta Essex;
  1. Outreach efforts to prevent deliveries of iodinated waste to Covanta Essex.
  2. Evaluation of mitigation technology to control an opacity event if iodinated waste is delivered and combusted.
- Outreach efforts to waste generators, haulers and others have been underway and are being expanded.
- Mitigation technology is under investigation where injection of sodium thiosulfate is used to remove iodine from flue gas
- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO_2
- Additional research is being conducted in parallel thru independent 3rd parties on causes and control of colored plumes

Conclusions

- Existing outreach and communication is being expanded but at present we have not identified any sources of waste that could cause the colored plumes
- Sodium thiosulfate is being evaluated as a mitigation technology however implementation at Covanta Essex requires a field test program to evaluate its effectiveness.

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Attachment 2

What is the Purple Plume?

Visible evidence that iodine is in the waste stream

WE NEED YOUR HELP!!

Please Keep Iodine Out of the Waste Stream



We need your help in preventing iodine from getting into the waste that you deliver to the Covanta Essex Energy-from-Waste facility. Combustion of iodine can lead to the discharge of unwanted, visible Pink/Purple plumes from the facility stack.

If you have waste that contains iodine, please contact Jack Bernardino at 732-956-1436.

Covanta Essex thanks you for your cooperation!

183 Raymond Blvd
Newark, NJ 07105



¿QUE ES UN HUMO COLOR PURPURA?

Es la evidencia visible de que los residuos contienen yodo.

¡Necesitamos Tu Ayuda!

Por favor mantenga el yodo fuera del flujo de residuos



Necesitamos tu ayuda para evitar que el yodo ingrese a los desechos que usted deposita en las instalaciones de Covanta Essex Energy- from Waste. La combustión de yodo puede conducir a visibles descargas de humos no deseados, color rosado / púrpura de la pila de chimenea.

Si tiene desechos que contienen yodo, comuníquese con Jack Bernardino al 732-956-1436.

¡Covanta Essex gracias por su cooperacion!

183 Raymond Blvd
Newark, NJ 07105



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Attachment 3

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INVOICE

Invoice: 376080ESSEX
Invoice Date: 12/15/21
Page: 2 of 2

Original

Line	From Date PO Ref#	To Date	Ticket # Manifest#	Approval #	Description Origin/ destination	Qty Truck#	UOM	Unit Amount	Net Amount
1	12/09/2021	12/09/2021	2305107	13149	Aphis Waste Ton-Indirect Feed International - 9900	0.230 11953	TON		
2	12/10/2021	12/10/2021	2305371	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.170 11941	TON		
3	12/15/2021	12/15/2021	2306518	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.250 11941	TON		
					Recycle Tax	14.650			
					Environmental, Insurance and Sec Recovery Fee	14.650			

Total Amount:

Remittance Information:

Use following for ACH : JPMORGAN CHASE BANK N.A.
Chicago, IL
Bank/ABA/Routing # : 071000013, Bank Acct. # : 675522767
Account name: **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

Use following for WIRE : JPMORGAN CHASE BANK N.A.
New York, NY
Bank/ABA/Routing # : 021000021, Bank Acct. # : 675522767
Account name: : **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

For overnight and local courier, the following address is required:
JPMorgan Attn: Lockbox Covanta Energy, LLC, Lockbox # : 28893
4 Chase Metrotech Center - 7th floor East
Brooklyn, NY 11245

ALL REMITTANCES MUST REFERENCE Customer No.:COV13680 Invoice No.: 376080ESSEX.
PLEASE EMAIL ALL PAYMENT REMITTANCE INFORMATION TO customerpayments@covanta.com

Help us prevent unacceptable waste at Covanta Essex. Click https://info.covanta.com/prohibited-wastes for more info.

Attachment 4

COVANTA ESSEX HOSPITAL LOAD INSPECTION PROCEDURE

1. FLAGGING LOADS AT SCALEHOUSE

a. Haulers delivering from hospitals in Essex County will be identifying loads from hospitals on the O&D forms going forward. The current known haulers are but not limited to:
   i. Interstate Waste Services (IWS)
   ii. T. Farese
   iii. LT Roselle; and
   iv. Giordano Company
b. These loads are typically compactor loads that contain 100% hospital waste.
c. The scalehouse operator is to make a note on the stage ticket that the load is from a hospital by marking “Hospital” on the ticket for the tipping floor operator.

2. WASTE INSPECTIONS ON THE TIPPING FLOOR

a. Once a notification is received from the scale house or the “Hospital” notation is observed on the stage ticket at the North entrance door, the tipping floor operator will have Bay #4 cleared if there is waste in the bay so that the hospital load can be dumped into Bay #4 for a closer inspection. Hold the truck at the door until Bay 4 is ready to receive the load.
b. Once the load is dumped into Bay 4 and the truck has left the bay and it is safe to do so, the tipping floor operator will walk over to Bay 4 for a closer visual inspection of the load. The “Covanta Essex Hospital Load Inspection Form” (attached) will be used to document the inspection. To provide for the operator’s safety, no loads are to be dumped in Bay 3 or Bay 5 during the inspection.
c. A visual inspection of the load will be conducted to determine if there are any containers of iodine containing material or any medications which contain iodine. The operator will use the visual aids provided for examples of this material to determine if it is visibly present in the load.
   i. The inspector will conduct a visual inspection only and will not handle the load or the materials directly.
   ii. The inspector may use a long handled tool such as a fire hook to move materials as needed. The waste will be raked as thinly as possible so that most of the waste is visible.
d. If nothing is observed that appears to contain iodine, the operator will note that the load is acceptable on the inspection form and the load can be pushed into the refuse pit.
e. If material is identified that may contain iodine, the operator will note this on the inspection form and will contact the Shift Supervisor, Chief Engineer, and/or Environmental Specialist for further instructions. The load is to be left in Bay 4 until the material can be examined by one of the above supervisors.
f. If it is determined that the material does appear to contain iodine, the material will be isolated in the unacceptable waste container on the tipping floor for alternate disposal.
g. The customer, hauler, and Essex County will be notified of the material observed in the compactor.

Attachment 5

COVANTA ESSEX WASTE LOAD INSPECTION REPORT

INSPECTION TYPE: (CIRCLE ONE) VISUAL (ON FLOOR) CAMERA (TIPPING BAY OFFICE)

BAY ASSIGNMENT: 2 3 4 5 6 7 8 9 10 11 12 13 14 15 CIRCLE BAY # ASSIGNED

INSPECTOR:	VEHICLE DATA:		COMPANY VEHICLE #	
DATE:	TYPE OF VEHICLE	NJDEP DECAL #	TRUCK #	NJ DEP # *(Painted)*
TIME:	TRUCK			
HAULER:	ROLL-OFF		LIC PLATE # FRONT	REAR
TAG#:	TRANSFER			
WASTE TYPE:	ACCT. #		HOSPITAL WASTE?	YES NO

UNACCEPTABLE WASTE TYPES AND IDENTIFIERS

POTENTIALLY HAZARDOUS:

LIQUID SOAKED DEBRIS _____
EXPLOSIVES _____
INDUSTRIAL CONTAINERS _____
RADIOACTIVE MATERIAL _____
DRY/POWDERED MATERIAL _____
PRESSURIZED VESSELS _____
WARNING LABELS _____
MOTORS _____
PAINTS _____
WET SOLIDS _____
UNUSUAL ODOR _____

IODINE WASTE:

LIQUID IODINE _____
ANTISEPTIC IODINE_____
- BETADINE ANTISEPTIC _____
- POVIDONE IODINE _____

MEDICATIONS W/IODINE _____
DYES OR INKS _____
PHOTO FILM/CHEM _____
INDUSTRIAL CHEMICALS _____
OTHER _____

REGULATED MEDICAL WASTE:

CULTURES AND STOCKS (CLASS 1) _____
PATHOLOGICAL WASTE (CLASS 2) _____
HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) _____
SHARPS (CLASS 4) _____
ANIMAL WASTE (CLASS 5) _____
ISOLATION WASTE (CLASS 6) _____
UNUSED SHARPS (CLASS 7) _____

RECYCLABLES:

ALUMINUM ____ CARDBOARD _____ PLASTIC ___ GLASS ____ BULK LOAD (100%) ____

BULKY WASTE (TYPE 13):

APPLIANCES _____
TAR PAPER/SHINGLES _____
METAL PRODUCTS _____
CEILING TILES _____
SHEET ROCK _____
BALES _____
BED SPRINGS _____
RUBBER PRODUCTS _____
C & D WASTE _____
AUTO PARTS _____
OTHER (SEE COMMENTS) _____

TYPE 27 - UNACCEPTABLE PORTIONS

NJDEP PROHIBITED WASTE _____
NON-RESPONDENT/INSUFFICIENT TO SURVEY _____
HAZARDOUS IMPACT ON EMISSIONS ___
HAZARDOUS WASTE _____
HAZ. EFFECT ON ASH _____
NON-COMBUSTIBLES _____

OVERALL RESULTS:

ACCEPTABLE LOAD _____ UNACCEPTABLE LOAD _____ DRIVER SAFETY VIOLATION _____

COMMENTS:

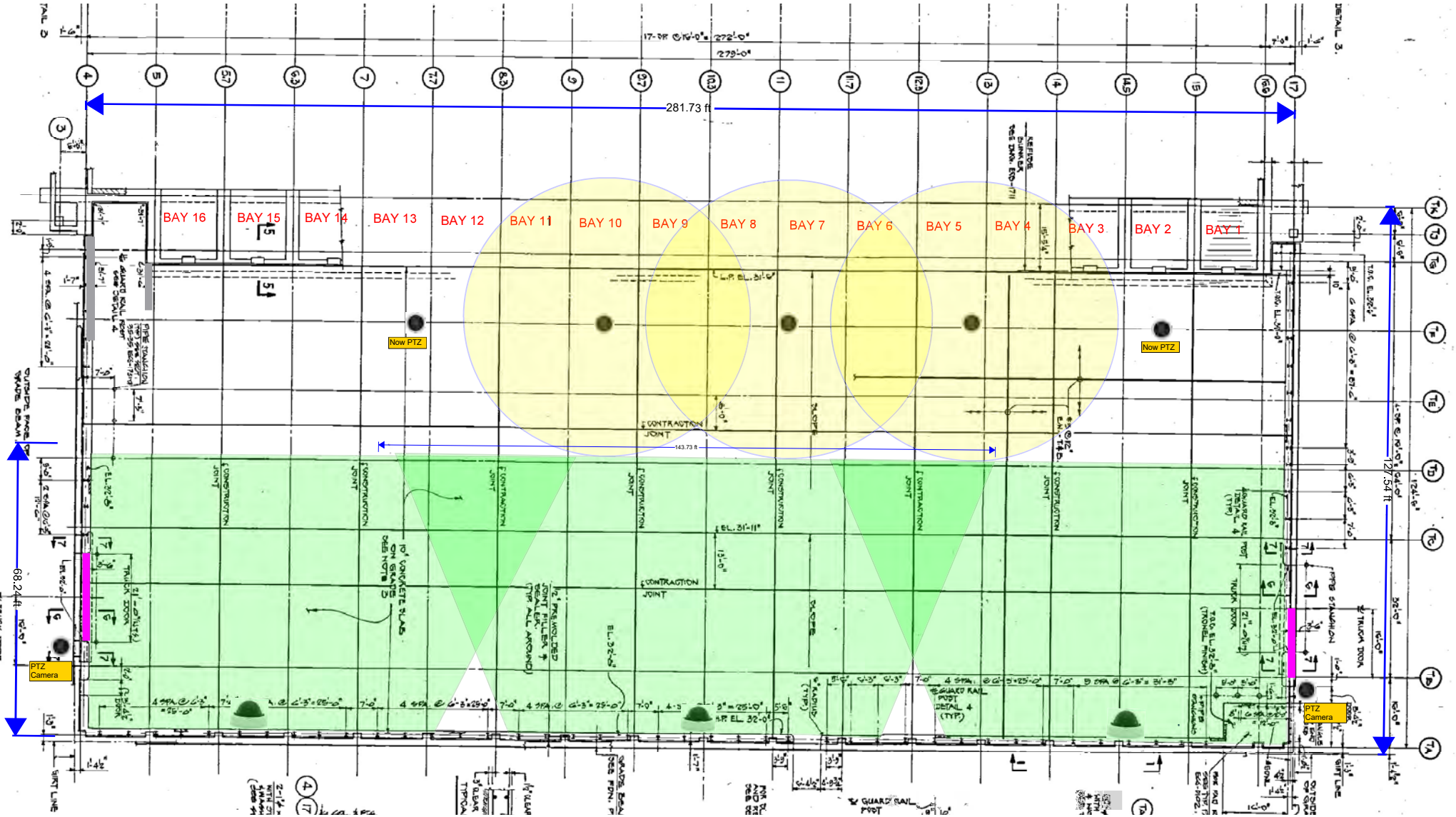
FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:

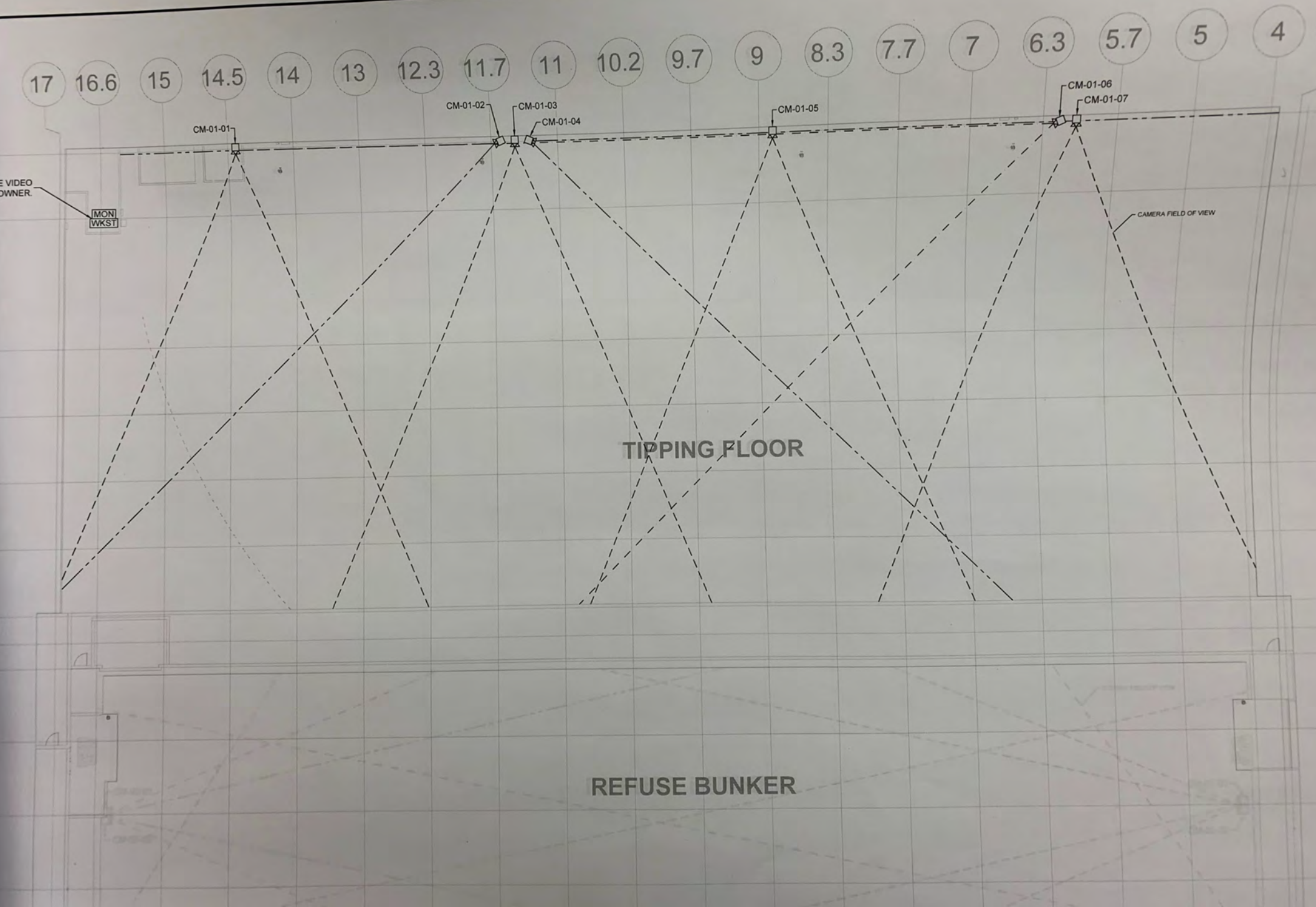
1) SHIFT SUPERVISOR ON DUTY		
2) ENVIRONMENTAL SPECIALIST		
2) OPERATIONS MANAGER		

*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED

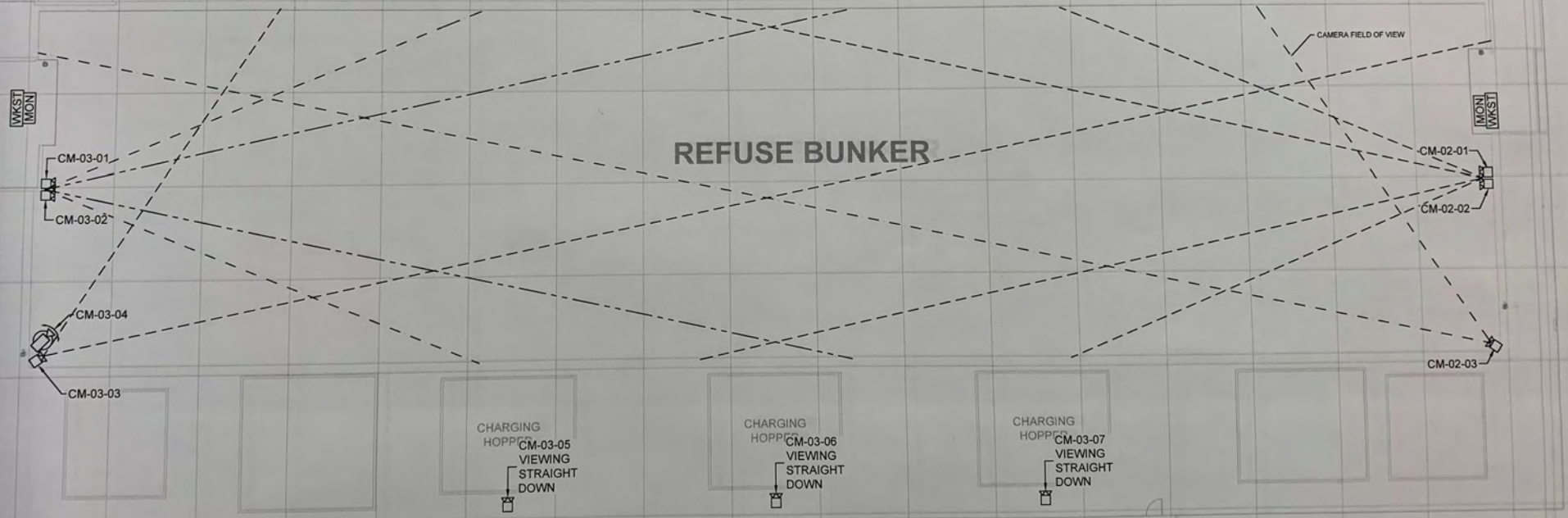
PLEASE INCLUDE PICTURES OF ALL UNACCEPTABLE WASTE

Attachment 6


GROUND FLOOR PLAN AT EL. 32'-0"
281.73 ft
BAY 16
BAY 15
BAY 14
BAY 13
BAY 12
BAY 11
BAY 10
BAY 9
BAY 8
BAY 7
BAY 6
BAY 5
BAY 4
BAY 3
BAY 2
BAY 1
Now PTZ
Now PTZ
PTZ Camera
PTZ Camera
68.24 ft
127.54 ft
143.73 ft
CONTRACTION JOINT
TRUCK DOOR


17
16.6
15
14.5
14
13
12.3
11.7
11
10.2
9.7
9
8.3
7.7
7
6.3
5.7
5
4
CM-01-01
CM-01-02
CM-01-03
CM-01-04
CM-01-05
CM-01-06
CM-01-07
E VIDEO
OWNER
MON
WKST
CAMERA FIELD OF VIEW
TIPPING FLOOR
REFUSE BUNKER

TIPPING FLOOR



BOILER AREA

Attachment 7

Response Steps for a Purple Plume Event

An alarm to alert the operator that a purple plume event may be happening has been added to Citect. The alarm is based on inlet SO2 dropping to a very low level compared to where it was several minutes earlier. This alarm will clear when inlet SO2 increases to a more normal level. The alarm will only function when the affected controller is in AUTO. This may occur shortly before or at the same time that opacity levels begin to spike.

The following response steps should be taken when this alarm comes in or when a visible observation of a purple plume is made:

1. When the alarm comes in on Citect for a purple plume indicated by a rapid decrease in inlet SO2, pull up the control screen for purple plume in Citect for the affected boiler.

2. Pull up the trend screen on Citect called “Purple Plume” for the affected boiler to verify a rapid decrease in SO2 and increase in opacity.

3. Check stack camera to get a visual observation of a purple plume if possible.

4. If alarm is verified by step 2 and/or step 3 above, decrease furnace draft to a setpoint of -0.1. Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.

5. Do <u>not</u> increase lime slurry flow. <u>Reduce</u> lime slurry flow until the event is over.

6. Report any opacity exceedance to NJDEP Hotline within 15 minutes of the end of the first 6 minute averaging period that is above the 10% limit. When the event is over, if there are additional exceedances, another call must be made to the Hotline to follow up on the previous notification with the updated exceedance information.

Note: Based on the trends from some of the past events, inlet SO2 has been seen to increase after a few minutes, only to drop back to near zero several minutes later and/or to be jumping up and down at a level below where it was prior to the event. This is most likely due to more than one pocket of the source of the iodine in the fuel stream. Therefore, at the present time the alarm has been implemented, but control logic has not.

Purple Plume Opacity Decision Tree

Purple Plume Alarm in Citect

- Based on inlet SO2 dropping to a very low level compared to where it was several minutes earlier.
- Only functions when the affected controller is in AUTO.

Purple Plume Alarm is Triggered in Citect?

Yes

Pull up the control screen for purple plume in Citect for the affected boiler.
Pull up trend on Citect called "Purple Plume" for Boiler that is alarming. Determine if inlet SO2 is rapidly decreasing and opacity is increasing indicating a real purple plume event

Check stack camera to get a visual observation of plume if possible.

Can purple plume be verified in either of the above steps?

No

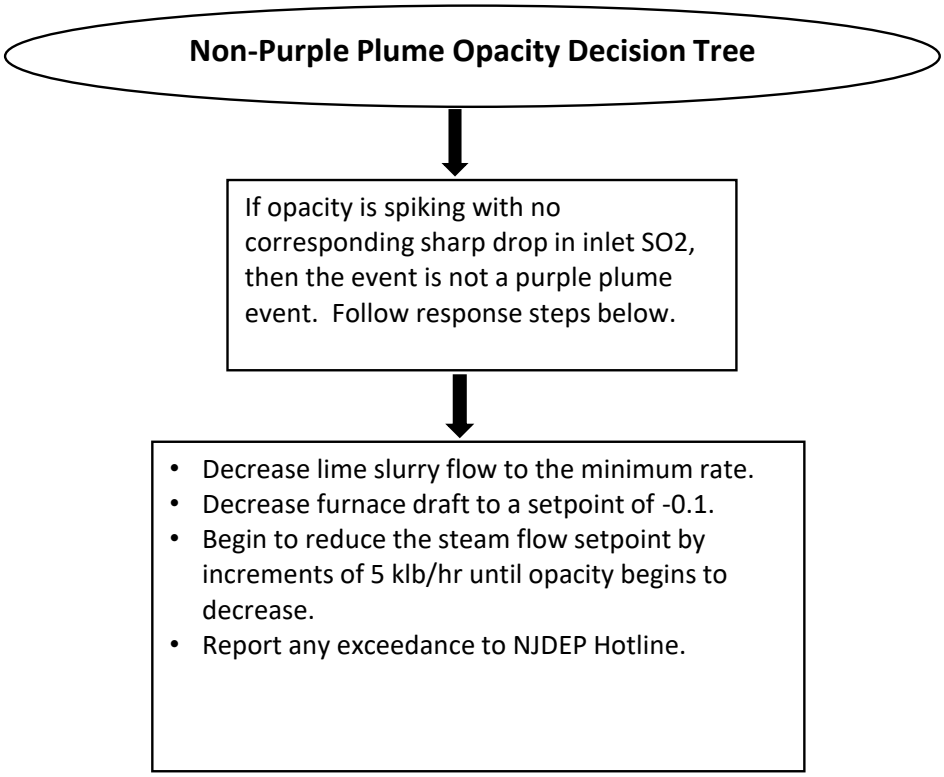
Treat event like any other opacity spike

Yes

- Decrease furnace draft to a setpoint of -0.1.
- Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.
- Reduce lime slurry flow. Do not increase slurry flow.
- Report any exceedance to NJDEP Hotline.

No

Treat event like any other opacity spike


Non-Purple Plume Opacity Decision Tree
If opacity is spiking with no corresponding sharp drop in inlet SO2, then the event is not a purple plume event. Follow response steps below.
• Decrease lime slurry flow to the minimum rate.
• Decrease furnace draft to a setpoint of -0.1.
• Begin to reduce the steam flow setpoint by increments of 5 klb/hr until opacity begins to decrease.
• Report any exceedance to NJDEP Hotline.

Attachment 8

COVANTA Environmental Solutions

Material Characterization Form (MCF)

Section 1 - General Customer Information REQUIRED SECTION *(If multiple generating or shipping locations, include a list as an attachment)*

Generator Company Information

Company Name _____

Address _____

City _____ State _____ Zip Code _____

Phone # _____ Fax # _____

Service Company Information

Company Name _____

Address _____

City _____ State _____ Zip Code _____

Phone # _____ Fax # _____

Primary Contact Information - *Enter the contact information for the person who can answer questions about the waste and process.*

Contact Name _____

Title _____

Company Name _____

Phone # _____ E-mail _____

Billing Information - *Identify where Covanta should forward invoices:*

☐ *Generator's Address;* ☐ *Service Company's Address; or* ☐ *other*

Address _____

City _____ State _____ Zip Code _____

Contact Name _____

Phone # _____ E-mail _____

Will a PO Number be required? ☐ *No* ☐ *Yes*

☒ ***Service Company Authorization***

On Behalf of the Generator of the waste profiled herein, I hereby authorize the aforementioned Service Company; and/or ☒ Covanta Environmental Solutions to complete Covanta's Material Characterization Form (MCF) and all other necessary forms for the disposal of the non-hazardous waste described on them. Furthermore, I understand that the completion of this authorization provides consent to characterize and profile this waste.

Generator's Representative

Name _____

Title _____ _____ _____

Signature *Date*

Section 2 - Waste Stream Information

2.1 - Name of Waste - An answer on this item is **REQUIRED** _____

2.2 - Physical Form - An answer on this items is **REQUIRED**

☐ Consumer Packaged ☐ Bulk ☐ Solid (Non-Dusting) ☐ Powder ☐ Waxy Solid ☐ Liquid ☐ Semisolid ☐ Other: _____

2.3 - Other Physical Characteristics

Odor: _____ Flash Point (°F): _____ pH: _____ Heating Value (in BTUs/lb): _____ ☐ Estimated; or ☐ Measured

2.4 - Container Type - An answer on this items is **REQUIRED**

☐ Steel Drums ☐ Plastic (Poly) Drums ☐ Fiber Drums ☐ Supersacs ☐ Cubic Yard Boxes ☐ Totes ☐ Pails ☐ Other: _____

2.5 - Quantity per Delivery _____

2.6 - Frequency _____

2.7 - Delivery Vehicle _____

2.8 - Waste Process Description

Provide a detailed description of the waste generating process. Describe the materials used to generate the waste, as well as, any other chemical or physical constituents that may be present as a result of commingling or contamination. Provide a process flow diagram if possible. Attach additional pages if necessary.

Name of Waste: _____

Section 3 - Regulatory Waste Classification

3.1 Is the profiled waste an EPA **RCRA Listed Hazardous Waste** per 40 CFR 261? ☐ NO ☐ YES - **STOP, Waste is unacceptable**

3.2 Is the profiled waste an EPA **RCRA Characteristic Hazardous Waste** per 40 CFR 261? ☐ NO ☐ YES - **STOP, Waste is unacceptable**

3.3 Is the profiled waste a "Hazardous Waste" as defined by the State of Origin? ☐ NO ☐ YES - specify State ID: _____

3.4 Does the waste meet the definition of any of the following in the State of Origin? *(Check all that apply)*:

☐ None ☐ Special Waste ☐ Residual Waste ☐ Regulated Waste - State Waste Code: _____ ☐ Other: _____

3.5 Does the waste meet the exemption criteria from any of the following? *(Check all that apply. A separate addendum may be required)*

☐ Aqueous Solution (<24% Alcohol and >50% Water) ☐ Non-Terne Plated Used Oil Filters ☐ RCRA Empty ☐ Other: _____

3.6 Please describe how the previous questions were answered *(Check all that apply)*

☐ Analytical Data ☐ Generator Knowledge ☐ Other: _____

3.7 Please select any of the following terms that are associated with the profiled waste *(Check all that apply)*

☐ Household Hazardous Waste (HHW) ☐ FIFRA ☐ DOT Reg. ☐ OSHA ☐ CERCLA Site ☐ Radioactive ☐ Treated Medical Waste

Section 4 - Waste Composition

4.1 - Constituents - An answer on this item is **REQUIRED**.
Identify the *TOTAL* concentration of the following constituents, if present in the profiled waste. Report ***TOTAL*** concentration results as weight percent (wt.%) or ppm. ***Do not report TCLP results in this section.*** If a constituent is not applicable, please identify it by noting "N/A"; if not present, please mark it as zero (0). If the profiled waste stream is made up of several components, products or materials, please estimate these constituents' concentrations using generator knowledge or supporting information.

☐ N/A for all constituents below ☐ Zero (0) for all constituents below

Bromine	ppm	Antimony	ppm
Chlorine	wt.%	Beryllium	ppm
Fluorine	ppm	Cobalt	ppm
Iodine	ppm	Copper	ppm
Nitrogen	wt.%	Manganese	ppm
Sulfur	wt.%	Nickel	ppm
Arsenic	ppm	Vanadium	ppm
Barium	ppm	Zinc	ppm
Cadmium	ppm	Aluminum Oxide	ppm
Chromium	ppm	Silicates	ppm
Lead	ppm	Silicone	wt.%
Mercury	ppm	Titanium Dioxide	wt.%
Selenium	ppm	Water	wt.%
Silver	ppm	Alcohol	wt.%

4.2 - Composition - An answer on this item is **REQUIRED**.
Identify the components that make up the profiled waste. If packaging is considered as a component of the waste, please estimate the waste's packaging range. Attach additional pages if needed.

Component	Range (wt.%)
TOTAL COMPOSITION	≥100

Section 5 - Non-Hazardous Waste Certification

I certify, as an Authorized Representative of the Generator, that this document, including all completed forms and all pertinent addenda, accurately represent and describe the waste stream outlined. The information submitted is true, accurate and complete, and no available information has been omitted or falsified. I further certify that the profiled waste is non-hazardous based upon Federal, State and Local Regulations.

Generator's Authorized Representative

Name _____

Title _____

Company _____ _____ _____

Signature Date

PMK Group
CONSULTING ENGINEERS

DIRECTORS:
Philip M. Keegan
James Ferris, P.E.
Gerald Perricone, P.E.
James Johnston, P.E.
Robert M. Gerard

REPORT OF ENVIRONMENTAL CONSULTING SERVICES

1993 ESSEX COUNTY UTILITIES AUTHORITY WASTE SURVEY

PREPARED FOR:

THE ESSEX COUNTY UTILITIES AUTHORITY
120 FAIRVIEW AVENUE
CEDAR GROVE, NEW JERSEY 07009

PREPARED BY:

PMK GROUP
493 LEHIGH AVENUE
UNION, NEW JERSEY 07083

Eugene E. Brandt

EUGENE E. BRANDT
PROJECT ENGINEER

JAMES FERRIS, P.E.
PRINCIPAL/VICE PRESIDENT

April, 1994

4923R8

PMK Group
CONSULTING ENGINEERS

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Certificate of Approved Registration and Engineering Design Approval (CAREDA)

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Minimal Computer System Requirements
Name, Structure, and Content of Each Database Table
Special Codes Used In Data Entry
Color Coded 1993 ECUA Waste Survey Form
Indicating Contents of Each Database Table

PMK Group
CONSULTING ENGINEERS

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APPENDIX E – List of Facilities Inspected

APPENDIX F – 1993 ECUA Facility Categorization

APPENDIX G – Recommended ECUA Notification Letters and Mailing Lists

SECTION I: PROJECT BACKGROUND

The 1993 Essex County Utilities Authority Waste Survey was conducted by the Essex County Utilities Authority (ECUA) to partially fulfill the requirements of Condition 26 of the Certificate of Approved Registration and Engineering Design Approval (CAREDA) for the Essex County Resource Recovery Facility (ECRRF or the "Facility") located in Newark, New Jersey. Condition 26 of the CAREDA required the Registrant (American Ref-Fuel Company of Essex County) to establish and maintain a program to detect and remove unauthorized wastes in the industrial waste stream from entering the ECRRF. Unauthorized wastes were defined in Condition 2 of the CAREDA and are identified by their New Jersey Department of Environmental Protection and Energy (NJDEPE or the "Department") identification numbers (see Appendix A to this report for a description of waste materials listed by their NJDEPE ID number, and a copy of the CAREDA).

Specifically, Part (a) of Condition 26 of the CAREDA required the following:

1. Identification of all haulers handling NJDEPE Waste Type ID 27.

2. A determination of the sources of NJDEPE Waste Type ID 27.

3. A notification to all firms capable of generating NJDEPE Waste Type 27 within the service area requiring them to provide appropriate descriptions of the waste which they generate.

In the Summer/Fall of 1990, the Essex County Division of Solid Waste Management (predecessor to the ECUA) conducted the 1990 Essex County Industrial Waste Survey to establish a program to meet the requirements stated above.

Additional goals established by Essex County for the 1990 Industrial Waste Survey were to provide information about the County's industrial waste stream which would be useful in maintaining the operation of the RRF in compliance with the facility's Air Pollution Control Permit and the requirements of the Resource Conservation Recovery Act (RCRA) for the residual ash.

Specifically, additional goals of the 1990 Industrial Waste Survey were to:

1. Identify potential sources of waste materials, which when incinerated, would be likely to cause or contribute to the emission of various air pollutants in excess of the limits established in the facility's Air Pollution Control Permit.

2. Identify potential sources of waste materials, which when incinerated, would be likely to cause or contribute to the residual ash being classified as hazardous under the provisions of RCRA and/or as outlined in Condition 39 of the CAREDA.

The 1990 Industrial Waste Survey was completed near the end of 1990.

Realizing that inevitable changes that occur in industrial operations over time will alter the characteristics of the waste stream generated by those industries, the ECUA initiated the 1993 ECUA Waste Survey in March of 1993 to update the data gathered during the 1990 Industrial Waste Survey.

The goals of the 1993 ECUA Waste Survey were similar to the goals of the 1990 Industrial Waste Survey. However, the 1993 ECUA Waste Survey was also designed to partially fulfill the requirement for removal of "materials of concern" stated in the NJDEPE's Certification of the September 9, 1992 amendment to the Essex County District Solid Waste Management Plan (the "Certification"). This requirement is more fully described below.

The NJDEPE, in its Certification, ordered Essex County to submit a report to the Department outlining plans and specific timetables for the removal of "materials of concern" from the solid waste stream being directed to and processed at the Essex County Resource Recovery Facility. Specifically, at a minimum, the plan was to address:

1. Efforts already being used by the County for removal of toxic materials from the waste stream, particularly mercury;

2. Specific plans and timeframes for the removal and separate management of consumer batteries, fluorescent light bulbs, thermometers, and thermostats, all of which contain mercury and other heavy metals;

3. An inventory of potential generators of the above materials, such as jewelers, hospitals and large commercial/institutional/industrial buildings and plans for education and separate collection/drop-off of these materials;

4. Specific plans and timeframes for the removal of wallboard; grass and other yard wastes from the incoming waste stream toward further reducing sulphur dioxide (SO_2) and nitrogen oxide (NO_x) emissions;

5. An inventory of large generators of wallboard and plans for education and separate collection/drop-off and disposal (non-incineration) of this material;

6. Plans for implementing a combination of grass cut-it and leave-it programs, backyard composing and/or compost facility development or expansion plans to include management of grass clippings. This must include an inventory of existing facilities which accept grass for composing, as well as a listing of all landscapers operating within the County;

7. Specific plans and timeframes for developing comprehensive recycling and waste diversion programs which support the prohibition from acceptance at the ECRRF of paints, tires, electronics and vehicular materials, such as batteries, from the residential, commercial, institutional and industrial sectors to further reduce the potential for toxic materials entering the facility; and

8. Specific plans and schedules for expanding existing household hazardous waste collection programs and/or the development of a permanent household hazardous waste collection facility and management program for the County.

The "Materials of Concern" that the material separation program was meant to address included:

1. Solid waste materials containing heavy metals (including but not limited to mercury). Examples of these types of materials include consumer batteries, fluorescent light bulbs, thermometers, thermostats, consumer electronics, and vehicular materials.

2. Solid waste materials which, when incinerated, contribute to the emission of sulphur dioxide (SO_2) and nitrogen oxides (NO_x). Examples of these types of materials include tires, wallboard, grass and other yard wastes.

3. Hazardous waste materials which may potentially be delivered to the facility.

The 1993 ECUA Waste Survey was designed to generate data in order to provide a mechanism for prohibiting generators of "materials of concern" from delivering those materials to the ECRRF.

SECTION II: SERVICES PROVIDED BY CONSULTANT

The PMK Group (PMK) was retained by the ECUA to provide technical assistance in conducting and analyzing the results of the 1993 ECUA Waste Survey.

The services provided by PMK were conducted in two phases, and included the following:

Phase I – Preparation of Survey Form and Mailing List

PMK reviewed the 1990 Industrial Waste Survey Form and provided specific recommendations for modifications to the form. The review addressed the following criteria:

1. That the form would provide information which would be useful in complying with the CAREDA requirements, and which would provide information useful in complying with the Facility's Air Pollution Control Permit, RCRA and other applicable regulations.

2. That the form contained the appropriate questions which would provide the ECUA with as much information as possible concerning generators of unauthorized waste.

3. That the form generally contained questions that yielded information useful to the ECUA in the operation of the ECRRF and in the general operation of the County's solid waste management program.

4. That the form was presented to the production and service industries and health care facilities in such a way as to maximize response and cooperation, and minimize confusion regarding the intent of the survey.

5. That the form was structured so that responses could be efficiently organized into a computerized database.

6. That the form would generate data relative to the NJDEPE's requirement for removal of "materials of concern."

PMK also prepared the mailing list for the 1993 ECUA Waste Survey. The mailing list prepared by PMK for the 1993 ECUA Waste Survey was significantly expanded from the mailing list utilized for the 1990 Industrial Waste Survey. This was done to partially address the NJDEPE's requirement for removal of "materials of concern," and to broaden the database of information available to the ECUA concerning the waste streams generated by service and production industries and health care facilities located within the County.

The mailing list for the 1993 ECUA Waste Survey was compiled from the following sources:

1. The mailing list utilized for the 1990 Industrial Waste Survey.

2. A list provided by the Essex County Department of Planning and Economic Development of industries in Essex County.

3. The Essex County entries contained in the New Jersey Directory of Manufacturers, 1992–1993 edition, published by Commerce Register, Inc.

4. The Essex County entries contained in the 1993 edition of McRae's Industrial Directory, published by BRP Publications, Inc.

5. A list supplied by the State of New Jersey Department of Environmental Protection and Energy, Division of Environmental Safety, Health and Analytical Programs, of facilities in Essex County required to submit information relative to the Community Right to Know Survey for 1992.

6. The following lists provided by the State of New Jersey Department of Health for Essex County:

    a. Licensed Adult Day Health Care Facilities
    b. Licensed Psychiatric Hospitals
    c. Medical Day Care Programs in Licensed Facilities
    d. Licensed Long Term Care Facilities/Licensed Home for the Aged
    e. Licensed Ambulatory Care Facilities
    f. Licensed Residential Alcoholism Treatment Facilities
    g. Licensed Residential Drug Treatment Facilities
    h. Licensed General, Special, and Comprehensive Rehabilitation Hospitals

<u>Phase II – Review and Follow-Up of Survey Responses</u>

Completed survey forms were received by the ECUA, and were subsequently forwarded to PMK. Upon receipt, we provided the following services:

1. We organized the responses into a computerized database in order to efficiently evaluate the information, and enable the ECUA to retrieve, utilize, and update the information in the future.

2. We reviewed each form transmitted for content and completeness.

3. Based on our knowledge of specific industrial, commercial, and institutional processes and the waste which those processes typically generate, we analyzed a sampling of the responses in detail in order to evaluate the accuracy of the information provided.

4. We requested additional information from selected facilities whose responses to specific questions on the survey did not appear to coincide with the anticipated nature of their operations. In addition, follow-up contact was made with those facilities who did not respond to the survey.

5. We conducted on-site inspections at targeted facilities suspected of generating NJDEPE Type ID-27 waste in the prohibited categories.

6. We provided specific recommendations to the ECUA regarding those facilities which should not be allowed to have their solid waste delivered to the ECRRF based on our review of the survey forms relative to the criteria established in the CAREDA, and in the NJDEPE's requirement for removal of "materials of concern."

Details regarding the execution and results of our services for each of these items are presented in the following sections of this report.

SECTION III: EXECUTION AND RESULTS - PHASE I - PREPARATION OF SURVEY FORM AND MAILING LIST

PMK reviewed the 1990 Industrial Waste Survey Form. The review focused on content, structure and conformance with regulatory requirements, as previously outlined in this Report. Based upon this review, PMK designed and generated a new form. This proposed new form was transmitted to the ECUA for review and comment. The form was revised by PMK to incorporate the ECUA's comments, and the final 1993 ECUA Waste Survey Form was transmitted to the ECUA on July 29, 1993.

The 1993 ECUA Waste Survey Form utilized for this project, as well as the correspondence and accompanying information transmitted with the form to the selected Essex County service and production industries and health care facilities, is provided in Appendix B to this report.

The mailing list developed by PMK contained 4,245 entries and was transmitted to the ECUA on August 20, 1993. The mailing list was also transmitted to the ECUA in electronic format on a computer diskette which was utilized to generate mailing labels.

SECTION IV: PROCEDURES USED FOR MAILING, RECEIPT AND HANDLING OF SURVEY FORMS

A draft transmittal letter to accompany the 1993 ECUA Waste Survey Form was developed by the ECUA and was forwarded to PMK for review and comment. PMK provided specific recommendations for revision of the draft transmittal letter to the ECUA on August 18, 1993.

The 1993 ECUA Waste Survey Form and transmittal letter was transmitted by certified mail by the ECUA on or about September 21, 1993 to those service and production industries and health care facilities appearing on the mailing list developed by PMK.

The completed survey forms were received by the ECUA and the original forms were periodically forwarded to PMK for technical review and follow up.

As stated in the transmittal letter accompanying the form, service and production industries and health care facilities were encouraged to telephone either PMK or the ECUA with any questions or problems they had in completing the form. PMK handled an average of approximately 350 such telephone calls per week within the first 3 weeks after the forms were mailed. In general, the questions concerned the definition of solid waste, as well as which solid waste materials were reportable on the survey form. Identification of waste materials by the correct NJDEPE identification number was also a typical problem encountered. In general, most facilities did not know their SIC number. Additionally, many facilities did not believe that the survey pertained to them.

SECTION V: EXECUTION AND RESULTS – PHASE II – REVIEW AND FOLLOW UP OF SURVEY RESPONSES

1. Organization of Computerized Database

The responses to the 1993 ECUA Waste Survey that were transmitted to our office were subsequently organized into a computerized database. The software used for this purpose was a commercially available application called Paradox, Relational Database, Release 3.5, Copyright (C) 1985, 1990 by Borland International, 1800 Greenhills Road, P.O. Box 660001, Scotts Valley, CA 95066–0001.

The data provided on the 1993 ECUA Waste Survey Forms was organized into three distinct database tables.

Appendix C to this report contains a detailed description of the database and its structure including:

1. The minimal computer system requirements necessary to use the Paradox program.
2. The names and content of each Paradox table.
3. The special codes used in data entry.
4. A 1993 ECUA Waste Survey Form color–coded to designate the information contained in each Paradox table.

2. Analysis of Responses

Each 1993 ECUA Waste Survey Form received by PMK was reviewed for content and completeness. The review process focused on identifying facilities whose waste products consisted of either:

1. NJDEPE waste types in the prohibited categories as defined by the CAREDA;
2. "Materials of concern" as previously defined, or;
3. Materials present in typical solid waste that, if delivered to the Resource Recovery Facility, could potentially contribute to the emission of regulated components of the Facility's Air

inspection. Any additional information obtained was documented by PMK and utilized in the evaluation and classification of the facility.

A follow-up letter was developed by PMK to be sent to those facilities who did not respond to the 1993 ECUA Waste Survey.

The follow-up letter was subsequently transmitted by the ECUA via certified mail on or about November 8, 1993 to those facilities which had not returned a survey form.

A copy of the follow-up letter is provided in Appendix D to this Report.

4. On-site Inspection Procedures

On-site inspections were conducted at selected facilities in order to gather additional information concerning a facility's operations or waste products, and/or to verify the accuracy of a facility's responses.

Facilities were selected for on-site inspections based on the following criteria:

1. The facility returned a survey form, and our review indicated:

    a. the form contained information provided by the facility which indicated that the facility could potentially generate problematic waste materials, and sufficient information was not provided to indicate that the potentially problematic waste materials would be segregated from any acceptable materials and properly handled (i.e., disposed at facilities other than the ECRRF, recycled, reused, etc.), or

    b. the waste products reported by the facility did not coincide with those anticipated based on the nature of the operations, as indicated by their SIC number or as reported in question 8 on the survey form, and the anticipated waste products could potentially be problematic waste materials.

Once a facility was targeted for inspection, the facility representative listed was contacted by telephone to schedule an inspection.

On-site inspections were conducted with the understanding that there was no specific regulatory or statutory authority granting the ECUA (or its representatives or agents) access to private facilities in the County for the purpose of conducting an on-site inspection of the facility's waste.

However, since the ECUA has the responsibility for implementing the County's management of non-hazardous solid waste generated within the County, it has the authority to exclude waste from the ECRRF. Since the ECUA would be basing its decision of acceptability of waste on the results of the 1993 ECUA Waste Survey, incomplete or inaccurate information provided by a facility on the survey form could result in that facility's waste being prohibited from the ECRRF. Therefore, facilities selected for an on-site inspection were informed that their participation was voluntary, but that their lack of cooperation might unnecessarily preclude their waste from being delivered to the ECRRF.

Representatives from PMK performed the on-site inspection as arranged with the facility representative. The inspection consisted of a brief visual observation of the facility's operations, interviews with facility representatives, and a review of the facility's waste collection and handling procedures. The results of the on-site inspection were documented by PMK and used in the evaluation and classification of the facility's waste.

Samples of waste materials were not gathered for laboratory analysis during the on-site inspections. The visual observations of our inspection personnel, combined with descriptions, and/or laboratory analysis results provided by facility representatives, were found to be adequate to characterize questionable waste materials without further sampling.

Appendix E to this Report provides a list of those facilities that were inspected.

5. Facility Categorization

A. Criteria

Based on our evaluation of a facility's responses on the 1993 ECUA Waste Survey Form, any additional information obtained from the facility, and/or the results of our on-site inspection, each facility was placed into one of the eight categories described in Section V.2 of this Report. A description of the categories, and the criteria used to place a facility in the category are presented below.

Category 0 – Non-Applicable Facilities

All facilities which reported being out-of-business or having moved out of the County were placed in this category. Other facilities not specifically targeted for this survey (such as schools) were also placed in this category.

Category 1 – Facilities Generating Prohibited NJDEPE Waste Types

All facilities who reported generating, were observed to generate, or were suspected of generating NJDEPE waste types in the prohibited categories or Regulated Medical Waste and who did not report separating or were not observed to separate the prohibited waste from acceptable waste were placed in this category.

Category 2 – Facilities Generating Hazardous Waste

All facilities who reported generating, were observed to generate, or were suspected of generating hazardous waste as defined in N.J.A.C. 7:26–1.4, N.J.A.C. 7:26–8 and 40 CFR 261, and who did not report or were not observed to have a designated hauler for the hazardous waste were placed in this category.

Category 3 – Facilities Generating Waste materials which, when incinerated, could potentially cause the residual ash to be characterized as hazardous

All facilities who reported generating, were observed to generate, or were suspected of generating waste materials containing significant quantities of heavy metals or chlorinated hydrocarbons, and who did not have, or report having, a designated recycler or waste hauler for the suspect problematic materials were placed in this category.

Typical materials considered problematic for this category included, but were not limited to, paints, pigments, batteries, polyvinyl chloride, inks, and consumer electronics.

Category 4 – Facilities Generating Waste materials which, when incinerated, could potentially generate regulated components in excess of allowable air emission limits

All facilities who reported generating, were observed to generate, or were suspected of generating, problematic waste materials containing significant quantities of sulfur, chlorine, fluorine, and various heavy metals and organics, and who did not have or report having a designated recycler or waste hauler for the problematic material were placed in this category.

Typical materials considered problematic for this category included, but were not limited to, polyvinyl chloride, teflon, rubber, paint, thermometers, consumer electronics, "materials of concern" and batteries.

Category 5 – Facilities Generating Non-combustible materials

All facilities who reported generating, were observed to generate, or were suspected of generating waste materials considered non-combustible at 1,000 degrees Fahrenheit, and who did not have, or report having, a designated recycler or waste hauler for this waste were placed in this category.

Typical materials considered problematic for this category included, but were not limited to, glass, ceramics, certain construction demolition debris (i.e. concrete, masonry, etc.), and metals.

Category 6 – Facilities Providing Insufficient Information

All facilities whose Waste Survey Forms contained insufficient information to evaluate the "acceptability" of their waste materials were placed in this category.

Category 7 – Facilities Generating Acceptable Waste

All facilities who did not report generating, were not observed to generate, or were not suspected of generating problematic waste materials which could potentially be delivered to the ECRRF.

Category 8 – Facilities Generating No Waste

All facilities who reported not generating any solid waste from the facility of any kind were placed into this category. These facilities were primarily limited to unoccupied buildings.

Appendix F to this Report contains the 1993 ECUA Facility Waste Categorization indicating into which category each facility was placed.

B. Notification

In order to notify a facility that their problematic waste materials could not be delivered to the ECRRF, PMK prepared notification letters for transmittal by the ECUA to the subject facilities. The notification letters will advise each facility of their responsibilities regarding the disposal of problematic solid waste in accordance with applicable waste flow regulations.

Appendix G to this Report contains a copy of the notification letters and a list of facilities to which each letter should be sent.

SECTION VI: NUMERICAL SUMMARY OF SURVEY RESPONSES

A numerical summary of the results of the 1993 ECUA Waste Survey is provided below.

	NUMBER	% OF ADJUSTED TOTAL[2] MAILED	% OF TOTAL RESPONSES
Survey forms mailed by the ECUA	4,245	NA	NA
Survey forms not deliverable by U.S. Postal Service	617	NA	NA
Duplicate forms mailed by the ECUA[1]	163	NA	NA
Survey forms received as of March 15, 1994	2134	61.6	100
Category 0 Facilities	191	5.5	9.0
Category 1 Facilities	136	3.9	6.4
Category 2 Facilities	11	0.3	0.5
Category 3 Facilities	13	0.4	0.6
Category 4 Facilities	199	5.7	9.3
Category 5 Facilities	372	10.7	17.4
Category 6 Facilities	378	10.9	17.7
Category 7 Facilities	817	23.6	38.3
Category 8 Facilities	17	.05	0.8

FOOTNOTES

1
In addition to the 617 survey forms which were not deliverable by the U.S. Postal Service, 163 facilities appearing on the 1993 ECUA Waste Survey mailing list were determined to be duplicates (i.e., facilities doing business under duplicate names).

2
Adjusted Total Mailed = Survey forms mailed by the ECUA (4, 245), minus Survey forms not deliverable by U.S. Postal Service (617), minus Duplicate forms mailed by the ECUA (163) = 3,465 Survey forms.

A numerical comparison of the results of the 1993 ECUA Waste Survey vs. the 1990 Industrial Waste Survey is provided below.

	1993 ECUA Waste Survey	1990 Industrial Waste Survey
Survey forms mailed by the ECUA (Essex County Division of Solid Waste Management in 1990)	4,245	1370
Response rate (expressed as a percentage of the number of deliverable, non-duplicate survey forms mailed)	61.6%	59.4%
Facilities generating acceptable waste (expressed as a percentage of the number of survey forms received)	38.3%	53.5%
Facilities generating unacceptable solid waste due to a hazardous waste constituent (expressed as a percentage of the number of survey forms received)	0.5%	2.3%
Facilities generating unacceptable solid waste due to a prohibited waste type (other than hazardous waste) or a problematic waste type (expressed as a percentage of the number of survey forms received)	33.7%	24.9%

Continued on Next Page

	1993 ECUA Waste Survey	1990 Industrial Waste Survey
Facilities providing insufficient information (expressed as a percentage of the number of survey forms received)	17.7%	13.1%
Facilities reporting either being out of business, or having moved out of the county (expressed as a percentage of the number of survey forms received)	9.0%	6.1%

The decrease in the percentage of facilities generating acceptable waste from the 1990 Industrial Waste Survey to the 1993 ECUA Waste Survey can partially be explained by the following two factors:

1. The number of waste material types considered to be "problematic" (as previously defined) for the 1993 ECUA Waste Survey was expanded from the number of waste material types considered to be "problematic" for the 1990 Industrial Waste Survey. This was done to address the NJDEPE's requirement to remove "materials of concern" from the waste stream being processed at the ECRRF; and

2. The 1993 ECUA Waste Survey included landscape contractors and auto repair shops/service stations (whereas the 1990 Industrial Waste Survey did not specifically target these types of facilities). Based upon a review of the 1993 ECUA Waste Survey Forms, a large number of these types of facilities generated prohibited or "problematic" waste types.

SECTION VII: LIMITATIONS OF THE 1993 ECUA WASTE SURVEY

The 1993 ECUA Waste Survey was performed to provide the ECUA with information concerning the general characteristics of the solid waste stream generated within Essex County by service and production industries and health care facilities, and to evaluate potential sources of waste materials which may be "problematic" as previously defined. The information and survey results presented herein are solely and exclusively for the use of ECUA in evaluating "problematic" waste stream origins and is not intended for use in projecting estimated quantities of solid waste which may be delivered to the ECRRF.

The results and conclusions presented as part of the 1993 ECUA Waste Survey were based on information provided by representatives of the facilities surveyed, as well as limited visual inspections of existing conditions at targeted facilities. Consequently, the accuracy of the results and conclusions drawn from this information is inherently based on the accuracy of the information that was provided.

The facilities targeted for on-site inspection were identified based on information provided by the facility. As the ECUA does not have the regulatory authority to inspect a facility without the expressed permission of the facility, inspections were only performed at facilities which allowed the on-site inspection, and with sufficient advanced notice. Consequently, waste disposal protocol observed during the performance of these inspections may not be indicative of the daily handling of the facility's waste stream, and may not be an accurate reflection of the facility's disposal practices.

The results and conclusions presented as a result of the 1993 ECUA Waste Survey are only relevant to the dates of the individual responses and the time of our selected site visits. Inevitable changes in operations at service and production industries and health care facilities located in Essex County as well as continual turnover will likely result in variations in the characteristics of the solid waste flow within the County.

SECTION VIII: RECOMMENDATIONS

It is recommended that the following procedures be implemented to aid in preventing unacceptable waste materials from being delivered to the Resource Recovery Facility:

1. The facilities who generate problematic waste materials which may be delivered to the ECRRF, as determined by the information provided on the 1993 ECUA Waste Survey Forms should be prohibited from delivering any of their solid waste materials to the ECRRF. This prohibition should remain in effect until the ECUA can ensure that the problematic wastes will not be delivered to the ECRRF.

2. An educational program should be developed to inform facility managers and the general public about the operation of the Resource Recovery Facility and the acceptability of waste materials at the Facility. A program of this nature should contain specific information concerning the types of unacceptable waste, the reasons for that waste being unacceptable, and alternative disposal techniques for unacceptable waste materials. The program should also provide information about the recycling, composing, and household hazardous waste collection programs in effect in Essex County, stressing the continued importance of these methods of waste management as part of the County's overall solid waste management program.

3. The Waste Survey should be repeated on a bi-yearly basis. As previously noted, the results of the 1993 ECUA Waste Survey are only accurate during the time that the operations of the facilities surveyed remain substantially the same.

4. In addition to the procedures implemented to minimize the delivery of unauthorized waste materials to the ECRRF as a result of the 1993 ECUA Waste Survey, the following measures should be implemented to further aid in improving the quality of the waste material delivered to the ECRRF:

    a. The inspection and periodic sampling program established at the ECRRF to attempt to detect unauthorized waste being delivered to the Facility should be continued.

    b. The computerized database and/or the individual 1993 ECUA Waste Survey Forms should be utilized in conjunction with the inspection and sampling program, to aid in determining potential sources of unauthorized waste being detected at the ECRRF.

    c. On-site inspections should be conducted at facilities suspected of generating unauthorized waste being detected at the facility. These facilities, if found to generate unauthorized waste, should then be prohibited from delivering the unauthorized waste to the ECRRF.

PMK Group
CONSULTING ENGINEERS

APPENDIX A

DOCUMENT	NUMBER OF PAGES
Description of Waste Type by NJDEPE ID Number	3
Certificate of Approved Registration and Engineering Design Approval (CAREDA)	30

3. The facility operator shall verify that the form has been completed by a registered transporter, that the waste as identified by the transporter may be disposed of at the facility in compliance with the waste flow rules at N.J.A.C. 7:26-6.5 and the facility's registration, and, where applicable, the facility's computer recording of scale data is in conformance with the information supplied, and sign the completed form.

4. The facility operator shall retain all O and D forms for a minimum of one year and shall make them available for inspection by representatives of the department or the local health department at any time during normal working hours.

5. If an O and D form is not completed and signed by a registered transporter for each vehicle, or if the waste disposal would not be in compliance with the waste flow rules or the facility's registration, as required in (c)3. above, the facility operator shall deny the transporter the right to dispose of the solid waste at the facility.

(d) The following solid waste collection and disposal operations are exempt from complying with the provisions of (c) above:

1. Noncommercial industrial facilities which dispose of only solid waste generated by that industrial firm;

2. Municipally operated facilities which accept only solid waste which is collected by that municipality's transporters and which is generated within that municipality;

3. Sludge farming operations which accept only ID 12 solid waste and which report to the Division of Water Resources;

4. Recycling facilities which accept only recyclable materials which have been separated at the point of generation for sale or reuse; and

5. Operations exempt from registration pursuant to N.J.A.C. 7:26-3.3(a).

(e) Monthly summaries of wastes received shall be submitted by the owner/operator of each facility to the Division of Waste Management, on forms provided by the department (or duplication of same), no later than 20 days after the last day of each month.

(f) Upon approval of the department, those facilities qualifying for exemption under N.J.A.C. 7:26-4.8 may compute quantities of waste received by using an alternative, acceptable method.

(g) Waste identification and definition of solids include the following:

1. Solid wastes; waste ID number and definitions:

i. 10 Municipal (household, commercial and institutional): Waste originating in the community consisting of household waste from private residences, commercial waste which originates in wholesale, retail or service establishments, such as, restaurants, stores, markets, theatres, hotels and warehouses, and institutional waste material originated in schools, hospitals, research institutions and public buildings.

ii. 12 Dry sewage sludge: Sludge from a sewage treatment plant which has been digested and dewatered and does not require liquid handling equipment.

iii. 13 Bulky waste: Large items of waste material, such as, appliances, furniture, whole trees, branches, tree trunks and stumps. Also included are waste building materials and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial buildings, pavements and other structures. Discarded automobiles, trucks and trailers and large vehicle parts, and tires are included under this category.

iv. 23 Vegetative waste: Waste materials from farms, plant nurseries and greenhouses that are produced from the raising of plants. This waste includes such crop residues as plant stalks, hulls, leaves and tree wastes processed through a wood chipper.

v. 25 Animal and food processing wastes: Processing waste materials generated in canneries, slaughterhouses, packing plants or similar industries. Also included are dead animals.

vi. 27 Dry industrial waste: Waste materials resulting from manufacturing, industrial and research and development processes and operations, and which are not hazardous in accordance with the standards and procedures set forth at N.J.A.C. 7:26-8. Also included are nonhazardous chemical waste, and asbestos and asbestos-containing waste managed in accordance with 40 CFR 61 and N.J.A.C. 7:26-2.6.

(h) Waste identification and definition of liquids include the following:

1. Liquid wastes; waste ID number and definitions:

i. 72 Bulk liquid and semiliquids: Liquid or a mixture consisting of solid matter suspended in a liquid media which is contained within, or is discharged from, any one vessel, tank or other container which has the capacity of 20 gallons or more. Not included in this waste classification are septic tank clean-out wastes and liquid sewage sludge.

ii. 73 Septic tank clean-out wastes: Pumping from septic tanks and cesspools. Not included are wastes from a sewage treatment plant.

iii. 74 Liquid-sewage sludge: Liquid residue from a sewage treatment plant consisting of sewage solids combined with water and dissolved materials.

(i) The following waste types have been consolidated under other categories:

1. 11 Institutional (see 10, Municipal);
2. 14 Construction and demolition (see 13, Bulky Waste);
3. 5 Pesticides: (see 27, Dry industrial waste and N.J.A.C. 7:26-8);
4. 16 Hazardous waste containers (see N.J.A.C. 7:26-8);
5. 17 Dry hazardous waste (see N.J.A.C. 7:26-8);

6. 18 Dry nonhazardous chemical waste (see 27, Dry industrial waste;)

7. 19 Junked autos (see 13, Bulky waste);

8. 20 Tires (see 13, Bulky waste);

9. 21 Dead animals (see 25, Animal and food processing waste);

10. 22 Leaves and chopped tree wastes (see 23, vegetative waste);

11. 24 Tree stumps (see 13, Bulky waste);

12. 26 Oil spill cleanup wastes (see 27, Dry industrial waste and N.J.A.C. 7:26-8);

13. 28 Infectious waste (see N.J.A.C. 7:26-1.4 and the requirements established by the New Jersey Department of Health);

14. 70 Waste oil and sludges (see N.J.A.C. 7:26-8);

15. 71 Semisolid waste oils and sludge (see N.J.A.C. 7:26-8);

16. 75 Pesticide liquids (see 72, Bulk liquid and semiliquids and N.J.A.C. 7:26-8);

17. 76 Liquid hazardous waste (see N.J.A.C. 7:26-8)

18. 77 Liquid chemical waste (see N.J.A.C. 7:26-8).

R.1976 d.303, eff. November 1, 1976.
See: 8 N.J.R. 374(d), 8 N.J.R. 509(a).
As amended, R.1978 d.72, eff. February 27, 1978.
See: 9 N.J.R. 459(d), 10 N.J.R. 146(a).
As amended, R.1983 d.192, eff. June 6, 1983.
See: 14 N.J.R. 383(a), 15 N.J.R. 894(c).
(a)5 and new (c) added; existing (c)-(e) recodified (d)-(f).
As amended, R.1983 d.570, eff. December 5, 1983.
See: 15 N.J.R. 660(a), 15 N.J.R. 2040(b).
(d)-(f) Substantially amended.
As amended, R.1984 d.148, eff. April 2, 1984.
See: 16 N.J.R. 930(a).
Filed as emergency amendments to expire June 1, 1984: (a)6 and new (c) and (d) added, existing (c)-(f) redesigned (e)-(h); inspection by local health department added to (b), monthly summary submittal deleted. Also proposed concurrently.
As amended, R.1984 d.231, filed June 4, 1984.
See: 16 N.J.R. 930(a), 16 N.J.R. 1497(a).
Readoption with technical and substantive changes of R.1984 d.148, requiring solid waste transporters to provide landfill operators with documentation of origin and contents of waste load.
Amended by R.1985 d.65, effective February 19, 1985.
See: 16 N.J.R. 440(a), 17 N.J.R. 446(a).
(a)7 added.
Correction: Added text in (a) "resource recovery facilities and transfer stations".
See: 18 N.J.R. 983(a).

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 028, Trenton, N.J. 08625

DR. MARWAN M. SADAT, P.E.
DIRECTOR

RICHARD C. SALKIE, P.E.
ASSOCIATE DIRECTOR

CERTIFICATE OF APPROVED REGISTRATION
AND ENGINEERING DESIGN APPROVAL

Under the provisions of N.J.S.A. 13:1E-1 et seq. known as the Solid Waste Management Act, this registration is hereby issued to:

American Ref-Fuel Company of Essex County

FACILITY TYPE:	Resource Recovery Facility-Mass Burn Incinerator
LOT NO.(S):	28, 30, 32, 40, 56, 80; 29, 32, 35, 60, 90, 92
BLOCK NO.(S):	5000; 5001
MUNICIPALITY:	City of Newark
COUNTY:	Essex
FACILITY REGISTRATION NO.:	071424
EXPIRATION DATE:	December 10, 1990

This approval is subject to compliance with all conditions specified herein and all regulations promulgated by the Department of Environmental Protection.

This approval shall not prejudice any claim the State may have to Riparian land, nor does it permit the registrant to fill or alter or allow to be filled or altered, in any way, lands that are deemed to be Riparian, Wetlands, Stream encroachment or flood plains, or within the Coastal Area Facility Review Act (CAFRA) zone and the New Jersey Pinelands Protection Act of 1979 or allow the discharge of pollutants to waters of this State without first acquiring the necessary grants, permits or approvals from the Department of Environmental Protection.

This registration is non-transferable.

December 10, 1985
Date

Edward J. Londres, P.E.
Assistant Director
Engineering

Certificate of Approved Registration and Engineering Design Approval for the Essex County Resource Recovery Facility, City of Newark, Essex County, New Jersey, Facility Application Number 83-58.

This Certificate of Approved Registration and Engineering Design Approval is conditioned upon the compliance with the implementation of the following:

1. Permitted Waste Types

The following materials may be accepted for disposal at this facility:

Type	Waste
10	Municipal waste (household, commercial and institutional)
23	Vegetative waste
27	Dry industrial waste (except those prohibited subcategories listed below)

2. Prohibited Waste Types

The following materials are specifically prohibited for disposal at this facility:

Type	Waste
12	Dry sewage sludge
13	Bulky waste
25	Animal and food processing waste
27	Dry industrial waste (specifically the following subcategories only: Hazardous waste as defined in N.J.A.C. 7:26-1.4, N.J.A.C. 7:26-8 and 40 CFR 261 which is generated by small quantity generators (7:26-8.3); non-hazardous oil spill clean-up waste; dry non-hazardous pesticides; research and development process waste; asbestos containing materials such as ceiling tiles and insulation; and contaminated soils.)
72	Bulk liquid and semi-liquids
73	Septic tank clean-out wastes
74	Liquid sewage sludge

3. Referenced Engineering Plans

The construction and operation of this facility shall be in accordance with the provisions of N.J.A.C. 7:26-1 et seq. and the following submissions:

a. "Essex County Resource Recovery Project - Engineering Design Report - Essex County Resource Recovery Plant - Solid Waste Permit Draft Engineering Design" June 1983; prepared by the Economic Development Design Division and the Engineering Department of the Port Authority of New York and New Jersey.

b. "Proposal - Essex County Resource Recovery Facility - Volume II: Technical" prepared by Browning-Ferris Industries, Inc., dated January 1983.

c. "Essex County Resource Recovery Project - Engineering Design Report - Essex County Resource Recovery Plant - Solid Waste Permit Proposed Engineering Design", January 1984. Prepared by the Economic Development Design Division and the Engineering Department of the Port Authority of New York and New Jersey; received by Division of Waste Management on January 26, 1984; and including the "Addenda and Errata #1" dated September, 1984.

d. "Essex County Resource Recovery Project - Environmental Impact Statement" dated October 1983, with:

- "Volume 1 Technical Appendices"
- "Volume 2 Technical Appendices"
- "Volume 3 Technical Appendices"
- "Volume 4 Technical Appendices"
- "Volume 5 Technical Appendices":

"22. Impact on Local Streets in the Ironbound Community of Newark, New Jersey from Refuse Trucks Utilizing the Proposed Essex County Energy Recovery Plant" prepared by Konheim and Ketcham and the Port Authority of New York and New Jersey, dated January 1984.

e. "Essex County Resource Recovery Project - Environmental Impact Statement - Responses to Comments" and accompanying drawings, received by the Division of Waste Management on June 25, 1984.

f. "Essex County Resource Recovery Project - Environmental Impact Statement - Responses to Comments No. 2" and accompanying drawings, received by the Division of Waste Management on October 23, 1984.

g. The following drawings prepared by Gibbs and Hill, Inc., sealed and signed by Frank D. Hutchinson, P.E. on September 19, 1984:

E1SC-0008	Proposed Site Access Plan
E1SC-0008-1	Proposed Site Access Grading
E1SC-0008-2	Proposed Site Access Drainage

h. The following drawings prepared by Gibbs and Hill, Inc., sealed and signed by Frank D. Hutchinson, P.E. on October 12, 1984:

BIM-0103	Water Balance Dry Scrubbers - No Export Steam
E1M0100-01	Symbol List and General Notes
E1M-0107-01	Flow Diagram-Main Steam and Auxiliary Steam Systems
E1M-0106	Flow Diagram-Boiler Feed, Condensate, Make-up and Return Condensate Systems
E1M-0108	Flow Diagram-Auxiliary Systems

i. The following drawings prepared by Gibbs and Hill, Inc., sealed and signed by Frank D. Hutchinson, P.E. on October 16, 1984:

E1E-0100-1	Main One Line Diagram-Symbols and Legend
E1M-0101	Three (3) Boiler Heat Balance No Export
E1E-0100	Main One Line Diagram

j. The following drawings prepared by Gibbs and Hill, Inc., sealed and signed by Paul P. DeRienzo, P.E. on November 8, 1984:

E1SC-0003	Proposed Site Grading, further revised and signed 3/21/85
E1SC-0001	Boring Location Plan
E1SC-0002	Proposed Site Plan, further revised and signed 3/21/85
E1SC-0007	Area Plot Plan
E1SC-0004	Proposed Site Drainage, further revised and signed 3/21/85
E1MP-0001	Proposed Oily Waste and Sanitary Sewers
E1MP-0002	Proposed Water and Fire Protection System
E1M-0002	General Arrangement Plan at EL. 11'-2"
E1M-0003	General Arrangement Plan at EL. 29'-2"
E1M-0004	General Arrangement Plan at EL. 49'-6"
E1M-0005	General Arrangement Plan at EL. 80'-1"
E1M-0005A	Miscellaneous Boiler Platforms
E1M-0006	General Arrangement Sections A-A, B-B, C-C, D-D

In case of conflict, the most recent revisions and supplemental information shall prevail over prior submittals and designs, and the conditions of this Certificate shall supersede those of the engineering design and environmental impact statement referenced above.

4. Facility Pre-Construction Requirements

Prior to initiating any site preparation work for facility construction, the Registrant shall comply with the following:

a. The real property to be used for facility construction shall be legally acquired by the Registrant, or a legal agreement (e.g. a legal lease agreement) to use the real property in question for the intended purpose shall be obtained. Proper documentation of legal ownership or use shall be submitted to the Department prior to initiating any site preparation work for facility construction.

b. An official confirmation from the City of Newark Water Department that the city can provide for the daily facility water demand and that an ample standby fire fighting water supply can be provided, shall be submitted to the Department prior to initiating any site preparation work for facility construction.

5. Facility Site Mitigation Measures Program
Phase I (to be completed prior to construction)

a. Initial site cleanup activities have been accomplished by the Newark Redevelopment and Housing Authority (NRHA). however, the "hot spots" identified during the exploratory trenching remain to be addressed; as well as a limited number of containers and mounded contaminated soil left on site by the cleanup contractor.

The Port Authority of New York and New Jersey (PA) shall enter into a Memorandum-of-Understanding (MOU) with the Department to sample, characterize and, if necessary, remove and dispose of contaminated substances in the following locations on site: 1) the oil spill area, 2) the "tire pile" area, 3) mounded soil pile, 4) six overpacked metal drums, and 5) two gas cylinders.

The MOU shall document the cleanup activities already accomplished by the NRHA and fully describe the remaining site cleanup activities required, based on sampling data acquired by the PA in November, 1985. The Department shall monitor any remaining cleanup activities to be undertaken by a PA contractor.

Phase II

b. After completion, to the satisfaction of the Department, of the phase I site cleanup program, the Registrant shall implement, during construction of the facility, a site mitigation measures program in accordance with the following provisions which are considered a condition of this approval:

i. The DEP "Phase II - Mitigation Measures During Construction" document (dated October 30, 1985). This document is attached as Appendix I of this Certificate.

ii. The action levels presented in the above document, which are Departmental cleanup action levels administered by the Hazardous Site Mitigation Administration (HSMA) and the Bureau administering the Environmental Cleanup Responsibility Act (ECRA), shall be met.

14. Operations and Maintenance Manual

A written operations and maintenance (O & M) manual shall be developed and maintained at the facility. The Final O & M Manual shall be submitted to the Department no later than three months prior to initiating the facility start-up and shakedown period. Start-up/shakedown operations shall not be initiated until formal approval of the submitted Final O & M Manual is granted by this Department.

The O & M Manual shall include the following:

a. A description of the proposed procedures for the operation of each major facility component;

b. Procedures to be followed during facility start-up;

c. Procedures to be followed during the planned and unplanned shutdown of facility operations;

d. Facility operations monitoring procedures, including the final process control measurement and instrumentation plan;

e. Facility security methods, including the use of communications and alarm systems;

f. An inspection plan, which shall include a schedule for inspecting all applicable aspects of facility operations necessary to ensure maximum facility availability and compliance with the conditions of this Certificate. The frequency of inspection shall be based on the rate of potential equipment deterioration or malfunction and the probability of an adverse incident occurring if the deterioration or malfunction goes undetected between inspections. Areas of the facility subject to spills (loading and unloading areas) and areas in which adverse environmental or health consequences may result if breakdown occurs shall be inspected daily, when in use. The inspection plan shall include a schedule for inspecting monitoring, safety and emergency equipment, security devices and process operating and structural equipment. The plan shall identify the types of problems which are to be looked for during the inspection, and the frequency of inspections;

g. A maintenance plan, which shall include a failure analysis for the facility operation, an analysis of spare parts inventory needs and schedules for anticipated repairs or major equipment replacement;

h. A description of the proposed measures to protect facility and other personnel from injury during operation;

i. A description of the proposed measures to control noise, litter, odor, rodents and insects at the facility;

j. A description of the proposed measures to handle incoming waste fl during periods of emergencies and/or equipment breakdown or shutdown;

k. A description of the proposed equipment and procedures to be utilized in preventing and fighting fires;

l. A contingency plan which delineates procedures for responding to fire, explosions or any unplanned sudden or non-sudden releases of harmful constituents to the environment. Copies of the contingency plan shall be submitted to the local police and fire departments, the local and county health departments and offices of emergency management.

The contingency plan shall contain a description of the actions facility personnel shall take in the event of various emergency situations; a description of arrangements made with the Department and local police and fire departments which allow for immediate entry into the facility by their authorized representatives should the need arise, such as in the case of response personnel responding to an emergency situation, and; a list of names, addresses and telephone numbers (office and home) of all persons qualified to act as an emergency coordinator for the facility. The list shall be kept up to date. Where more than one person is listed, one shall be named as a primary emergency coordinator and others shall be listed in the order in which they will assume responsibility as alternates.

m. A community relations plan which includes notification procedures in the event of an emergency situation, and a program for public information exchange.

If the Registrant is to implement any changes to the approved Final O & M Manual, the Department shall be notified of the change within twenty-four hours of the change occurring.

15. Facility Staffing

The facility shall maintain sufficient trained staff during each scheduled shift to assure the proper and orderly operation of all system components, along with the ability to handle all routine facility maintenance requirements. Such personnel shall have sufficient educational background, employment experience and/or training to enable them to perform their duties in such manner as to ensure the facility's compliance with applicable Department regulations and permits, the conditions of this approval, and the safe operations of the specific processes utilized at the facility.

The facility shall have a plant manager, operations manager, and maintenance manager on staff during at least one shift each twenty four (24) hour period. In addition, each scheduled shift shall have a fully trained and qualified shift foreman or shift supervisor who is designated and authorized to direct and implement all operational decisions during that shift and who shall also serve as the designated emergency coordinator for the implementation of any emergency procedures in accordance with Condition number 36 of this approval. The plant manager and/or operations manager shall also remain on-call at all times to provide assistance during emergency situations.

Additionally, the facility shall have a New Jersey licensed professional engineer on staff preferably to oversee the general facility operations. This engineer shall possess experience in the design and/or operation of the major system components or equipment that constitute the facility. This engineer may also serve as the plant manager or operations manager.

16. Facility Staffing Plan

A written facility staffing plan shall be developed by the Registrant and shall be included as a section of the Final Operations and Maintenance Manual prepared in accordance with Condition number 14 of this Certificate. The staffing plan shall contain the following information:

a. The job title for each position at the facility;

b. A written job description for each position, including duties and performance standards. The description shall include the requisite skills, education, and other qualifications deemed necessary of employees assigned to each position;

c. An explanation of the criteria and reasons used in selecting the required number and types of positions; and

d. A statement of the staffing provided for each operating shift, including the job titles and number of employees per each title, per each shift.

17. Facility Personnel Training

The Registrant shall comply with the following requirements pertaining to facility personnel training:

a. All personnel who are directly involved in facility waste management activities or who operate, service, or monitor any facility equipment, machinery or systems shall successfully complete an initial program of classroom instruction and/or on-the-job training that includes instruction in the operations and maintenance of the equipment, machinery and systems which they must operate, service or monitor in the course of their daily job duties, and which teaches them to perform their duties in a manner that ensures the facility's compliance with the requirements of N.J.A.C. 7:26-1 et seq. and the conditions of all Departmental permits issued to the facility.

b. The training program shall be directed by a person thoroughly familiar with the technology being utilized at the facility, the applicable waste regulations contained within N.J.A.C. 7:26-1 et seq., and the conditions of the facility's permits.

c. The training program shall ensure that facility personnel are able to effectively respond to any equipment malfunction or emergency situation that may arise. The training program shall provide instruction in the use of personal safety equipment, procedures for inspecting and repairing facility equipment, machinery and monitoring systems (including any emergency equipment), the use of communications and/or alarm systems, the procedures to be followed in response to fires, explosions or other emergencies, and the procedures to be followed during planned or unplanned shutdown of operations.

d. Facility personnel shall successfully complete the initial training program within six months after the date of their employment or assignment to the facility. Employees shall not work in unsupervised positions until they have completed the training program required herein.

e. Facility personnel shall take part in a planned annual review of the initial training program.

f. Training records that document the type and amount of training received by current facility personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least one year from the date the employee last worked at the facility.

g. The Registrant shall prepare a written training plan which includes the type and amount of both the initial and follow-up training to be provided to facility personnel. This written plan shall be included as a section of the Final Operations and Maintenance Manual prepared in accordance with Condition Number 14 of this Certificate.

18. New Jersey Department of Energy Requirements

The following New Jersey Department of Energy requirements and attached implementation schedule (Appendix II of this Certificate) are considered a condition of this approval and the Registrant shall aid and assist, to the extent possible, in Essex County's recycling plan implementation:

a. A Recycling Technical Advisory Committee will be established to advise the County in the development of recycling as stated in the approved District Solid Waste Management Plan. The Committee will be comprised of representatives from the Office of Recycling, Essex County, municipalities, the recycling industry, local recycling groups and others as appropriate.

b. The Recycling Development Schedule attached hereto will guide the development of recycling. The County, with the advice of the Technical Advisory Committee, will make its best efforts to meet the schedule and to update the schedule as necessary. In the event that the key milestones will not be met, the County will consult with the Committee in the development of a remediation plan designed to bring the program back to schedule. The remediation plan will be presented to the Office of Recycling within 60 days of the notification that the key milestones will not be met. The Office of Recycling will respond to the remediation plan within 60 days of its receipt.

The following are clarifications of the intent of the Recycling Development Schedule.

i. The initiation of the curbside collection program in conjunction with the Occupational Center of Essex County is scheduled for the fourth quarter of 1985. It is understood that this is contingent upon the receipt of the collection equipment, market commitments, and an agreement to proceed among all the involved parties.

ii. The draft Administration and Enforcement Strategy originally scheduled to be completed by October 31, 1985, has been revised to be completed by January 31, 1986.

c. It has been determined that the expansion of recycling will not have a detrimental impact on the operation of the resource recovery facility. It has also been determined that the materials recycling programs and waste-to-energy facilities are complementary and compatible. Therefore no individual municipality in Essex County shall be prohibited or penalized from expanding its source separation and materials recycling operations.

19. Certification of Construction

Prior to the acceptance of waste for processing, the Registrant shall retain the services of a licensed professional engineer registered in the State of New Jersey who shall certify in writing to the Department that he or his agent has personally examined each major phase of facility construction, and that said phase has been prepared and constructed in compliance with the documents, statements, designs and plans submitted in whole, or as a part of the application, as approved by the Department.

All certifications shall bear the raised seal of the licensed professional engineer, his signature, and the date of certification. The certification shall include the following statement: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

20. Facility Start-Up and Shakedown

The Registrant shall not initiate commercial operations at the facility until such time that a suitable start-up and shakedown period has demonstrated that the facility, as constructed, will operate in a satisfactory manner and in conformance with the operating standards as contained in the documents, statements, designs, and plans submitted as approved by the Department and in compliance with the conditions of this approval. The Registrant shall notify the appropriate Department personnel one (1) month prior to the initiation of the facility start-up and shakedown period.

21. Waste Delivery Schedule

Wastes shall be accepted for processing at the facility only in accordance with the following delivery schedule:

7:00 a.m. to 6:00 p.m. Monday – Saturday

Waste deliveries to the facility shall be scheduled in such a manner as to minimize truck queuing on the facility property. Under no circumstances shall delivery trucks be allowed to back up onto public roads.

22. Haulage Vehicles

The Registrant shall allow only vehicles properly registered with the Department for the transporting of wastes, to deliver and deposit wastes at the facility, or remove residues or unprocessible materials from the facility.

The Registrant shall act to prevent the continued acceptance of any haulage vehicles not equipped with exhaust silencer systems or that create excessive noise, by notifying the vehicle owners of the potential violation and by reporting these vehicles to the appropriate local authorities for enforcement action.

23. Waste Delivery Haul Routes

The Registrant shall designate primary refuse truck delivery routes from each collection area served by the facility. These routes shall consist of major arteries that transgress non-residential areas to the greatest extent possible. These routes shall be prescribed in the District Solid Waste Management Plan and shall be strictly enforced.

24. On-Site Traffic Control

On-site traffic control measures shall be implemented to provide for orderly vehicle movement on the facility grounds. The measures implemented shall include the appropriate use of lane delineations, signals, signs, and barriers. All on-site roadways used by refuse vehicles shall be constructed and paved in accordance with standards for heavy truck usage.

25. Waste Acceptance and Processing Rates

At no time shall wastes be delivered to the facility at a rate exceeding the facility's capacity to store and process such waste. Waste storage is allowed in only those areas specifically identified in the design for such purposes. Under no circumstances shall waste be deposited beyond the confines of the refuse storage bunker.

The facility shall not process waste at a rate greater than 835 tons per unit per day, or at a heat release rate exceeding 340 x 10^6 Btu per hour per unit, whichever is more limiting.

26. Unauthorized Waste

A program shall be established and maintained to detect and remove unauthorized wastes from the waste stream entering the facility. At a minimum, the program shall include the following steps:

a. Identification of all haulers handling waste type 27 and a determination of the sources of type 27 waste materials. All firms capable of generating type 27 waste within the service area shall be notified and required to provide appropriate descriptions of the waste which they generate.

Specific type 27 sources shall be excluded for disposal at the facility in accordance with the prohibited sub-categories of type 27 waste listed in Condition Number 2 of this Certificate. Appropriate chemical analyses shall be conducted on those sources questionable for disposal.

b. Continuous visual monitoring of the discharged waste shall be conducted by the tipping floor attendant. Additionally, visual monitoring shall be conducted by the crane operators as the waste is mixed and withdrawn from the refuse bunker for charging to the incinerator. The following materials shall be removed from the bunker if found by the visual inspection program:

- Drums or other large enclosed steel, metal or plastic containers

- Bulk sludges or wet solids not characteristic to municipal solid waste.

- Large amounts of oil or liquid soaked solids or sorbents.

- Military ordnance or other explosives.

- Pressurized containers.

- Any suspect closed industrial packaging.

Any suspected hazardous wastes, chemical drums, or liquids found in a load accepted at the facility shall not be returned to the generator. The discovery of any suspected hazardous wastes at the facility shall immediately be brought to the attention of the Division of Waste Management Field Operations Headquarters at (609) 292-5560.

27. Maintenance and Repair

Through an effective inspection, planned maintenance, repair and parts replacement program, the facility systems and related appurtenances shall at all times be kept in proper operating order. As part of this program, the Registrant shall maintain an inventory of spare parts and replacement equipment. Malfunction of instrumentation used to monitor process operation for environmental effects shall be considered a major equipment malfunction as defined in Condition number 36 of this approval, and actions shall be taken accordingly.

The results of all inspections shall be recorded in an inspection log. These records shall be maintained at the facility for a minimum of five years from the date of inspection. These records shall include the date and time of the inspection, the name of the inspector, a notation of observations and recommendations, and the date and nature of any repairs or other remedial actions taken. These records shall be made available for inspection by the appropriate representatives of the Department upon request.

28. Housekeeping

Routine housekeeping and maintenance procedures shall be implemented within the facility interior to prevent the excess accumulation of dust and debris, and to maintain general cleanliness in the working environment. The tipping floor shall be cleaned at least once daily.

Facility exterior grounds shall be maintained in a manner free of litter, debris, and accumulations of unprocessed waste, process end products and residues. All paved areas on-site shall be swept on a routine basis to minimize the accumulation of loose dust/dirt on the pavement surfaces.

Additionally, the Registrant shall conduct routine street cleaning on the public truck access routes in the immediate vicinity of the facility.

Unprocessed waste feedstock, facility process waste residues and effluents stored in pits, bins or similar containment vessels shall at all times be kept at levels that prevent spillage and overflow.

29. Building Exterior Facings & Landscaping

The exterior facings of all facility buildings or similar structures shall be maintained in a manner in keeping with the original design intent to enhance the appearance of the property.

All vegetation planted as part of the original landscaping plan shall be maintained and replaced as needed.

30. Wastewater Disposal

Wastewater discharge generated from facility operations shall be directed solely to the system designed and approved for the acceptance of such discharge, and shall comply with the provisions of the Passaic Valley Sewerage Commission authorization.

31. Noise Control

Noise control shall be implemented so that sound levels generated by the facility operation shall not exceed the standards set forth by the New Jersey State Noise Control Regulations under N.J.A.C. 7:29-1 et seq.

As part of this program, the Registrant shall implement noise abatement provisions at the facility which shall include, but not be limited to, the following:

a. The procurement of low-noise emission equipment;

b. The use of building wall and roofing materials in facility construction to provide appropriate sound absorption and isolation;

c. The installation of silencers on fans;

d. The installation of sound attenuating mufflers on all steam vents;

e. The isolation of particular noise sources, when necessary;

f. The location of air compressors in an acoustic room;

g. The installation of blow-off mufflers on all steam safety pressure valves to reduce venting noise levels by at least 25 dB(A);

h. The installation of blow-off mufflers on the lower pressure power-operated relief valves; and

i. Any other methods that may be needed to assure compliance with N.J.A.C. 7:29-1 et seq.

During the first week of full-scale facility operations, following the start-up and shakedown period, the Registrant shall conduct an adequate sound level survey to determine the facility's compliance with the property line sound level limits specified in N.J.A.C. 7:29-1 et seq. The survey shall be conducted during those time periods most representative of full-scale facility operations, and shall be managed by a firm qualified to conduct sound level surveys.

A detailed report outlining the survey methods, procedures, equipment utilized, and results obtained shall be submitted to the Department within thirty (30) days of the completion of the survey.

32. Odor Control

The operation of this facility shall not result in odors associated with solid waste being detected off-site by sense of smell in any area of human use or occupancy.

Tipping floor entrance and exit doors shall remain closed at all times other than the normal, scheduled refuse truck delivery hours.

The refuse storage pit and tipping area shall be maintained at a negative internal pressure to prevent the release of odors to the ambient air. Air drawn off from these areas shall be utilized in the combustion chambers.

If a facility outage or other condition results in an odor emission problem, a commercial/industrial strength odor masking agent shall be applied in the refuse bunker area. Should a total facility outage occur, and said outage is determined to be long-term in nature (that is, longer than 5 days), the Registrant shall remove all waste in storage at the facility and dispose of it at the appropriate disposal facility.

33. Vermin Control

The Registrant shall institute and maintain an effective vermin control program at the facility, directed by a qualified applicator of pesticides in accordance with the New Jersey Pesticide Control Code N.J.A.C. 7:20-1.1 et seq.

34. Fire Protection

The fire detection and protection system shall be maintained in operable condition at all times. Fire-fighting equipment shall be available on-site or on call to extinguish any and all fires. Fire-fighting procedures shall be posted, and shall include the telephone numbers of local fire, police, ambulance and hospital facilities.

35. Safety Procedures

The Registrant shall follow the Occupational Safety and Health Administration (OSHA) standards in the operation of this facility for the safety of employees and for other persons entering the premises. A copy of the operating safety procedures shall be posted on-site. Additionally, facility staff shall be trained to effectively respond to any equipment malfunction or emergency situation that may arise. This instruction shall include, where applicable:

a. The use of personal safety equipment;

b. Procedures for inspecting and repairing facility equipment, machinery, and monitoring systems, including any facility emergency equipment;

c. The use of communications or alarm systems;

d. The procedures to be followed in response to fires, explosions, or uncontrolled pollutant discharges; and

e. The procedures to be followed during planned or unplanned shutdown of operations.

36. Emergency Situations

An emergency situation is defined as the occurrence of a fire, explosion, or uncontrolled pollutant discharge to the environment. In the case of an emergency, the plant operator or the emergency coordinator identified in the contingency plan shall implement the following actions:

a. Immediately identify the character, exact source, amount, and extent of any discharged materials and notify appropriate state or local agencies with designated response roles, if their help is needed.

b. Concurrently, the plant operator or emergency coordinator shall assess possible hazards to public health or the environment that may result from the discharge, fire or explosion. This assessment shall consider both direct and indirect effects.

c. If the plant operator or emergency coordinator determines that the facility has had an uncontrolled discharge, a discharge above standard levels permitted by the Department, or a fire or explosion, he shall immediately notify appropriate local authorities and immediately notify the Department at (609) 292-7172.

When notifying the Department, report the type of substance and the estimated quantity discharged, if known, the location of the discharge, actions the person reporting the discharge is currently taking and/or proposing to take in order to mitigate the discharge, and any other information concerning the incident which the Department may request at the time of notification. An assessment shall be made by the Department and/or the local authorities regarding the possible need for evacuation of local areas.

Nothing in this condition shall be deemed to supersede any notification required pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10.23 et seq., or the air pollution notification required pursuant to P.L. 1985, c.12.

d. The plant operator shall take all reasonable measures to ensure that fires, explosions and discharges do not recur or spread to other areas of the facility. These measures must include, where applicable, the cessation of process operations and the collection and containment of released waste.

e. Immediately after an emergency, the plant operator or emergency coordinator shall provide for treating, storing or disposing of waste, contaminated soil or water, or any other material contaminated as a result of the discharge, fire or explosion.

f. The plant operator or emergency coordinator shall insure that no waste is processed until cleanup procedures are completed and all emergency equipment listed in the contingency plan is again fit for its intended use.

g. The plant operator or emergency coordinator shall notify the Department and appropriate local authorities when operations in the affected area(s) of the facility have been returned to normal.

Within 15 days after the incident, the plant operator or emergency coordinator shall submit a written report on the incident to the Department. The report shall include, but not be limited to: the name, address and telephone number of the facility; the date, time and description of the incident; the extent of injuries, if applicable, with names and responsibilities indicated; an assessment of actual damage to the environment, if applicable; an assessment of the scope and magnitude of the incident; a description of the immediate actions that have been initiated to clean up the affected area and prevent a recurrence of a similar incident; and, an implementation schedule for undertaking longer-term measures to effect cleanup and avoid recurrence of the incident, if applicable.

A major equipment malfunction is defined as an instance whereby a system control or equipment malfunction occurs that prevents the continual processing of waste in compliance with this approval. In the case of such an occurrence, the Registrant shall undertake corrective actions immediately and shall notify the Department within the working day.

The notification shall outline the cause of the malfunction, the corrective action taken, and the anticipated repair time. Wastes that cannot be accepted at the facility due to equipment or system malfunction or the occurrence of an emergency situation, or wastes already in storage at the facility that cannot be processed due to a long-term facility outage, shall be disposed of in accordance with the approved District Solid Waste Management Plan, at the facility designated to receive such wastes.

37. Security

Access to the site shall be restricted to only facility personnel and authorized visitors. Security procedures shall be implemented that provide for an effective means of controlling entry and exit at all times. Guards, attendants, visual monitors or locked gates shall be utilized at all site entrance and exit points. Security fencing with gate controls shall be installed around the entire facility perimeter. The fencing shall be metallic chain link, or its equivalent, and shall extend to a height of at least seven feet.

38. Process Residue Handling and Storage

All non-processible waste materials and process residues shall be stored within the confines of an enclosed facility building structure at all times prior to removal from the site. Interior storage of ash residue shall be restricted to the "ash removal facility" building; interior storage of recovered ferrous metal shall be restricted to the "ferrous metal storage building"; and unprocessible bulky waste materials (e.g. "white goods") storage shall be restricted to the "charging floor deck".

39. Residual Ash Monitoring

A residual ash monitoring program shall be established and implemented by the Registrant for the purpose of assessing the chemical characteristics of the residual ash generated by facility operation.

Prior to the initiation of the facility start-up and shakedown period, the Registrant shall identify a hazardous waste disposal facility capable of handling any ash residue generated that may be proven hazardous during the monitoring/analysis program. The Registrant shall present documentation to the Department which demonstrates the disposal facility's willingness and ability to accept the type and quantity of material that may be slated for disposal.

The sanitary landfill to be utilized for residual ash disposal (if the ash is characterized as non-hazardous) shall be identified by the Registr prior to the start-up and shakedown period, and documentation of the agre made with the sanitary landfill facility shall be submitted to the Depart for review and approval. The agreement shall be accompanied by the appro documentation indicating that the necessary waste flow directives have be obtained in conformance with the approved District Solid Waste Management

As a minimum, the residual ash monitoring program shall consist of the following:

a. During the first 8 weeks of the facility start-up and shakedown period, representative composite samples of the residual ash shall be collected on a daily basis and further composited into representative weekly and monthly samples. The weekly and monthly composite samples shall be analyzed for the following parameters:

i. EP toxicity in accordance with 40 CFR 261; and

ii. Total 2, 3, 7, 8 - TCDD using GC/MS/SIM (selected ion monitoring).

The Registrant shall retain an equivalent portion of each weekly and monthly composite sample collected during this 8 week period so that the Department may conduct follow-up analyses when necessary. The sam shall be clearly identified and stored at the facility for a perio 60 days from the date of sample collection.

During the first 8 weeks of the facility start-up and shakedown period, each week's residual ash shall be stored separately within the confines of the facility's ash bunker until the analytical results from that week's composite sample are received and a determination is rendered on the hazardous or non-hazardous nature of the material.

If the results of the analyses exceed the EP toxicity test limits, or exceed one (1) part per billion of 2, 3, 7, 8 - TCDD, or the residue material is otherwise determined hazardous by the Department based upon the analytical results, that ash residue shall be disposed of at the hazardous waste disposal facility secured by the Registrant for that purpose.

If the material is determined to be non-hazardous, it shall be disposed of at the sanitary landfill facility secured by the Registrant for that purpose.

To facilitate the overall evaluation of the ash monitoring results gathered during this 8 week facility start-up and shakedown period, the Registrant shall maintain the following operational records during the period on an hourly basis per each unit:

- average combustion gas temperature
- range of combustion gas temperatures
- average combustion gas residence time
- average grate speed
- tons of waste processed

Additionally, the crane operator shall log the date and time(s) that any unusual waste materials are charged to a particular incineration unit. These records shall be made available to the Department upon request.

b. At the completion of the initial 8 week start-up and shakedown period, the following sampling and analysis regimen shall be implemented unless otherwise advised by the Department:

During each month of facility operation, representative daily composite samples shall be collected, and further composited into a representative monthly composite sample. The following analyses shall be performed on each monthly composite sample:

i. EP toxicity in accordance with 40 CFR 261; and

ii. Total 2, 3, 7, 8 – TCDD using GC/MS/SIM (selected ion monitoring)

c. All analyses called for as a condition of this approval shall be performed by a laboratory approved and/or certified by the Department for the analysis of those specific parameters. All samples shall be collected from the ash residue conveyor after the ferrous recovery system, at the discharge point to the residue storage bunker, and must contain both bottom ash and fly ash wastes. To prepare the daily composite samples, one grab sample of sufficient size and of equal proportion shall be collected every hour and ultimately composited into the representative daily sample.

Analyses shall be performed in accordance with the procedures outlined in the most recent edition of Test Methods for Evaluating Solid Waste – Physical/Chemical Methods, U.S. EPA publication SW-846. The Registrant shall submit each set of analytical results to the Division of Waste Management immediately upon the receipt of said results. The following information shall accompany the analytical determinations:

- The date(s), exact time, and place of sampling, measurement, or analysis;

- The name of the individual(s) who performed the sampling, measurement, or analysis;

- The analytical techniques or methods used; and

- The signature and certification of the report by an appropriate authorized agent.

d. The Registrant shall retain the records of all analytical reports at the facility for a period of five (5) years from the date of measurement.

e. The Registrant shall increase the monitoring frequency and/or expand on the list of parameters for which testing is to be performed, should the type or quantity of waste types received for processing be significantly altered. The Department reserves the right to alter at its discretion, the list of test parameters, the methods of sample collection, the analytical procedures employed, and the frequency of sampling and analysis, as is deemed necessary.

f. The Registrant shall dispose of the facility generated residual ash at a facility authorized and permitted to receive the waste type identification number assigned to the residual ash pursuant to classification through analyses.

40. Ash Residue Removal

All ash residue removal trucks shall be covered to prevent spillover and windblow. Residue truck loading shall be done in a controlled manner. Excess water shall be drained from the ash residue prior to removal for disposal. Truck beds/containers shall be sealed in such manner as to prevent drippage.

To the maximum extent possible, ash residue removal operations shall b conducted during periods of off-peak traffic on the surrounding publ roadways, and shall utilize major arteries that transgress non-residential areas wherever possible.

41. Operational Records

Records of facility operation shall be maintained on a daily basis by the Registrant and shall be submitted, as logged on a daily basis and tallied for the month, to the Division of Waste Management before the 15th of each month following the month for which the information was obtained. All such reports shall be signed, certified, and dated by the appropriate authorized agent for the facility. The information submitted shall include the following:

a. The weight of solid waste delivered to the facility for each waste type permitted by this Certificate;

b. The volume and weight of unprocessible solid waste removed for alternative disposal, and the facility receiving the waste for disposal;

c. Weight of solid waste processed through incineration;

d. The weight of ash residue removed for disposal, and the facility receiving the residue for disposal;

e. The quantity of steam generated (in pounds per day);

f. Electricity generated (KWH/day); and

g. Recovered ferrous metals (tons/day).

Operational records shall be maintained on the premises for a three (3) year period, and shall be made available for inspection by the appropriate representative of the Department upon request.

All printed records generated by the facility's monitoring and control systems through log printers, strip-chart recorders or other means, shall also be kept on file at the facility for a period of at least three years from the date of data collection, and such records shall be made available for inspection by the Department upon request.

42. Plans On-Site

One complete set of the approved engineering plans, engineering reports, the operations and maintenance manual, and the environmental impact statement, along with the conditions of registration shall be kept on file at the facility, and shall be available for inspection by Department personnel or its designated representatives.

43. Right of Entry

The Registrant hereby agrees, consents and authorizes representatives of the Department of Environmental Protection (hereinafter DEP) to make whatever inspections, searches and examinations of all premises occupied by it which may be impacted by the activities authorized by this approval whenever these representatives, in their discretion, consider such an inspection, search and/or examination necessary to determine the extent of compliance with any and all conditions of the approval. Any refusal to allow entry to the Department's representatives shall constitute grounds for either suspension and/or revocation of this approval. Furthermore, the Registrant hereby agrees, consents and authorizes the representatives of the Department to present a copy of this approval to any Municipal or State Police Officer having jurisdiction over the Registrant's premises in order to have said officer effectuate compliance with this right of entry, should the Registrant at any time refuse to allow entry to said DEP inspectors.

44. Accommodations for Department Inspector

The Registrant shall provide permanent office space at the facility to accommodate a Department inspector on a daily basis during all facility operating hours. The Registrant shall allow entry to the inspector at any time during the facility operating hours.

The inspector's work space shall be equipped with the appropriate computer hardware including a display screen, that will allow for access to the facility's automated process monitoring, control, and information system. The computer hardware system shall allow the inspector to observe the same operational and control information that is available to the facility operators stationed in the central control room. In addition, continuous emission monitoring data and temperature monitoring data shall be transmitted to the Department via a remote telemetry system, in accordance with the plan required by the "Permit to Construct, Install, or Alter Control Apparatus or Equipment and Certificate To Operate Control Apparatus or Equipment" issued by the Division of Environmental Quality. This plan shall receive approval of the Department prior to the start-up of facility operations.

45. Duration of Registration

This Certificate of Approved Registration and Engineering Design Approval is for a maximum period of five (5) years from the date of its issuance. This Certificate of Approved Registration and Engineering Design Approval can be renewed at that time upon proper application, provided that the operation will meet all Departmental requirements that may exist when the renewal application is made.

Upon Certificate expiration, waste delivery and processing activities shall cease and all wastes, process residues and effluents in storage shall be removed from the premises.

46. Conformance With The Solid Waste Management Plan

This approval is conditioned upon conformance with all requirements of the Essex County District and State Solid Waste Management Plans as adopted and promulgated pursuant to N.J.S.A. 13:1E-1 et seq., as amended. No wastes other than those designated to this facility under said plans may be accepted for processing/disposal. Similarly, waste residues generated by facility operation shall be disposed of in conformance with these solid waste management plans.

Failure to comply with any or all limitations heretofore mentioned will result in the Department seeking relief under N.J.S.A. 13:1E-1 et sec., the Solid Waste Management Act. Specifically each day of failure to so comply shall constitute a separate violation on the basis of which a fine shall be assessed and may result in loss of operating authority, pursuant to N.J.S.A. 13:1E-12.

The issuance of this approval and the conditions of operation identified herein shall not be interpreted as relieving the applicant of his responsibility to secure and maintain all other applicable Federal, State and local permits or similar forms of authorization relating to the construction and operation of this facility.

APPENDIX I

October 30, 1985

Essex County Resource Recovery Facility

Site Remedial Response

Phase II

Mitigation Measures During Construction

I. Testing for Contaminated Soils:

1. Oil Spill Area

a. Designation - Generally those soils in the southwest quadrant of the site, bounded by the Norpack property and the natural drainage swale and as far south as the railroad cut. Any soils in this area that will be disrupted by surface grading, trenching and/or excavating must be tested for contamination and could be subject to a waste characterization.

b. Testing and Mitigation Measures - All soils moved and exposed due to the construction operations mentioned above shall be sampled in accordance with a clearly defined soil sampling plan to provide representative samples. At a minimum, all soil samples collected shall be tested for and have contaminated waste removal action levels for the following parameters:

- total petroleum hydrocarbons @ 100 ppm (mg/kg)
- lead @ 200 ppm (mg/kg)

The testing for the above parameters should be done in accordance with Method 418.1, USEPA March 1979 for petroleum hydrocarbons, citing the modification for soil analysis, and "Test Methods for Evaluating Solid Waste, SW 846, 2nd Edition, July 1982" for lead. Should evidence of other toxic or contaminant parameters be established based on previous monitoring and investigations, testing for those parameters shall be performed and reported in accordance with standard USEPA and ASTM methodologies.

In the event that either of the above action levels are exceeded, the limits of the contaminated soil shall be defined through further testing and then any of those contaminated soils to be disrupted shall be properly collected, labelled, removed and disposed off the site. The fate of all disrupted soils in this Area will be determined by testing for the above parameters and application of the corresponding action levels.

If the above action levels are not exceeded, and no other toxics or contaminants are found, then the disrupted soils can remain on the site or be removed as determined for the construction operations.

2. Refuse Bunker Area

a. Designation - Generally those soils in the central portion of site covering an area of approximately 0.41 acres. The depth of excavation is designed for -70.0 feet MSL, which indicates that roughly 30 feet of soil throughout this area will be excavated for construction of a concrete refuse bunker. The soils to be disrupted are defined as heterogeneous fill material from the surface to the water table, an organic silt and clay layer, and medium to fine grained sands from the lower aquifer.

b. Testing and Mitigation Measures - All soils excavated for the refuse bunker mentioned above shall be sampled in accordance with a clearly defined soil sampling plan to provide representative samples. At a minimum, all soil samples collected shall be tested for and have contaminated waste removal action levels for the following parameters:

- total petroleum hydrocarbons @ 100 ppm (mg/kg)
- lead @ 200 ppm (mg/kg)

The testing for the above parameters should be done in accordance with Method 418.1, USEPA March 1979 for petroleum hydrocarbons citing the modification for soil analysis, and "Test Methods Evaluating Solid Waste, SW 846, 2nd Edition, July 1982" for lead. Should evidence of other toxic or contaminant parameters be established based on previous monitoring and investigations, testing for those parameters shall be performed and reported in accordance with standard USEPA and ASTM methodologies.

In the event that either of the above action levels are exceeded, the volume of contaminated excavated soil shall be defined through further testing and then those contaminated soils shall be properly collected, labelled, removed and disposed off the site. The fate of all excavated soils in this area will be determined by testing for the above parameters and application of the corresponding action levels.

If the above action levels are not exceeded, and no other toxics or contaminants are found, then the disrupted soils can remain on the site or be removed as determined for the construction operation.

II. Groundwater Monitoring:

1.a. Groundwater definition - The shallow fill aquifer zone, elev. +10.0 to -3.0 feet MSL, the intermediate sand aquifer zone, elev. -18.0 to -50 feet MSL and the bedrock aquifer starting at -60 feet MSL are continuous beneath the site.

1.b. Environmental Controls and Mitigation Measures - Certain existing monitoring wells will be protected and preserved for future use. It is recommended that three (3) wells in each aquifer be maintained for future sampling of the groundwater. The following wells shall be protected during construction: shallow monitoring wells RR-5, and RR-1, intermediate monitoring wells RR-6, RR-9, and RR-13, and bedrock monitoring wells RR-10A and RR-3A. Preferably monitoring well RR-2, which exhibited the highest level of volatile organic compounds at 16.5 ppm, should be maintained for sampling but the preliminary design drawings indicate this well is likely to be destroyed. Two more monitoring wells are required, pursuant to the original scope-of-work carried-out by the Port Authority. These wells are to be located on the northern boundary of the Ottilio landfill property adjacent to the site and shall be installed in accordance with standards established by the NJDEP Division of Water Resources.

The additional monitoring wells shall be installed on the southern boundary of the proposed facility site; one (1) shallow monitoring well and one (1) deep bedrock monitoring well to complete the well system as mentioned above. All other existing monitoring wells on-site that will be destroyed by construction operations will be appropriately sealed in accordance with standards established by the NJDEP Division of Water Resources.

The Department recognizes the need for a comprehensive plan for dealing with the contamination of groundwater resources in the Newark metropolitan area, but the application of long-term groundwater remediation by one facility in terms of accomplishing some regional water quality goal is not reasonable at this time.

III. Facility Construction

1. Mitigation Measures

a. All utility piping, especially water services, to be buried below the existing grade of the site property, shall be adequately reinforced or encased to protect against extreme conditions in the subsurface zone. The possibility of corrosive environments and/or pipe joint movement due to heavy traffic are conditions that merit consideration for extra protection of utilities underground.

b. Any work by Utility companies will require prior notification to these companies that hazardous and toxic materials are present in the site environment. The property owner or tenant operator must issue certified letters to the Utility companies apprising them of the existing site conditions and requiring a return response indicating their acknowledgement.

c. During construction, worker safety must be of primary concern especially when excavating and trenching at the site creating exposure to contaminated soils and groundwater. The adherence to the Occupational Safety and Health Administration (OSHA) regulations, specifically CFR 1926, subparts D and E, shall be established throughout the duration of the Project.

The above requirements should be incorporated into a comprehensive Health and Safety Plan dealing with activities during construction and environmental conditions while the facility is in operation.

d. After soils disruption is complete, representative soil samples shall be collected from the exposed surface to be built on or utilities placed on to record the levels of contamination in the soils left in-place.

e. Proper disposal of contaminated soils shall be determined by the New Jersey Division of Waste Management, Bureau of Hazardous Waste Planning and Classification.

APPENDIX II

ESSEX COUNTY RECYCLING PLAN
IMPLEMENTATION SCHEDULE

Revised and approved by the Office of Recycling 7/25/85

TASK	1984 4	1985 1	2	3	4	1986 1	2	3	4	1987 1	2	3
MATERIAL RECOVERY FACILITY												
Identify and Resolve Market Issues					X							
Release RFP						X						
Select Vendor							X					
Begin Construction								X				
Begin Operation										X		
BUY BACK CENTERS												
Review and Revise Strategy						X						
Completion of Buyback System												X
PUBLICITY AND EDUCATION including (Ongoing) workshops & seminars for communities and businesses	X	X	X	X	X	X	X	X	X	X	X	X
ESSEX CO/OCEC (Curbside Collection)												
First Municipal Program					X							
Second & Third Municipal Program							X					
Fourth Municipal Program								X				
Fifth Municipal Program									X			
ADOPT ADMINISTRATION AND ENFORCEMENT STRATEGY, including performance standards for urban, suburban, and commercial recycling						X (Draft)						
IMPLEMENT A & E STRATEGY and require all municipalities to meet recycling performance standards											X	
COMPOST PROGRAM												
Meet with Municipalities to develop strategy that provides for cooperative approach.					X	X	X					
Identify sites and assist in permit process						X	X	X				

PMK Group
CONSULTING ENGINEERS

APPENDIX B

DOCUMENT	NUMBER OF PAGES
1993 ECUA Waste Survey Form	5
Transmitting Cover Letter	2

FOR ECUA USE ONLY

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

WASTE SURVEY

1. Facility Name: _____
2. Address: _____
_____
_____
3. Contact Person: _____
4. Title: _____
5. Phone #: _____ 6. Fax #: _____
7. Number of employees at the above location: _____
8. Briefly describe the nature of your facility's business or operations:
_____
_____
_____

Please indicate the following information for your facility:

9. Standard Industrial Classification (SIC) number: ☐☐☐☐
10. a. US EPA ID number (if applicable): ☐☐☐☐☐☐☐☐☐☐☐☐
b. NJDEPE Regulated Medical Waste generator ID number (if applicable): _____
11. If you have a US EPA ID number, are you a :

Fully Regulated Generator	☐	Transporter	☐
Small Quantity Generator	☐	Treatment, storage,	
Intermittent Generator	☐	disposal (TSD) Facility	☐

12. Sewerage Authority/Commission which services your facility:
_____
13. Wastewater/Water discharge permit number (if applicable): _____

14. If you are a manufacturer, please indicate the following for each raw material, feedstock, or consumable product used in your facility's operations (use additional sheets if necessary):

Name of Material	% of material used in final product	Is unused amount recycled	If yes, in-house or outside recycler
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___

15. Please list all organic and inorganic chemicals and process consumables (oil, solvents paint, etc.) which your facility uses in its operations (use additional sheets if necessary):

Name of Material	Is waste amount recycled	If yes, in-house or out-side recycler	If no, current treatment/ disposal method
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____

16. During operations, does your firm produce or dispose of any of the following (please check each item that applies) ?

Aerosol spray cans _____
Animal maintenance products _____
Antifreeze/Coolants _____
Asphaltic products (caulking, tar paper, etc.) _____
Automobile maintenance products (fluids, lubricants, additives, etc.) _____
Automobile parts _____
Cleaning products/polishes/waxes _____
Cosmetics (dyes, cosmetic removers, etc.) _____
Electronic components _____
Explosives _____
Fluorescent lights/fixtures _____
Glues _____
Heavy metals _____
Heavy metal containing products _____
High sulfur content materials _____
Household batteries _____
Lead-acid batteries _____
Metal cuttings or residuals _____
Mercury _____
Mercury-containing products _____
Petroleum contaminated soil _____
Pesticides/herbicides/fertilizers _____
Polyvinyl chloride (PVC) _____
Prescription or non-prescription drugs _____
Radioactive materials _____
Solder _____
Thermometers/thermostats _____
Tires or rubber products _____
Transformers _____
Wall board or sheetrock _____
Waste oil _____
Waste paint/solvents/stains/ varnishes _____
Yard waste _____

17. Does your facility generate waste(s) in the following categories ?

Category			Quantity per Month (in cubic yards, tons, or gallons–circle one)
Solid NJDEPE ID 10, 12, 13, 23, 25, 27	yes ___	no ___	_____ cy ton gal per month
Hazardous NJAC 7:26–8.1 et. seq.	yes ___	no ___	_____ cy ton gal per month
Sludge Industrial or Wastewater	yes ___	no ___	_____ cy ton gal per month
Wastewater	yes ___	no ___	_____ cy ton gal per month

18. Please identify the components of the waste your facility generates by their NJDEPE identification number, and their respective percentage and quantity (approximate). A list of the NJDEPE waste ID numbers and a brief description of each follow:

ID #	Description	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Percent of total waste generated
10	Municipal (household, commercial, institutional)	_____ cy ton gal per month	_____ %
12	Dry sewage, sludge	_____ cy ton gal per month	_____ %
13	Bulky waste	_____ cy ton gal per month	_____ %
23	Vegetative waste	_____ cy ton gal per month	_____ %
25	Animal and food processing waste	_____ cy ton gal per month	_____ %
27	a. non–hazardous oil spill cleanup waste	_____ cy ton gal per month	_____ %
	b. small qty hazardous waste per NJAC 7:26–8.3	_____ cy ton gal per month	_____ %
	c. dry non–hazardous pesticides	_____ cy ton gal per month	_____ %
	d. research & development process waste	_____ cy ton gal per month	_____ %
	e. asbestos–containing waste	_____ cy ton gal per month	_____ %
	f. remaining dry industrial waste	_____ cy ton gal per month	_____ %
72	Bulk liquids & semi–liquids	_____ cy ton gal per month	_____ %
73	Septic tank cleanout waste	_____ cy ton gal per month	_____ %
74	Liquid sewage sludge	_____ cy ton gal per month	_____ %
NJAC 7:26–3A.6	Regulated Medical Waste	_____ cy ton gal per month	_____ %
NJAC 7:26–8.1 et. seq.	Hazardous Waste	_____ cy ton gal per month	_____ %

19. Please provide specific information concerning each liquid, solid, and semi-solid waste which your facility generates (use additional sheets if necessary):

Waste	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Current treatment/ disposal method
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____

20. Please provide specific information concerning each NJDEPE registered waste hauler which your facility uses for waste disposal (use additional sheets if necessary):

Name of Hauler	Waste Type Transported	Disposal Location
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

21. Does any of your facility's solid waste consist of construction demolition debris (NJDEPE ID 13) yes ___ no ___ ?

22. Does your facility anticipate generating or receiving any construction demolition debris within the next two years yes ___ no ___ ?

23. Does any of your facility's waste contain asbestos or asbestos–containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods _____

_____

24. Is your facility a small quantity generator of hazardous waste per NJAC 7:26–8.3 yes ___ no ___ ? If yes, does your facility dispose of the waste as NJDEPE ID 27 _____ or Hazardous waste _____ ?

25. Does any of your facility's waste contain heavy metals or heavy metal containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

26. Does any of your facility's waste contain yard waste products (grass clippings, leaves, etc.) yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

19. Please provide specific information concerning each liquid, solid, and semi-solid waste which your facility generates (use additional sheets if necessary):

Waste	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Current treatment/ disposal method
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____

20. Please provide specific information concerning each NJDEPE registered waste hauler which your facility uses for waste disposal (use additional sheets if necessary):

Name of Hauler	Waste Type Transported	Disposal Location
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

21. Does any of your facility's solid waste consist of construction demolition debris (NJDEPE ID 13) yes ___ no ___ ?

22. Does your facility anticipate generating or receiving any construction demolition debris within the next two years yes ___ no ___ ?

23. Does any of your facility's waste contain asbestos or asbestos-containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods _____

_____

24. Is your facility a small quantity generator of hazardous waste per NJAC 7:26-8.3 yes ___ no ___ ? If yes, does your facility dispose of the waste as NJDEPE ID 27 _____ or Hazardous waste _____ ?

25. Does any of your facility's waste contain heavy metals or heavy metal containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

26. Does any of your facility's waste contain yard waste products (grass clippings, leaves, etc.) yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

27. Does your facility generate Regulated Medical Waste (NJAC 7:26-3A.6)
yes ___ no ___ ? If yes, does your facility utilize methods to disinfect and destroy the regulated materials, and then dispose of the residue as solid waste
yes ___ no ___ ? If yes, please describe the methods utilized, and provide your NJDEPE Facility Registration ID number (use additional sheets if necessary): _____

28. Does your facility currently practice on-site separation of hazardous and non-hazardous waste yes ___ no ___ not applicable ___ ?

29. Briefly describe the processes employed by your facility for segregating various waste types (include the methods used to separate recyclables, hazardous waste, bulky waste, etc. from the residual waste stream) _____

30. Is there a seasonal fluctuation in the type or amount of liquid, solid, or semi-solid waste that your facility generates yes ___ no ___ ? If yes, please explain _____

31. Do you understand that Essex County/NJDEPE waste flow orders require that all of your facility's acceptable waste (see attached definition) must be directed to the Essex County Resource Recovery Facility yes ___ no ___?

32. In your judgment, will it be necessary for any of your facility's waste to "bypass" the Essex County Resource Recovery Facility and be disposed of by other means (for example, are any components of the waste non-combustible; could any components cause damage to any part of the Essex County Resource Recovery Facility; or are any components generally not suitable for incineration due to emission or residue concerns)? Please include any substance which you may consider questionable in this regard (use additional sheets if necessary). _____

33. Does your facility believe that the information presented in this survey will be representative of the firm's operations and waste stream for the next two years yes ___ no ___? If no, please explain _____

_____ _____
SIGNATURE OF INDIVIDUAL COMPLETING THIS FORM DATE SIGNED

_____
TYPED NAME AND TITLE OF INDIVIDUAL COMPLETING THIS FORM

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

COMMISSIONERS

Stephen J. Edelstein,
Chairman
Clay Constantinou,
Vice-Chairman
Donald V. Biase,
Secretary/Treasurer-
Finance Committee Chair
Carol Y. Clark
Recycling Committee Chair
Antonio Seabra,
Operations Committee Chair
Mario G. Tucci

DIRECTOR OF OPERATIONS

Martin M. Lund, Jr.

NOTICE

TO: ALL ESSEX COUNTY SERVICE/PRODUCTION INDUSTRIES AND HEALTH CARE FACILITIES

FROM: Martin M. Lund, Jr., Director of Operations - ECUA

DATE: August 23, 1993

SUBJ: Essex County Utilities Authority - 1993 Waste Survey Form

****

Enclosed please find the Essex County Utilities Authority (ECUA) 1993 Waste Survey Form.

This Waste Survey is being conducted in accordance with the State of New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq. This Act mandates the County of Essex and its solid waste management implementation agency, the ECUA, be responsible for the management of all non-hazardous solid waste generated in the geographic boundaries of the County.

We therefore need your facility to complete this survey so that the ECUA may manage County waste flow in the most environmentally sound manner possible.

You may have received a similar waste survey form in 1990 from the County of Essex. The 1993 Waste Survey is being conducted to update and supplement the information gathered in 1990. Therefore, you should complete and return the 1993 Waste Survey form even if you completed and returned the 1990 form.

We ask that you complete the information requested and return it in the enclosed self-addressed envelope within seven (7) days.

Organizations that do not respond to the Waste Survey will be prohibited from using the Essex County Resource Recovery Facility for waste disposal and will be required to direct their waste to the Essex County/NJDEPE Designated Transfer Station.

We urge you to complete and return the survey as soon as possible.

To assist you in completing the survey, please find below the definition of "Acceptable Waste." This definition has been authorized by New Jersey Department of Environmental Protection and Energy (NJDEPE) and the resource recovery vendor - American Ref-Fuel Company of Essex County.

The PMK Group, Environmental Engineering Consultants have been retained by the ECUA and will be responsible for reviewing and analyzing the completed survey form. For technical information and further explanation concerning the survey, contact Mr. Gene Brandt of The PMK Group, (908) 686-0044, for administrative and waste flow information, contact Mr. Nicholas Maddaloni, Chief Sanitation Inspector - ECUA at 201-857-2350.

DEFINITION OF "ACCEPTABLE WASTE"

"Acceptable Waste" means that portions of solid waste which (a) is collected, including garbage, trash, rubbish, and refuse, (b) is branches, twigs, grass, and plant cuttings collected as part of municipal waste collections and (d) is described in the NJDEPE identification numbers 10, 23, and 27 (other than the following subcategories set forth in identification number 27; non-hazardous oil spill clean-up waste; dry, non-hazardous pesticides; dry, non-hazardous chemical waste; research and development process waste; and contaminated soil) in Section 7:26-2.13(g)(1) of the regulations of the Division of Solid Waste Management of the Department as such regulations may be amended or supplemented from time to time.

Enclosure
0169/MML/NM/ks

xc: Stephen J. Edelstein, Chairman - ECUA
Donald V. Biase, Commissioner, Sec./Treasurer - ECUA
Antonio Seabra, Commissioner, Chairman - Operations Committee - ECUA
Eric Wisler, General Counsel - ECUA
James Ferris, P.E., Industrial Waste Survey Consultant
Gerald Doherty, Manager, Port Authority of NY & NJ
Curt Hurst, General Manager, American Ref-Fuel
Gary Sondermeyer, Deputy Director, DSWM - NJDEPE
Timothy Bartle, Bureau of Resource Recovery - NJDEPE
File #2

PMK Group
CONSULTING ENGINEERS

APPENDIX C

DOCUMENT	NUMBER OF PAGES
Minimal Computer System Requirements to Run Paradox	1
Name, Structure, and Content of Each Paradox Table	1
Special Codes Used In Data Entry	1
Color Coded 1993 ECUA Waste Survey Form Indicating Contents of Each Paradox Table	5

PMK Group
CONSULTING ENGINEERS

MINIMAL COMPUTER SYSTEM REQUIREMENTS TO RUN PARADOX

The minimal computer system requirements necessary to run Paradox, Version 3.5 as outlined on Page 6 of the Paradox Users Guide include:

1. An IBM Personal System/2, PC, PC XT, XT Model 286, PC AT, or other 100 percent compatible computer.

2. One hard disk and at least one floppy disk drive.

3. At least 512K bytes of internal (RAM) memory.

4. DOS 2.0 or higher.

5. A compatible monochrome, color, or EGA monitor with adapter.

6. Formatted floppy disks for storing original or back-up copies of the tables and other objects created with Paradox.

PMK Group
CONSULTING ENGINEERS

NAME AND CONTENT OF EACH PARADOX TABLE

TABLE 1

Name: ESX1

Table 1 contains general information about each facility including the 10–digit facility ID number, name, address, phone numbers, nature of business, and contact person.

TABLE 2

Name: ESX2

Table 2 contains information concerning general industry classification, solid/liquid/hazardous waste categories and quantities, and seasonal fluctuations in the amount of waste generated (i.e. SIC numbers, EPA ID numbers and categories, waste generated by NJDEP ID number, etc.). This table also includes the 10–digit industry ID number.

TABLE 3

Name: ESX3

Table 3 contains specific information from each industry concerning raw materials, chemical and other process consumable, specific waste materials generated, and names of haulers. This table also includes the 10–digit industry ID number and a provision for indicating that more information was presented on an individual survey form than could be accommodated in the table structure.

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CONSULTING ENGINEERS

SPECIAL CODES USED IN DATA ENTRY

HAZARDOUS WASTE GENERATOR CATEGORY (QUESTION 11)

FRG – Fully Regulated Generator
SQG – Small Quantity Generator
INT – Intermittent Generator
TRA – Transporter
TSD – Treatment, Storage, Disposal Facility

SPECIAL ITEMS (QUESTION 16)

Aerosol Spray Cans	ASC	Lead–acid batteries	LAB
Animal Maintenance Products	AMP	Metal Cuttings or Residuals	MEC
Antifreeze/Coolants	ANC	Mercury	MER
Asphaltic Products (Caulking, tar paper, etc.)	ASP	Mercury–Containing Products	MCP
Automobile Maintenance Products (fluids, lubricants, additives, etc.)	AUP	Petroleum Contaminated Soil	PCS
Automobile Parts	APA	Pesticides/Herbicides/Fertilizers	PES
Cleaning Products/Polishes/ Waxes	CPW	Polyvinyl Chloride (PVC)	PVC
Cosmetics (dyes, cosmetic removers, etc.)	COS	Prescription or non–prescription drugs	PRE
Electronic components	ELC	Radioactive materials	RAD
Explosives	EXP	Solder	SOL
Fluorescent lights/fixtures	FLL	Thermometers/Thermostats	THE
Glues	GLU	Tires or Rubber Products	TIR
Heavy Metals	HEM	Transformers	TRA
Heavy Metal Containing Products	HMC	Wallboard or Sheetrock	WAL
High Sulphur Content Materials	HSC	Waste Oil	WAO
Household Batteries	HOB	Waste Paint/Solvents/Stains/ Varnishes	WAP
		Yard Waste	YDW

ESX1——
ESX2——
ESX3——

FOR ECUA USE ONLY

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

WASTE SURVEY

1. Facility Name: _____
2. Address: _____
3. Contact Person: _____
4. Title: _____
5. Phone #: _____ 6. Fax #: _____
7. Number of employees at the above location: _____
8. Briefly describe the nature of your facility's business or operations:

Please indicate the following information for your facility:

9. Standard Industrial Classification (SIC) number: | | | |
10. a. US EPA ID number (if applicable): | | | | | | | | | | | | |
    b. ~~NJDEPE~~ Regulated Medical Waste generator ID number (if applicable): _____
11. If you have a US EPA ID number, are you a :

Fully Regulated Generator	☐	Transporter	☐
Small Quantity Generator	☐	Treatment, storage,	
Intermittent Generator	☐	disposal (TSD) Facility	☐

12. Sewerage Authority/Commission which services your facility: _____
13. Wastewater/Water discharge permit number (if applicable): _____

14. If you are a manufacturer, please indicate the following for each raw material, feedstock, or consumable product used in your facility's operations (use additional sheets if necessary):

Name of Material	% of material used in final product	Is unused amount recycled	If yes, in-house or outside recycler
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___

15. Please list all organic and inorganic chemicals and process consumables (oil, solvents paint, etc.) which your facility uses in its operations (use additional sheets if necessary):

Name of Material	Is waste amount recycled	If yes, in-house or out-side recycler	If no, current treatment/ disposal method
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____

16. During operations, does your firm produce or dispose of any of the following (please check each item that applies) ?

Aerosol spray cans ____
Animal maintenance products ____
Antifreeze/Coolants ____
Asphaltic products (caulking, tar paper, etc.) ____
Automobile maintenance products (fluids, lubricants, additives, etc.) ____
Automobile parts ____
Cleaning products/polishes/waxes ____
Cosmetics (dyes, cosmetic removers, etc.) ____
Electronic components ____
Explosives ____
Fluorescent lights/fixtures ____
Glues ____
Heavy metals ____
Heavy metal containing products ____
High sulfur content materials ____
Household batteries ____
Lead-acid batteries ____
Metal cuttings or residuals ____
Mercury ____
Mercury-containing products ____
Petroleum contaminated soil ____
Pesticides/herbicides/fertilizers ____
Polyvinyl chloride (PVC) ____
Prescription or non-prescription drugs ____
Radioactive materials ____
Solder ____
Thermometers/thermostats ____
Tires or rubber products ____
Transformers ____
Wall board or sheetrock ____
Waste oil ____
Waste paint/solvents/stains/ varnishes ____
Yard waste ____

17. Does your facility generate waste(s) in the following categories ?

Category			Quantity per Month (in cubic yards, tons, or gallons–circle one)
Solid NJDEPE ID 10, 12, 13, 23, 25, 27	yes ___	no ___	_____ cy ton gal per month
Hazardous NJAC 7:26–8.1 et. seq.	yes ___	no ___	_____ cy ton gal per month
Sludge Industrial or Wastewater	yes ___	no ___	_____ cy ton gal per month
Wastewater	yes ___	no ___	_____ cy ton gal per month

18. Please identify the components of the waste your facility generates by their NJDEPE identification number, and their respective percentage and quantity (approximate). A list of the NJDEPE waste ID numbers and a brief description of each follow:

ID #	Description	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Percent of total waste generated
10	Municipal (household, commercial, institutional)	_____ cy ton gal per month	_____ %
12	Dry sewage, sludge	_____ cy ton gal per month	_____ %
13	Bulky waste	_____ cy ton gal per month	_____ %
23	Vegetative waste	_____ cy ton gal per month	_____ %
25	Animal and food processing-waste	_____ cy ton gal per month	_____ %
27	a. non–hazardous oil spill cleanup waste	_____ cy ton gal per month	_____ %
	b. small qty hazardous waste per NJAC 7:26–8.3	_____ cy ton gal per month	_____ %
	c. dry non–hazardous pesticides	_____ cy ton gal per month	_____ %
	d. research & development process waste	_____ cy ton gal per month	_____ %
	e. asbestos–containing waste	_____ cy ton gal per month	_____ %
	f. remaining dry industrial waste	_____ cy ton gal per month	_____ %
72	Bulk liquids & semi–liquids	_____ cy ton gal per month	_____ %
73	Septic tank cleanout waste	_____ cy ton gal per month	_____ %
74	Liquid sewage sludge	_____ cy ton gal per month	_____ %
	NJAC 7:26–3A.6 Regulated Medical Waste	_____ cy ton gal per month	_____ %
	NJAC 7:26–8.1 et seq. Hazardous Waste	_____ cy ton gal per month	_____ %

19. Please provide specific information concerning each liquid, solid, and semi-solid waste which your facility generates (use additional sheets if necessary):

Waste	Quantity per Month (in cubic yards, tons, or gallons-circle one)	Current treatment/ disposal method
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____

20. Please provide specific information concerning each NJDEPE registered waste hauler which your facility uses for waste disposal (use additional sheets if necessary):

Name of Hauler	Waste Type Transported	Disposal Location
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

21. Does any of your facility's solid waste consist of construction demolition debris (NJDEPE ID 13) yes ___ no ___ ?

22. Does your facility anticipate generating or receiving any construction demolition debris within the next two years yes ___ no ___ ?

23. Does any of your facility's waste contain asbestos or asbestos-containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods _____

24. Is your facility a small quantity generator of hazardous waste per NJAC 7:26-8.3 yes ___ no ___ ? If yes, does your facility dispose of the waste as NJDEPE ID 27 _____ or Hazardous waste _____ ?

25. Does any of your facility's waste contain heavy metals or heavy metal containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

26. Does any of your facility's waste contain yard waste products (grass clippings, leaves, etc.) yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

27. Does your facility generate Regulated Medical Waste (NJAC 7:26-3A.6) yes ___ no ___ ? If yes, does your facility utilize methods to disinfect and destroy the regulated materials, and then dispose of the residue as solid waste yes ___ no ___ ? If yes, please describe the methods utilized, and provide your NJDEPE Facility Registration ID number (use additional sheets if necessary): _____

28. Does your facility currently practice on-site separation of hazardous and non-hazardous waste yes ___ no ___ not applicable ___ ?

29. Briefly describe the processes employed by your facility for segregating various waste types (include the methods used to separate recyclables, hazardous waste, bulky waste, etc. from the residual waste stream) _____

30. Is there a seasonal fluctuation in the type or amount of liquid, solid, or semi-solid waste that your facility generates yes ___ no ___ ? If yes, please explain _____

31. Do you understand that Essex County/NJDEPE waste flow orders require that all of your facility's acceptable waste (see attached definition) must be directed to the Essex County Resource Recovery Facility yes ___ no ___?

32. In your judgment, will it be necessary for any of your facility's waste to "bypass" the Essex County Resource Recovery Facility and be disposed of by other means (for example, are any components of the waste non-combustible; could any components cause damage to any part of the Essex County Resource Recovery Facility; or are any components generally not suitable for incineration due to emission or residue concerns)? Please include any substance which you may consider questionable in this regard (use additional sheets if necessary). _____

33. Does your facility believe that the information presented in this survey will be representative of the firm's operations and waste stream for the next two years yes ___ no ___? If no, please explain _____

_____ _____

SIGNATURE OF INDIVIDUAL COMPLETING THIS FORM DATE SIGNED

_____

TYPED NAME AND TITLE OF INDIVIDUAL COMPLETING THIS FORM

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

COMMISSIONERS

Stephen J. Edelstein,
Chairman
Clay Constantinou,
Vice-Chairman
Donald V. Biase,
Secretary/Treasurer-
Finance Committee Chair
Carol Y. Clark
Recycling Committee Chair
Antonio Seabra,
Operations Committee Chair
Mauro G. Tucci

DIRECTOR OF OPERATIONS

Martin M. Lund, Jr.

NOTICE

TO: ALL ESSEX COUNTY SERVICE/PRODUCTION INDUSTRIES AND HEALTH CARE FACILITIES

FROM: Martin M. Lund, Jr., Director of Operations - ECUA

DATE: August 23, 1993

SUBJ: Essex County Utilities Authority - 1993 Waste Survey Form

****

Enclosed please find the Essex County Utilities Authority (ECUA) 1993 Waste Survey Form.

This Waste Survey is being conducted in accordance with the State of New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq. This Act mandates the County of Essex and its solid waste management implementation agency, the ECUA, be responsible for the management of all non-hazardous solid waste generated in the geographic boundaries of the County.

We therefore need your facility to complete this survey so that the ECUA may manage County waste flow in the most environmentally sound manner possible.

You may have received a similar waste survey form in 1990 from the County of Essex. The 1993 Waste Survey is being conducted to update and supplement the information gathered in 1990. Therefore, you should complete and return the 1993 Waste Survey form even if you completed and returned the 1990 form.

We ask that you complete the information requested and return it in the enclosed self-addressed envelope within seven (7) days.

An Equal Opportunity Employer
Printed on Recycled Paper

Organizations that do not respond to the Waste Survey will be prohibited from using the Essex County Resource Recovery Facility for waste disposal and will be required to direct their waste to the Essex County/NJDEPE Designated Transfer Station.

We urge you to complete and return the survey as soon as possible.

To assist you in completing the survey, please find below the definition of "Acceptable Waste." This definition has been authorized by New Jersey Department of Environmental Protection and Energy (NJDEPE) and the resource recovery vendor - American Ref-Fuel Company of Essex County.

The PMK Group, Environmental Engineering Consultants have been retained by the ECUA and will be responsible for reviewing and analyzing the completed survey form. For technical information and further explanation concerning the survey, contact Mr. Gene Brandt of The PMK Group, (908) 686-0044, for administrative and waste flow information, contact Mr. Nicholas Maddaloni, Chief Sanitation Inspector - ECUA at 201-857-2350.

DEFINITION OF "ACCEPTABLE WASTE"

"Acceptable Waste" means that portions of solid waste which (a) is collected, including garbage, trash, rubbish, and refuse, (b) is branches, twigs, grass, and plant cuttings collected as part of municipal waste collections and (d) is described in the NJDEPE identification numbers 10, 23, and 27 (other than the following subcategories set forth in identification number 27; non-hazardous oil spill clean-up waste; dry, non-hazardous pesticides; dry, non-hazardous chemical waste; research and development process waste; and contaminated soil) in Section 7:26-2.13(g)(1) of the regulations of the Division of Solid Waste Management of the Department as such regulations may be amended or supplemented from time to time.

Enclosure
0169/MML/NM/ks

xc: Stephen J. Edelstein, Chairman - ECUA
Donald V. Biase, Commissioner, Sec./Treasurer - ECUA
Antonio Seabra, Commissioner, Chairman - Operations Committee - ECUA
Eric Wisler, General Counsel - ECUA
James Ferris, P.E., Industrial Waste Survey Consultant
Gerald Doherty, Manager, Port Authority of NY & NJ
Curt Hurst, General Manager, American Ref-Fuel
Gary Sondermeyer, Deputy Director, DSWM - NJDEPE
Timothy Bartle, Bureau of Resource Recovery - NJDEPE
File #2

PMK Group
CONSULTING ENGINEERS

APPENDIX C

DOCUMENT	NUMBER OF PAGES
Minimal Computer System Requirements to Run Paradox	1
Name, Structure, and Content of Each Paradox Table	1
Special Codes Used In Data Entry	1
Color Coded 1993 ECUA Waste Survey Form Indicating Contents of Each Paradox Table	5

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MINIMAL COMPUTER SYSTEM REQUIREMENTS TO RUN PARADOX

The minimal computer system requirements necessary to run Paradox, Version 3.5 as outlined on Page 6 of the Paradox Users Guide include:

1. An IBM Personal System/2, PC, PC XT, XT Model 286, PC AT, or other 100 percent compatible computer.

2. One hard disk and at least one floppy disk drive.

3. At least 512K bytes of internal (RAM) memory.

4. DOS 2.0 or higher.

5. A compatible monochrome, color, or EGA monitor with adapter.

6. Formatted floppy disks for storing original or back-up copies of the tables and other objects created with Paradox.

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NAME AND CONTENT OF EACH PARADOX TABLE

TABLE 1

Name: ESX1

Table 1 contains general information about each facility including the 10-digit facility ID number, name, address, phone numbers, nature of business, and contact person.

TABLE 2

Name: ESX2

Table 2 contains information concerning general industry classification, solid/liquid/hazardous waste categories and quantities, and seasonal fluctuations in the amount of waste generated (i.e. SIC numbers, EPA ID numbers and categories, waste generated by NJDEP ID number, etc.). This table also includes the 10-digit industry ID number.

TABLE 3

Name: ESX3

Table 3 contains specific information from each industry concerning raw materials, chemical and other process consumable, specific waste materials generated, and names of haulers. This table also includes the 10-digit industry ID number and a provision for indicating that more information was presented on an individual survey form than could be accommodated in the table structure.

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SPECIAL CODES USED IN DATA ENTRY

HAZARDOUS WASTE GENERATOR CATEGORY (QUESTION 11)

FRG – Fully Regulated Generator
SQG – Small Quantity Generator
INT – Intermittent Generator
TRA – Transporter
TSD – Treatment, Storage, Disposal Facility

SPECIAL ITEMS (QUESTION 16)

Aerosol Spray Cans	ASC	Lead-acid batteries	LAB
Animal Maintenance Products	AMP	Metal Cuttings or Residuals	MEC
Antifreeze/Coolants	ANC	Mercury	MER
Asphaltic Products (Caulking, tar paper, etc.)	ASP	Mercury-Containing Products	MCP
Automobile Maintenance Products (fluids, lubricants, additives, etc.)	AUP	Petroleum Contaminated Soil	PCS
Automobile Parts	APA	Pesticides/Herbicides/Fertilizers	PES
Cleaning Products/Polishes/ Waxes	CPW	Polyvinyl Chloride (PVC)	PVC
Cosmetics (dyes, cosmetic removers, etc.)	COS	Prescription or non-prescription drugs	PRE
Electronic components	ELC	Radioactive materials	RAD
Explosives	EXP	Solder	SOL
Fluorescent lights/fixtures	FLL	Thermometers/Thermostats	THE
Glues	GLU	Tires or Rubber Products	TIR
Heavy Metals	HEM	Transformers	TRA
Heavy Metal Containing Products	HMC	Wallboard or Sheetrock	WAL
High Sulphur Content Materials	HSC	Waste Oil	WAO
Household Batteries	HOB	Waste Paint/Solvents/Stains/ Varnishes	WAP
		Yard Waste	YDW

ESX1——
ESX2——
ESX3——

FOR ECUA USE ONLY

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

WASTE SURVEY

1. Facility Name: _____
2. Address: _____
3. Contact Person: _____
4. Title: _____
5. Phone #: _____ 6. Fax #: _____
7. Number of employees at the above location: _____
8. Briefly describe the nature of your facility's business or operations:

_____

_____

_____

Please indicate the following information for your facility:

9. Standard Industrial Classification (SIC) number: | | | | |

10. a. US EPA ID number (if applicable): | | | | | | | | | | | | |
    b. ~~NJDEPE~~ Regulated Medical Waste generator ID number (if applicable): _____

11. If you have a US EPA ID number, are you a :

Fully Regulated Generator	☐	Transporter	☐
Small Quantity Generator	☐	Treatment, storage,	
Intermittent Generator	☐	disposal (TSD) Facility	☐

12. Sewerage Authority/Commission which services your facility:

_____

13. Wastewater/Water discharge permit number (if applicable): _____

14. If you are a manufacturer, please indicate the following for each raw material, feedstock, or consumable product used in your facility's operations (use additional sheets if necessary):

Name of Material	% of material used in final product	Is unused amount recycled	If yes, in-house or outside recycler
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___
_____	_____ %	yes ___ no ___	in ___ out ___

15. Please list all organic and inorganic chemicals and process consumables (oil, solvents paint, etc.) which your facility uses in its operations (use additional sheets if necessary):

Name of Material	Is waste amount recycled	If yes, in-house or out-side recycler	If no, current treatment/ disposal method
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____
_____	yes ___ no ___	in ___ out ___	_____

16. During operations, does your firm produce or dispose of any of the following (please check each item that applies) ?

Aerosol spray cans ____
Animal maintenance products ____
Antifreeze/Coolants ____
Asphaltic products (caulking, tar paper, etc.) ____
Automobile maintenance products (fluids, lubricants, additives, etc.) ____
Automobile parts ____
Cleaning products/polishes/waxes ____
Cosmetics (dyes, cosmetic removers, etc.) ____
Electronic components ____
Explosives ____
Fluorescent lights/fixtures ____
Glues ____
Heavy metals ____
Heavy metal containing products ____
High sulfur content materials ____
Household batteries ____
Lead-acid batteries ____
Metal cuttings or residuals ____
Mercury ____
Mercury-containing products ____
Petroleum contaminated soil ____
Pesticides/herbicides/fertilizers ____
Polyvinyl chloride (PVC) ____
Prescription or non-prescription drugs ____
Radioactive materials ____
Solder ____
Thermometers/thermostats ____
Tires or rubber products ____
Transformers ____
Wall board or sheetrock ____
Waste oil ____
Waste paint/solvents/stains/ varnishes ____
Yard waste ____

17. Does your facility generate waste(s) in the following categories ?

Category			Quantity per Month (in cubic yards, tons, or gallons–circle one)
Solid NJDEPE ID 10, 12, 13, 23, 25, 27	yes ___	no ___	_____ cy ton gal per month
Hazardous NJAC 7:26–8.1 et. seq.	yes ___	no ___	_____ cy ton gal per month
Sludge Industrial or Wastewater	yes ___	no ___	_____ cy ton gal per month
Wastewater	yes ___	no ___	_____ cy ton gal per month

18. Please identify the components of the waste your facility generates by their NJDEPE identification number, and their respective percentage and quantity (approximate). A list of the NJDEPE waste ID numbers and a brief description of each follow:

ID #	Description	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Percent of total waste generated
10	Municipal (household, commercial, institutional)	_____ cy ton gal per month	_____ %
12	Dry sewage, sludge	_____ cy ton gal per month	_____ %
13	Bulky waste	_____ cy ton gal per month	_____ %
23	Vegetative waste	_____ cy ton gal per month	_____ %
25	Animal and food processing-waste	_____ cy ton gal per month	_____ %
27	a. non–hazardous oil spill cleanup waste	_____ cy ton gal per month	_____ %
	b. small qty hazardous waste per NJAC 7:26–8.3	_____ cy ton gal per month	_____ %
	c. dry non–hazardous pesticides	_____ cy ton gal per month	_____ %
	d. research & development process waste	_____ cy ton gal per month	_____ %
	e. asbestos–containing waste	_____ cy ton gal per month	_____ %
	f. remaining dry industrial waste	_____ cy ton gal per month	_____ %
72	Bulk liquids & semi–liquids	_____ cy ton gal per month	_____ %
73	Septic tank cleanout waste	_____ cy ton gal per month	_____ %
74	Liquid sewage sludge	_____ cy ton gal per month	_____ %
NJAC 7:26–3A.6	Regulated Medical Waste	_____ cy ton gal per month	_____ %
NJAC 7:26–8.1 et. seq.	Hazardous Waste	_____ cy ton gal per month	_____ %

19. Please provide specific information concerning each liquid, solid, and semi-solid waste which your facility generates (use additional sheets if necessary):

Waste	Quantity per Month (in cubic yards, tons, or gallons–circle one)	Current treatment/ disposal method
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____
_____	_____ cy ton gal per month	_____

20. Please provide specific information concerning each NJDEPE registered waste hauler which your facility uses for waste disposal (use additional sheets if necessary):

Name of Hauler	Waste Type Transported	Disposal Location
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

21. Does any of your facility's solid waste consist of construction demolition debris (NJDEPE ID 13) yes ___ no ___ ?

22. Does your facility anticipate generating or receiving any construction demolition debris within the next two years yes ___ no ___ ?

23. Does any of your facility's waste contain asbestos or asbestos–containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods _____

_____

24. Is your facility a small quantity generator of hazardous waste per NJAC 7:26–8.3 yes ___ no ___ ? If yes, does your facility dispose of the waste as NJDEPE ID 27 _____ or Hazardous waste _____ ?

25. Does any of your facility's waste contain heavy metals or heavy metal containing materials yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

26. Does any of your facility's waste contain yard waste products (grass clippings, leaves, etc.) yes ___ no ___ ? If yes, please describe the nature, quantity, and treatment/disposal methods (use additional sheets if necessary): _____

_____

27. Does your facility generate Regulated Medical Waste (NJAC 7:26-3A.6)
yes ___ no ___ ? If yes, does your facility utilize methods to disinfect and destroy the regulated materials, and then dispose of the residue as solid waste
yes ___ no ___ ? If yes, please describe the methods utilized, and provide your NJDEPE Facility Registration ID number (use additional sheets if necessary): _____

28. Does your facility currently practice on-site separation of hazardous and non-hazardous waste yes ___ no ___ not applicable ___ ?

29. Briefly describe the processes employed by your facility for segregating various waste types (include the methods used to separate recyclables, hazardous waste, bulky waste, etc. from the residual waste stream) _____

30. Is there a seasonal fluctuation in the type or amount of liquid, solid, or semi-solid waste that your facility generates yes ___ no ___ ? If yes, please explain _____

31. Do you understand that Essex County/NJDEPE waste flow orders require that all of your facility's acceptable waste (see attached definition) must be directed to the Essex County Resource Recovery Facility yes ___ no ___?

32. In your judgment, will it be necessary for any of your facility's waste to "bypass" the Essex County Resource Recovery Facility and be disposed of by other means (for example, are any components of the waste non-combustible; could any components cause damage to any part of the Essex County Resource Recovery Facility; or are any components generally not suitable for incineration due to emission or residue concerns)? Please include any substance which you may consider questionable in this regard (use additional sheets if necessary). _____

33. Does your facility believe that the information presented in this survey will be representative of the firm's operations and waste stream for the next two years yes ___ no ___? If no, please explain _____

_____ _____
SIGNATURE OF INDIVIDUAL COMPLETING THIS FORM DATE SIGNED

_____
TYPED NAME AND TITLE OF INDIVIDUAL COMPLETING THIS FORM

PMK Group
CONSULTING ENGINEERS

APPENDIX D

DOCUMENT	NUMBER OF PAGES
Follow–up Letter	2

ECUA

Essex County Utilities Authority

120 Fairview Avenue, Cedar Grove, New Jersey 07009
Tele: 201-857-2350 FAX: 201-857-9361

COMMISSIONERS

Stephen J. Edelstein,
Chairman

Donald V. Biase,
Secretary/Treasurer-
Finance Committee Chair

Carol Y. Clark
Recycling Committee Chair

Antonio Scalza,
Operations Committee Chair

Hatem G. Tucci
Technical Planning Chair

DIRECTOR OF OPERATIONS

Martin M. Lund, Jr.

M E M O R A N D U M

TO: Essex County Service/Production Industries and Health Care Facilities

FROM: Martin M. Lund, Jr., Director of Operations - ECUA

DATE: November 8, 1993

SUBJ: Essex County Utilities Authority
1993 Waste Survey Form

****

On or about September 21, 1993, the Essex County Utilities Authority (ECUA) mailed to your facility a 1993 Waste Survey form. As stated in the notice accompanying the form, the Waste Survey is being conducted in accordance with the State of New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq. The information requested on the form is essential in enabling the ECUA to manage the non-hazardous solid waste flow generated within the geographic boundaries of Essex County in the most environmentally sound manner possible.

As of November 3, 1993, the ECUA's records indicate that your facility has not returned the completed form.

Please be advised that organizations that do not respond to the Waste Survey will be prohibited from using the Essex County Resource Recovery Facility for waste disposal and will be required to direct their non-hazardous solid waste to the Essex County/NJDEPE Designated Transfer Station.

We strongly urge you to complete the survey. If you need another copy of the waste survey form, please contact Mr. Gene Brandt of the PMK Group (Environmental Engineering Consultants to the ECUA) at (908) 686-0044.

For technical information and further explanation concerning the survey, contact Mr. Brandt of the PMK Group at the number stated above. For administrative and waste flow information, contact Mr. Nicholas Maddaloni, Chief Sanitation Inspector - ECUA at (201) 857-2350.

Additionally, please be advised that the definition of "Acceptable Waste" stated in the notice accompanying the waste survey form, contained a typographical error. The correct definition (as partially excerpted from the RRF Operator's Service Agreement) is as follows:

DEFINITION OF "ACCEPTABLE WASTE"

"Acceptable Waste" means that portion of Solid Waste which (a) is collected and disposed of as part of municipal waste collections, including garbage, trash, rubbish and refuse, (b) is commercial and industrial Solid Waste that can be processed, (c) is branches, leaves, twigs, grass and plant cuttings collected as part of municipal waste collections and (d) is described in the NJDEPE identification numbers 10, 23, and 27 (other than the following subcategories setforth in identification number 27: non-hazardous oil spill clean-up waste; dry non-hazardous pesticides; dry non-hazardous chemical waste; research and development process waste; asbestos-containing materials such as ceiling tiles and insulation; and contaminate soils) in Section 7:26-2:13(g)(1) of the regulations of the Division of Waste Management of the New Jersey Department of Environmental Protection and Energy (NJDEPE) as such regulations may be amended or supplemented from time to time.

If you have already completed and returned your waste survey form, please disregard this notice.

MML/NM/kd/0331

Enclosure

xc: Gary Sondermeyer, Deputy Director, DSWM - NJDEPE
Timothy Bartle, Bureau of Resource Recovery - NJDEPE
File/2

PMK Group
CONSULTING ENGINEERS

APPENDIX E

DOCUMENT	NUMBER OF PAGES
Facilities Inspected	2

Facility Name	Street	City	State	Zip
A. Wilson & Company, Inc.	46 Ralph Street	Belleville	NJ	07109
B & H Machine Co., Inc.	67-69 Greylock Avenue	Belleville	NJ	07109
Foam Rubber Fabricators, Inc.	740 Washington Avenue	Belleville	NJ	07109
Precision Specialties	120 Greylock Avenue	Belleville	NJ	07109
Garden State Woodworking Co., Inc.	344 Hoover Avenue	Bloomfield	NJ	07003
Peerless Tube Company	58-76 Locust Avenue	Bloomfield	NJ	07003
Grove Precision Machine Co., Inc.	41 Bortic Road	Cedar Grove	NJ	07009
Brush Wellman Inc.	180 Passaic Avenue	Fairfield	NJ	07004
Carewell Ind. Inc.	333B Route 46 West	Fairfield	NJ	07004
Elvetta Products Co., Inc.	330 Fairfield Road	Fairfield	NJ	07004-1998
Prestige Rubber Mfg. Corp.	11 Spielman Road	Fairfield	NJ	07004
Star Tobacco Company	780 Christopher Avenue	Irvington	NJ	07111
U.S. Mattress Corporation	84 Coit Street	Irvington	NJ	07111
Allison Corporation	630 West Mt. Pleasant Avenue	Livingston	NJ	07039
Millburn Feed Co., Inc.	378 Millburn Avenue	Millburn	NJ	07041
Technopulp Inc.	26 Park Street	Montclair	NJ	07042
A L M Corporation	2-18 Mott Street	Newark	NJ	07105
Atlantic Bias Products Inc.	702 Frelinghuysen Avenue	Newark	NJ	07114
Central Paper Company	60 McClellan Street	Newark	NJ	07114
Commercial Plastics	127 Frelinghuysen Avenue	Newark	NJ	07114
D.E. Paglia & Sons Corp.	105 Chestnut Street	Newark	NJ	07105
Epolin Inc.	358-364 Adams Street	Newark	NJ	07105
Fairmount Chemical Company	117 Blanchard Street	Newark	NJ	07105
Federal Bronze Casting Ind., Inc.	9 Backus Street	Newark	NJ	07009
Federal Refining Co.,Inc.	29 Riverside Avenue Bldg. 16	Newark	NJ	07104
H. Chasen & Son, Inc.	20 Esther Street	Newark	NJ	07105
Newark Industrial Spraying Inc.	12 Amsterdam Street	Newark	NJ	07105
Patriarche & Bell, Inc.	94-98 Parkhurst Street	Newark	NJ	07114
Progressive Manufacturing Co., Inc.	116-132 Sussex Avenue	Newark	NJ	07103
Purolator Products Air Filtration Company	835 Mt. Prospect Avenue	Newark	NJ	07105
R.G. Dunn Acq. dba Electronic Mfg. Co., Inc.	670 South 17th Street	Newark	NJ	07103
Rarac Products Company	230 Wright Street	Newark	NJ	07114
Technical plastic Extruders	574 Ferry Street	Newark	NJ	07105
Harbot Die Casting & Access Flooring Supplies	52 East Centre Street	Nutley	NJ	07110
PNC, Inc.	115 East Centre Street	Nutley	NJ	07110
Cross Die Cutting Service Inc.	351 South Jefferson Street	Orange	NJ	07050
Jack Gold Surgical Appl/A. A. Beltman	331 Central Avenue	Orange	NJ	07050

cility Name	Street	City	State	Zip
ange N.J. Hilti Center	50 South Center Street	Orange	NJ	07050
nir/DCP Corporation	476 Thomas Blvd.	Orange	NJ	07050
nin & Company	163 Bloomfield Avenue	Verona	NJ	07044
mpensating Tension Controls, Inc.	11 York Avenue	West Caldwell	NJ	07006
F.Henderson, Inc.	45 Fairfield Place	West Caldwell	NJ	07006
witt-Robins Corp.	40 Fairfield Place	West Caldwell	NJ	07006

PMK Group
CONSULTING ENGINEERS

APPENDIX F

DOCUMENT	NUMBER OF PAGES
1993 ECUA Facility Waste Categorization	67

Facility Name	Street	City	State	Zip
259 Stephen St. Corp.	259 Stephens St.	Belleville	NJ	07109
Ardwyn Binding Products	681 Main Street	Belleville	NJ	07109
Graber & Ritacco Iron & Metal Recycling	423 Union Avenue	Belleville	NJ	07109
H & C Industries	6 Main Street	Belleville	NJ	07109
Insulex Co., Inc.	681 Main Street	Belleville	NJ	07109
Merit Countertops	523 Cortlandt Street	Belleville	NJ	07109
Metro Amusements	229 Main Street	Belleville	NJ	07109
Perrone Inc.	82 Dorthea Terrace	Belleville	NJ	07109
T Farese & Sons	222 Brighton Avenue	Belleville	NJ	07109
Tecna Corporation	681 Main Street	Belleville	NJ	07109
Tri County Ind. Supply Co.	P.O. Box 660	Belleville	NJ	07109
Van Ness Plastic Molding Company, Inc.	555 Cortlandt Street	Belleville	NJ	07109
Vec Tool & Mfg. Co. Inc.	3 Cleveland Street	Belleville	NJ	07109
Child Development Center	60 West Street	Bloomfield	NJ	07003
Church & Company	400 JFK Drive North	Bloomfield	NJ	07003
E-Z-Do Company	5 Lawrence Street	Bloomfield	NJ	07003
Gagliano & Associates	9 James Street	Bloomfield	NJ	07003
Gasket International Inc.	49 Ackerman Street	Bloomfield	NJ	07003
Jon Briele's Hair Salon	1047 Broad Street	Bloomfield	NJ	07003
King & I Landscaping, Inc.	109 Sadler Road	Bloomfield	NJ	07003
Marvel's Products Co.	12 Prospect Street	Bloomfield	NJ	07003
Repco Floor Safety Inc.	329 Belleville Avenue, 2nd Floor	Bloomfield	NJ	07003
Root Electro-Optics, Inc.	(formerly) 101 Spruce Street	Bloomfield	NJ	07003
Tracer Electronics	200 Broadacres Drive	Bloomfield	NJ	07003
V M C Die Cutting Corporation	93 Essex Avenue	Bloomfield	NJ	07003
Bruce F.D. Heading	305 Ridge Road	Cedar Grove	NJ	07009
Children's House Creative Center Inc.	437 Pompton Avenue	Cedar Grove	NJ	07009
Container Equipment Corporation	One Ceco Way	Cedar Grove	NJ	07009
Decorama, Inc.	74 Sand Park Road	Cedar Grove	NJ	07009
Emtee Leasing Corporation	1 Ceco Way	Cedar Grove	NJ	07009
Hargro Industrial Packaging	20 Sand Park Road	Cedar Grove	NJ	07009
New Concept Landscaping Inc.	39 Anderson Parkway	Cedar Grove	NJ	07009
Old Deerfield Fabrics, Inc. DIP	30 Canfield Road	Cedar Grove	NJ	07009
Tecumseh Products Company	433 Pompton Avenue	Cedar Grove	NJ	07009
Accutest Labs, Inc.	74 Franklin Street	East Orange	NJ	07109
Empire Technical School	576 Central Avenue	East Orange	NJ	07018
Metro West Jewish News	60 Glenwood Avenue	East Orange	NJ	07017

Facility Name	Street	City	State	Zip
Technical Glass Products, Inc.	74 Franklin Street	East Orange	NJ	07109
United Cerebral Palsy of North Jersey, Inc.	91 South Harrison Street	East Orange	NJ	07018
Jenus Machine & Tool Co.	P.O. Box 158	Essex Fells	NJ	07021
Nail-O-Matic Machine Co.	224 Passaic Avenue	Fairfield	NJ	07004
Chem-San International, Inc.	19 I Gardner Road	Fairfield	NJ	07004
Commercial Technical Institute	116 Fairfield Road	Fairfield	NJ	07004
Tonic Systems, Inc.	220 Fairfield Road	Fairfield	NJ	07004
Custom Index, Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07006
Custom Typesetting	1275 Bloomfield Avenue, Suite 6-36	Fairfield	NJ	07004
General Hose Products, Inc.	30 Sherwood Lane	Fairfield	NJ	07004
Lawn Ranger (Richard Manganaro)	c/o W.J. Witte, 420 Route 46	Fairfield	NJ	07004
Marketing Action Plus Company	18 Passaic Avenue	Fairfield	NJ	07004
Metropolitan Technical Institute	11 Daniel Road	Fairfield	NJ	07004
Planned Building Services, Inc.	167 Fairfield Road	Fairfield	NJ	07004
Radiant Heat	40 Pier Lane West, P.O. Box 566	Fairfield	NJ	07004
Rubber Assembly Center	340 Kaplan Drive	Fairfield	NJ	07004
Samsomatic Limited	Box 1426	Fairfield	NJ	07004
Swedish Brands Inc.	373 Route 46W, Bldg. D	Fairfield	NJ	07004
Syncom Pharmaceuticals, Inc.	277 Fairfield Road, Suite 325	Fairfield	NJ	07004-1931
Thermo Instruments Inc.	7 Birchtree Drive	Fairfield	NJ	07004
Wilmor, Inc.	39 Plmouth Street	Fairfield	NJ	07006
Rosemount Analytical	2400 Barranca Parkway	Irvine	CA	92714
All Mica Fab Co., Inc.	835 Springfield Avenue	Irvington	NJ	07111
Hugo's Sunoco Service Station	826 18th Avenue	Irvington	NJ	07111
Micro-Form Grinding and Tool Company	26 Paine Avenue	Irvington	NJ	07111
Pioneer Pharmaceuticals, Inc.	209 40th Street	Irvington	NJ	07111
Universal Manufacturing Co.	1168 Grove Street	Irvington	NJ	07111
Alpha Plastics, Inc.	P.O. Box 2129, 78 Okner Parkway	Livingston	NJ	07039
Amerace Corporation, Industrial Electrical Pr	530 West Mt. Pleasant Avenue	Livingston	NJ	07039
Antonio Cilenti	179 West Northfield Road	Livingston	NJ	07039
Cipolla Brothers	236 West Mt. Pleasant Avenue	Livingston	NJ	07039
Cosmic Enterprises, Inc.	210 S. Livingston Avenue	Livingston	NJ	07039
Finnigan MAT	7 Regent Street, Suite 711	Livingston	NJ	07039
Hobart Meat Co., Inc.	26 Coventry Rd.	Livingston	NJ	07039
Krumor Inc.	4 Homestead Terrace	Livingston	NJ	07039
MPI Pharmacy Services, Inc.	123 Naylon Avenue	Livingston	NJ	07039
Medical Center Health Care Services, Inc.	94 Old Short Hills Road	Livingston	NJ	07039

CATEGORY 0 FACILITIES
(NON-APPLICABLE FACILITIES)

Facility Name	Street	City	State	Zip
A & J Horowitz Associates	251 Wyoming Avenue	Maplewood	NJ	07040
D'Angelo Landscaping	18 Princeton Street	Maplewood	NJ	07040
Duralens Corp.	1914 Springfield Avenue	Maplewood	NJ	07040
Futuristic Tool & Die Co.	36 Newark Way	Maplewood	NJ	07040
Schroeder Overseas Services	Box 231	Maplewood	NJ	07040
Track Specialties Co., Inc.	101 Newark Way	Maplewood	NJ	07040
F R P Corporation	P.O. Box 72	Millburn	NJ	07041-0072
Far Brook School	52 Great Hills Road	Millburn	NJ	07078
Hickory Landscape, Inc.	P.O. Box 249	Millburn	NJ	07078
KPMG Peat Marwick	150 John F. Kennedy Parkway	Millburn	NJ	07078
Signature Packaging Inc.	322 Hartshorn Drive	Millburn	NJ	07078
Accurate Print Company, Inc.	38 Porter Place	Montclair	NJ	07042
Borden Chemical Company	101 Park Street	Montclair	NJ	07043
Clover Rest Nursing Home	16 Madison Avenue	Montclair	NJ	07042
Cranetown Enterprises Inc.	208 Glenridge Avenue	Montclair	NJ	07042
Garment Clinic Cleaners	349 Bloomfield Avenue	Montclair	NJ	07042
Montclair Cooperative School	65 Chestnut Street	Montclair	NJ	07042
Montclair Nursing Home	78 Midland Avenue	Montclair	NJ	07042
Murph's Sport Shop	629 Valley Road	Montclair	NJ	07043
POV	42 Elm Street	Montclair	NJ	07042
Professional Systems Corproation	87-89 Valley Road	Montclair	NJ	07042
Suburban Rug & Furniture Cleaners, Inc.	152 Christopher Street	Montclair	NJ	07042
Artley, Inc./Columbus Holding Inc.	2-10 School Street	Newark	NJ	07103
Aster Nut Products Inc.	1455 McCarter Highway	Newark	NJ	07104
Big Lou Auto Sales	650-652 Ferry Street	Newark	NJ	07105
Calvary Christial School	3 Lyons Avenue	Newark	NJ	07112
Catalina Fashions	407 Mulberry Street	Newark	NJ	07102
Center for Molecular Medicine and Immunology	One Bruce Street	Newark	NJ	07103-2763
Claretronics Inc.	222 Emmet Street	Newark	NJ	07114
Construction and Marine Equipment Co., Inc.	Tyler & Coastwide Street	Newark	NJ	07114
Cortley Creations	105 Chestnut Street	Newark	NJ	07105
Del Rufo Auto Service Corp.	256 Bloomfield Avenue	Newark	NJ	07107
Diamond Alkali Superfund Site	80 Lister Avenue	Newark	NJ	07105
Diane Fashions Corporation	113 Monroe Street	Newark	NJ	07105
Electric Heat Control Apparatus Company	413 Market Street	Newark	NJ	07105
Ella Industries Inc.	40 East Elwood Avenue	Newark	NJ	07013
Essex Garment Mfg. Corp.	84 Monroe Street	Newark	NJ	07105

(NON-APPLICABLE FACILITIES)

acility Name	Street	City	State	Zip
ssex Paper Box Mfg. Co.	281 Astor Street	Newark	NJ	07114
xclusive Air Transport Inc.	P.O. Box 5584	Newark	NJ	
xcet Enterprises	865 Mt. Prospect Avenue	Newark	NJ	07104
ashions By Maria	9 St. Francis Street	Newark	NJ	
B. Industrires II, Inc.	126 Sylvan Avenue	Newark	NJ	07110
ennon Plastics, Inc.	611 North 7th Street	Newark	NJ	07107
obe Shipping Co.	Hemisphere Center US 1-9	Newark	NJ	07114
V. Walker Company	390 Adams Street	Newark	NJ	07114
dson Knitting Co.	560 Irvine Turner Blvd.	Newark	NJ	07108
archem Industries, Inc.	414 Wilson Avenue	Newark	NJ	07105
ersey Prep School	31 Central Avenue	Newark	NJ	07102
ingsland Drum & Barrel Co., Inc.	308 Miller Street	Newark	NJ	07114
ace Creations	1448 McCarter Highway	Newark	NJ	07104
abon Cleaning, Inc.	350 Adams Street	Newark	NJ	07105
onoplast Chemical	106 Rutherford Street	Newark	NJ	07105
ewark Thermography	30 Ferry Street, Suite 2-B	Newark	NJ	07105
icholas Alfano	182 Van Buren Street	Newark	NJ	07105
ge Brothers Corp.	822 Clinton Avenue	Newark	NJ	07108
T. Fashions	580 Oliver Street	Newark	NJ	07105
. Cars, Inc.	713-733 McCarter Highway	Newark	NJ	07102
oma Tool, Inc.	15 Gotthart St	Newark	NJ	07105
y Fine Service Station	663 Springfield Avenue	Newark	NJ	07103
& L Mfg. Co. Inc.	279 Sherman Avenue	Newark	NJ	07114
tahl Gear & Machine Co.	360 Jelliff Avenue	Newark	NJ	07108
upreme Processing	44 St. Thomas Street	Newark	NJ	
artaglia Iron Works	230 14th Avenue	Newark	NJ	07103
eixeira's Bakery	184-186 Ferry Street	Newark	NJ	07105
niversity Lithotripsy Affiliates	150 Bergen Street	Newark	NJ	07103-2425
alicchio's Landscaping, Inc.	58 Crestwood Avenue	Nutley	NJ	07110
apital Sales	259 Washington Avenue	Nutley	NJ	07110
erman Urrea	102 Brookdale Avenue	Nutley	NJ	07110
TT Aerospace Communications Division	492 River Road	Nutley	NJ	07110
TT Avionics	500 Washington Avenue	Nutley	NJ	07110
ames E. Quinn	11 Irving Place	Nutley	NJ	07110
ibba Dress Corporation	357 Harrison Street	Nutley	NJ	07110
& J Machine And Tool, Inc.	576 Morrow Street	Orange	NJ	07050
ack-Well, Ltd.	460-466 Main Street	Orange	NJ	07050

Facility Name	Street	City	State	Zip
Creative Glassics	559 Tremont Avenue	Orange	NJ	07050
D. Dodd Supply Co.	299 Scotland Road	Orange	NJ	07050
Lincoln Storage Warehouses	225 Scotland Road	Orange	NJ	07050
Max Freeman & Co.	50 South Centre Street, Unit 6	Orange	NJ	07050
Surburban Sportswear	502 Central Avenue	Orange	NJ	07050
Anco Tool & Mfg. Corp.	7 Woodland Road	Roseland	NJ	07068
Bethlehem Steel Corporation	103 Eisenhower Parkway	Roseland	NJ	07068
Executive Carpet Care	52 Stonegate Drive	Roseland	NJ	07068
Hannoch Weisman, P.C.	4 Becker Farm Road	Roseland	NJ	07068
Intedge Industries, Inc.	565 Eagle Rock Avenue	Roseland	NJ	07068
Ketcham & McDougall, Inc.	685 Eagle Rock Avenue	Roseland	NJ	07068
Cataract Hotline Inc.	71 Second Street	South Orange	NJ	07079
Jendrew, Inc. t/a The Chasen Portfolio	6 Sloan St.	South Orange	NJ	07079
Pantmaker-807, Inc.	P.O. Box 670	South Orange	NJ	07079
Sochem Inc.	378 Thornden Street	South Orange	NJ	07079
South Orange Country Day School	461 Vose Avenue	South Orange	NJ	07079
Lawnsmiths, Inc.	1961 Ridgehill Drive	Toms River	NJ	08753
D'Agosto Landscaping	18 Ann Street	Verona	NJ	07044
East Coast Sales, Inc.	261 Bloomfield Avenue - Suite D	Verona	NJ	07044
Hayerson Machinery Hart Inc.	1 Willow Terrace, P.O. Box 161	Verona	NJ	07044
Sentry Products	11 Park Place	Verona	NJ	07044
Canfield Home	206 Westville Avenue	West Caldwell	NJ	07006
D. O. C. C.	2 Cavell Place	West Caldwell	NJ	07006
Diversified Vacuum Systems	513 Passaic Avenue	West Caldwell	NJ	07006
Eltee Inc.	19 Fairfield Place	West Caldwell	NJ	07006
Eltee Pulsitron	26 Fairfield Place	West Caldwell	NJ	07006
Essex Conveyors, Inc.	4 Fairfield Crescent	West Caldwell	NJ	07007
F. Watkins Corporation	66 Hillcrest Road	West Caldwell	NJ	07006
Form-Master, Inc.	33 Fairfield Place	West Caldwell	NJ	07006
Joseph Kushner Hebrew Academy	1 Henderson Drive	West Caldwell	NJ	07006
Solid Flow Control Corporation	4 Fairfield Cresent	West Caldwell	NJ	07006
West Caldwell Service Center c/a M. Savvides	42 Siver Springs Court	West Caldwell	NJ	07926
Atrium TA/Shagol, Inc.	609 Eagle Rock Avenue	West Orange	NJ	07052
Corran Associates Inc.	52 Washington Street	West Orange	NJ	07052
Emil A. Magliaro Landscaping	68 Lawrence Avenue	West Orange	NJ	07052-3708
Joanna Company	80 Main Street	West Orange	NJ	07052
K & M Landscaping Inc.	30 Erwin Place	West Orange	NJ	07052

CATEGORY O FACILITIES
(NON-APPLICABLE FACILITIES)

Facility Name	Street	City	State	Zip
Ikel Stettner	20 Curtis Avenue	West Orange	NJ	07052
ter Scalora	58 Garfield Avenue	West Orange	NJ	07052
layhouse, Inc.	540 Prospect Avenue	West Orange	NJ	07052
e Staset Company, Inc.	66 Franklin Avenue	West Orange	NJ	07052
Incent Onorato	111 Chestnut Street	West Orange	NJ	07052
sugau Insurance Companies	10 Rooney Circle	West Orange	NJ	07052

CATEGORY 1 FACILITIES
(FACILITIES GENERATING PROHIBITED NJDEPE WASTE TYPES)

Facility Name	Street	City	Prohibited Items
ISP Van Dyke Inc	11 William Street	Belleville	BULKY WASTE(WALLBOARD, PALLETS, GLASS)
Lamco Custom Counter Tops, Inc.	681 Main Street, Bldg. 26	Belleville	BULKY WASTE
Deep Foods, Inc.	248 Montgomery	Bloomfield	FOOD PROCESSING WASTE
International Tape Products Co.	5 Lawrence Street	Bloomfield	BULKY WASTE, FLOUR, LIGHTS, CLEANING PRODUCTS
Park Manor Nursing Home	23 Park Place	Bloomfield	MEDICAL WASTE, DRUGS
Permanent Label Corporation	186 Walnut Street	Bloomfield	BULKY WASTE(PALLETS)
Pezza Auto Sales	146 Bloomfield Avenue	Bloomfield	OIL SPILL CLEAN-UP WASTE
Schering Corporation	104 Orange Street	Bloomfield	BATTERIES, R&D WASTE, FLOUR,LIGHTS, THERMOSTATS
The Hartz Mountain Corporation	192 Bloomfield Avenue	Bloomfield	ANIMAL PROCESSING WASTE, PVC, AUTO PARTS, GLUE, DRUGS, TIRES
Zeus Inc.	1073 Broad Street	Bloomfield	OIL SPILL CLEAN-UP WASTE, TIRES, AUTO PARTS
Kalters Dry Cleaners	466 Bloomfield Avenue	Caldwell	HAZ. WASTE
Continental Extrusion Corporation	11 Cliffside Drive	Cedar Grove	BULKY WASTE, INK SOLIDS, DIATOMACEOUS EARTH, PALLETS, METAL CUTTINGS
Printwrap	95 Sand Park	Cedar Grove	WASTE OIL
R-V Metal Fabricating, Inc.	20 Sand Park Road	Cedar Grove	BULKY WASTE
R.P. Cargille Laboratories, Inc.	55 Commerce Road	Cedar Grove	R&D WASTE, BATTERIES, FLOUR, LIGHTS
Al-Star Machine Corporation	545 North Arlington Avenue	East Orange	WASTE OIL
Demetrious Cabinet Shop	364 Glenwood Avenue	East Orange	BULKY WASTE
East Orange Nursing Home	101 N. Grove Street	East Orange	MEDICAL WASTE
Gordon Thomas Companies, Inc.	2 New Main Street	East Orange	BULKY WASTE
Merit East Orange	26 Central Avenue	East Orange	OIL SPILL CLEAN-UP WASTE
Bell Molded Products Inc.	37 Daniel Road West	Fairfield	OIL SPILL CLEAN-UP WASTE, BULKY WASTE, YARD WASTE
Bio-Tech Corporation	23 Madison Road	Fairfield	BULKY WASTE
Criger Service Inc.	79 Lane Road	Fairfield	AUTO PARTS, OIL SPILL CLEAN-UP WASTE
Electrographics Corporation	373 Route 46 West	Fairfield	HAZARDOUS WASTE, BULKY WASTE, HEAVY METALS
Heisler Machine & Tool Co.	224 Passaic Avenue	Fairfield	BULKY WASTE
Hoechst Celanese Corporation	111 Lehigh Drive	Fairfield	NON-HAZARDOUS CHEMICAL WASTE
ISS Energy Services, Inc.	10 Plog Road	Fairfield	OIL SPILL CLEAN-UP WASTE, BULKY WASTE
Independent Machine Company	2 Stewart Place	Fairfield	OIL SPILL CLEAN-UP WASTE
Olympic Wire & Cable Corporation	1 Madison Road	Fairfield	SCRAP WIRE, LARGE PIECES OF WOOD
P.C. Drilling, Inc.	16 Montesano Road	Fairfield	METAL CUTTINGS, OIL SPILL CLEAN-UP WASTE, FLOUR, LIGHTS
R.B. Sandblasting, Inc.	40 Pier Lane West	Fairfield	METAL CUTTINGS, ASBESTOS-CONTAINING WASTE
Rectico Inc.	6 Stewart Place	Fairfield	BULKY WASTE

(FACILITIES GENERATING PROHIBITED NJDEPE WASTE TYPES)

acility Name	Street	City	Prohibited Items
yncor International Corp.	19 A Gardner Road	Fairfield	RADIOACTIVE WASTE
wer Performance, Inc.	287 Passaic Avenue	Fairfield	BULKY WASTE
hlberg Manufacturing Inc.	10-16 Renee Place	Irvington	BULKY WASTE, GLUE
y Marx Color Co.	192 Colt Street	Irvington	SLUDGE, HEAVY METALS
rit Lyons	533 Lyons Avenue	Irvington	OIL SPILL CLEAN-UP WASTE
bert Stiefel & Son	528 Chancellor Avenue	Irvington	BULKY WASTE
bert W. Kimball & Son, Inc.	80 Mill Road	Irvington	BULKY WASTE
tandard Uniform Service	56 Woolsey Street	Irvington	AUTO PARTS, FLOUR, LIGHTS, OIL SPILL CLEAN-UP WASTE, SLUDGE
rlikon Bearing Company	644 W. Mt. Pleasant Ave., PO Box 45	Livingston	OIL SPILL CLEAN-UP WASTE
N C, Inc./ Meineke Discount Muffler	172 South Livingston Avenue	Livingston	AUTO PARTS & MAINT. PRODUCTS, ANTIFREEZE, WASTE OIL
C Products	106 Naylon Avenue	Livingston	FOOD PROCESSING WASTE
ster Wheeler Development Corporation	12 Peach Tree Hill Road	Livingston	RESEARCH & DEVELOP. PROCESS WASTE
rker, Inc.	P.O. Box 0093, 71-77 Okner Parkway	Livingston	METAL CUTTINGS, BATTERIES, OIL SPILL CLEAN-UP WASTE
mpy Foods, Inc.	1669 Springfield Avenue	Maplewood	FOOD PROCESSING WASTE
dison Nursing Home	31 Madison Avenue	Montclair	MEDICAL WASTE, BATTERIES, FLOUR, LIGHTS
ntcalm Nursing Home	32 Pleasant Avenue	Montclair	MEDICAL WASTE, BATTERIES, FLOUR, LIGHTS, WALL BOARD, DRUGS
ntclair Sea Food Inc.	586 Bloomfield Avenue	Montclair	FOOD PROCESSING WASTE
venson Environmental Service, Inc.	Corner of Franklin & Virginia	Montclair	RADIOACTIVE WASTE, ASBESTOS, BULKY WASTE
J. & J. O. Filar Inc.	145 Chapel Street	Newark	BULKY WASTE
liance Chemical Inc.	33 Ave. P or 309-327 Avenue P	Newark	NON-HAZARDOUS CHEMICAL WASTE
llstate Compressor Remanufacturing Inc.	722 Frelinghuysen Avenue	Newark	OIL SPILL CLEAN-UP WASTE
llstate Paper Box Co.	223 Raymond Blvd.	Newark	BULKY WASTE
brosia Chocolate Co.	364 North 5th Street	Newark	FOOD PROCESSING WASTE
erican Airlines	Term. 1, Nwk. Int'l Airport	Newark	OIL SPILL CLEAN-UP WASTE
erican Rendering Corp., a/k/a Berkowitz Fat	38-42 Bay Avenue	Newark	ID25-Animal and food processing waste
rnold Industries	733 South 11th Street	Newark	BULKY WASTE
las Refinery	142 Lockwood Street	Newark	BULKY WASTE, OIL SPILL CLEAN-UP WASTE
ll Corporation	615 Perry Street	Newark	BULKY WASTE, FLOUR, LIGHT FIXTURES
njamin Moore & Company	134 Lister Avenue	Newark	BULKY WASTE
at Provision Co., Inc.	144 Avon Avenue	Newark	FOOD PROCESSING WASTE
n Art International	99 Evergreen Avenue	Newark	BULKY WASTE
Motor Freight	300 Port Street	Newark	BULKY WASTE, AUTO PARTS, AUTO MAINT. PRODUCTS, HEAVY METALS, BATTERIES

CATEGORY 1 FACILITIES
(FACILITIES GENERATING PROHIBITED NJDEPE WASTE TYPES)

Facility Name	Street	City	Prohibited Items
Charles F. Green & Son, Inc.	609-625 North Third Street	Newark	ELEC. COMPONENTS, WASTE OIL
Cohen's Famous Frozen Foods	631 Frelinghuysen Avenue	Newark	FOOD PROCESSING WASTE
Columbus Hospital	495 N. 13th Street	Newark	REG MEDICAL WASTE, BATTERIES, FLOUR, LIGHTS, RADIOACTIVE WASTE
Commercial Laminates, Inc.	49 Empire Street	Newark	BULKY WASTE
Cooper Lighting t/a P & K Pole Products	84 Foundry Street	Newark	BULKY WASTE, METAL CUTTINGS, SOLDER, TIRES, AUTO PARTS, FLOUR, LIGHTS
Corrolino Printing Co.	393 Halsey Street	Newark	PRESS & TYPE WASH
Darling-Delaware Company, Inc.	825 Wilson Avenue	Newark	ANIMAL PROCESSING WASTE, AUTO PARTS, FLOUR, LIGHTS, BATTERIES, METALS, ETC.
Dreher, Inc.	49 Vesey Street	Newark	ANIMAL PROCESSING WASTE, HEAVY METALS, METAL CUTTINGS, BATTERIES, ETC.
Drum Service of Newark	51 Stanton Street	Newark	BULKY WASTE
Electric Service & Sales Co., Inc.	468 Felinghuysen Avenue	Newark	OIL SPILL CLEAN-UP WASTE, WASTE OIL
Empire Lumber & Millwork Co.	377 Frelinghuysen Avenue	Newark	BULKY WASTE
Fabricators and Laminators Co.	1255 McCarter Highway	Newark	LUMBER, FORMICA
Heraeus Inc, Refining Division	65 Euclid Ave (mail-111 Albert Ave)	Newark	CONSTRUCTION DEBRIS, PVC
Hy-Grade Electroplating Co.	35 4th Street	Newark	BULKY WASTE
Integrity, Inc.	P.O. Box 510/103 Lincoln Park	Newark	FOOD PROCESSING WASTE, BATTERIES
JPD Inc.	418-26 Central Avenue	Newark	ANIMAL PROCESSING WASTE
Jersey Technology Laboratories, Inc.	154-156 Wright Street	Newark	BULKY WASTE
Kohler Delicatessen Meats, Inc.	57 Napoleon Street	Newark	FOOD PROCESSING WASTE
L P S Industries, Inc.	113 North 13th Street	Newark	BULKY WASTE
L P S Industries, Inc.	155 Berkley Avenue	Newark	BULKY WASTE, FOIL
Lach's Service Center Inc.	924 18th Avenue	Newark	AUTO PARTS, OIL SPILL CLEAN-UP WASTE
Louis Dreyfus Energy	678 Doremus Avenue	Newark	HAZ. WASTE
Manhardt-Farrell Tire Service	41 Frelinghuysen Avenue	Newark	AUTO PARTS, TIRES, BATTERIES, WASTE OIL
Mann Kraft Corporation	1000 U.S. Highway 1	Newark	OIL SPILL CLEAN-UP WASTE, INK
Metro Metal Recycling Corporation	Foot of Starboard Street	Newark	OIL SPILL CLEAN-UP WASTE, AUTO MAINT. PRODUCTS, FERROUS SCRAP
Nanto's Ice Cream Co.	236 Jefferson Street	Newark	FOOD PROCESSING WASTE
Nesbitt Auto Repair, Inc.	36 Nesbitt Street	Newark	TIRES, AUTO PARTS
Newark Asphalt Corporation	Foot of Passaic Street	Newark	BULKY WASTE, METAL
Niagara Auto Repair	23-25 Niagara Street	Newark	AUTO PARTS, WASTE OIL, ANTIFREEZE
Nonfluid Oil Corporation	298 Delancy Street	Newark	OIL SPILL CLEAN-UP WASTE, HEAVY METALS
Paramount Bakery	61 Davenport Avenue	Newark	FOOD PROCESSING WASTE

(FACILITIES GENERATING PROHIBITED NJDEPE WASTE TYPES)

ility Name	Street	City	Prohibited Items
ick Corporation	158 Mt. Oliver Avenue	Newark	BULKY WASTE, FLOUR, LIGHTS, BATTERIES, SHEETROCK
ar River Plate Corp.	8 Lister Avenue	Newark	BULKY WASTE
blic Service Electric & Gas Co.	1025 McCarter Hwy	Newark	BULKY WASTE, AUTO PARTS, MERCURY PRODUCTS, BATTERIES, YARD WASTE
ntum Chemical Corporation	300 Doremus Avenue	Newark	BULKY WASTE
cling And Salvage Corp.	170 Frelinghuysen Avenue	Newark	CONST. DEBRIS
gliero Seafood Inc.	146-162 Pennington Street	Newark	FOOD PROCESSING WASTE, PALLETS
ctor Tool & Mfg Co.	117 Sylvan Avenue	Newark	OIL SPILL CLEAN-UP WASTE
mrock Technologies, Inc.	Foot of Pacific Street	Newark	BULKY WASTE, R&D PROCESS WASTE, HAZARDOUS WASTE
ri's Cookery Inc.	33 Delancy Street	Newark	FOOD PROCESSING WASTE
op & Co Tire	87 Bloomfield Avenue	Newark	TIRES
n Chemical Corp.	185 Foundry Street	Newark	BULKY WASTE
n Company, Inc. (Newark Terminal)	426 Doremus Avenue	Newark	OIL SPILL CLEAN-UP WASTE, BULKY WASTE, ELEC. COMPONENTS, BATTERIES, METALS
noco Service Station #0011-5139	264 Park Avenue	Newark	AUTO PARTS, BATTERIES, TIRES, HAZ. WASTE
ddy's Provisions	219 Ferry Street	Newark	FOOD PROCESSING WASTE
e Leonard Company, Inc.	1385 McCarter Hwy., P.O. Box 9021	Newark	BULKY WASTE
bcraft Chemicals Inc dba Craig Adhesives Di	80 Wheeler Point Road	Newark	BULKY WASTE
lton Foods / Bonney's	30 Jabez Street	Newark	FOOD PROCESSING WASTE
co Corporation	652 Doremus Avenue	Newark	FILTER CAKE, BULKY WASTE, TRANSFORMERS, ELEC. COMPONENTS, BATTERIES, ETC.
llow Freight System, Inc.,	335 Delancy Street	Newark	WOODEN PALLETS
ndview Servicenter, Inc.	251 Grandview Avenue	North Caldwell	TIRES
dernaire Heating and Air Conditioning	357 Harrison Street	Nutley	BULKY WASTE
chnical Coating Co.	57 East Centre Street	Nutley	BULKY WASTE
bit Technology For Industry	51 South Jefferson Street	Orange	BULKY WASTE, METAL CONTAINERS, ELEC. COMPONENTS, TRANSFORMERS
Reisman Corporation	377 Crane Street	Orange	DRUGS, YARD WASTE
spital Center at Orange	188 South Essex Avenue	Orange	CONST. DEBRIS, FLOUR LIGHTS, BATTERIES, METAL CUTTINGS, SHEETROCK, YARD WASTE
rmatech Int., Inc.	20	Orange	RESEARCH & DEVELOPMENT PROCESS WASTE
oduct Engineering Labs Co., Inc.	555 Central Avenue	Orange	BULKY WASTE
rner Bros. Environmental Excavating	10 Steel Ct. P.O. Box 116	Roseland	PETROLEUM CONTAMINATED SOIL
eland Surgical Center	556 Eagle Rock Avenue	Roseland	MEDICAL WASTE
thony's Landscaping	311 Valley Street	South Orange	YARD WASTE (GRASS CLIPPINGS, BRUSH, ETC.)
E Motors Inc.	300 Valley Street	South Orange	HAZ. WASTE, TIRES

(FACILITIES GENERATING PROHIBITED HJDEIE WASTE TYPES)

Facility Name	Street	City	Prohibited Items
Quality Auto Center	254 Valley Street	South Orange	AUTO PARTS, TIRES, WASTE OIL
AGFA Corp.	8 Henderson Drive	West Caldwell	CONSTRUCTION DEBRIS
Deluxe Check Printers, Inc.	5 Henderson Drive	West Caldwell	OIL SPILL CLEAN-UP WASTE, BULKY WASTE, ELEC. COMPONENTS, SHEETROCK
Lenhome Transmissions, Inc.	1045 Bloomfield Avenue	West Caldwell	OIL SPILL CLEAN-UP WASTE
Rockland Corporation	686 Passaic Avenue	West Caldwell	NON-HAZ. PESTICIDES
Sloan Acoustics	38 Fairfield Place, CN 2845	West Caldwell	BULKY WASTE
The Harvel Manufacturing Company	22 Fairfield Place	West Caldwell	BULKY WASTE, OIL SPILL CLEAN-UP WASTE
Welsh Farms Ice Cream	780 Passaic Avenue	West Caldwell	BULKY WASTE
Barton Press, Inc	55 Lakeside Avenue	West Orange	CONST. DEBRIS, FLOUR, LIGHT FIXTURES
Horning Automotive	494 Valley Road	West Orange	AUTO PARTS, TIRES, BATTERIES, WASTE OIL

(FACILITIES GENERATING HAZARDOUS WASTE)

acility Name	Street	City	Prohibited Items
ical Plating & Polishing Co.	681 Main Street, P.O. Box 100	Belleville	SMALL QTY HAZ WASTE, HEAVY METALS, BATTERIES, ELEC. COMPONENTS, RUBBER
ostape Division of FMC, Inc	51 La France Avenue	Bloomfield	FIBERGLASS FABRIC, SMALL QTY, HAZARDOUS WASTE
ast Orange General Hospital	300 Central Avenue	East Orange	HAZ. WASTE, BULKY WASTE, BATTERIES, METAL CUTTINGS, SHEETROCK, FLOUR, LIGHT
rcadia Cleaners, Inc.	710 Grove Street	Irvington	PERCHLOROETHYLENE
odel Upholstering Co.	531 Millburn Avenue	Millburn	WASTE PRODUCTS, FLOUR, LIGHTS, CLEANING PRODUCTS
merican Adhesives & Coatings Inc.	470 Mulberry Street	Newark	CHEMICAL RESIDUE
eystone Folding Box Company	367 & 381 Verona Avenue	Newark	HAZARDOUS WASTE, FLOUR, LIGHTS, GLUE, BATTERIES
olymer Extruded Products	297 Frerry Street	Newark	SMALL QTY, HAZARDOUS WASTE
he Sherwin-Williams Co.	60 Lister Avenue	Newark	HAZARDOUS WASTE
.A.S. Terminals Corp.	126 Passaic Street	Newark	HAZARDOUS WASTE
anda Industries t/a Printing Technologies	46 Franklin Avenue	Nutley	WASTE PAINT, SOLVENTS, STAINS

CATEGORY 3 FACILITIES

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED COULD POTENTIALLY CAUSE THE RESIDUAL ASH TO BE CHARACTERIZED AS HAZARDOUS)

Facility Name	Street	City	Prohibited Items
C. F. Wood Company, Inc.	120 Liberty Street	Bloomfield	INK
Superior Engraving Co.	5 Lawrence Street P.O. Box 151	Bloomfield	INK
Becton Dickenson	21 Just Road	Fairfield	METALS, PVC, GLUE ELEC. COMPONENTS, SOLDER
Driscoll Label Co., Inc.	1275 Bloomfield Avenue	Fairfield	Ink, photochemicals
Honeywell Inc.	80 Little Falls Road	Fairfield	Electronic components, household batteries, solder, waste pa
Loar Mfg. Corporation	1275 Bloomfield Avenue, Bldg. 8-62	Fairfield	FLOUR, LIGHTS, GLUE, WASTE PAINT
Pace Packaging Corporation	88 Clinton Road	Fairfield	Electronic components, metal parts, cleaning products
Ward Homestead	125 Boyden Avenue	Maplewood	BULKY WASTE, PAINT, FOOD PROCESSING WASTE, THERMOSTATS, DRUGS, OTHERS
CDI Dispersions	27 Haynes Avenue, P.O. Box 2639	Newark	Pigments, resins, waste paint
Daytona Finishing	59 Wall Street	Newark	HEAVY METALS
Safer Prints, Inc.	1875 McCarter Hwy	Newark	DYE, FLOUR, LIGHTS, BATTERIES
Seton Company/Leather Division	849 Broadway	Newark	LEATHER SHAVINGS, CHROME CAKE
Ace Litho Printing Service, Inc.	33-37 North Day Street	Orange	INK, EXPLOSIVES

CATEGORY 4 FACILITIES

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

Facility Name	Street	City	Prohibited Items
ell Press	49 Ralph Street	Belleville	INK, DYE, HAZARDOUS WASTE
harles Gender Co, Inc., dba Ardwyn Binding	681 Main Street	Belleville	PVC
omestic Uniform Supply Company, Inc.	265 Cortlandt Street	Belleville	FILTER PRESS
astern Molding	597 Main Street	Belleville	RUBBER
y-Test Packaging Corporation	681 Main Street, Bldg. #30	Belleville	PVC, AUTO MAINT. PRODUCTS, FLOUR, LIGHTS, OIL SPILL CLEAN-UP WASTE
C Landscape Construction & Mgmt. Co., Inc.	622 Belleville Avenue	Belleville	YARD WASTE, AUTO PARTS, BATTERIES, TIRES
atural Creation Landscaping	725 Jaralemon Street #243	Belleville	YARD WASTE
ackaging Horizons Corporation	49 Montgomery Street	Belleville	METAL CUTTINGS, FLOUR, LIGHTS, INK CANS
oyal Lite Mfg and Supply Corp.	53 Montgomery Street	Belleville	FLOUR, LAMPS
pina's Landscaping	16 Parkside Drive	Belleville	YARD WASTE
& C Landscaping	11 Barbara Street	Bloomfield	YARD WASTE
lizzard Inc.	14 Cook Road	Bloomfield	YARD WASTE
loomfield Plastics Company, Inc.	28 Montgomery Street	Bloomfield	PVC
ente Landscaping, Inc.	131 Belleville Avenue	Bloomfield	YARD WASTE
isplay Die Services, Inc.	5 Lawrence Street	Bloomfield	INK
eneral Plastics, Div. of PMC, Inc.	55 La France Avenue	Bloomfield	BULKY WASTE, YARD WASTE, BATTERIES, METAL CUTTINGS, THERMOSTATS, RUBBER
erome Auto Sales	393 Bloomfield Avenue	Bloomfield	FLOUR, LIGHTS, BATTERIES, TIRES
ob Haines Home	250 Bloomfield Avenue	Bloomfield	CLEANING PRODUCTS, FLOUR, LIGHTS, BATTERIES, DRUGS, THERMOMETERS
inor Rubber Co., Inc.	49 Ackerman Street	Bloomfield	RUBBER
icosia & Son Landscaping	Post Office Box 1232	Bloomfield	YARD WASTE
ptic Plastics	28 Montgomery Street	Bloomfield	BATTERIES, METAL CUTTINGS, YARD WASTE
. J. Egan & Company, Inc.	5 Lawrence Street	Bloomfield	DRUGS, TIRES, SHEETROCK
ill Ricigliano Landscaping	7 Cherry Lane	Caldwell	YARD WASTE
reen Maple Landscaping, Inc.	30 Ravine Avenue	Caldwell	AUTO MAINT. PRODUCTS, TIRES, YARD WASTE
nthony J. Latella Landscaping	64 Bently Road	Cedar Grove	YARD WASTE
ave and Gene Landscaping	195 Stevens Avenue	Cedar Grove	YARD WASTE
pectrex, Inc.	220 Little Falls Road	Cedar Grove	SOLDER, TRANSFORMERS, FLOUR, LIGHTS, EXPLOSIVES, GLUE
llied Rubber & Gasket Craft Co.	555 North Arlington Avenue	East Orange	RUBBER
erman Frank Inc.	70 Long Street	East Orange	PLASTER CASTS
ames Nelson Smith t/a J.N. Smith Landscaping	P.O. Box 351	East Orange	YARD WASTE
essler Associates, Inc.	454 William Street	East Orange	PVC

CATEGORY 4 FACILITIES
(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

Facility Name	Street	City	Prohibited Items
Kessler Institute For Rehabilitation, Inc.	240 Central Avenue	East Orange	FLOUR, LIGHTS, BATTERIES, ELEC. COMP., DRUGS
Taylor Windows Co.	66 Central Avenue	East Orange	PVC
The Hey Company	66 Franklin Street	East Orange	RUBBER, SOLDER, METAL CUTTINGS
Linnett Landscaping	28 Forest Way	Essex Fells	AUTO PARTS & LEAVES
A. W. Dragji Ground Prods Inc.	16 Ray Place	Fairfield	FLOUR, LIGHTS
Alison Control Inc.	35 Daniel Road West	Fairfield	FLOUR, TUBES, ELEC. COMPONENTS
Allen-Bradley Company	24 Dwight Place	Fairfield	ELEC. COMP., SOLDER, METALS, TRANSFORMERS
B & J Rubber Works, Inc.	88 Clinton Road	Fairfield	RUBBER
Baxter Rubber Company	10 Spielman Road	Fairfield	RUBBER SCRAP
C.E. Conover & Company, Inc.	333 Passaic Avenue	Fairfield	PVC, TEFLON
Carnegie Manufacturing Co., Inc.	20 Montesano road	Fairfield	PVC, METAL CUTTINGS
Cartridge Actuated Devices, Inc.	123 Clinton Road	Fairfield	METAL CUTTINGS, ELEC. COMPONENTS, SOLDER, PVC.
			YARD WASTE
Color Formulators, Inc.	8 Commerce Road	Fairfield	PIGMENTS
Control Instruments Corporation	25 Law Drive	Fairfield	ELEC. COMP.
Curtiss Wright Flight Systems, Inc.	300 Fairfield Road	Fairfield	YARD WASTE, HEAVY METALS
Decker Tape Products Co., Inc	6 Stewart Place	Fairfield	PVC
Delta Cooling Towers, Inc.	134 Clinton Road	Fairfield	PVC, METAL CUTTINGS, BULKY WASTE
Domenico LaBanca	45 Henning Drive	Fairfield	YARD WASTE
ECSI	23 Just Road	Fairfield	PAINT, FLOUR, TUBES
Heat-Timer Corporation	10 Dwight Place	Fairfield	ELEC. COMPONENTS, HEAVY METALS
J. Hilaire Landscaping	78 Sand Road	Fairfield	YARD WASTE, AUTO MAINT. PRODUCTS
Jack Evans Landscaping	168 Horseneck Road	Fairfield	YARD WASTE, AUTO MAINT. PRODUCTS, FLOUR, LIGHTS
Killion Extruders	200 Commerce Road	Fairfield	FLOUR, LIGHTS, YARD WASTE, OIL SPILL CLEAN-UP
			WASTE, METALS
Lawnmaster	6 Martin Place	Fairfield	YARD WASTE
Mahaffy & Harder Engineering Company	140 Clinton Road, P.O. Box 40002	Fairfield	PVC, RUBBER
Membrex Inc.	155 Route 46 West	Fairfield	PVC
Nazarian Aviation	125 Passaic Avenue	Fairfield	ELEC. COMP., SOLDER, TIRES, BATTERIES
Pete's Landscaping	70 Fairfield Road	Fairfield	YARD WASTE
Premier Printing	35 Little Falls Road	Fairfield	PRINTING MASTERS
Prestige Rubber Mfg. Corp.	11 Spielman Road	Fairfield	RUBBER
Pure Rubber Products Co.	7 Ray Place	Fairfield	RUBBER, FLOUR, LIGHTS
R. Natem Lawn Care Inc.	9 Donna Drive	Fairfield	YARD WASTE
Rubber & Silicone Products Co., Inc.	Montesano Road	Fairfield	RUBBER
S 2 Golf Inc.	18 Gloria Lane	Fairfield	GLUE, FLOUR, LIGHTS

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

acility Name	Street	City	Prohibited Items
neot Scientific, Inc.	6 Kings Bridge Road	Fairfield	HEAVY METALS, BATTERIES, SOLDER, PAINT, ELEC. COMPONENTS
arks Belting Company	5 Spielman Road	Fairfield	PVC, RUBBER, GLUE, FLOUR, LIGHTS, CLEANING PRODUCTS, AEROSOL SPRAY CANS
ecialty Dispersion Company	14 Ray Place	Fairfield	PVC, BULKY WASTE
mmit Scientific Corp	31 Dwight Place	Fairfield	PVC, METAL CUTTINGS
A Electric Company	22 Audrey Place	Fairfield	ELEC. COMPONENTS, FLOUR, LIGHT FIXTURES, SOLDER, THERMOSTATS, TRANSFORMERS
lemp Inc.	285 Passaic Avenue	Fairfield	ELEC. COMPONENTS, METALS, BATTERIES
. Classics Corp. dba Electric Fan Engineer	855 Bloomfield Avenue	Glen Ridge	ELEC. COMPONENTS
stom Decorating Inc	600 South 21st Street	Irvington	BATTERIES, FLOUR, TUBES, PVC, YARD WASTE, METAL CUTTINGS
ver-Ol Fuel Company	507-513 Chancellor Avenue	Irvington	BATTERIES, THERMOSTATS
ylon Implement Division	196 Colt Street	Irvington	Yard waste, household batteries, non-hazardous oil spill clean-up waste, fluores
e Reformed Church Home	720 Nye Avenue	Irvington	AUTO MAINT. PRODUCTS, BATTERIES, SOLDER, TIRES, YARD WASTE, SHEETROCK
ann Farm, Inc.	31 East Cedar Street	Livingston	YARD WASTE
e-Kay Landscaping Inc.	73 North Livingston Avenue	Livingston	YARD WASTE, OIL SPILL CLEAN-UP WASTE, TIRES, AUTO MAINT. PRODUCTS
chia Corporation	543 West Mt. Pleasant Avenue	Livingston	YARD WASTE
ermo Landscaping Inc.	154 North Livingston Avenue	Livingston	YARD WASTE, FERTILIZER
chard T. Eyrich Inc.	84 Hillside Avenue	Livingston	YARD WASTE
bert Paladino Landscaping Inc.	225 Walnut Street	Livingston	YARD WASTE
lvatore Buono	170 Hillside Avenue	Livingston	YARD WASTE
rtel Landscaping	P.O. Box 368	Livingston	YARD WASTE
lora Landscaping Corporation	399 East Mt. Pleasant Avenue	Livingston	AUTO PARTS, YARD WASTE
bune Publishing Company, Inc.	18 Okner Parkway	Livingston	INK
rmine's Landscaping, Inc.	69 Midland Blvd.	Maplewood	YARD WASTE
esco Silver Co.	357 Boyden Avenue	Maplewood	METAL CUTTINGS, SHEETROCK, PVC, YARD WASTE
nn's Landscaping	PO BOX 1137	Maplewood	YARD WASTE
mmond Inc.	515 Valley Street	Maplewood	SHEETROCK, WASTE OIL
pch Raio Landscape & Design Inc.	29 Marie Place	Maplewood	YARD WASTE
ma's Landscaping	13 Lancaster Avenue	Maplewood	YARD WASTE
n-Optical Technologies Inc.	241 Rutgers Street	Maplewood	PVC, ELEC. COMP., BATTERIES, METAL
iversal Chain Company, Inc.	92 Burnett Avenue	Maplewood	TALC, GUM ROSIN

CATEGORY 4 FACILITIES

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

Facility Name	Street	City	Prohibited Items
Z O. Landscaping, Inc.	17-21 Newark Way	Maplewood	YARD WASTE
Andrew K. Becker Ent. Inc.	257 Brookhaven Way	Millburn	YARD WASTE, TIRES, AUTO PARTS
Chiaramonte Landscaping	8 Blaine Street	Millburn	YARD WASTE, PESTICIDES
Kim & Jim's Landscaping	P.O. Box 825	Millburn	YARD WASTE
New Palumbo's Inc.	238 Main Street	Millburn	BATTERIES, AUTO PARTS, ELEC. COMPONENTS, THERMOSTATS, TIRES, WASTE PAINT
A. Lombardi Inc.	73 N. Willow Street	Montclair	YARD WASTE
Applegate Farm	616 Grove Street	Montclair	CLEANING PRODUCTS, FLOUR, LIGHTS, YARD WASTE
Bogart & Hansen Inc.	568 Bloomfield Avenue	Montclair	BALLASTS, THERMOSTATS, BATTERIES, FLOUR, LIGHT FIXTURES
E.C.M. Landscaping, Inc.	5 Frederick Street	Montclair	YARD WASTE
Jack Sherwood Landscaping, Inc.	309 N. Fullerton Avenue	Montclair	Yard waste, fertilizers
Montclair Auto Top and Seat Cover Co.	195 Glenridge Avenue	Montclair	AUTO MAIN. PRODUCTS, WASTE PAINT
Montclair Community Hospital	120 Harrison Avenue	Montclair	DRUGS, MEDICAL WASTE, WASTE OIL, YARD WASTE, BATTERIES, FLOUR, LIGHTS
Mountainside Hospital	Bay & Highland Avenues	Montclair	Flour, lights, batteries,const. debris, radioactive materials, yard waste
ACIMI Corp./Cambridge Industries of America	7-33 Amsterdam Street	Newark	RUBBER, BULKY WASTE
Abcor Supply Inc.	360 South Street	Newark	PVC
Alpha Chemical & Plastics Corporation	1 Jabez Street	Newark	YARD WASTE, HEAVY METALS, FLOUR, TUBES
Anchor Sheet Metal	20 Chappel Stree, P.O. Box 5059	Newark	ASPHALT PRODUCTS, FLOUR, LIGHTS, YARD WASTE, WASTE PAINT
Automatic Electro-Plating Corporation	185 Foundry Street, Bldg. #21	Newark	CHEMICAL BAGS
Banks Ship Rigging Corporation	Bldg. 321-North Side, Viking & Navy	Newark	SHEETROCK, YARD WASTE, METALS
C. P. Schmidt & Sons	11 Komorn Street	Newark	FLOUR, LIGHTS, ALUM. PLATES, FILM NEGATIVES
C. Patti Electro Plating Corp.	27 First Street	Newark	HEAVY METALS
Cardolite Corporation	500 Doremus Avenue	Newark	ASPHALTIC PRODUCTS, ELEC. COMPONENTS, FLOUR, LIGHTS, PVC, THERMOSTATS
Caso Casting Company	93 Lafayette Street	Newark	PLASTER, RUBBER
Chase Laboratories	280 Chestnut Street	Newark	DRUGS, WASTE OIL, WASTE PAINT
Delasal Inc.	57 Freeman Street	Newark	PVC
E.G.L. Company, Inc.	730 South 13th Street	Newark	BATTERIES, ELEC. COMPONENTS, FLOUR, LIGHTS, METAL CUTTINGS
Faber-Castell Corp.	41-47 Dickerson St	Newark	PVC, BULKY WASTE
Flexon Ind.	366 Frelinghuysen Avenue	Newark	PVC
Flourescent Products Inc./Dura Electric Lamp	242-256 Sherman Avenue/64 E. Bigelo	Newark	SOLDER, FLOUR, LIGHTS, PHENOLIC

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

cility Name	Street	City	Prohibited Items
aphic Vinyl Products, Inc.	400 Ferry Street	Newark	PVC
enfield Auto Services	201-203 Sussex Avenue	Newark	GLUE, BATTERIES
idian Fence Co., Inc	180 Wright Street	Newark	PVC, METAL CUTTINGS, TIRES, RUBBER
ovia	100 Chestnut Street	Newark	METAL CUTTINGS, QUARTZ, SOLDER, TRANSFORMERS, ELEC. COMPONENTS, SULFER
ton Davis Company	120 Lister Avenue	Newark	PIGMENTS, BULKY WASTE, FLOUR, LIGHTS, PVC, BATTERIES, OIL SPILL C/U WASTE
ig Chemical & Processing Corporation	414 Wilson Avenue	Newark	FLOUR, LIGHTS, BATTERIES, PVC, RUBBER, CONST. DEBRIS
ustrial Equipment Company	465 Raymond Blvd.	Newark	BATTERIES, TIRES
n Extruding Corp.	106 Rutherford Street	Newark	AUTO MAINT. PRODUCTS, WASTE OIL, YARD WASTE, FLOUR, LIGHTS
steel Fabricators	317-319 Jefferson Street	Newark	FLOUR, LIGHTS, WASTE PAINT
it Top Co.	387 South 10th Street	Newark	PVC, FLOUR, LIGHTS
ller Floreat & Supply Inc.	156 Central Avenue	Newark	YARD WASTE
rcino's Printing Inc.	88 Elm Street	Newark	BLANKET WASH, PLATE DEVELOPER
Community Health and Extended Care Center	266 South Orange Avenue	Newark	PRES. DRUGS, MERCURY PRODUCTS, THERMOSTATS, SHEET ROCK, GLUE, FLOUR, LIGHTS
ark Liner & Washer	501 Broadway	Newark	TEFLON
ark Mini Surgi Site, Inc.	145 Roseville Avenue	Newark	DRUGS, YARD WASTE, FLOUR, LIGHTS
o Shredding	PO BOX 5157	Newark	AUTO SHREDDER RESIDUE
nge, Newark, Elizabeth Rwa Inc.	889 Frelinghuysen Avenue	Newark	ELEC. COMPONENTS, FLOUR, LIGHTS, BATTERIES
n Jersey Paint	1256 McCarter Highway	Newark	CLAY, PIGMENTS
er Pan Industries, Inc.	88 St. Farncis Street	Newark	YARD WASTE, BATTERIES, FLOUR, LIGHTS
arome Manufacturing Co., Inc.	363 South Street	Newark	VARIOUS OILS, PALLETS
lity Engraving Co., Inc.	1010 Broad Street	Newark	RUBBER, METAL CUTTINGS
ach & Co. of T.W.S., Inc.	2 Lister Avenue	Newark	HEAVY METAL CONTAINING PRODUCTS
bet Electric U.S.A. Co., Ltd.	329 Frelinghuysen Avenue	Newark	BATTERIES
S Plastics Inc.	310 Sherman Avenue	Newark	RUBBER, PVC
hnical Aids	240 Martin Luther King Blvd.	Newark	ELEC. COMPONENTS, METALS, SOLDER, BATTERIES
ax Finishing Products Co.	390 Adams Street	Newark	FLOUR, LIGHTS, METAL CONT., YARD WASTE
na World Airlines	Terminal A, Newark Int'l Airport	Newark	BATTERIES, TIRES, HEAVY METALS, FLOUR, LIGHTS
. Screening Corporation	776-780 Frelinghuysen Avenue	Newark	INK
ted Hospitals Medical Center	15 South 9th Street	Newark	BULKY WASTE(SHEETROCK)
neral Co., Inc and Music Accessories Mfg.	25 Prospect Street	Newark	INK, GLUE, PVC, OIL SPILL CLEAN-UP WASTE
Law & Son	265-269 Thomas Street	Newark	THERMOSTATS, ELEC. COMPONENTS

CATEGORY 4 FACILITIES

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

Facility Name	Street	City	Prohibited Items
Welco Cases Corporation	855 Raymond Boulevard	Newark	PAINTS/CANS
Wilson Imperial Company	115 Chestnut Street	Newark	FLOUR LIGHTS, YARD WASTE, CHEMICAL WASTE
Wire Recycling Inc.	192 Murray Street	Newark	PVC, METAL CUTTINGS, RUBBER
Bill Hamilton Landscaping	474 Prospect Street	Nutley	YARD WASTE
Comus International	263 Hillside Avenue	Nutley	ELECTRODES, WIRE, YARD WASTE, BATTERIES
D. Corino Inc.	491 Harrison Street	Nutley	YARD WASTE
Emerald Lawns & Landscaping	147 Stagen Street	Nutley	YARD WASTE
Highfield Landscaping and Design	33 Highfield Lane	Nutley	YARD WASTE
J. Falduto Enterprises, Inc.	67 Hilton Avenue	Nutley	YARD WASTE
North Jersey Auto-Trunk Seat Co.	526 Franklin Avenue	Nutley	VINYL, PAINTS
Sasso Landscaping Inc.	142 Glendale Street	Nutley	YARD WASTE (LEAVES, GRASS)
Ad Infinitum Inc.	60 Park Street	Orange	PVC
Apartment House Supply Company	560 White Street, P.O. Box 899	Orange	FLOUR, LIGHTS, PVC, BATTERIES, PEST.
Bellofatto Landscaping Corporation	442 New England Terrace	Orange	
Carnevale Landscaping	627 Valley Street	Orange	YARD WASTE
Colinear Machine & Design, Inc.	113 North Center Street	Orange	PVC
D'Andrea Landscaping	151 Lincoln Avenue	Orange	YARD WASTE
Gary's Auto Body	335 High Street	Orange	AUTO PARTS (TIRES, BATTERIES, BUMPERS, ETC.)
Green State Lawncare, Inc.	206 Matthew Street	Orange	YARD WASTE
J.D. Landscaping	429 Tompkin Street	Orange	AUTO PARTS, YARD WASTE
Mitchell Supreme Fuel	532 Freeman Street	Orange	AUTO PARTS, ELEC. COMP., BATTERIES, THERMOSTATS, PET. CONT. SOIL
Par-Troy Rubber Co., Inc.	350 Washington Street	Orange	RUBBER SCRAPS
Paul Ianiro Conractors	419 Valley Street	Orange	YARD WASTE
Sina's Gulf	67 South Essex Avenue	Orange	AUTO PARTS, BATTERIES
Taramar Landscape Co.	P.O. Box 14	Orange	YARD WASTE
Van Natten Associates Inc.	386 Washington Street	Orange	ELEC. COMP., DEVELOPER
Minuteman Press	178 Eagle Rock Avenue	Roseland	INK
Sandford's Service Inc.	451 Irvington Avenue	South Orange	AUTO PARTS, TIRES, SHEETROCK
South Orange Imported Cars, Inc.	343 Valley Street	South Orange	SHEETROCK, THERMOSTATS, AUTO PARTS, CLEANING PRODUCTS
American Sound And Video	3 Fairfield Crescent	West Caldwell	ELEC. COMPONENTS, FLOUR, LIGHTS
Cecere Brothers Landscaping Company	37 Westview Road	West Caldwell	YARD WASTE
Dimensional Merchandising, Inc.	33 Fairfield Place	West Caldwell	PVC, FLOUR, LIGHTS, OIL SPILL CLEAN-UP WASTE
Impact Medical Co. & Impact Instrumentation	27 Fairfield Place	West Caldwell	TRANSFORMERS, ELEC. COMPONENTS
Neptune Research And Development	267 Fairfield Avenue	West Caldwell	TEFLON, FLOUR, LIGHTS, METAL CUTTINGS

(FACILITIES GENERATING WASTE MATERIALS WHICH, WHEN INCINERATED, COULD POTENTIALLY GENERATE REGULATED COMPONENTS IN EXCESS OF ALLOWABLE AIR EMISSION LIMITS)

·ility Name	Street	City	Prohibited Items
Ledonne Landscaping Contractors	138 Runnymede Road	West Caldwell	AUTO PARTS, TIRES, YARD WASTE
·arco Landscaping	137 Ravine Avenue	West Caldwell	YARD WASTE
·ion Instant Printing Inc.	333 Valley Road	West Orange	INK, FLOUR, TUBES
·elo Caruso	174 Mitchell Street	West Orange	YARD WASTE
·hony Egidio Landscaping	25 Rutgers Street	West Orange	YARD WASTE
·hony LaBanca	931 Pleasant Valley Way	West Orange	YARD WASTE
·itol Landscape, Inc.	105 Main Street	West Orange	YARD WASTE
· Colavito Landscape	38 Ralph Road	West Orange	YARD WASTE
·aler Institute For Rehabilitation, Inc.	1199 Pleasant Valley Way	West Orange	FLOUR, LIGHTS, BATTERIES, ELEC. COMP., DRUGS
·ini Landscaping	73 Cherry Street	West Orange	YARD WASTE
·mit Ridge Nursing and Rehab Center	20 Summit Avenue	West Orange	BATTERIES, YARD WASTE, DRUGS, FLOUR, LIGHTS

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

Facility Name	Street	City	Prohibited Items
Apex Centerless	144 Belmont Avenue	Belleville	METAL CUTTINGS
Barbones Service Center Inc.	113-119 Franklin Street	Belleville	AUTO PARTS, TIRES, BATTERIES
Belleville Kar Kare	9 Howard Place	Belleville	AUTO PARTS
Belleville Tool Corporation	267 Cortlandt Street	Belleville	METAL CUTTINGS
Cordasco Automotive Corporation, Inc	400 Union Avenue	Belleville	AUTO PARTS, TIRES, BATTERIES, OIL SPILL CLEAN-UP WASTE
Coyne Textile Services	137 Ralph Street	Belleville	BATTERIES, AUTO PARTS
Delavan Auto Body Service	8-10 Delavan Place	Belleville	AUTO PARTS
Ewal Manufacturing Co., Inc.	41 Montcomery Street	Belleville	METAL CUTTINGS
F & T Automotive	62 Bellavista Avenue	Belleville	OIL SPILL CLEAN-UP WASTE, AUTO PARTS, TIRES, BATTERIES, ELEC. COMP.
J & H Auto Repairing Company	3 Honiss Street	Belleville	AUTO PARTS, BATTERIES
J.S. Automotive Service	527 Union Avenue	Belleville	AUTO PARTS, YARD WASTE
Johns Auto Repair	23 Franklin Street	Belleville	AUTO PARTS, TIRES, BATTERIES, FLOUR, LIGHTS
Lido Auto Body	110 Roosevelt Avenue	Belleville	AUTO PARTS
Luongo Auto Center, Inc.	24 North Seventh Street	Belleville	AUTO PARTS, WASTE OIL
R & H Auto	127 Belleville Avenue	Belleville	AUTO PARTS
Rand McNally & Company	151 Cortlandt Street	Belleville	METAL CUTTINGS, SOLDER, ELEC. COMP.
Rangerton Research Inc.	115 Roosevelt Avenue	Belleville	ELEC. COMPONENTS, METAL CUTTINGS
Ricky's Shell Service	156 Belleville Avenue	Belleville	AUTO PARTS
Silver Lake Amoco	190 Franklin Street	Belleville	AUTO PARTS
Silver-Troy Corporation	500 Cortlandt Street	Belleville	GLASS
Supreme Ford/Oldsmobile	645 Washington Avenue	Belleville	AUTO PARTS, TIRES
Ultra Spec I	10-16 Greulock Avenue	Belleville	AUTO PARTS & MAINT. PRODUCTS, BATTERIES, TIRES
Ajar Auto Body	400 Bloomfield Avenue	Bloomfield	AUTO PARTS
Alves, Inc. t/a Fred's Sunoco	72 Bloomfield Avenue	Bloomfield	AUTO PARTS, BATTERIES
Ampere Service Center	122 Bloomfield Avenue	Bloomfield	AUTO PARTS, GLUE, FLOUR, LIGHTS
Bloomfield Glass Co.	223 Broad Street	Bloomfield	AUTO GLASS
Brookside Auto Repair, Inc.	478 Broad Street	Bloomfield	AUTO PARTS, TIRES, BATTERIES
Budget Print Center	332 Broad Street	Bloomfield	METAL CANS
Camachine, Inc.	144 Orange Street	Bloomfield	MEATL CUTTINGS
Coleman's Sunoco	347 Broad Street	Bloomfield	AUTO PARTS
Ed Uness System Brake Service Inc.	672 Bloomfield Avenue	Bloomfield	AUTO PARTS, BATTERIES, TIRES
F & D Oil Company	721 E. Passiac Avenue	Bloomfield	TIRES, AUTO PARTS, BATTERIES
Glenfield Texaco Service Inc.	711 Bloomfield Avenue	Bloomfield	AUTO PARTS, TIRES, BATTERIES

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

ility Name	Street	City	Prohibited Items
ye Service Station	141 Bloomfield Avenue	Bloomfield	AUTO PARTS, TIRES, BATTERIES
rman Chevrolet	425 Bloomfield Avenue	Bloomfield	AUTO PARTS, BATTERIES, TIRES
r Automotive, Inc.	10 Ward Street	Bloomfield	AUTO PARTS, FLOUR LIGHTS, TIRES
hes Infiniti	401 Bloomfield Avenue	Bloomfield	AUTO PARTS & MAINT. PRODUCTS, FLOUR, LIGHTS, BATTERIES, TIRES
nes Nissan	374 Bloomfield Avenue	Bloomfield	AUTO PARTS & MAINT. PRODUCTS, FLOUR, LIGHTS, BATTERIES, TIRES
ia Grinding & Lapping Co., Inc.	5 Lawrence Street, Bldg. #10	Bloomfield	ABBRASIVES, METAL CUTTINGS
hes Auto Body Shop Inc.	128 Orange Street	Bloomfield	FLOUR, LIGHTS, AUTO PARTS, TIRES
lveira & Son Inc.	130 Bloomfield Avenue	Bloomfield	AUTO PARTS, GLASS, METALS
car & Son Auto Service, Inc.	1414 Broad Street	Bloomfield	AUTO PARTS, BATTERIES, AUTO MAINT. PRODUCTS
e Breeze Auto Clinic	342 Broad Street	Bloomfield	AUTO PARTS, TIRES
Fix N Fuel	109 Broughton Avenue	Bloomfield	AUTO PARTS, TIRES
ank's Auto Body, Inc.	139 Roseland Avenue	Caldwell	OIL SPILL CLEAN-UP WASTE, AUTO PARTS, GLUE, SOLDER
eler's Auto Repair	80 Roseland Avenue	Caldwell	AUTO PARTS
inica/Elroh Mfg. Corp.	9 Sand Park Road	Cedar Grove	METAL CUTTINGS, RUBBER, WALLBOARD, YARN WASTE,
dar Clair Corp., t/a Cedar Grove Exxon	279 Pompton Avenue	Cedar Grove	AUTO PARTS, FLOUR, LIGHTS
dar Grove Sunoco Service Station	600 Pompton Avenue	Cedar Grove	AUTO PARTS, METALS, BATTERIES
dar Grove Transmission	475 Pomption Avenue	Cedar Grove	AUTO PARTS, BATTERIES, TIRES
tal Cutting Corporation	59 Village Park Road	Cedar Grove	AUTO PARTS
d Industries Inc.	1380 Pompton Avenue	Cedar Grove	METAL CUTTINGS
n Quality Auto Service Inc.	339 Dodd Street	East Orange	METAL CUTTINGS, FLOUR, TUBES
delo's Greenwood Gulf	2 Ampere Parkway	East Orange	AUTO PARTS, AUTO MAINT. PRODUCTS, TIRES, BATTERIES
inker Displays	545 N. Arlington Avenue	East Orange	AUTO PARTS (TIRES, BATTERIES, METAL PARTS) & MAINT. PRODUCTS
ookwood Towing and Repair Inc.	205 Sanford Street	East Orange	METAL FOIL
PD Enterprises Inc. t/a Guaranteed Auto Rep	390 Central Avenue	East Orange	AUTO PARTS, TIRES
& H Cutoff	54 Springdale Avenue	East Orange	AUTO PARTS, WALL BOARD
rdena Auto Clinic	516 William Street	East Orange	METAL CUTTINGS, FLOUR, LIGHTS
st Orange Auto Service Inc.	391 Central Avenue	East Orange	ANTIFEEZE, AUTO MAINT. PRODUCTS, AUTO PARTS, LEAD-ACID BATTERIES, TIRES
st Orange Gulf	9 North Park Street	East Orange	AUTO PARTS
rank LaBanca Au ly	44 N. Park St.	East Orange	AUTO PARTS, BATTERIES, TIRES
			AUTO PARTS, TIRES

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

Facility Name	Street	City	Prohibited Items
J.W. Pierson Company	89 Dodd Street	East Orange	AUTO PARTS, TIRES, TRANSFORMERS, THERMOSTATS
Midas Muffler Shop	405 Central Avenue	East Orange	AUTO PARTS, METALS
P & N Auto Works, Inc.	12 South Clinton Street	East Orange	AUTO PARTS
Prompt Steel Rule Die Services	545 N. Arlington Avenue	East Orange	METAL FOIL
Roth Auto Coach Works	35 Park Avenue	East Orange	AUTO PARTS
Wolf Bros. Dry Cleaners Inc.	230 Rhode Island Avenue	East Orange	DIATOMACEOUS EARTH
Wraps, Inc.	810 Springdale Avenue	East Orange	METAL FOIL
Alfa Machine & Tool Co., Inc.	19 Just Road	Fairfield	FLOUR, LIGHT FIXTURES, METAL CUTTINGS
Allied Sheet Metal Inc.	9 Ray Place	Fairfield	FIBERGLASS DUCT LINING
American Bearing Company, Inc.	1275 Bloomfield Avenue	Fairfield	METAL CUTTINGS, BULKY WASTE
Bloomfield Mfg. co.	101 Clinton Road	Fairfield	METAL CUTTINGS
CAMAC Industries	18 Commerce Road	Fairfield	METAL CUTTINGS, PVC, WASTE PAINT, FLOUR, LIGHTS
Contract Filling, Inc.	10 Stewart Place	Fairfield	Metal cuttings or residuals, yard waste, flourescent light tubes, glass
Elnik Systems, div. of IPM, Inc.	3 Edison Place	Fairfield	METAL CUTTINGS
Expert Machined Products Corporation	15-B Spielman Road	Fairfield	STEEL CHIP
Fisher Auto Transmission, Inc.	81 Route 46	Fairfield	AUTO PARTS, OIL SPILL CLEAN-UP WASTE
Fluid Systems Inc.	25 Greenbook Road	Fairfield	METAL CUTTINGS, WASTE PAINT, FLOUR, LIGHTS
Frank J. Deutsch, Inc.	17 Spielman Road	Fairfield	METAL CUTTINGS, FLOUR, LIGHTS, SOLDER
Garfield Industries	62 Clinton Road	Fairfield	METAL CUTTINGS
General Fiber Optics, Inc.	1 Washington Avenue	Fairfield	METAL CUTTINGS
Hanover Pattern	54 Clinton Road	Fairfield	METAL CUTTINGS
Industrial Filters Company	9 Industrial Road	Fairfield	METAL CUTTINGS, PVC
International Engraving Corporation	68 Clinton Road	Fairfield	METAL CHIPS/CUTTINGS
Marble Queen Inc.	1275 Bloomfield Avenue, Bldg. 5-26	Fairfield	Bulky waste, limestone, unsaturated polyester resin
Mold-Tech	333 Route 46 West	Fairfield	METAL CUTTINGS, FLOUR, LIGHTS
Obere Service Station, Inc.	75 Route 46 West	Fairfield	AUTO PARTS, TIRES, BATTERIES
Polmold, Inc.	54 Clinton Road	Fairfield	Metal cuttings or residuals
Schenck Weighing Systems	51 Kulick Road	Fairfield	METAL STRAPPING
Simon Motors	1275 Bloomfield Avenue, Bldg. 10-89	Fairfield	AUTO PARTS, BATTERIES, AUTO MAINT. PRODUCTS
Skyline Auto Exchange	100 Route 46	Fairfield	AUTO MAINT. PRODUCTS
Verner Cadby Inc.	1240 Bloomfield Avenue	Fairfield	AUTO PARTS, METALS, TIRES, SOLDER, THERMOSTATS
Wesgo/Duramic	24/26 Madison Road	Fairfield	CERAMICS
Whatman Inc.	341 Kaplan Drive	Fairfield	SILICA, GLASS
Glen Ridge Auto Inc.	12 Herman Street	Glen Ridge	AUTO PARTS

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

ility Name	Street	City	Prohibited Items
k Ridge Service Center	17 Herman Street	Glen Ridge	AUTO PARTS, TIRES, BATTERIES
nd Drug and Chemical Company	83 Cordier Street	Irvington	ACTIVATED CHARCOAL
elon Auto Body Inc.	243 Colt Street	Irvington	AUTO PARTS, AUTO MAINT. PRODUCTS, METALS
llo Welding	574 Lyons Avenue	Irvington	METAL CUTTINGS
rman-Everett Foundry Company	133 South 20th Street	Irvington	SAND, METAL CUTTINGS, REFRACTORY
ncellor Texaco Service	960 Chancellor Avenue	Irvington	AUTO PARTS
y Line Auto Repair	741 Springfield Avenue	Irvington	AUTO PARTS
stwood Motors	810 Springfield Avenue	Irvington	AUTO PARTS
L Industries Inc.	211 Cort Street	Irvington	METAL WIRE
mara Industries, Inc.	420 Union Avenue	Irvington	AUTO PARTS, ELEC. COMP.
hard Automotive Service, Inc.	559 Lyons Avenue	Irvington	AUTO PARTS, BATTERIES, TIRES
K Sunoco	754 Lyons Avenue	Irvington	AUTO PARTS, TIRES, BATTERIES
acy Plastic Molders, Inc	149 Shaw Avenue	Irvington	METAL PARTS, DELRIN
my's Incorporated	919 Springfield Avenue	Irvington	AUTO. MAINT. PRODUCTS
n's Amoco Service	558 Grove Street	Irvington	BATTERIES, TIRES, AUTO MAINT. PRODUCTS
ry's Park Service	977 Chancellor Avenue	Irvington	AUTO PARTS, TIRES, BATTERIES
ses Auto Repair	597 Chancellor Avenue	Irvington	TIRES, AUTO PARTS
n Tool & Manufacturing Co.	10 Melville Place	Irvington	METAL CUTTINGS, FLOUR, LIGHTS
rney's Serviceter	961 Clinton Avenue	Irvington	AUTO PARTS & MAINT. PRODUCTS, BATTERIES, THERMOSTATS, TIRES, YARD WASTE
& A Auto Service	142 South Livingston Avenue	Livingston	AUTO PARTS
ademy Exxon	266 South Orange Avenue	Livingston	AUTO PARTS
ark Industries Inc (Kenlen Wire Division)	100 Dorsa Avenue	Livingston	METAL CUTTINGS, TRANSFORMERS
own Macine & Tool Co., Inc.	128 Passaic Avenue	Livingston	METAL CUTTINGS, ELEC. COMPONENTS
nervale's Gulf Service Center, Inc.	625 So. Livingston Avenue	Livingston	AUTO PARTS
rge Products Company, Inc.	104 Dorsa Avenue	Livingston	METAL CUTTINGS
& S Tool Company, Inc.	70 Okner Parkway	Livingston	METAL CUTTINGS
ncera Shell	37 West Mt. Pleasant Avenue	Livingston	AUTO PARTS, TIRES, BATTERIES
vingston Collision, Inc.	521 W. Mt. Pleasant Avenue	Livingston	AUTO PARTS, AUTO MAINT. PRODUCTS, TIRES, BATTERIES
vingston Sunoco, Inc.	247 South Livingston Avenue	Livingston	AUTO PARTS, AUTO MAINT. PRODUCTS, TIRES, BATTERIES
rolab/FXR	10 Microlab Road	Livingston	METAL CUTTINGS, SOLDER
rthfield Friendly Service Inc.	16 East Northfield Road	Livingston	AUTO PARTS, TIRES, BATTERIES
m Matteace Auto Body, Inc.	295 E. Mt. Pleasant Avenue	Livingston	AUTO PARTS
ns Auto Center Inc.	505 South Livingston Avenue	Livingston	

Facility Name	Street	City	Prohibited Items
Venturi Industries, Inc	100 Dorsa Avenue	Livingston	METAL CUTTINGS, TRANSFORMERS
Boyden Friendly Service Inc	408 Boyden Avenue	Maplewood	AUTO PARTS, BATTERIES, TIRES
C. B. Kaupp & Sons, Inc.	6 Newark Way	Maplewood	METAL CUTTINGS
DeFinis Service Station Inc.	2058 Millburn Avenue	Maplewood	AUTO PARTS, BATTERIES, TIRES, THERMOSTATS
Essex Sports Cars Inc./Aircooled Auto Co.	2191-95 Millburn Avenue	Maplewood	AUTO PARTS, TIRES, BATTERIES
Jo-Bell Co., Inc. t/a Richard's Svc. Station	1459 Springfield Avenue	Maplewood	AUTO PARTS, BATTERIES
L & J Motors, Inc.	1539 Springfield Avenue	Maplewood	AUTO PARTS, BATTERIES, TIRES
Rails Company	101 Newark Way	Maplewood	METAL CUTTINGS
Ralph's American	1864 Springfield Avenue	Maplewood	AUTO PARTS, TIRES, BATTERIES
Toomey's Exxon dba Toomey's Automotive	98 Baker Street	Maplewood	AUTO PARTS, TIRES, BATTERIES
Union Tool & Mold	220 Rutgers Street	Maplewood	METAL CUTTINGS
Valley Sunoco Service	543 Valley Street	Maplewood	AUTO PARTS, WASTE OIL
Woolley Fuel Company	12 Burnett Avenue	Maplewood	AUTO PARTS, BATTERIES
Wyman Ford Inc.	1713 Springfield Avenue	Maplewood	AUTO PARTS
Bernies Tire & Auto	73 Milburn Avenue	Millburn	AUTO PARTS
Hudson Mfg. Corporation	12 East Willow Street	Millburn	YARD WASTE, METAL CUTTINGS, SHEETROCK, FLOUR, LIGHTS
Short Hills Texaco	50 Chatham Road	Millburn	AUTO PARTS, TIRES, ELEC. COMP., BATTERIES
The Jaydor Corporation	16 Bleeker Street	Millburn	GLASS
Alex & Leo Auto Repairs, Inc.	63 North Willow Street	Monclair	AUTO PARTS
575 Valley Corp. - Kirkeby Getty	575 Valley Road	Montclair	AUTO PARTS, BATTERIES, OIL SPILL CLEAN-UP WASTE
Clairmont Auto Body Inc.	2 Bloomfield Avenue	Montclair	AUTO PARTS
Clar-Pine Servicenter	40 Claremont Avenue	Montclair	AUTO PARTS, BATTERIES, TIRES
F & T Auferio Enterprises Inc.	59 Walnut Street	Montclair	AUTO PARTS
Foreign Aid, Inc.	207 Bellevue Avenue	Montclair	TIRES, AUTO PARTS
Frank & Rick's Inc.	651 Bloomfield Avnue	Montclair	AUTO PARTS, TIRES, BATTERIES, ELEC. COMP.
Larry's Auto Repair	142 Valley Road	Montclair	AUTO PARTS, BATTERIES
Regency Motors	34 Valley Road	Montclair	AUTO PARTS, TIRES, BATTERIES, YARD WASTE, ELEC. COMPONENTS
Regency Motors	654 Bloomfield Avenue	Montclair	YARD WASTE, AUTO PARTS
Tolan Machinery Co., Inc.	14 Depot Square	Montclair	GRINDING WHEELS, PAINT CANS,, BULKY WASTE
Town Auto Body	107 Grove Street	Montclair	AUTO PARTS
Zeus Complete Automotive	120 Watchung Avenue	Montclair	AUTO PARTS & MAINT. PRODUCTS
A & K Auto Center	970 Frelinghuysen Avenue	Newark	AUTO PARTS, TIRES, BATTERIES
A. W. Machine Corp.	645 South 10th Street	Newark	METAL CUTTINGS
AC Transformer Co.	89 Madison Street	Newark	INSULATION, FLOUR, LIGHTS, BULKY WASTE

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

acility Name	Street	City	Prohibited Items
arhua Inc.	131 Marsh Street	Newark	BATTERIES, METAL CUTTINGS
e Brake Exchange, Inc.	707 Frelinghuysen Avenue	Newark	AUTO PARTS
me Auto Body	174 Orange Street	Newark	AUTO PARTS
lamo Rent-A-Car	Route 1 & 9 South International Way	Newark	AUTO MAINT. PRODUCTS
ll Metal Products Company	12 Delancy Street	Newark	Heavy metals, metal cuttings and residuals
ex Gear & Mach Co., Inc.	938 Lake Street	Newark	METAL CUTTINGS, YARD WASTE, WASTE OIL, FLOUR, LIGHTS
ratex Services	740 Frelinghuysen Avenue	Newark	AUTO PARTS, TIRES, BATTERIES
rrow Machine	117 Norfolk Street	Newark	AUTO PARTS, METAL CUTTINGS
rturo Reyes t/a Broadway Exxon	432 Broadway Avenue	Newark	AUTO PARTS, TIRES
uto Body and Service Co. Inc.	32 Jones Street	Newark	AUTO PARTS
uto Parts & Equipment	218 Elizabeth Avenue	Newark	METAL TURNINGS
uto Sale Service Inc.	1239 McCarter Highway	Newark	AUTO PARTS, TIRES, BATTERIES
utogal Motor Sport Inc.	124 Poiner Street	Newark	AUTO PARTS, WASTE OIL
velrenee Auto Center	864 Mt. Prospect Avenue	Newark	TIRES, BATTERIES, AUTO PARTS, ELEC. COMPONENTS
airrada Auto Repair Corporation	168 Clifford Street	Newark	AUTO PARTS, BATTERIES
alemet Recycling Metals Inc.	227 Clifford Street	Newark	METAL CUTTINGS
atlata Auto Center, Inc.	87 Lafayette Street	Newark	AUTO PARTS, BULKY WASTE
igelow Auto Body - Zeke, Inc.	798-800 Bergen Street	Newark	AUTO PARTS
onney-Vehalage Tool Company	61 NJ Railroad Avenue	Newark	METAL CUTTINGS
rookwood Auto and Body Shop	741 South Orange Avenue	Newark	AUTO PARTS, TIRES
rother-In-Law Art Corporation	159 Titchenor Street	Newark	CHALK
ush Tank Fabricators Inc.	222 Thomas Street	Newark	METAL CUTTINGS
ar Glass Company	182 Ridge Street	Newark	AUTO GLASS
arlos Lopes t/a Ferry Auto Repairs	460-462 Ferry Street	Newark	AUTO PARTS
entral Auto Body Co. Corp.	274 Central Avenue	Newark	AUTO PARTS
hemical Waste Management, Inc.	41-85 Doremus Avenue	Newark	AUTO PARTS, TIRES, BATTERIES
limate Control Systems, Inc.	301 Badger Avenue	Newark	METAL CUTTINGS, PVC
ollnids, Inc.	394 Frelinghuysen Avenue	Newark	AUTO MAINT. PRODUCTS, FLOUR, LIGHTS, BATTERIES, METAL CUTTINGS, SOLDER, ETC
olonial Concrete Company	1196 McCarter Highway	Newark	TIRES, AUTO MAIN. PRODUCTS, BULKY WASTE
ontinental Airlines, Inc.	Terminal C, Newark Int'l Airport	Newark	AUTO PARTS & MAINT. PRODUCTS, HEAVY METALS, BATTERIES, TIRES
J Service Inc.	149 Meeker Avenue	Newark	AUTO PARTS, TIRES, BATTERIES, THERMOSTATS
L Auto Parts	349 Raymond Blvd.	Newark	AUTO PARTS, TIRES, BATTERIES
n Air Lines, Inc.	Newark International Airport	Newark	BATTERIES, AUTO MAINT. PRODUCTS, TIRES

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

Facility Name	Street	City	Prohibited Items
Dewey's Garage Inc.	190 Wilson Avenue	Newark	AUTO PARTS
Downtown Exxon	427 Lafayette Street	Newark	AUTO PARTS
E & H Super Service Inc.	1126-1134 McCarter Highway	Newark	AUTO PARTS, TIRES, AUTO MAINT. PRODUCTS
Empire Auto Body Inc.	7 Monroe Street	Newark	AUTO PARTS, WASTE OIL
Essex Cement Company	182 Calcutta Street	Newark	AUTO MAINT. PRODUCTS, BATTERIES, OIL
Essex Machine Repairing Company, Inc.	471 Mulberry Street	Newark	METAL CUTTINGS, YARD WASTE, FLOUR, LIGHTS
Eureka Spring Co., Inc.	9-15 Manufacturers Place, Box 5067	Newark	METAL CUTTINGS, GLASS
Extra Value Auto Repair	254 South Street	Newark	AUTO PARTS, TIRES
Faltoute Steel Company, Inc.	182 Frelinghuysen Avenue	Newark	FLOUR, LIGHTS, YARD WASTE
Federal Bronze Casting Ind., Inc.	9 Backus Street	Newark	Graphite, clay, wood, glass
Federal Express Corporation	Building 247, Newark Int'l Airport	Newark	AUTO PARTS, TIRES, BATTERIES
Foreign Car Connection	185 Miller St.	Newark	AUTO PARTS
Fred Silver & Company Inc.	145 Sussex Avenue	Newark	GLASS, RUBBER
Frelinghuysen Aamco	950 Frelinghuysen Avenue	Newark	AUTO PARTS
Gomez & Reveco Enterprise, Inc.	702 Broadway	Newark	AUTO PARTS
Grammer Dempsey & Hudson Inc.	212 Rome Street, P.O. Box 1059	Newark	HEATL CUTTINGS
H & C Metals	83-85 Malvern Street	Newark	METAL CUTTINGS, TIRES, AUTO MAIN. PRODUCTS, HEAVY METALS
Hal-O Mfg. Co., Inc	137-143 Meeker Avenue	Newark	METALS
Harris Auto Electric	968 Bergen Street	Newark	AUTO PARTS
International Fragrance Creations	29-75 Riverside Avenue	Newark	METAL CANS
Ironbound Glass Works, Inc.	307 Jefferson Street	Newark	GLASS
Irving Menlow Corporation	257 Elizabeth Avenue	Newark	AUTO PARTS
Jenson & Mitchell Inc.	400 New Street	Newark	AUTO PARTS, METAL CUTTINGS
Jersey Pit Stop, Inc.	1250 Broad Street	Newark	AUTO PARTS, BATTERIES
Jimmy A's Auto Electric Inc.	900 Mt. Prospect Avenue	Newark	AUTO PARTS, TIRES, BATTERIES
Jiro Inc. t/a Ad-Aid Mounting & Die Cutting	46 Oliver Street	Newark	STEEL, FLOUR, LIGHTS
Joseph B. Zamelsky	315 Frelinghuysen Avenue	Newark	METAL CUTTINGS, YARD WASTE, TIRES
Kalmax Inc. t/a Custom Service	175 Mt. Pleasant Avenue	Newark	AUTO PARTS
L & B Metals	120 Orchard Street	Newark	METAL CUTTINGS, PVC, SOLDER
L & C Brake System	37 Jones Street	Newark	AUTO PARTS
L P S Industries	661 North 3rd Street	Newark	METAL FOIL
Leopard Air Freight Trucking Co.	709 Clifton Avenue	Newark	AUTO PARTS, TIRES, BATTERIES
Lussmer Auto Body	27 Austin Street	Newark	AUTO PARTS
M D S Auto Body	369 Thomas Street	Newark	AUTO PARTS, PAINT, BATTERIES
Mahdi Service Center	10 South 13th Street	Newark	AUTO PARTS, BATTERIES, TIRES, OIL SPILL CLEAN UP WASTE

CATEGORY 5 FACILITIES

(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

cility Name	Street	City	Prohibited Items
nhattan Tool Mfg. Co.	38 Van Buren Street	Newark	METAL CUTTINGS, FLOUR, LIGHTS
rket Body Works Inc.	597 McCarter Highway	Newark	AUTO PARTS, AUTO MAINT. PRODUCTS
rmor Auto Center	118 Murray Street	Newark	AUTO PARTS, TIRES
rques Auto Repair	88-90 Alyea St.	Newark	AUTO PARTS, TIRES
rtin Auto Body Shop	499 Bergen Street	Newark	AUTO PARTS, HEAVY METALS, TIRES
rtin Ind. Inc	532 Mulberry Street	Newark	METAL CHIPS
tal Parts Processing Co., Inc.	165 Delancy Street	Newark	METAL CUTTING SLUDGE
tro Hydraulic Jack Company	52 Elm Street	Newark	METAL PARTS
ke's Service Center	865 Franklin Avenue	Newark	AUTO PARTS
ller Manufacturing Company	18 Oliver Street	Newark	METAL CUTTINGS, RUBBER
nro-Matic Mfg/ta Mechanical Art Works	96 Monroe Street	Newark	METAL CUTTINGS, WASTE OIL
torcars of Europe Ent., Inc.	1123-1131 McCarter Highway	Newark	AUTO PARTS, TIRES, AUTO MAIN. PRODUCTS, BATTERIES
t. Vernon Service Center Inc.	786 Sandford Avenue	Newark	AUTO PARTS, ELEC. COMP.
& J Machine Prod.	52 Bruen Street	Newark	METAL CUTTINGS, FLOUR, LIGHTS
J. Precision Fabrications Inc.	199 North 12th Street	Newark	METAL CUTTINGS
tional Car Rental System, Inc.	575 South Street	Newark	AUTO PARTS AND MAINT. PRODUCTS, BATTERIES, TIRES
tional Spring Co.	205 Frelinghuysen Avenue	Newark	AUTO PARTS
wark Car Care	313 West Market Street	Newark	AUTO PARTS
wark Mold & Tool Co.	147 N.J. Railroad Avenue	Newark	METAL CUTTINGS
wark Motor & Export	573 Ferry St	Newark	AUTO PARTS
wark Stamp & Die Works Inc.	35 Verona Avenue	Newark	METAL CUTTINGS, RUBBER
wark Wire Cloth Co.	351 Verona Avenue	Newark	METAL SLUDGE, OIL SPILL CLEAN-UP WASTE
rpak Corporation	70 Blanchard Street	Newark	METAL CUTTINGS, AUTO PARTS, TIRES, BATTERIES
rthwest Airlines	Newark Int. Airport Terminal B	Newark	AUTO PARTS, AUTO MAINT. PRODUCTS, BATTERIES, TIRES
range Exxon	471 Orange Street	Newark	AUTO PARTS, OIL SPILL CLEAN-UP WASTE
tto Tool and Stamping Corp.	29 Avenue C	Newark	METAL CUTTINGS
& L Auto Service Inc.	181-83 Ridge Street	Newark	AUTO PARTS, CLEANING PRODUCTS
niel Auto Rep. Inc.	122 Tichenor St.	Newark	AUTO PARTS, METALS
rt Delivery Service	199 Panama Street	Newark	AUTO MAIN. PRODUCTS
ro Tire & Car Service, Inc.	37 Pacific Street	Newark	AUTO PARTS, BATTERIES
remier Auto Body	234 Central Avenue	Newark	AUTO PARTS, TIRES, PAINT, YARD WASTE
co Nelson Company	248 Thomas Street	Newark	METAL CUTTINGS, YARD WASTE
ddaway Mfg.	32 Euclid Avenue	Newark	FIBERGLASS, PHENOLIC RESIN
liable Loose Leaf Corporation	900 Passaic Street	Newark	METAL CUTTINGS
ttig Coal Company, Inc.	160-190 Jelliff Avenue	Newark	AUTO PARTS, METALS, THERMOSTATS, RUBBER, TRANSFORMERS, BATTERIES

Facility Name	Street	City	Prohibited Items
Rex Wine Vinegar Company	828 Raymond Blvd.	Newark	FLOUR, LIGHTS, DIATOMACEOUS EARTH
Richmond Auto Inc.	46 Frelinghuysen Avenue	Newark	AUTO PARTS
Robert S. Fisher Company	19 Liberty Street	Newark	METAL CUTTINGS
Roloc Film Processing Inc.	29 Riverside Avenue	Newark	METAL CUTTINGS
S K & P	73 Norfolk Street	Newark	METAL CUTTINGS
Sacco's Sales Service Inc.	9 Verona Avenue	Newark	AUTO MAIN. PRODUCTS, METALS
Salzano's Service Center	242 Raymond Blvd.	Newark	AUTO PARTS, TIRES, BATTERIES, ELEC. COMP.
Samac Mfg. Corp.	10 Columbia Street	Newark	METAL CUTTINGS, FLOUR, LIGHTS
Samuel LaRocca, Inc.	874 Broadway	Newark	AUTO PARTS, TIRES, BATTERIES
Santos Auto Body	113-121 South Street	Newark	AUTO PARTS AND MAINTAINENCE PRODUCTS, BATTERIES
Shanks Converting Equipment	165 Vanderpool Street	Newark	METAL CUTTINGS
Siegle's Corp.	543 Avenue P	Newark	AUTO PARTS, TIRES, BATTERIES
Spectra Gases Inc	300 and 320 Mt. Pleasant Avenue	Newark	ACTIVATED CARBON, ALUMINA, SODA LIME, ELEC. COMPONENTS
Springdale Automotive	505 McCarter Highway	Newark	AUTO PARTS, TIRES, BATTERIES
State Tool Company, Inc.	211 Camden Street	Newark	METAL CUTTINGS
Steel Craft Fluorescent	191 Murray Street	Newark	METAL CUTTINGS, FLOUR, LIGHTS, BATTERIES
Stirrup Metal Prod. Corp	215 Emmet Street	Newark	METAL CUTTINGS
Strauss Plastic Co.	111 Gotthart Street	Newark	METAL CUTTINGS
Strauss Processing Corp.	111 Gotthart Street	Newark	METAL CUTTINGS
The Watts Campbell Company	1270 McCarter Highway	Newark	METAL CUTTINGS
The Welded Products Co.	330-336 Raymond Blvd.	Newark	METAL CUTTINGS, YARD WASTE
Trimlews Auto Body Repair	195 Miller Street	Newark	AUTO PARTS, TIRES, BATTERIES
Troy Chemical Corporation	One Avenue L	Newark	METAL CANS, FLOUR, LIGHTS
U.J. Ramelson Company	165 Thomas Street	Newark	METAL CUTTINGS
US Air	Terminal A, Newark Airport	Newark	AUTO MAINT. PRODUCTS, TIRES, BATTERIES
West Market Service Center	456 West Market Street	Newark	AUTO PARTS, FLOUR, LIGHTS, WASTE OIL, AUTO MAINT. PRODUCTS
Willow Service, a Division of Forest Group, I	315 Mt. Pleasant Avenue	Newark	AUTO PARTS, METAL CUTTINGS
Wire Forming Corp. of N.J.	109-135 Meeker Avenue	Newark	METAL CUTTINGS
Yale Hook and Eye	300 Belling Avenue	Newark	METAL CUTTINGS
Yosh Motors, Inc	866 Summer Avenue	Newark	AUTO PARTS
Zmoira Corp. c/o Vailsburg Auto	962 18th Avenue	Newark	AUTO PARTS
Aven Auto Body Inc.	127 E. Centre Street	Nutley	AUTO PARTS, FLOUR, LIGHTS, BATTERIES
Book Chevrolet Buick	66 Washington Avenue	Nutley	AUTO PARTS, BATTERIES, AUTO MAINT. PRODUCTS
Centre Getty, Inc.	110 Centre Street	Nutley	AUTO PARTS, ELEC. COMPONENTS, FLOUR, LIGHTS, TIRES, OIL SPILL CLEAN-UP WST.

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

Facility Name	Street	City	Prohibited Items
...e's Shell Inc.	205 Darling Avenue	Nutley	AUTO PARTS, OIL SPILL CLEAN-UP WASTE
& R Town getty	661 Bloomfield Avenue	Nutley	AUTO MAINT. PRODUCTS, TIRES
...ck Christopher's Auto Service	34 Union Avenue	Nutley	AUTO PARTS, TIRES, BATTERIES
...r Pak Inc.	259 Centre Street	Nutley	AUTO PARTS, TIRES, BATTERIES
...tley Amaco Inc.	95 Washington Avenue	Nutley	AUTO PARTS, TIRES
...tley Metal Fabricators	89 River Road	Nutley	METAL CUTTINGS, FLOUR, LIGHTS
...tley Mobil Inc.	248 Franklin Avenue	Nutley	AUTO PARTS, TIRES
...timate Auto Body, Inc.	151 River Road	Nutley	AUTO PARTS, TIRES
...utom Auto Air, Inc.	418 Washington Street	Orange	AUTO PARTS, ELEC. COMPONENTS, PAINT
...utom Auto, Inc	46 Central Avenue	Orange	AUTO PARTS
...ne Finishes Inc.	617 Scotland Road	Orange	AUTO PARTS, FLOUR, LIGHTS
...rank's Foreign Auto	595 Valley Street	Orange	TIRES, AUTO PARTS, BATTERIES
...regans Automotive	537 Glebe Street	Orange	TIRES, THERMOSTATS, AUTO PARTS
...eneral Pneumatic's Corp.	440 Washington Street	Orange	METAL CUTTINGS
...eorge's Auto Body, Inc.	522 Beach Street	Orange	AUTO PARTS
...& L Automotive Repair	294 Scotland Road	Orange	AUTO PARTS, TIRES, BATTERIES
...ick's Service Center	460 Main Street	Orange	AUTO PARTS
...Trezza & Son Inc.	126 Hickory Street	Orange	SCRAP METAL
...obert Brashall Mach-Prod, Inc.	428 Tompkins Street	Orange	METAL CUTTINGS
...& R Automotive	545 Joyce Street	Orange	AUTO PARTS
...him-Pak Industries, Inc.	564 Forest Street, P.O. Box 797	Orange	METAL CUTTINGS, BULKY WASTE
The New Brick Church Buick & GMC Truck Inc.	151 Central Avenue	Orange	AUTO PARTS
Tony's Amoco Inc.	559 Scotland Road	Orange	AUTO PARTS, TIRES, BATTERIES
Tuneway Inc.	33 Lincoln Avenue	Orange	AUTO PARTS, TIRES
American Safety Technologies, Inc.	565 Eagle Rock Avenue	Roseland	METAL CUTTINGS, PAILS, CANS
Eagle Sheet Metal, Inc.	16 Steel Ct. P.O BOX 675	Roseland	METALS
Eisenhower Mobil	525 Eaglerock Avenue	Roseland	AUTO PARTS, TIRES, BATTERIES
Mason Keller	119 Harrison Avenue	Roseland	METAL FOIL
Pro-tech Exxon	550 Eagle Rock Avenue	Roseland	AUTO PARTS, TIRES, BATTERIES
Roseland Service Center, Inc.	191 Eagle Rock Avenue	Roseland	AUTO PARTS
Short Hills Exxon	46 Chatham Road	Short Hills	AUTO PARTS, ELEC. COMPONENTS, BATTERIES, METAL CUTTINGS, TIRES
Area Rent A Car Of South Orange	19 Church Street	South Orange	AUTO PARTS, BATTERIES
European Technicians Inc.	1 Lackawanna Place	South Orange	AUTO PARTS, TIRES, BATTERIES, THERMOSTATS
J.S. Automotive	376 Lackawanna Place	South Orange	AUTO PARTS
Jefferson Prosthetics and Orthotics Inc.	120 Prospect Street	South Orange	PLASTER

Facility Name	Street	City	Prohibited Items
Midas	60 Valley Street	South Orange	AUTO PARTS, METALS
Mikes Service	403 Irvington Avenue	South Orange	AUTO PARTS
Modern Auto Body Of South Orange, Inc.	410 Valley Street	South Orange	AUTO PARTS
South Orange Friendly Service	252 Irvington Avenue	South Orange	AUTO PARTS
Village Service Center	101 West South Orange Avenue	South Orange	AUTO PARTS, BATTERIES, TIRES
Warnock GM USA	28 Third Street, P.O. Box 209	South Orange	ASBESTOS-CONTAINING WASTE, AUTO PARTS, FLOUR, LIGHTS
B & D Tire	202 Pompton Avenue	Verona	AUTO PARTS
Bunky's Automotive Service	144 Pompton Avenue	Verona	AUTO PARTS
C & G Imported Car Repair, Inc.	780 Bloomfield Avenue	Verona	AUTO PARTS, TIRES, BATTERIES
C. T. Brunner & Sons, Inc.	449 Bloomfield Avenue	Verona	ANTIFREEZE, AUTO PARTS, BATTERIES, TIRES
Claridge Sunoco	195 Pompton Avenue	Verona	AUTO PARTS, BATTERIES
Lee Myles Transmission	667 Bloomfield Avenue	Verona	AUTO PARTS & MAINT. PRODUCTS
Luke's Auto Service	286 Grove Avenue	Verona	AUTO PARTS, TIRES, BATTERIES
Miscia's Service Center	277 Bloomfield Avenue	Verona	AUTO PARTS, BATTERIES, TIRES
Montclair Acura	100 Bloomfied Avenue	Verona	AUTO PARTS, ELEC. COMPS.
Clairmont Cadillac Corp.	1220 Bloomfield Avenue	West Caldwell	AUTO PARTS, TIRES, BATTERIES, PVC
Fancourt Industries, Inc.	31 Fairfield Place	West Caldwell	METAL CUTTINGS
Johnnies Motors Leasing t/a Johnnies Motors	678 Bloomfield Avenue	West Caldwell	AUTO PARTS, TIRES, BATTERIES,METALS
Justus Buick Co.	880 Bloomfield Avenue	West Caldwell	AUTO PARTS & MAINT. PRODUCTS, FLOUR, LIGHTS, ELEC. COMPONENTS, TIRES
Midas Muffler Shop	559 Bloomfield Avenue	West Caldwell	METALS, AUTO PARTS
Scott Picon Ltd, Inc, dba Honda of Essex	1170 Bloomfield Avenue	West Caldwell	AUTO PARTS, ELEC. COMPONENTS, BATTERIES, SOLDER, THERMOSTATS, BULKY WASTE
All-State Salvage Co., Inc.	47 Standish Avenue	West Orange	AUTO PARTS, TIRES, BATTERIES
Bob Drake's Service Station Inc	945 Pleasant Valley Way	West Orange	AUTO PARTS, BATTERIES
Central Imported Car Repair, Inc.	504 Valley Road	West Orange	AUTO PARTS, WASTE OIL
Chris Collision, Inc.	25 Park Avenue	West Orange	AUTO PARTS
Colonial Foreign Car Repair, Inc.	44 Washington Street	West Orange	AUTO MAIN. PRODUCTS, AUTO PARTS
Eagle Rock Service Center-Exxon	659 Eagle Rock Avenue	West Orange	AUTO PARTS, TIRES, BATTERIES
Fred's Inc.	549 Valley Road	West Orange	AUTO PARTS, TIRES, THERMOSTATS
Future Auto Body	239 Main Street	West Orange	AUTO PARTS
Kreske Mfg. Co., Inc.	25 Liberty Street	West Orange	METAL CUTTINGS
Lucam Company	127 Ashland Avenue	West Orange	METAL CUTTINGS
Mayfair Servicenter	3 Central Avenue	West Orange	AUTO PARTS, TIRES, CLEANING PRODUCTS
Packaging Machinery and Equipment Co.	181 Watson Avenue	West Orange	METAL CUTTINGS, FLOUR, LIGHTS, BATTERIES

CATEGORY 5 FACILITIES
(FACILITIES GENERATING NON-COMBUSTIBLE MATERIALS)

acility Name	Street	City	Prohibited Items
VS Enterprises	467 Valley Road	West Orange	AUTO PARTS, ELEC. COMPONENTS, FLOUR, TUBES, METAL CUTTINGS
idgeway Service	399 Northfield Avenue	West Orange	AUTO PARTS, TIRES
alley Tire & Automotive Center, Inc.	356-358 Valley Road	West Orange	BATTERIES, TIRES, AUTO PARTS
ilkes, Inc.	639 Eagle Rock Avenue	West Orange	AUTO PARTS, AUTO MAINT. PRODUCTS, METALS, BATTERIES, TIRES, THERMOSTATS

CATEGORY 6 FACILITIES
(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Abbey Spring Company, Inc.	32 Hechel Street	Belleville	NJ	07109
Aero Products	19-21 North 8th Street	Belleville	NJ	07109
Belleville Machine & Mfg.	150 Belmont Avenue	Belleville	NJ	07109
Bigelow Motors	50 Washington Avenue'	Belleville	NJ	07109
C & M Mobil Corporation	389 Franklin Avenue	Belleville	NJ	07109
Clara Maass Medical Center	1 Franklin Avenue	Belleville	NJ	07109
Continental Carbide	Box 156	Belleville	NJ	07109
Eastern Photo Chemicals, Inc.	Box 252, 701 Main Street	Belleville	NJ	07109
Empire Graphic Machinery, Inc.	51 Valley Street	Belleville	NJ	07109
Express Press	356 Franklin Avenue	Belleville	NJ	07109
G&T Inauqurato Inc. t/a J&J Cutter	13 Brook Street	Belleville	NJ	07109
Imperial Graphics, Inc.	455 Cortlandt Street	Belleville	NJ	07109
Joseph Long Inc.	69 Roosevelt Avenue	Belleville	NJ	07109
Metro Auto Inc.	300 Washington Avenue	Belleville	NJ	07109
Miller & Son (A Corp.)	24 Belleville Avenue	Belleville	NJ	07109
Miscorp	236 Washington Avenue	Belleville	NJ	07109
Perfection Knife Grinding Co., Inc.	53 Frederick Street	Belleville	NJ	07109
Royal Light Mfg. & Supply Corp.	66 Honiss Street	Belleville	NJ	07109
Salem Mfg. Corproation	357 Cortlandt Street	Belleville	NJ	07109
Spot Light II Cleaners	635 Joralemon Street	Belleville	NJ	07109
Wheal-Grace Corporation	300 Ralph Street, P.O. Box 67	Belleville	NJ	07109
Advanced Metal Processing, Inc.	5 Alva Street	Bloomfield	NJ	07003
Alfacell Corporation	225 Belleville Avenue	Bloomfield	NJ	07003
Berje Inc.	5 Lawrence Street	Bloomfield	NJ	07003
Bloomfield Press	497 Bloomfield Avenue	Bloomfield	NJ	07003
CEZ Transportation	101 Newark Avenue	Bloomfield	NJ	07003
Century Chemical Co.	5 Lawrence Street	Bloomfield	NJ	07003
Clean-O-Rama, Inc.	6 Orange Street	Bloomfield	NJ	07003
Epoca Co.	5 Lawrence Street	Bloomfield	NJ	07003
Fabri-Fill Corporation	59 Willet Street	Bloomfield	NJ	07003
Forest Hill Exxon	75 Belleville Avenue	Bloomfield	NJ	07003
Garden State Flag Company	131 Franklin Street	Bloomfield	NJ	07003
Municipal Servicenter	491 Bloomfield Avenue	Bloomfield	NJ	07003
Pershing Rubber Roller Corporation	153 Orange Street	Bloomfield	NJ	07003
Superb Cleaners	63 Belleville Avenue	Bloomfield	NJ	07003
Voletz Cleaners	421 Broad Street	Bloomfield	NJ	07003
Optics For Research	Box 82	Caldwell	NJ	07006

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
[illegible] Monte, Inc.	155 Roseland Avenue	Caldwell	NJ	07006
QUA Products Inc.	25 Rutgers Avenue	Cedar Grove	NJ	07009
rt Decorating Company, Inc.	74 Sand Park Road	Cedar Grove	NJ	07009
ontrol Paint, Avery Dennison	67 Sand Park Road	Cedar Grove	NJ	07009
xpendable Machine Co., Inc.	74 Sand Park Road	Cedar Grove	NJ	07009
Aller Welding, Inc.	30 Commerce Road	Cedar Grove	NJ	07009
reen Play, Inc.	509 Pompton Avenue	Cedar Grove	NJ	07009
anao Envelope Company	20 Sand Park Road	Cedar Grove	NJ	07009
elta Photocomp Corporation	55 Washing Street	East Orange	NJ	07017
verett Laboratories, Inc.	71 Glenwood Place	East Orange	NJ	07017
ranks Cabinets	322 Dodd Street	East Orange	NJ	07017
ana Corp. (1 Hour Hana Cleaners)	231 Sanford Street	East Orange	NJ	07018
. Bernstein & Sons	137 Freeway Drive East	East Orange	NJ	07019
ark Auto Top, Inc.	43 North Park Street	East Orange	NJ	07017
ng Renovating Co., Inc.	532 North Grove St.	East Orange	NJ	07017
pringdale Tire Service	P.O. Box 4161	East Orange	NJ	07019
. & K. Cleaners	231 Park Avenue	East Orange	NJ	07017
& E Welding Company, Inc.	1225 Bloomfield Avenue	Fairfield	NJ	07006
& M Computype Company	200 Fairfield Road	Fairfield	NJ	07004
& L. Kolmodin Inc. t/a Super Lawns of Wayn	41 Donna Drive	Fairfield	NJ	07004
ffordable Fire Sprinkler Inc.	113 Clinton Road	Fairfield	NJ	07004
maco Sales Corp.	6 Audrey Place	Fairfield	NJ	07004
pplied Resources Corporation	1275 Bloomfield Avenue	Fairfield	NJ	07004
utovend Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
etty Brite Cleaner (AAJ Cleaners)	397 Route 46 West	Fairfield	NJ	07006
lark Transmission Co.	220 Fairfield Road	Fairfield	NJ	07004-2463
olwell Corporation	254 Little Falls Road	Fairfield	NJ	07004
ontrol Transaction Corp.	130 Clinton Road	Fairfield	NJ	07004
rown Jewel Importers & Marketing	373 Route 46 W., Bldg. D	Fairfield	NJ	07004
ome Textile Ltd. Corp	305 Fairfield Avenue	Fairfield	NJ	07004
X-Lab Company, Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
airfield Concrete Tank, Inc.	202 Fairfield Road	Fairfield	NJ	08037
ilmaster Inc.	561 U.S. Highway 46	Fairfield	NJ	07004
iechi Machine & Tool Company	79 Clinton Road	Fairfield	NJ	07004
ranklin Brass Mfg. Co	10 Plog Road	Fairfield	NJ	07004
arden State Printing	4 Madison Road	Fairfield	NJ	07004
acker Instruments, Inc.	17 Sherwood Lane, P.O. Box 10033	Fairfield	NJ	07004

CATEGORY 6 FACILITIES
(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Hasco Products Inc.	1 Oak Road	Fairfield	NJ	07004
IN/US Systems, Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
Imperial Dax Co., Inc.	P.O. Box 10002	Fairfield	NJ	07004
Industry Publications	389 Passaic Avenue	Fairfield	NJ	07004
Jason Industrial	340 Kaplan Drive	Fairfield	NJ	07004
Jersey Machine Tool Repair & Rebuilding	1275 Bloomfield Avenue	Fairfield	NJ	07004
Kurk Products Co.	26 Commerce Road	Fairfield	NJ	07004
Labtech Corporation	1275 Bloomfield Avenue, Bldg 5-21	Fairfield	NJ	07004
Novarome, Inc.	30 Stewart Place	Fairfield	NJ	07004
OHP Technologies, Inc.	24-H Commerce Road	Fairfield	NJ	07004
P. S. M. Fastner Corporation	7 Industrial Road	Fairfield	NJ	07004
Pet Commissary	19 A Commerce Road	Fairfield	NJ	07006
R.E.A. Display Inc.	333 Fairfield Road	Fairfield	NJ	07004
Rean Products	16 Passaic Avenue, #9	Fairfield	NJ	07004
Retailers And Manufactures	12 Gardner Road	Fairfield	NJ	07004
Safilo USA, Inc.	2 Gardner Road	Fairfield	NJ	07004
Speciality Toner Corporation	19 Industrial Road	Fairfield	NJ	07004
Speedcut Tool and Supply	145 Fairfield Road	Fairfield	NJ	07004
Technical Photo	1275 Bloomfield Avenue	Fairfield	NJ	07004
Temple Syrup Company	1275 Bloomfield Avenue	Fairfield	NJ	07004
The Economics Press	12 Daniel Road	Fairfield	NJ	07004
Tiger Building Materials Company, Inc.	44 Fairfield Road	Fairfield	NJ	07006
Tradeprint JP, Inc.	1275 Bloomfield Ave..Bldg 3,Ste 54B	Fairfield	NJ	07004
Transistor Company	277 Fairfield Road	Fairfield	NJ	07004
West Essex Graphics	305 Fairfield Avenue	Fairfield	NJ	07006
Wm. H. Brewster, Jr. Inc.	16 Kulick Road	Fairfield	NJ	07004
Egan Transportation Inc.	P.O. Box 244, 29 Hillcrest Road	Glen Ridge	NJ	07028-0244
A & P Paper Stock, Inc.	48-54 South 20th Street	Irvington	NJ	07111
Alex's Cabinet Shop	1400 Springfield Avenue	Irvington	NJ	07111
Bauer Factory Supply, Inc.	985-987 Clinton Avenue	Irvington	NJ	07111
Busy Bee Dry Cleaners	686 Chancellor Avenue	Irvington	NJ	07111
Charles & Son Als Inc.	798 Springfield Avenue	Irvington	NJ	07111
Coleman Equipment, Inc.	656 South 21st Street	Irvington	NJ	07111
Electric Machine And Tool Corp.	435 14th Avenue	Irvington	NJ	07111
G & R Graphics, Inc.	1420 Springfield Avenue, PO Box 428	Irvington	NJ	07111
Gem Autos	675 Grove Street	Irvington	NJ	07111
Graphic Design Concepts, Inc.	119 Colt Street	Irvington	NJ	07111

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Rosemon Paper Company	673 South 21st	Irvington	NJ	07111
Irvington Beauty & Barber Supply Inc.	1085 Springfield Avenue	Irvington	NJ	07111
Abel Inc.	365 Colt Street	Irvington	NJ	07111
Arco-Customer Brokers	290 Nye Avenue	Irvington	NJ	07111
Ucan and Lucas Inc.	114 Delmar Place	Irvington	NJ	07111
J.R. D Auto Sale Inc.	546-550 Chancellor Avenue	Irvington	NJ	07111
Merit Irvington	895 Springfield Avenue	Irvington	NJ	07111
Multi-Wall Packaging	130 South 20th Street	Irvington	NJ	07111
Newark Mat & Rubber	688 South 21st Street	Irvington	NJ	07111
North Jersey Paper Products, Inc.	130 Colt Street	Irvington	NJ	07111
Papp Beer & Soda	1000 Clinton Avenue	Irvington	NJ	07111
Pokina International Inc.	22 Camptown Road	Irvington	NJ	07111
Polo Service Inc.	814 18th Avenue	Irvington	NJ	07111
Termitex Pest Control Specialists	911 Stuyvesant Avenue	Irvington	NJ	07111
ACL Equipment Corporation	P.O. Box 620	Livingston	NJ	07039
Bee Bee Designs	1198 W. Mt. Pleasant Avenue	Livingston	NJ	07039
Burrelle's Press Clipping Service	75 East Northfield Road	Livingston	NJ	07039
Globe Industries Corporation	87 Dorsa Avenue	Livingston	NJ	07039
Inglemoor Care Center	311 South Livingston Avenue	Livingston	NJ	07039
Nettie Ochs Cider Mill	32 Old Short Hills Road	Livingston	NJ	07039
Sam-Mik Corp. t/a Circle Cleaners	291 North Mt. Pleasant Avenue	Livingston	NJ	07039
Spectrum Press Inc.	1 Naylon Place	Livingston	NJ	07039
Wigder Chevrolet Inc.	606 West Mt. Pleasant Avenue	Livingston	NJ	07039
CTB International Publishing, Inc.	1980 Springfield Avenue	Maplewood	NJ	07040
Carlson Gear Mfg.	25 Newark Way	Maplewood	NJ	07040
Garden State Gulf (Ira Tauman Inc)	2177 Millburn Avenue	Maplewood	NJ	07728
Kay Jeep	1633 Springfield Avenue	Maplewood	NJ	07040
Petillo's Shell	490 Valley Street	Maplewood	NJ	07040
S.S. Tool & Mfg. Co.	31-A Newark Way	Maplewood	NJ	07040
Vitiello Ice Company Inc.	1795 Springfield Avenue	Maplewood	NJ	07040
Brock Continental Pastry Shop, Inc.	44 Main Street	Millburn	NJ	07041
Ivy Cleaners, Ltd	509 Millburn Avenue	Millburn	NJ	07078
Millburn Precision Inc.	20 Mechanic Street	Millburn	NJ	07041
American Tank Service	103 Grove Street	Montclair	NJ	07042
Art Printing & Binding	197 Bellevue Avenue	Montclair	NJ	07043
Automotive Concepts Inc.	504 Valley Road	Montclair	NJ	07043
Bobbi Brown Professional Cosmetics, Inc.	49 Highland Avenue	Montclair	NJ	07042

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Rynderian Bros. Rugs	44 Valley Road	Montclair	NJ	07042
DeCamp Bus Lines	101 Greenwood Avenue, P.O. Box 581	Montclair	NJ	07042
F & P Cleaners, Inc.	123 Watchung Avenue	Montclair	NJ	07043
Joseph LaRiccia	100 Watchung Avenue	Montclair	NJ	07043
Kimberly Cleaners	154 Valley Road	Montclair	NJ	07042
Lytle Glassart	23 Church Street	Montclair	NJ	07042
Memorial Home for Women	185 Fernwood Avenue	Montclair	NJ	07043
Navta Associates	292 Bloomfield Avenue	Montclair	NJ	07042
Nicolo's Italian Bakery, Inc.	6 Baldwin Street	Montclair	NJ	07042
Pam Optical Co., Inc.	107 Park Street	Montclair	NJ	07042
Persia Oriental Rugs	500 Bloomfield Avenue	Montclair	NJ	07042
Reid's Interior Decorations & Upholstery	573 Bloomfield Avenue, P.O. Box 129	Montclair	NJ	07042
Rex Hide Automotive Products, Inc.	105 Grove Street	Montclair	NJ	07042
St. Vincent's Nursing Home	45 Elm Street	Montclair	NJ	07042
The Printers Place	20 Church Street	Montclair	NJ	07042
Z P King Printing & Copy Center	8 Church Street	Montclair	NJ	07042
A & L Dyers, Inc.	36 Seabury Street	Newark	NJ	07104
A. Fiore & Sons Recycling, Inc.	1230 McCarter Highway	Newark	NJ	07104
A. H. Harris & Sons Inc.	155 Manchester Place	Newark	NJ	07104
Abco Die Cutters Inc.	82 Clifford Street	Newark	NJ	07105
Accurate Set, Inc.	1199 Broad Street	Newark	NJ	07114
Active Printing Company	123 Delancy Street	Newark	NJ	07105
Advanced Enterprises Recycling Inc.	540 Doremus Avenue	Newark	NJ	07105
Air Conditioning Associated Co. Inc.	436 Ferry Street	Newark	NJ	07105
Air-Sea Forwarders Inc.	Cargo Bldg. 150, Nwk. Int'l Airport	Newark	NJ	07114
Allstates Air Cargo, Inc.	35 Fenwick Street	Newark	NJ	07114
Alto Printing Co.	186 Van Buren Street	Newark	NJ	07105
American Export Lines	169 Frelinghuysen Avenue	Newark	NJ	07114
Amrod Corporation	305 Craneway Street	Newark	NJ	07114
Anchor Rubber Stamp & Printing t/a Ace	14 East Park Street	Newark	NJ	07102-2198
Angelica Health Care Services Group	12 Clifton Street	Newark	NJ	07114
Arch Carburetor Inc.	583 Central Avenue	Newark	NJ	07107
Aro Uniform Supply	377 North Fifth Street	Newark	NJ	07407
Arrow Metal Fabricators, Inc.	191 Mt. Pleasant Avenue	Newark	NJ	07104
Arroyo Printing Inc.	39 Pacific Street	Newark	NJ	07105
Atco Products Inc.	189 Frelinghuysen Avenue	Newark	NJ	07114
Atlantic Coast Crushers	240 King Blvd.	Newark	NJ	07102

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Bacon Repair Garage, Inc.	82-88 Jay Street	Newark	NJ	07103
Bennett Heat Treating & Brazing Co., Inc.	690 Ferry Street	Newark	NJ	07105
Best Polishing & Plating Inc.	443 South 10th Street	Newark	NJ	07103
Betonia Mfg. Corporation	37 St. Charles Street	Newark	NJ	07105
Boyko Metal Finishing	85-87-89-100 Poinier Street	Newark	NJ	07114
Bristol Donald Co., Inc.	50 Roanok Avenue	Newark	NJ	07105
Brook Warehousing Corporation	515-481 Doremus Avenue	Newark	NJ	07101
Byrne Laboratories, Inc.	226 Sherman Avenue	Newark	NJ	07114
C R Fashions	407 Mulberry Street	Newark	NJ	07102
Calandra's Bakery, Inc.	204 First Avenue	Newark	NJ	07107
Caponano Sales Corporation	144 Emmet Street	Newark	NJ	07114
Carlon Auto Electric Inc.	370 South Street	Newark	NJ	07105
Carolina Freight Carriers Corp.	580 Delancy Street	Newark	NJ	07105
Celcor Products Inc.	29-75 Riverside Avenue	Newark	NJ	07104
Chemical Compounds Inc.	29-75 Riverside Avenue	Newark	NJ	07104
Chemplex Chemical c/o Clinton Univ. Whse.	258 Jelliff Avenue	Newark	NJ	07198
Claud's Cleaners	408 Chancellor Avenue	Newark	NJ	07112
Clinton Metal Fab. Corp.	9-15 Malvern Street	Newark	NJ	07105
Colon Plastics Corp.	42 Lafayette Street	Newark	NJ	07102
Cuke & Bolten Co.	42 Lafayette Street	Newark	NJ	07102
Dizzy's Garage	44 Elm Road	Newark	NJ	07105
E F Amoco, Inc.	312 Walnut Street	Newark	NJ	07105
E.B. Brown Inc.	425 Avenue "P"	Newark	NJ	07105
END Auto Salvage	125 Harper Street	Newark	NJ	07114
Fen Donoher & Co.	222 Verona Avenue	Newark	NJ	07104
Felta Engineering Co.	556 Ferry Street	Newark	NJ	07105
Fiamond Hard Chromium Co., Inc.	463 New Jersey Railroad Avenue	Newark	NJ	07114
Fiance Plants Inc.	811 Sanford Avenue	Newark	NJ	07106
Fiovani Inc.	84 Monroe Street	Newark	NJ	07105
Floor Openings Corp. of N.J.	357 Wilson Avenue	Newark	NJ	07105
FloRon Co. Inc.	238 Emmet Street	Newark	NJ	07114
FloRon Company, Inc.	238 Emmet Street	Newark	NJ	07114
FSI, Inc.	194 Avenue L	Newark	NJ	07105
Fastern Store Fixture Corp.	609 Central Avenue	Newark	NJ	07107
Fastern Warehouse	199 Panama Street	Newark	NJ	07114
Fectronic Mfg. Co.	670 South 17th Street	Newark	NJ	07103
Fluar Shell Inc.	646 Clifton Avenue	Newark	NJ	07104

Facility Name	Street	City	State	Zip
Ethical Products, Inc.	216 First Avenue	Newark	NJ	07017
Evo Air Van	Cargo Bldg. #150, Newark Int'l Airp	Newark	NJ	07114
Foya Enterprises Inc.	32 Seabury Street	Newark	NJ	07104
Frank Popolo Barrel Company, Inc.	16-18 Thornton Street	Newark	NJ	07105
G.J. Chemical Co., Inc.	128 Doremus Avenue	Newark	NJ	07105
George Ulanet Co.	413 Market Street	Newark	NJ	07105
Glikin Brothers Inc.	2 Joseph Street	Newark	NJ	07105
Globe Auto Repairs Inc.	581 North 3rd Street	Newark	NJ	07107
Gortron Corporation	457 Frelinghuysen Avenue	Newark	NJ	07114
H. Goldstein Leather Mfg.	470 Mulberry Street	Newark	NJ	07114
Haenssler Sheet Metal Works, Inc.	592 Hawthorne Avenue	Newark	NJ	07112
Herb Spring Company, Inc.	244 South Street	Newark	NJ	07114
Hercules Machine Shop	11 Tichenor Lane	Newark	NJ	07114
Hillside Paper Products	36 Van Vechten Street	Newark	NJ	07114
Hirsch & Moscowitz Corporation	435 Frelinghuysen Avenue	Newark	NJ	07114
Hydraulics Inc.	42 Lafayette Street	Newark	NJ	07102
Industrial Hard Chromium Co., Inc.	7 Rome Street	Newark	NJ	07105
International Testing Laboratories	580 Market Street	Newark	NJ	07105
Interstate Show Case & Store Fixture Co, Inc.	246-54 North 10th Street	Newark	NJ	07107
J & J Auto Service Center, Inc.	321 Adams Street	Newark	NJ	07105
J & J Metals Inc.	489 Frelinghuysen Avenue	Newark	NJ	07114
J A Fashions Inc.	31 Clover Street	Newark	NJ	07105
J. Sepenuk & Sons	21 Hyatt Avenue	Newark	NJ	07105
Jamrich Cleaners	130 South Street	Newark	NJ	07114
Jersey Industrial Fabricators, Inc.	120-132 Sixteenth Avenue	Newark	NJ	07103
Jesse's Auto Service	696 Bergen Street	Newark	NJ	07108
Johnson Forging Works Inc.	294-306 Thomas Street	Newark	NJ	07114
K.W. Paper	370 Orange Street	Newark	NJ	07107
Keith Industries, Inc.	248 Astor Street	Newark	NJ	07114
Koch Compressed Gases	433 Raymond Blvd.	Newark	NJ	07105
Kohler Delicatessen Meats Inc	170 Avenue L	Newark	NJ	07105
Krowne Metal Corporation	257 Verona Avenue	Newark	NJ	07104
L & P Road Service Repair	99 Lockwood Street	Newark	NJ	07105
LCI Industries	1448 McCarter Highway	Newark	NJ	07104
Lafayette Crane and Hoist Co., Inc.	182 Vanderpool Street	Newark	NJ	07114
Landew & Blume	190 Clifford Street	Newark	NJ	07105
Leachaco, Inc.	Hemisphere Center, Rts. 1&9 South	Newark	NJ	07114

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

cility Name	Street	City	State	Zip
pes Co.	304 Walnut Street	Newark	NJ	07105
ggage & Novelty Mfg. Co.	49 Halsey Street	Newark	NJ	07102
micolor Signs, Inc.	326 Bloomfield Avenue	Newark	NJ	07107
Eagles Tool Whse., Inc.	178 Sherman Avenue	Newark	NJ	07114
gruder Color Co., Inc. (Graphics Veh. Div.)	100 East Peddie Street	Newark	NJ	07114
nhatten Laundries Inc.	58 Gould Avenue	Newark	NJ	07107
ra Polishing & Plating Co.	105 West Peddie Street	Newark	NJ	07112
rit Railroad	645 McCarter Highway	Newark	NJ	07102
rit Raymond Blvd	897 Raymond Blvd.	Newark	NJ	07105
celli Motors Inc.	251 Malvern Street	Newark	NJ	07105
dtown Exxon	481 Central Avenue	Newark	NJ	07107
nsotia Fashions	104 Verona Avenue	Newark	NJ	07104
tional Water Main Cleaning Co.	875 Summer Avenue	Newark	NJ	07104
w Jersey Glass Co.	354 Park Avenue	Newark	NJ	07107
w Jersey Hardware Company	10 Bleeker Street	Newark	NJ	07102
wark Caster & Truck Corporation	355 Park Avenue	Newark	NJ	07107
wark Envelope Company, Inc.	100 Madison Street	Newark	NJ	07105
wark Tobacco & Candy Co., Inc.	488 South Orange Avenue	Newark	NJ	07103
wark Tool Corp.	44-48 Dickerson St.	Newark	NJ	07103
rth Jersey Auto Sales	346 Broadway	Newark	NJ	07104
.K. Auto Radiator	95 Poinier Street	Newark	NJ	07114
ympic Jr.	221 Berlin Street	Newark	NJ	07103
P S Services Inc.	27 Malvern Street	Newark	NJ	07105
Fernicola Inc.	257 Elm Street	Newark	NJ	07105
cific Cleaner's	26 Pacific Street	Newark	NJ	07105
rk Avenue Auto Repair, Inc.	106-108 Park Avenue	Newark	NJ	07105
rk Avenue Exxon	242 Park Avenue	Newark	NJ	07107
rdeco Displays Company	62 McWhorter Street	Newark	NJ	07105
tri Paint Co., Inc.	198 Pacific Street	Newark	NJ	07114
ating City Corporation	347 Ferry Street	Newark	NJ	07105
pular Motors, Inc.	6-7 Springfield Avenue	Newark	NJ	07103
ggy's Auto Sales	341-347 Elizabeth Avenue	Newark	NJ	07108
mbach Corporation	52 Vesey Street	Newark	NJ	07105
bot Tooling Corporation	199 2nd Street	Newark	NJ	07107
bson Bearing & Supply	165 Vanderpool Street	Newark	NJ	07114
ee Color, Inc.	170 Blanchard Street	Newark	NJ	07105
yal Products Co., Inc.	319 Chapman Street	Newark	NJ	07106

Facility Name	Street	City	State	Zip
Ru-Hel/Heltronics	9 Lincoln Park	Newark	NJ	07102
Rubel Ice Corporation	250 Badger Avenue	Newark	NJ	07108
S H P C Inc. dba Star Heel Plate. et al	187 Christie Street	Newark	NJ	07105
S.A. Leart Co.	358-62 Walnut Street	Newark	NJ	07105
Salton/Maxim Housewares Inc.	164 Delancy Street	Newark	NJ	07105
Sani Down Feather Corporation	646 Frelinghuysen Avenue	Newark	NJ	07114
Sisbarro Disposal Service Co. Inc.	247 Emmet Street	Newark	NJ	07114
Skidmore Rad	1133 McCarter Hwy	Newark	NJ	07102
Steel Door & Services	164 Pennington Street	Newark	NJ	07105
Superior Metal Products. Inc.	19 Liberty Street	Newark	NJ	07102
Supreme Heat Treating	8-12 Clifton Avenue	Newark	NJ	07103
Suprme Ink Co.. Inc.	65 McWhorter Street	Newark	NJ	07105
Technick Products Inc.	357 Wilson Avenue	Newark	NJ	07105
Thomas Popola & Sons Inc.	68-92 Delancy Street	Newark	NJ	07105
Thymer Industries	436 Ferry Street	Newark	NJ	07105
Timco Inc.	666 South 16th Street	Newark	NJ	07103
Unico Janitorial & Restaurant Supply	107 South Street	Newark	NJ	07114
United Label Corporation	65 Chambers Street	Newark	NJ	07105
United States Spray Finishing	70 Blanchard Street	Newark	NJ	07105
Veterans Cleaners	491 Clinton Avenue	Newark	NJ	07108
Victory Industrial Supply. Inc.	85 Chestnut Street	Newark	NJ	07105
Voyajer Transportation	474 Wilson Avenue	Newark	NJ	07105
Welding Rental & Repair	49-55 St. Charles Street	Newark	NJ	07105
Wiltel. Inc.	744 Broad Street. 3rd Floor	Newark	NJ	07102
Ad Comp Inc.	226 Washington Avenue	Nutley	NJ	07110
Air Compressor Technology. Inc.	243 Washington Avenue	Nutley	NJ	07110
Alyssa Creations t/a Sorice'	113-115 East Centre Street	Nutley	NJ	07110
Baum Draperies	666 Passaic Avenue	Nutley	NJ	07110
CD&P Health Products	113 East Centre Street	Nutley	NJ	07110
Direct Gravure Service. Inc.	11 Robert Street	Nutley	NJ	07110
East Nutley Garage	38 Washington Avenue	Nutley	NJ	07110
Exide Corporation	113 East Centre Street	Nutley	NJ	07110
H and E Products. Inc.	154 North Road	Nutley	NJ	07110
Nutley Lumber Company	263 Hillside Avenue	Nutley	NJ	07110
Security Defense Systems Corporation	139 Chestnut Street	Orange	NJ	07050
A & H Auto Repair	357 Columbia Street	Orange	NJ	07050
American Traffic & Street Co.	200 South Jefferson Street			

(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

cility Name	Street	City	State	Zip
hland Janitorial Supplies Inc.	166 Central Avenue	Orange	NJ	07050
nter Meat Packing Co.	32 South Center Street	Orange	NJ	07050
mid Corporation	50 South Center Street	Orange	NJ	07050
quelle's Bakery	501 Central Avenue	Orange	NJ	07050
spora Development Corporation	495 Mountain View Avenue	Orange	NJ	07050
lte Auto Body	17 South Jefferson Street	Orange	NJ	07050
al Engraving Co., Inc.	400 South Jefferson Street	Orange	NJ	07050
stant Printing	355 Main Street	Orange	NJ	07050
ritime Tankasystems Intl. Inc.	350 Scotland Road	Orange	NJ	07050
tro Panel Systems, Inc.	324 Washington Street	Orange	NJ	07050
nge Alden Fuel Company	50 South Essex Avenue	Orange	NJ	07050
ne Water Co (rental spaces)	179 Lincoln Avenue	Orange	NJ	07050
mare Jewelry & Setting Company, Inc.	348 Central Avenue	Orange	NJ	07050
rker Laboratories, Inc.	307 Washington Street	Orange	NJ	07050
emier Alum. Corp.	531 Freeman Street	Orange	NJ	07050
emen Tov Corporation	150 Oakwood Avenue	Orange	NJ	07050
burban Communications, Inc.	563 White Street	Orange	NJ	07050
nshine Container	461 Maryland Street	Orange	NJ	07050
F. Repro Inc.	33-37 North Day Street	Orange	NJ	07050
P	1 ADP Blvd.	Roseland	NJ	07068
meco, Inc.	P.O. Box 209	Verona	NJ	07044
rnic Safety Equipment Co. Inc.	724 Bloomfield Avenue	Verona	NJ	07044
lgrim Cleaners of Lee	299 Pompton Avenue	Verona	NJ	07044
llow Contracting	251 1/2 Grove Avenue	Verona	NJ	07044
stern Tool Warehouse Corp.	20 Fairfield Place	West Caldwell	NJ	07006
stra Inc.	10 York Avenue	West Caldwell	NJ	07006
ntgomery Engineering Company	241 Clinton Road	West Caldwell	NJ	07006
ique Landscaping	142 Westover Avenue	West Caldwell	NJ	07006
& F Electroplating Inc.	106 Ashland Avenue	West Orange	NJ	07052
& M Printing	161 Main Street	West Orange	NJ	07052
acon Press Inc.	268 South Valley Road	West Orange	NJ	07052
sign/Type Inc.	33 Ashland Avenue	West Orange	NJ	07052
ler & Company, Inc.	252 Main Street	West Orange	NJ	07052
nergized Chemicals Inc.	8 Marcella Avenue	West Orange	NJ	07052
rne Sales Co.	P.O. Box 114	West Orange	NJ	07052
red Smith Adhesives, Inc.	P.O. Box 159TCB, 35 Ashland Avenue	West Orange	NJ	07052-0159
rdin Company	595 Eagle Rock Avenue	West Orange	NJ	07052

CATEGORY 6 FACILITIES
(FACILITIES PROVIDING INSUFFICIENT INFORMATION)

Facility Name	Street	City	State	Zip
Gimmee Jimmy's Cookies	26A South Valley Road	West Orange	NJ	07052
Island Fashion Inc.	1-3 Charles Street	West Orange	NJ	07052
Pilgrim Printing Co., Inc.	46 Watson Avenue	West Orange	NJ	07052
Power Dynamics Inc.	59 Lakeside Avenue	West Orange	NJ	07052
Ram Machine Vision Inc.	41 Orange Heights Avenue	West Orange	NJ	07052
Suppression System Installers Inc.	P.O. Box 703 (WOB), 2 Cental Ave.	West Orange	NJ	07052
U.S. Plastic Pallets, Inc.	80 Main Street	West Orange	NJ	07052
Western Termite & Pest Control	614 Eagle Rock Avenue	West Orange	NJ	07052

CATEGORY 7 FACILITIES
(FACILITIES GENERATING ACCEPTABLE WASTE)

ility Name	Street	City	State	Zip
Wilson & Company, Inc.	46 Ralph Street	Belleville	NJ	07109
print, Inc.	4 Essex Street	Belleville	NJ	07109
& M Machine Co., Inc.	67-69 Greylock Avenue	Belleville	NJ	07109
isler Weidmann Co., Inc.	221-243 Cortlandt Street	Belleville	NJ	07109
rdonaro & Sons	69 Cortlandt Street	Belleville	NJ	07109
lor-Art Plastics Inc.	317 Cortlandt Street	Belleville	NJ	07109
rporate Communications Inc.	525 Washington Avenue	Belleville	NJ	07109
eative Commercial Printers	47 Montgomery Street	Belleville	NJ	07109
mark Tool & Mfg. Co.	75 Little Street	Belleville	NJ	07109
n's Drapery Mfg., Inc.	145 Heckel Street	Belleville	NJ	07109
gineered Magnetics Inc.	55 Stephens Street	Belleville	NJ	07109
am Rubber Fabricators, Inc.	740 Washington Avenue	Belleville	NJ	07109
llucci Motors Inc.	36 Washington Avenue	Belleville	NJ	07109
tterex Corporation	21 Joralemon Street	Belleville	NJ	07109
rdman Division	600 Cortlandt Street	Belleville	NJ	07109
lon Industries Inc.	681 Main Street	Belleville	NJ	07109
& G's Auto Inc.	510 Union Avenue	Belleville	NJ	07109
& P's One Hour Dry Cleaner	543 Washington Avenue	Belleville	NJ	07109
rry's Sunoco Station	100 Union Avenue	Belleville	NJ	07109
hn A. B. Greulich & Sons	307 Stephens Street	Belleville	NJ	07109
Mart 7177	371-411 Main Street	Belleville	NJ	07109
C Graphics Inc.	83 Roosevelt Avenue	Belleville	NJ	07109
netta Custom Interiors	152 Ralph Street	Belleville	NJ	07109
nsol Industries	140 Little Street	Belleville	NJ	07109
dern Millwork & Supply Company, Inc.	624 Washington Avenue	Belleville	NJ	07109
ark Avenue Cleaners	145 Newark Avenue	Belleville	NJ	07109
Betsy Auto Repair	504 Washington Avenue	Belleville	NJ	07109
squales Service Station	520 Joralemon Street	Belleville	NJ	07109
ayboy Neckwear (RLF)	343 B Cortlandt Street	Belleville	NJ	07109
ecision Specialties	120 Greylock Avenue	Belleville	NJ	07109
essure Controls, Inc.	406 Cortland Street	Belleville	NJ	07109-3204
d Diamond Co. t/a National Sportswear	368 Cortlandt Street	Belleville	NJ	07109
ngel Brothers Inc.	51 Montgomery Street	Belleville	NJ	07109
verside Body & Fender Works, Inc.	221 Valley Street	Belleville	NJ	07109
che Diagnostic Systems, Inc.	11 Franklin Avenue	Belleville	NJ	07109
tella Motors Sales & Serv., Inc t/a Capital	56 Hill Street	Belleville	NJ	07109
feguard Industrial Equipment Co., Inc.	27 Washington Avenue	Belleville	NJ	07109

Facility Name	Street	City	State	Zip
Serafino Printing Company	142 Ralph Street	Belleville	NJ	07109
Sun Glo Corporation	111 Heckel Street	Belleville	NJ	07109
Superior Press, Inc.	83 Roosevelt Avenue	Belleville	NJ	07109
Tapco Industries Inc.	51 Cortlandt Street	Belleville	NJ	07109
Vac-U-Max	37 Rutgers Street	Belleville	NJ	07109
Wallace and Tiernan Inc.	25 Main Street	Belleville	NJ	07109
Yerg Inc.	85 Washington Avenue	Belleville	NJ	07109
Accent Press Inc.	224 Broughton Avenue	Bloomfield	NJ	07003
Alco Machine & Tool Inc.	111 Orange Street	Bloomfield	NJ	07003
All Cleaners (Al's Dry Cleaners, Inc.)	1101 Broad Street	Bloomfield	NJ	07003
Annin & Co.	88 Llewellyn Avenue	Bloomfield	NJ	07003
Anthony & Sal Cleaners	46 Franklin Street	Bloomfield	NJ	07003-5712
Argonne Cleaners	182 Broad Street	Bloomfield	NJ	07003
Automated Processes, Inc.	33 Columbus Street	Bloomfield	NJ	07003
Baby Gold Jewelry Inc	5 Lawrence Street, Unit #14	Bloomfield	NJ	07003
Banks Bros. Corp.	24 Federal Plaza	Bloomfield	NJ	07003
Bloomfield Fuel Dist. Inc. t/a Watchung Shell	211 Watchung Avenue	Bloomfield	NJ	07003
Brookdale Park Cleaner	1294 Broad Street	Bloomfield	NJ	07003
Broughta Cleaners Inc.	125 Broughta Avenue	Bloomfield	NJ	07003
C & N Tooling and Grinding Inc.	2 Alva Street	Bloomfield	NJ	07003
Commercial Offset, Inc.	5 Lawrence Street-Bldg. 16	Bloomfield	NJ	07003
Complete Optical Laboratory Ltd.	1255 Broad Street	Bloomfield	NJ	07003
Creative Embroidery Corp.	211 Grove Street	Bloomfield	NJ	07003
Danco Manufacturing	88 Llewellyn Avenue	Bloomfield	NJ	07003
Diasyde Co.	5 Lawrence Street	Bloomfield	NJ	07003
Eliora Manufacturing Inc.	5 Lawrence Street	Bloomfield	NJ	07003
Eskimo Pie Corporation	118 J.K. Kennedy Drive, North	Bloomfield	NJ	07003
Eye Drx	1255 Broad Street	Bloomfield	NJ	07003
Fouth Edition Inc.	5 Lawrence Street	Bloomfield	NJ	07003
Franklin Shell Service Center	111 Franklin Street	Bloomfield	NJ	07003
Fusion Graphics	5 Lawrence Street	Bloomfield	NJ	07003
Garden State Woodworking Co., Inc.	344 Hoover Avenue	Bloomfield	NJ	07003
Halkias Gear & Machine Works Corporation	12 Willow Street	Bloomfield	NJ	07003
Hauck's Auto Repair	21 John Street	Bloomfield	NJ	07003
Home Dry Cleaning Service	142 Watessing Avenue	Bloomfield	NJ	07003
Intrafoil Inc.	225 Belleville Avenue	Bloomfield	NJ	07003
Jim's Super Service, Inc.	550 Broad Street	Bloomfield	NJ	07003

...ility Name	Street	City	State	Zip
...atine's Beauty Supply	14 Belleville Avenue	Bloomfield	NJ	07003
...uteman Press of Bloomfield	631 Bloomfield Avenue	Bloomfield	NJ	07003
...D. Fiorentino t/a AAMCO Transmissions	638-640 Bloomfield Avenue	Bloomfield	NJ	07003
...erless Tube Company	58-76 Locust Avenue	Bloomfield	NJ	07003
...ase II Graphics, Inc	130 JFK Drive North	Bloomfield	NJ	07003
...oil Holding Co., Inc.	120 Arlington Avenue	Bloomfield	NJ	07003
...lph's Auto Service Center Inc.	630 Bloomfield Avenue	Bloomfield	NJ	07003
...ndy Cleaners	874 Broad Street	Bloomfield	NJ	07003
...n Marco Inc.	4 Bloomfield Avenue	Bloomfield	NJ	07003
...obbs Printing Co., Inc.	18 Washington Street	Bloomfield	NJ	07003
...chno-Craft, Inc.	5 Lawrence Street, Bldg. 10	Bloomfield	NJ	07003
...n Rohr Equipment Corporation	13 Race Street	Bloomfield	NJ	07003
...rrall Comm. Nwsprs t/a The Independent Pres	266 Liberty Street, P.O. Box 110	Bloomfield	NJ	07003
...ller Studios, Inc.	265 Watsessing Avenue	Bloomfield	NJ	07003
...& C Auto Radiator Service	5 Central Avenue	Caldwell	NJ	07006
...eaumont Ent. t/a Copyrite Press	352 Bloomfield Avenue	Caldwell	NJ	07006
...slandra Printing Co.	491 Bloomfield Avenue	Caldwell	NJ	07006
...ersey Scales & Systems Inc.	19 Whitfield Street	Caldwell	NJ	07006
...& B Auto Service Inc.	7 Park Avenue	Caldwell	NJ	07006
...Jon Inc. t/a Do You Want To Dry Cleaner	155 Roseland Avenue	Caldwell	NJ	07006
...s Cleaners	463 Bloomfield Avenue	Caldwell	NJ	07006
...ilpage Medical	6 Provost Square	Caldwell	NJ	07006
...lto's Garage, Inc.	6 Park Avenue	Caldwell	NJ	07006
...l International Corp.	411 Pompton Avenue	Cedar Grove	NJ	07009
...ni & George Inc. dba Hillcrest Exxon	Pompton Turnpike & Myrtle Avenue	Cedar Grove	NJ	07009
...dda Auto Body, Inc.	1416 Route 23	Cedar Grove	NJ	07009
...edar Grove Cleaners	344 Pompton Avenue	Cedar Grove	NJ	07009
...edar Grove Service Center	666 Pompton Avenue	Cedar Grove	NJ	07009
...egree Day System, Inc.	33 Village Park Road	Cedar Grove	NJ	07009
...rove Precision Machine Co., Inc.	41 Bortic Road	Cedar Grove	NJ	07009
...ealthscan Products Inc.	908 Pompton Avenue	Cedar Grove	NJ	07009
...orowitz/Rae Book MFG.	282 Grove Avenue	Cedar Grove	NJ	07009
...mperial Machine & Tool Co.	Village Park Road	Cedar Grove	NJ	07009
...J Tool Corp.	36 Commerce Road	Cedar Grove	NJ	07009
...effrey A. Weisbecker	227 Little Falls Road	Cedar Grove	NJ	07009
...ny Cleaners	10 Bowden Road	Cedar Grove	NJ	07009
...ichael C. Ruggiero	18 The Fairway	Cedar Grove	NJ	07009

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Nifra, Inc. DBA Meineke Mufflers	270 Pompton Avenue	Cedar Grove	NJ	07009
North Jersey Diamond Wheel	218 Little Falls Road	Cedar Grove	NJ	07009
Old Deerfield Fabrics, Inc.	99 Commerce Road	Cedar Grove	NJ	07009
Omnia Industries, Inc.	5 Cliffside Drive, P.O. Box 330	Cedar Grove	NJ	07009
P.H. Industrial Supply, Inc.	220 Little Falls Road, Unit #5	Cedar Grove	NJ	07009
Phoenix Industries	P.O. Box 38, 371 Little Falls Rd.	Cedar Grove	NJ	07009
Printers Ink Corporation	615 Pompton Avenue	Cedar Grove	NJ	07009
Servometer Corporation	501 Little Falls Road	Cedar Grove	NJ	07009
Turning Point, Inc.	125 Fairview Avenue	Cedar Grove	NJ	07044
Unit Pack Co., Inc.	7 Lewis Road	Cedar Grove	NJ	07009
Waterview Nursing Center	536 Ridge Road	Cedar Grove	NJ	07009
A & L Renna Inc.	66 North Park Street	East Orange	NJ	07017
Advocate Publishing	37 Evergreen Place	East Orange	NJ	07018
Akar Automotive, Inc.	855 South Orange Avenue	East Orange	NJ	07018
C. Egan & Sons	102 Fair Street	East Orange	NJ	07017
Carriage Cleaners	27 N. Arlington Avenue	East Orange	NJ	07017
Chanin Cleaners	392 M.L. King Blvd.	East Orange	NJ	07018
Crown Industries	155 North Park Street	East Orange	NJ	07017
Direct Environmental	290 Sanford Street	East Orange	NJ	07018
Disbrow Manufacturing Company, Inc.	181 South 18th Street	East Orange	NJ	07019
East Orange Bakery	236 Tremont Avenue	East Orange	NJ	07018
Floridian Cleaners, Inc.	68 City Hall Plaza	East Orange	NJ	07017
Fresh As A Daisy	583 Central Avenue	East Orange	NJ	07018
Gilt-Edge Folding Box Company, Inc.	181 South 18th Street	East Orange	NJ	07019
Govi Madison Company	5 Whittlesey Avenue	East Orange	NJ	07018
Hospi-Tel MFG. Co.	545 N. Arlington Ave, P.O. Box 1420	East Orange	NJ	07017
Model Auto Sales	47 Central Avenue	East Orange	NJ	07015
North Jersey Blood Center	45 South Grove Street	East Orange	NJ	07018
Parkway Manor Health Center	480 Parkway Drive	East Orange	NJ	07017
Pollaro Custom Furniture	356 Glenwood Avenue	East Orange	NJ	07017
Prestige Cleaners	16 Lincoln Street	East Orange	NJ	07017
Printing Delite, Inc.	279 Sanford Street	East Orange	NJ	07018
Q.V.S. Inc.	20 North 15th Street	East Orange	NJ	07017
Ram Brothers Automotive Service	221 Central Avenue	East Orange	NJ	07109
Robert Warren Inc.	129 Evergreen Place	East Orange	NJ	07018
Style Cleaners Inc.	228 Springdale Avenue	East Orange	NJ	07017
T.E.R. Works Laboratory, Inc.	364 Glenwood Avenue	East Orange	NJ	07017

CATEGORY 7 FACILITIES
(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
oung's Cleaners	961 South Orange Avenue	East Orange	NJ	07018
. B Scantlebury	323 Passaic Avenue	Fairfield	NJ	07006
-1 Screen Printing Inc.	4 Gardner Road	Fairfield	NJ	07004
. Abcal Inc.	36 Montesano Road	Fairfield	NJ	07004
. Horowitz & Sons	300 Fairfield Road	Fairfield	NJ	07004
ARCS Fabricators, Inc.	21 Passaic Avenue	Fairfield	NJ	07004
AWD Technologies, Inc.	710 Route 46 East, Ste 401	Fairfield	NJ	07004
Abbott Laboratories, Home Infusion Services	97B Fairfield Road	Fairfield	NJ	07004
Abu-Garcia Inc.	21 Law Drive	Fairfield	NJ	07004
Advance Fiber Technologies Corporation	15 Industrial Road	Fairfield	NJ	07004
Advanced Fastner Industries Inc.	311 Route 46 West	Fairfield	NJ	07004
Amerex Corp.	29 Dwight Place	Fairfield	NJ	07004
American Fuji Seal Inc.	17 Stewart Place	Fairfield	NJ	07004
Amerlux Inc.	23 Daniel Road	Fairfield	NJ	07004
Anderson & Vreeland Inc.	8 Evans Street	Fairfield	NJ	07006
B & E Chemical Company, sub. of Horton Intn'l	26 Daniel Road West	Fairfield	NJ	07006
B. T. G. Associates Inc dba Harvell Packaging	490 Route 46 East	Fairfield	NJ	07004
Banyan Communications Group Inc.	383 Route 46 West	Fairfield	NJ	07004
Bare Beyond Comparison	111 Clinton Road	Fairfield	NJ	07004
Beat Brands, Inc.	373 Rt. 46 West Bldg D	Fairfield	NJ	07004
Biltrite Tool & Die Co. Inc.	29 Montesano Road	Fairfield	NJ	07004
Browning-Ferris Industries of North Jersey	54 Montesano Road	Fairfield	NJ	07004
Brush Wellman Inc.	180 Passaic Avenue	Fairfield	NJ	07004
Bull World-Wide Info Services	264 Passaic Avenue	Fairfield	NJ	07004
C&W Aero Services	125 Passaic Avenue	Fairfield	NJ	07004
Carewell Ind. Inc.	333B Route 46 West	Fairfield	NJ	07004
Celloglas Tri-State, Inc.	6 Evans Street	Fairfield	NJ	07004
Central Letter Shop Inc.	310 Fairfield Road	Fairfield	NJ	07004
Ceramic Magnetics	16 Law Drive	Fairfield	NJ	07004
Clairidge Sign Company	347 Fairfield Road	Fairfield	NJ	07040
Collision Restoration	111 Clinton Road	Fairfield	NJ	07006
Commercial Computer Services, Inc.	4 Sperry Road	Fairfield	NJ	07004
Constant Service, Inc.	17 Commerce Street	Fairfield	NJ	07004-1621
Contact Electronics, Inc.	30 Plymouth Street	Fairfield	NJ	07004
Continous Forms Inc.	23 6 Commerce Road	Fairfield	NJ	07004
Crown Plaza	461 Route 46	Fairfield	NJ	07004
Daltex Medical Sciences, Inc.	50 Kullick Road	Fairfield	NJ	07004

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Ed-Mar Ind. Inc.	11 Ray Place	Fairfield	NJ	07004
Elvetta Products Co., Inc.	330 Fairfield Road	Fairfield	NJ	07004-1998
Entran Devices, Inc.	10 Washington Avenue	Fairfield	NJ	07004
FLH Graphics	123 Lehigh Drive	Fairfield	NJ	07006
Fairfield BP Service Station	6 Rt 46 East	Fairfield	NJ	07006
Fairfield Filter Corporation	1275 Bloomfield Avenue	Fairfield	NJ	07004
Fairfield Laundry Machinery Corporation	5 Montesano Road	Fairfield	NJ	07004
Fairfield Textile Corporation	55 Passaic Avenue	Fairfield	NJ	07004
Fordham Felt Works, Inc.	10 Audrey Place	Fairfield	NJ	07004
Foremost Machine Builders Inc.	23 Spielman Road	Fairfield	NJ	07004
Foto Chemical Systems Inc.	3 Lincoln Drive	Fairfield	NJ	07004
Fujirebio America Inc.	30 Two Bridges Road, Suite 250	Fairfield	NJ	07004
Globe Motor Car Company	1230 Bloomfield Avenue	Fairfield	NJ	07004
Goulds Pumps Inc.	22 Madison Road	Fairfield	NJ	07004
Gramercy Mills Inc.	39 Plymouth Street	Fairfield	NJ	07004
Hampton Products Corp.	40 Pier Lane West	Fairfield	NJ	07004
Hermes Machine Tool Co., Inc.	5 Gardner Road	Fairfield	NJ	07004
High Point Tool Company, Inc.	15 Spielman Road	Fairfield	NJ	07004
ITI Electronics, Inc.	12 Kylick Road	Fairfield	NJ	07004
Industrial Brush Company	105 Clinton Road, P.O. Box 869	Fairfield	NJ	07007
Ingersoll-Dresser Pump Company	142 Clinton Road	Fairfield	NJ	07004
Inaty Prints	15 Gloria Lane	Fairfield	NJ	07004
International Proteins Corporation	25 Just Road	Fairfield	NJ	07006
Invamed Inc.	12 Dwight Place	Fairfield	NJ	07004
Jay Plastics Inc.	54 Clinton Road	Fairfield	NJ	07004
K & N Nameplate Inc.	198 Passaic Avenue	Fairfield	NJ	07004
Lakeville Laminating Corporation	70 Clinton Road	Fairfield	NJ	07004
Materials Expertise, Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
Metromatic Industries Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
Microband Wireless Cable	286 Eldridge Road	Fairfield	NJ	07004
Modern Precision Company	5 Ray Place	Fairfield	NJ	07004
Monarch Tool and Manufacturing Company	66 Clinton Road	Fairfield	NJ	07004
Monsen Engineering Company	6 Daniel Road East	Fairfield	NJ	07004
Nesor Alloy Corporation	80 Little Falls Road	Fairfield	NJ	07004
New Age Metal	120 Commerce Road	Fairfield	NJ	07936
Ogden Projects, Inc.	40 Lane Road	Fairfield	NJ	07007
Pafra, Inc.	260 Rt 46 East	Fairfield	NJ	07004

Facility Name	Street	City	State	Zip
Ar Code Symbology, Inc.	1275 Bloomfield Avenue	Fairfield	NJ	07004
Aramount Machine & Tool Corporation	18 Spielman Road	Fairfield	NJ	07004
Proteins Plus, Inc.	4 Madison Road	Fairfield	NJ	07006
Quartz Radiation Corporation	40 Pier Lane West	Fairfield	NJ	07004
R & F Alloy Wires, Inc.	P.O. Box 10003, 125 New Dutch Lane	Fairfield	NJ	07004
R & L Sheet Metal Company	3 Kulick Road	Fairfield	NJ	07004
R. H Graphics Inc.	16 Spielman Road	Fairfield	NJ	07004
Ralston's Inc.	245 Route 46	Fairfield	NJ	07004
Repromatic Printing Co., Inc.	32 Pier Lane West	Fairfield	NJ	07004
Republic Tool & Mfg. Co.	297 A Passaic Avenue	Fairfield	NJ	07004
Rudolph Instruments, Inc.	40 Pier Lane	Fairfield	NJ	07004
Sames Service Station	#7 Route 46 West	Fairfield	NJ	07004
Sanford Levine & Sons Package Corporation	400 Route 46 East	Fairfield	NJ	07004
Scripto Machine Tool Corporation	7 Kulick Road	Fairfield	NJ	07004
Shercon Inc.	1275 Bloomfield Avenue, Bldg 5-298	Fairfield	NJ	07004
Siam Enterprises Inc.	25 Law Drive	Fairfield	NJ	07004
Solbern Division of Howden Food Equip., Inc.	8 Kulick Road	Fairfield	NJ	07004-3385
Solkatronic Chemicals	Suite 210, 30 Two Bridges Road	Fairfield	NJ	08004-1530
Sylio-Tech Inc.	24 Kulick Road	Fairfield	NJ	07004
Symons Corporation	160 Fairfield Road	Fairfield	NJ	07004
The Beckley Press	2 Sperry Road	Fairfield	NJ	07004-2056
Thunderbird Label	1275 Bloomfield Avenue	Fairfield	NJ	07004
Titanium Industries	110 Lehigh Drive	Fairfield	NJ	07004-3044
Unigene Laboratories, Inc.	110 Little Falls Road	Fairfield	NJ	07004
Unimatic Manufacturing Corporation	25 Sherwood Lane	Fairfield	NJ	07004
Vinyl Services Inc.	17 Commerce Road	Fairfield	NJ	07004
Viva Optique, Inc.	11 Stewart Place	Fairfield	NJ	07006
W.R. Chesnut Engineering, Inc.	14 Spielman Road	Fairfield	NJ	07004-3495
Waveline Inc.	160 Passaic Avenue	Fairfield	NJ	07004
Wilmington Paper Corporation	333 Fairfield Road	Fairfield	NJ	07004
Wire Fabricators And Insulators, Inc.	21 Audrey Place	Fairfield	NJ	07004
Yelof Corp. T/A Foley Metal Finishing	40 Pier Lane West	Fairfield	NJ	07004
Admiral Wine & Liquor Company	603 S. 21st Street	Irvington	NJ	07111
American Aluminum Casting Co.	324 Coit Street	Irvington	NJ	07111
Arnold Furniture Mfrs., Inc.	400 Coit Street	Irvington	NJ	07111
Arnold Geisler Furniture Fabricators, Inc.	609 Chancellor Avenue	Irvington	NJ	07111
Arnold Reception Desks, Inc.	120 Coit Street	Irvington	NJ	07111

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Arnold Specialties, Inc.	120 Colt Street	Irvington	NJ	07111
Brandt Box & Paper Co., Inc.	487 Lyons Avenue	Irvington	NJ	07111
Craig Manufacturing/Dubov Agents, Inc.	30 Loretto Street	Irvington	NJ	07111
Creative Printing	1153 Stuyvesant Avenue	Irvington	NJ	07111
Crest Cleaners	34 Mill Road	Irvington	NJ	07111
Delen's Amoco Service Inc.	45 Union Avenue	Irvington	NJ	07111
Electromech, Inc.	2 Cordier Street	Irvington	NJ	07111
Gordon Fergusson Interior Decorating Services	1207 Springfield Avenue	Irvington	NJ	07111
Ideal Tool & Mfg. Co., Inc.	32 Paine Avenue	Irvington	NJ	07111
Industrial Poly Mfg.	344 Nye Avenue	Irvington	NJ	07111
Industrial Retaining Ring Co.	57 Cordier Street	Irvington	NJ	07111
Irvington General Hospital	832 Chancellor Avenue	Irvington	NJ	07111
J & N Automotive, Inc.	765 Springfield Avenue	Irvington	NJ	07111
Jay's Service Station	558 Chancellor Avenue	Irvington	NJ	07111
Jesse Heap & Son	576 South 21st Street	Irvington	NJ	07111
Kim's Cleaners, Inc.	1104 Springfield Avenue	Irvington	NJ	07111
Kromica Inc.	495 Lyons Avenue	Irvington	NJ	07111
Maple Auto Supply, Inc.	919 Stuyvesant Avenue	Irvington	NJ	07111
Morris Tabakin & Sons, Inc.	74-84 Cordier Street	Irvington	NJ	07111
National Paint Products Co., Inc.	500 Chancellor Avenue	Irvington	NJ	07111
New Jersey Bell Telephone Company	900 Clinton Avenue	Irvington	NJ	07111
Norge Village of Irvington	38 Mill Road	Irvington	NJ	07111
PADIS, Inc.	34 Tremont Terrace	Irvington	NJ	07111
Parnes Cleaners Inc.	708 Chancellor Avenue	Irvington	NJ	07111
Peoples Auto Sales Inc.	177 Springfield Avenue	Irvington	NJ	07111
Sal's Cleaners	50 Grace Street	Irvington	NJ	07111
Sasson's Youthworld, Inc.	1001 Springfield Avenue	Irvington	NJ	07111
Smart Cleaners	566 Chancellor Avenue	Irvington	NJ	07111
Star Tobacco Company	780 Christopher Avenue	Irvington	NJ	07111
Steiner Paper Corporation	145 40 Street	Irvington	NJ	07111
T & P Auto Body, Inc.	153 Chestnut Avenue	Irvington	NJ	07111
Torelco	14 Paine Avenue	Irvington	NJ	07111
U.S. Mattress Corporation	84 Colt Street	Irvington	NJ	07111
WECK	700 South 21st Street	Irvington	NJ	07111
Wheeler Industrial Corporation	485 Lyons Avenue	Irvington	NJ	07111
Zins Manufacturing Co., Inc.	26 Paine Avenue	Irvington	NJ	07111
4 Car Corp/ t/a Livingston/Short Hills Exxon	649 South Orange Avenue	Livingston	NJ	07039

(FACILITIES GENERATING ACCEPTABLE WASTE)

acility Name	Street	City	State	Zip
)lison Corporation	630 West Mt. Pleasant Avenue	Livingston	NJ	07039
alan Advertising Specialties Inc.	21 Tuxedo Drive	Livingston	NJ	07039
ell Communications Research, Inc.	290 West Mt Pleasant Ave.	Livingston	NJ	07039
ountry Service Center, Inc.	222 North Livingston Avenue	Livingston	NJ	07039
avid Krause Associates	115 Naylon Avenue	Livingston	NJ	07039
elia's Cleaner's	487 South Livingston Avenue	Livingston	NJ	07039
imensional Merchandising, Inc.	120 Dorsa Avenue	Livingston	NJ	07039
ast Cedar Service Center, Inc.	327 East Northfield Road	Livingston	NJ	07039
rnst Gage Co.	250 South Livingston Avenue	Livingston	NJ	07039
ormosa Plastics Corporation, U.S.A.	9 Peach Tree Hill Road	Livingston	NJ	07039
ranklin Miller Inc. & Esquip Corp.	60 Okner Parkway	Livingston	NJ	07039
ammill & Gillespie Inc.	154 South Livingston Avenue	Livingston	NJ	07039
nterborn Systems	651 West Mt. Pleasant Avenue	Livingston	NJ	07039
nvitations Et Cetera, Inc.	129 South Livingston Avenue	Livingston	NJ	07039
obe Sales Co., Inc.	2 Locust Place	Livingston	NJ	07039
oanell Laboratories, Inc.	102 Dorsa Avenue	Livingston	NJ	07039
eness Corp./Things of Beauty	19 West Mt. Pleasant Avenue	Livingston	NJ	07039
t. Pleasant Exxon	38 E. Mt. Pleasant Avenue	Livingston	NJ	07039
orth Hill Exxon t/a North Hill Service Inc.	228 W. Northfield Road	Livingston	NJ	07039
orth Hills Cleaners	380 East Northfield Road	Livingston	NJ	07039
ilgrim Landscaping	16 Baldwin Terrace	Livingston	NJ	07039
omeroy's Garage Inc.	18 W. Cedar Street	Livingston	NJ	07039
oseville Tool & Mfg. Corp.	22 Okner Parkway	Livingston	NJ	07039
aint Barnabas Medical Center	Old Short Hills Road	Livingston	NJ	07039
harmlyn, Inc. t/a Zahn Brothers Cleaners	603 South Livingston Avenue	Livingston	NJ	07039
unshine Biscuits, Inc.	16 Micro Lab Road, P.O. Box 96	Livingston	NJ	07039
he CIT Group	650 CIT Drive	Livingston	NJ	07039
andel & Goltermann	293 Eisenhower Parkway, Suite 120	Livingston	NJ	07039
iker Tool Company	230 Tuscan Road	Maplewood	NJ	07040
arrasso & Biasi Inc.	1581 Springfield Avenue	Maplewood	NJ	07040
irdlow Associates, Inc.	1877 Springfield Avenue	Maplewood	NJ	07040
usiness Card Factory	1799A Springfield Avenue	Maplewood	NJ	07040
ommunity Auto Repair Service	14 Newark Way	Maplewood	NJ	07040
rame Art, Inc/ Robert Hutchins Gallery	179 Maplewood Avennue	Maplewood	NJ	08040
oetz & Ruschmann	97 Newark Way	Maplewood	NJ	07040
aplewood Cleaners and Dyers, Inc.	97 Baker Street	Maplewood	NJ	07040
ark & Harolds Dry Cleaners	183 Maplewood Avenue	Maplewood	NJ	07040

Facility Name	Street	City	State	Zip
Model Auto Body	2151 Millburn Avenue	Maplewood	NJ	07040
Perfect Powertrain, Inc.	1796 Springfield Avenue	Maplewood	NJ	07040
Restaurant Graphics	67 Newark Way	Maplewood	NJ	07040
Sayle & Wimmer Printing	1729 Springfield Avenue	Maplewood	NJ	07040
Smart Cleaners, Inc. t/a Gleason's Launders &	7-11 West Parker Avenue	Maplewood	NJ	07040
Worrall Comm. Nwsprs., Inc t/a News-Record	463 Valley Street, P.O. Box 158	Maplewood	NJ	07040
Young's Auto Body	15 Newark Way	Maplewood	NJ	07040
Adsorption Systems, Inc.	10 East Willow Street - Suite 3	Millburn	NJ	07041
Apet Inc. t/a/ Millburn Corner Exxon	132 Millburn Avenue	Millburn	NJ	07041
CHH Corporation t/a Millburn Press	20 Main Street	Millburn	NJ	07041
Halpert & Company	284 Millburn Avenue	Millburn	NJ	07041
Jolen Engineering & Machine	51 Silver Spring Road	Millburn	NJ	07078
Lasky Co.	67 East Willow Street	Millburn	NJ	07041
M.J. Powers & Co. Publishers, Inc.	374 Millburn Avenue	Millburn	NJ	07041
Millburn Feed Co., Inc.	378 Millburn Avenue	Millburn	NJ	07041
Monterey Cleaners & Tailors, Inc.	569 Millburn Avenue	Millburn	NJ	07078
New Wyoming Cleaners	223 Millburn Avenue	Millburn	NJ	07041
Short Hills Caterers	610 Morris Avenue	Millburn	NJ	07078
The Office Center At Short Hills	51 JFK Parkway	Millburn	NJ	07078
Tri Line Inc.	587 Millburn Avenue	Millburn	NJ	07078
525 Valley Corp. t/a Autoworks of Upper Mtclr	525 Valley Road	Montclair	NJ	07043
Abbasi Corp. t/a Montclair Exxon	264 Bloomfield Avenue	Montclair	NJ	07042
Action Copy Center Inc., dba Budget Prnt Cent	571 Valley Road	Montclair	NJ	07043
All-Pro-Cleaners Inc.	121 Grove Street	Montclair	NJ	07042
Alliance Copy and Engraving Company	23D Bloomfield Avenue	Montclair	NJ	07042
Arts Weekly Inc.	7 Oak Place	Montclair	NJ	07042
Bellevue Esso Servicenter	198 Bellevue Avenue	Montclair	NJ	07043
Budde & Westermann	151 Forest Street	Montclair	NJ	07042
Carl Zimmerman & Co, Inc.	98 Watchung Avenue	Montclair	NJ	07043
Chr-Ill Service	60 South Fullerton Avenue	Montclair	NJ	07042
Daviet Motor Works	Glenwood Place Laurel Plaza	Montclair	NJ	07043
Drilling & Fastening Systems, Inc.	222 Bloomfield Avenue	Montclair	NJ	07042
Exclusive Motorcars, Inc.	256 Park Street	Montclair	NJ	07043
Fabricville	122 Watchung Avenue	Montclair	NJ	07043
Farmat Inc.	33 Orange Road	Montclair	NJ	07042
Fenelon Auto Repair	148 Valley Road	Montclair	NJ	07042
Ferrara's Auto Body, Inc.	37 Orange Road1	Montclair	NJ	07042

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
tand Auto Service Association L.P.	694 Bloomfield Avenue	Montclair	NJ	07042
ampton House Inc.	467 Bloomfield Avenue	Montclair	NJ	07042
offmann's Foreign Auto	4 Erie Street	Montclair	NJ	07042
tton Park Associates	176 Midland Avenue	Montclair	NJ	07042
ittle Nursing Home	71 Christopher Street	Montclair	NJ	07042
omar Instrument Co., Inc.	222 Grove Street	Montclair	NJ	07042
ancini A/B	57 Valley Road	Montclair	NJ	07042
oline Kronberg Cleaners	225 Lorraine Avenue	Montclair	NJ	07043
ontclair Glass Company	24 E. Elm Street, P.O. Box 132	Montclair	NJ	07042
apoli's Garage, Inc.	95 Forest Street	Montclair	NJ	07402
ational Cleaners	133 Grove Street	Montclair	NJ	07042
ilgrim Medical Center, Inc.	393 Bloomfield Avenue	Montclair	NJ	07042
matics & Computer Inc.	484 Bloomfield Avenue, Suite 11	Montclair	NJ	07042
ortfolio Graphics, Inc.	478 Bloomfield Avenue	Montclair	NJ	07042
uente-Romer Communications Inc.	511 Bloomfield Avenue	Montclair	NJ	07042
am's Garage	118 Watchung Avenue	Montclair	NJ	07043
chait & Son	199 Bellevue Avenue	Montclair	NJ	07043
terling Net Co., Inc.	18 Label Street	Montclair	NJ	07042
uburban Transmissions	10 Lackawanna Plaza	Montclair	NJ	07042
echnopulp Inc.	26 Park Street	Montclair	NJ	07042
he Computer Press	157 Watchung Avenue	Montclair	NJ	07043
alley Fabrics and Drapery	130 Valley Road	Montclair	NJ	07042
an Dyk Manor Nursing Home	42 North Mountain Avenue	Montclair	NJ	07042
45 14th Ave. Corporation	245 14th Avenue	Newark	NJ	07103
& S Atterman, Inc.	357 Wilson Avenue	Newark	NJ	07105-4280
F A Pallet Company	514 Doremus Avenue	Newark	NJ	07105
L M Corporation	2-18 Mott Street	Newark	NJ	07105
.J. Uadan Paper Company	9 Lorotto Street	Newark	NJ	07112
AA Air Freight	145-161 Pennington St.P.O. Box 2409	Newark	NJ	07105
ROL	649 Ferry Street	Newark	NJ	07105
ce Tool And Manufacturing Company, Inc.	532 Mulberry Street	Newark	NJ	07114
cecn Industrial Packaging Co.	166 Frelinghuysen Avenue	Newark	NJ	07114
dco Chemical Company	49 Rutherford St., P.O. Box 128	Newark	NJ	07101
lban G. Wilson Inc.	226 South Orange Avenue	Newark	NJ	07103
llied Die Cutting and Finishing	226 Mt. Pleasant Avenue	Newark	NJ	07104
loris Converters, Inc.	205 Thomas Street	Newark	NJ	07114
ltex Fabrics Cutting Co., Inc.	310 Sherman Avenue	Newark	NJ	07114

Facility Name	Street	City	State	Zip
Amable R Auto Repair & Body Shop, Inc.	904-906 South Orange Avenue	Newark	NJ	07106
American Mattress Co., Inc.	132 Pacific Street	Newark	NJ	07105
American Textile Company	73 Vesey Street	Newark	NJ	07105
Amerimade Coat Co., Inc.	56-62 St. Francis Street	Newark	NJ	07105
Anheuseur-Busch, Inc.	200 U.S. Highway No. One	Newark	NJ	07101
Anodizing Corporation	139 Avenue "L"	Newark	NJ	07105
Anthony's Auto Service	643-45 North 6th Street	Newark	NJ	07107
Apollo Warehouse	100 Johnson Street	Newark	NJ	07105
Arch Crown Inc.	277 Halsey Street	Newark	NJ	07102
Ardmore Chemical Co., Inc.	29 Riverside Avenue, Bldg. #14	Newark	NJ	07104
Aris Fashions	133 Kossuth Street	Newark	NJ	07105
Ashton Food Machinery Co., Inc.	1455 McCarter Highway	Newark	NJ	07104
Atlantic Bias Products Inc.	702 Frelinghuysen Avenue	Newark	NJ	07114
Avittac Inc.	133 Kossuth Street	Newark	NJ	07105
BUSA Corporation	49 Halsey Street	Newark	NJ	07102
Bahama Tires, Inc.	591 South Orange Avenue	Newark	NJ	07106
Baker Adhesives, Inc.	152-158 Mount Pleasant Avenue	Newark	NJ	07104
Behringer Metal Works, Inc.	108 Jabez Street	Newark	NJ	07105
Bel-Air Mach. Prods. Co., Inc.	251 N.J. Railroad Avenue	Newark	NJ	07105
Benjamin's Garage Inc.	354 Avon Avenue	Newark	NJ	07108
Bill's Service Station	753 Sanford Avenue	Newark	NJ	07106
Bobker Bearing Company	248 Central Avenue	Newark	NJ	07103
Branch Brook	223 Bloomfield Avenue	Newark	NJ	07104
Branch Brook Co.	223 Bloomfield Avenue	Newark	NJ	07104
Branford Press	21 William Street	Newark	NJ	07102
Brownies Auto Electric	250 McWhorter Street	Newark	NJ	07105
Bukowiec's Meat Products, Inc.	23 Newark Farmers Market	Newark	NJ	07105
CWC Industries, Inc.	185 Foundry Street	Newark	NJ	07105
Caledonia Knitwear	200 Badger Avenue	Newark	NJ	07108
Carbureator Exchange	294 Central Avenue	Newark	NJ	07103
Central Paper Company	60 McClellan Street	Newark	NJ	07114
Cheker Stamping	56-58 Elm Street	Newark	NJ	07105
Chriswick Electric Co., Inc.	570 Irving Turner Blvd.	Newark	NJ	07112
Citibag, Inc.	768 Frelinghuysen Ave.	Newark	NJ	07114
City Auto Supply	145 Frelinghuysen Avenue	Newark	NJ	07114
Coastal Manufacturing Corporation	117 Sylvan Avenue	Newark	NJ	07104
Commercial Plastics	127 Frelinghuysen Avenue	Newark	NJ	07114

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Hokkaon Pigments, Inc.	256 Vanderpool Street	Newark	NJ	07114
Country Workshop	95 Rome Street	Newark	NJ	07105
Duval Corporation	252 Wright Street	Newark	NJ	07114
Creation By Serratelli	418-26 Central Avenue	Newark	NJ	07107
Curly Candy Fashions Inc.	66 Elm Street	Newark	NJ	07105
D.E. Paglia & Sons Corp.	105 Chestnut Street	Newark	NJ	07105
Dana Knitting Corporation	817 Broadway	Newark	NJ	07104
Del Turco Bros., Inc.	25 Verona Avenue	Newark	NJ	07104
Delta Plastics, Inc.	560 Ferry Street	Newark	NJ	07105
Dennis Public Garage	280 Elizabeth Avenue	Newark	NJ	07108
Diamond Case Co., Inc.	15-19 Union Street	Newark	NJ	07105
Distributors Recycling, Inc.	104 East Peddie Street	Newark	NJ	07114
Donna Export Co., Inc.	215 East Kinney Street	Newark	NJ	07105
Dor Zar Corporation	50 Avenue L	Newark	NJ	07105
Dynamic Die Cutting & Finishing Corporation	110 South Street	Newark	NJ	07114
E. Franklin & Sons	685 South 12th Street	Newark	NJ	07103
E.J. Brooks Co.	164-192 North 13th Street	Newark	NJ	07107
Earle C. Schreiber, Inc.	1180 Raymond Blvd., Suite 3405	Newark	NJ	07102
East Coast Core Exchange Inc.	50 Grafton Avenue	Newark	NJ	07104
Eastern Farmers Pkg. Co.	92 Albert Avenue	Newark	NJ	07105
Eddie's Auto Service Center	46 New York Avenue	Newark	NJ	07105
Edward Blazak Mfg. Co.	117 Sylvan Avenue	Newark	NJ	07104
Elite Worldwide	220 Murray Street	Newark	NJ	07114
Elsa Furs Inc.	133 Kossuth Street	Newark	NJ	07105
Embroidery Concept & Design	461 Frelinghuysen Avenue	Newark	NJ	07119
Epolin Inc.	358-364 Adams Street	Newark	NJ	07105
F. W. Woolworth	165 Market Street	Newark	NJ	07102
Fairmount Chemical Company	117 Blanchard Street	Newark	NJ	07105
Fast-Pak Containter Corporation	319 Wilson Avenue	Newark	NJ	07105
Federal Refining Co.,Inc.	29 Riverside Avenue Bldg. 16	Newark	NJ	07104
Federal Truck Co. of N.J.	63 Richmond Street	Newark	NJ	07103
Fill-Rite Inc.	268 Broad Street	Newark	NJ	07104
Firmenich Inc.	928-964 Doremus Avenue	Newark	NJ	07114
Form Cut Industries	197 Mount Pleasant Avenue	Newark	NJ	07104
G. J. Chemical Company, Inc.	128 Doremus Avenue	Newark	NJ	07105
G.S. Furniture	598 South Orange Avenue	Newark	NJ	07106
GTC Printing t/a American Speedy Printing	60 Park Place	Newark	NJ	07102

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Gambert Shirt Company	55 Lafayette Street	Newark	NJ	07102
Gann Lan Books, Inc.	1 Washington Park, Suite 1500	Newark	NJ	07102
Gateway Center Complex	100 Mulberry Street	Newark	NJ	07102
George A. Mathewson Co., Inc.	415 Raymond Blvd.	Newark	NJ	07105
Getty Petroleum Corporation	86 Doremus Avenue	Newark	NJ	07105
Glamour Fashions Inc.	133 Kossuth Street	Newark	NJ	07105
Golden Scissors (Zazu)	59-61 Wilson Avenue	Newark	NJ	07105
Goldmet Corp.	317 Frelinghuysen Avenue	Newark	NJ	07114
Goodyear Rubber Products Corporation	329 McCarter Highway	Newark	NJ	07114
Grapek Company	1245 McCarter Highway	Newark	NJ	07104
Grasant Mfg. Co. Inc.	48-50 Main Street	Newark	NJ	07105
Greve Plastics, Inc.	123 South 15th Street	Newark	NJ	07107
H. K. Mayers Cleaners	104 1/2 Roseville Avenue	Newark	NJ	07107
H. Schock & Sons Inc.	329 Frelinghuysen Avenue	Newark	NJ	07114
Handcraft Mfg. Corporation	640 Frelinghuysen Avenue	Newark	NJ	07114
Handy Store Fixtures	337 Sherman Avenue	Newark	NJ	07114
Hardy Bookcraft Company	25 Prospect Street	Newark	NJ	07105
Headwear Creations Inc.	200 Wright Street	Newark	NJ	08114
Hoechst Celanese Chem. Group, Newark Term.	354 Doremus Avenue	Newark	NJ	07105
Howard Korenstein Sportswear	236 South Street	Newark	NJ	07114
Ideal Dairy Farms, Inc.	596 Market Street	Newark	NJ	07105
Immediate Tablecloth Inc.	40-44 Austin Street	Newark	NJ	07114
Imperial Container Co.	141 North 13th Street	Newark	NJ	07107
Import Export Service of NJ Inc.	972 Broad Street	Newark	NJ	07102
Ironbound Auto Sales, Inc.	1240 Broad St.	Newark	NJ	07114
Ironbound Cleaners	131 Ferry Street	Newark	NJ	07107
Ironbound Welding, Inc.	156-158 Walnut Street	Newark	NJ	07105-1216
Italian Tribune News	427 Bloomfield Avenue	Newark	NJ	07107
Ivy Plaza Cleaners, Inc.	507 Irvington Avenue	Newark	NJ	07106
J. Frank Post Inc.	894 Broadway	Newark	NJ	07104
J. Heller & Sons	149 Ferry Street	Newark	NJ	07015
J.C. Fashions, Inc.	31 Clover Street	Newark	NJ	07101
Jackies Sportswear, Inc.	407 Mulberry Street	Newark	NJ	07102
Jersey Janitor Supply	230 Market Street	Newark	NJ	07102
Jeryco Plastics Corporation	2-20 East Paddie Street	Newark	NJ	07114
Jomar Displays, Inc.	54 Freeman Street	Newark	NJ	07105
Jones & Auerbacher Inc.	46-48 Edison Place	Newark	NJ	07102

Facility Name	Street	City	State	Zip
Jury Verdict Review Publications, Inc.	24 Commerce Street, Suite 1722	Newark	NJ	07102
K & S Auto Glass Inc.	310 North 4th Street	Newark	NJ	07107
Keystone Automotive Ind.	24 Legge Street	Newark	NJ	07114
Kidz-National Klothz Ltd.	58 Oliver Street	Newark	NJ	07105
Kolb Sheet Metal Works	172 Pennsylvania Avenue	Newark	NJ	07114
Krementz & Co.	375 McCarter Highway	Newark	NJ	07114
L. R. S. Associates, Inc.	2-14 New York Avenue	Newark	NJ	07105
LaCross Div of Del Laboratories	627 South 17th Street	Newark	NJ	07103
Lafayette Machinery Inc.	407 Mulberry Street	Newark	NJ	07102
Legia Fashions Inc.	245 14th Street	Newark	NJ	07103
Lice Wholesale	815 Summer Avenue	Newark	NJ	07104
Luso Americano Co., Inc.	88 Ferry Street	Newark	NJ	07105
Lyons Avenue Getty	466 Bloomfield Avenue	Newark	NJ	07107
M. Chasen & Son, Inc.	20 Esther Street	Newark	NJ	07105
Maher Caplan Prop. Acct.	858 Summer Avenue	Newark	NJ	07111
ManCo Ind.	416 5th Street	Newark	NJ	07107
Mantell Trading	73-79 Vesey Street	Newark	NJ	07101
Marko Transmissions Inc.	225 Elizabeth Avenue	Newark	NJ	07108
Mattia Printing Co.	29 Park Avenue	Newark	NJ	07104
Meren Industries Corporation	407 Mulberry Street	Newark	NJ	07102
Merit Peddle	Elizabeth & Peddie Streets	Newark	NJ	07106
Metal Specialty Corporation	100 Wilson Avenue	Newark	NJ	07105
Midtown Auto Body Co., Inc.	10-12 Gouverneur Street	Newark	NJ	07104
Miles Inc.	414 Avenue P	Newark	NJ	07105
NYSA-ILA Medical Center	123-131 Clifford Street	Newark	NJ	07105
Nanes Finishing & Assembly Corporation	305 Third Avenue West	Newark	NJ	07107
New Jersey Boiler Repair Co.	466 Mulberry Street	Newark	NJ	07114
New Jersey Law Journal	823 Mulberry Street	Newark	NJ	07102
New Jersey Prototype, Inc.	240 King Blvd.	Newark	NJ	07102
New Tick Tock Cleaners	445 Bloomfield Avenue	Newark	NJ	07107
New York Feather Company, Inc.	646 Frelinghuysen Avenue	Newark	NJ	07114
New York Folding Box Co.	129 Christie Street	Newark	NJ	07105
Newark Beth Israel Medical Center	201 Lyons Avenue	Newark	NJ	07112
Newark Carting Inc.	P.O. Box 5670	Newark	NJ	07105
Newark Community Health Centers(All Essex Co.	101 Ludlow Street	Newark	NJ	07114
Newark Industrial Spraying Inc.	12 Amsterdam Street	Newark	NJ	07105
Newark Oxwelding Company	91 Poinier Street	Newark	NJ	07114

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Newark Safety Service	245 Warren Street	Newark	NJ	07103
Niagara Auto Sales	23 Niagara Street	Newark	NJ	07105
Norman Brager Co., Inc /Norman Brager Product	350 Lafayette Street	Newark	NJ	07105
Norman Machinery Company	907 Clifton Avenue	Newark	NJ	07104
NuTech Corporation	649 Ferry Street	Newark	NJ	07105
Original S. Giordano Bakery, Inc.	33 7th Avenue	Newark	NJ	07104
Otto's Truck Body Works Corporation	119-132 Avenue L	Newark	NJ	07105-3699
P & W Auto Service Inc.	398-400 Broadway	Newark	NJ	07104
P D Q Elecronic Components Co. Inc.	117 Sylvan Avenue	Newark	NJ	07104
Paperboard Products, Div. of Int'l Container	357 Wilson Avenue	Newark	NJ	07105
Park Avenue Cleaners	258 Park Avenue	Newark	NJ	07107
Patriarche & Bell, Inc.	94-98 Parkhurst Street	Newark	NJ	07114
Pausin Manufacturing Company, Inc.	727 Frelinghuysen Avenue	Newark	NJ	07114
Pedometer Corporation	96 Monroe Street	Newark	NJ	07105
Peoples Worldwide Distribution	138 Paris Street	Newark	NJ	07105
Perez Auto Center Inc.	729 Broadway	Newark	NJ	07104
Peridot Chemicals (New Jersey), Inc.	351 Doremus Avenue	Newark	NJ	07105
Personality Handkerchiefs, Inc.	640 Frelinghuysen Avenue	Newark	NJ	07114
Peters & Smith Company	67 Polk Street, P.O. Box 5388	Newark	NJ	07105-0388
Phoenix Lock Company	321 Third Avenue	Newark	NJ	07107
Po-Mel Hats	407 Mulberry Street	Newark	NJ	07102
Progressive Manufacturing Co., Inc.	116-132 Sussex Avenue	Newark	NJ	07103
Prudential Stainless Pipe	Foot of Centre Street	Newark	NJ	07102
Public Service Electric & Gas	80 Park Plaza, 2B	Newark	NJ	07101
Purolator Products Air Filtration Company	835 Mt. Prospect Avenue	Newark	NJ	07105
Q-Pak Corporation	2145 McCarter Highway	Newark	NJ	07104
R.G. Dunn Acq. dba Electronic Mfg. Co., Inc.	670 South 17th Street	Newark	NJ	07103
Randall Manufacturing Co., Inc.	200 Sylvan Avenue	Newark	NJ	07104
Rapid Mfg. Corporation	1407 McCarter Highway	Newark	NJ	07104
Raymar Inc.	133 Kossuth Street	Newark	NJ	07105
Rarac Products Company	230 Wright Street	Newark	NJ	07114
Rebuth Steel Corporation	300 Wilson Avenue	Newark	NJ	07105
Recycled Fibers Of New Jersey	60 Lockwood Street	Newark	NJ	07105
Regional Recycling	295 Frelinghuysen Avenue	Newark	NJ	07114
Reichhold Chemicals, Inc.	400 Doremus Avenue	Newark	NJ	07105
Reichhold Chemicals, Inc.	46 Albert Avenue	Newark	NJ	07105
Rhew Cleaner's, Inc.	362 South Orange Avenue	Newark	NJ	07103

acility Name	Street	City	State	Zip
laa Knits, Inc.	646 North 3rd Street	Newark	NJ	07107
yce Associated Newark Facility	207-215 Avenue L	Newark	NJ	07105
& C Tool Aid Corporation	43-53 E. Alpine Street	Newark	NJ	07114
afelite Glass	391 Ferry Street	Newark	NJ	07105
anitol Inc.	300 Jelliff Avenue	Newark	NJ	07108
aradon Display, Ind.	768 Frelinghuysen Avenue	Newark	NJ	07114
arah Ward Nursery	27 Jay Street	Newark	NJ	07103
chtiller & Plevy	695 South 12th Street	Newark	NJ	07103
eidler Chemical & Supply Company, Inc.	537 Raymond Blvd.	Newark	NJ	07105
erratelli Inc.	418-26 Central Avenue	Newark	NJ	07107
hearform Inc. t/a Industrial Welding	655 Ferry Street	Newark	NJ	07105
leckel & Sons Inc.	360 Elizabeth Avenue	Newark	NJ	07114
linder-Strauss Associates	240 Market Street	Newark	NJ	07101
leepline Industries Inc.	646 Frelinghuysen Avenue	Newark	NJ	07114
tandard Canvas	12 Chappel Street	Newark	NJ	07105
tandard Embossing Plate Mfg. Co.	129 Pulaski Street	Newark	NJ	07105
tandard Optical Mfg. Co.	120 North 11th Street	Newark	NJ	07107
tanton Garage Inc.	41-45 Stanton Street	Newark	NJ	07114
tar Finishing, Inc.	41 Chapel Street	Newark	NJ	07105
tep'n Cleaners	678 Sanford Avenue	Newark	NJ	07106
& F Fashions Inc.	165 Vanderpool Street	Newark	NJ	07114
mia One Hour Cleaners	529 Central Avenue	Newark	NJ	07107
echnical plastic Extruders	574 Ferry Street	Newark	NJ	07105
eixeira's Bakery	113-129 Kossuth Street	Newark	NJ	07105
he Baptist Home	285 Roseville Avenue	Newark	NJ	07107
he H. E. Smith Co.	135-149 South 15th Street	Newark	NJ	07107
he Hertz Corporation	Bldg. 23, Newark Int'l Airport	Newark	NJ	07114
he Thibaut & Walker Co., Inc.	P.O. Box 296	Newark	NJ	07101
he Young American Clothing Co., Inc.	50 Columbia Street	Newark	NJ	07102
inplate Purchasing Corporation	798 Frelinghuysen Avenue	Newark	NJ	07114
ony's Auto Body (East Side Motors, Inc.)	23-24 Foundry Street	Newark	NJ	07105
ransacaribe Freight Corp.	300 Port Street	Newark	NJ	07114
ity Auto Body Company	585 South Orange Avenue	Newark	NJ	07106
Center/AT&T	McCarter Highway & Market Street	Newark	NJ	07102
UPS	65 Bergen Street	Newark	NJ	07107-3001
PS-Gould	70 Gould Avenue	Newark	NJ	07307
PS-Newark A/	350 Brewster Road	Newark	NJ	07114

Facility Name	Street	City	State	Zip
Uneeda Envelope Co. Inc.	184 Van Buren Street	Newark	NJ	07105
United Airlines	Terminal "A", Newark Int'l Airport	Newark	NJ	07114
United States Box Corporation	1296 McCarter Highway	Newark	NJ	07104
Ventura Motors Corp.	333 Elizabeth Avenue	Newark	NJ	07112
Victor Flush Valve Co.	50-56 Jersey Street	Newark	NJ	07105
Weber & Scher Mfg. Co., Inc.	263 Sussex Avenue	Newark	NJ	07107
Welch, Holme & Clark Co., Inc.	7 Avenue L	Newark	NJ	07105
Wilson UTC, Inc.	Hemisphere Center,Room 304 Rte.1&9S	Newark	NJ	07114
Z Z Rags Ltd.	58 Oliver Street	Newark	NJ	07105
C. C. Carpet	17 Glenview Road	North Caldwell	NJ	07006
ADM Custom Metal Fabrication, Inc.	263 Hillside Avenue	Nutley	NJ	07110
Accurate Screw Machine Co.	19 Baltimore Street	Nutley	NJ	07110
Astro Tool Corp.	90 Washington Avenue	Nutley	NJ	07110
Bergen Machine & Tool Co.	85 Park Avenue	Nutley	NJ	07110
Cafone Printing	231 Washington Avenue	Nutley	NJ	07110
Cortel, Inc. T/A One Hour Cleaners	239 Franklin Avenue	Nutley	NJ	07110
D & L Automotive	251 Washington Avenue	Nutley	NJ	07110
Golden Plastic's Inc.	67 East Centre Street	Nutley	NJ	07110
Harbot Die Casting & Access Flooring Supplies	52 East Centre Street	Nutley	NJ	07110
Hoffman-La Roche Inc.	340 Kingsland Street	Nutley	NJ	07110
J & J Car Care Inc.	482 Franklin Avenue	Nutley	NJ	07110
Joseph Ricciardi Inc.	91 Washington Avenue	Nutley	NJ	07110
MAACO Auto Painting	113 East Centre Street	Nutley	NJ	07110
Metro Bindery of New Jersey, Inc.	187 Washington Avenue	Nutley	NJ	07110
Nutley Upholstery Shoppe	354 Passaic Avenue	Nutley	NJ	07110
O.A. Muenz & Co., Inc.	312 Washington Avenue	Nutley	NJ	07110
PNC, Inc.	115 East Centre Street	Nutley	NJ	07110
Preferred Packaging Corporation	113 East Centre Street	Nutley	NJ	07110
R. Mitrano Landscape Contractor	546 Washington Avenue	Nutley	NJ	07110
Tony's Auto Body	126 Washington Avenue	Nutley	NJ	07110
Unilite Inc.	151 River Road	Nutley	NJ	07110
Yantacaw S/C	688 Franklin Avenue	Nutley	NJ	07110
Zinicola Baking Company	127 King Street	Nutley	NJ	07110
A. Monteverdi, Inc.	30 North Day Street	Orange	NJ	07050
Advanced Waste Recycling, Inc.	57 Park Street	Orange	NJ	07050
Banner Chemical Corporation	111 Hill Street	Orange	NJ	07050
C & A #1 Inc.	197 B Main Street	Orange	NJ	07050

(FACILITIES GENERATING ACCEPTABLE WASTE)

acility Name	Street	City	State	Zip
J. Tucker Mobil	62-68 Central Avenue	Orange	NJ	07050
day Inc t/a Corona Texaco Service	21 North Day Street	Orange	NJ	07050
mputer Solutions Inc.	397 Park Avenue	Orange	NJ	07050
ross Die Cutting Service Inc.	351 South Jefferson Street	Orange	NJ	07050
-Rite Auto Body Inc.	43 Central Avenue	Orange	NJ	07050-3801
's Freeway Collision, Inc.	24 Park Street	Orange	NJ	07050
legante Depot Cleaners	575 Scotland Road	Orange	NJ	07050
S H Of N.J. Inc. t/a Campers Exxon	644 South Center Street	Orange	NJ	07050
ack Gold Surgical Appl/A. A. Reitman	331 Central Avenue	Orange	NJ	07050
able Engineering Corporation	50 South Center Street, Bldg. #1	Orange	NJ	07050
SR Tire & Auto Center	415 Washington Street	Orange	NJ	07050
ar Sportswear Inc.	49 South Day Street	Orange	NJ	07050
aurielio Disposal, Inc	51-57 Park Street	Orange	NJ	07050
ianetti's Gulf	690 Scotland Road	Orange	NJ	07050
ew Jersey Floor Supply, Inc.	179 Lincoln Avenue L-10	Orange	NJ	07050
ewark Trade Typographers	P.O. Box 379, 177 Oakwood Avenue	Orange	NJ	07050
range Motor Service, Inc.	183 Scotland Road	Orange	NJ	07050
range N.J. Hilti Center	50 South Center Street	Orange	NJ	07050
IC Corporation	23 S. Essex Avenue	Orange	NJ	07050
at's Auto Repair	340 Mechanic Street	Orange	NJ	07050
anir/DCP Corporation	476 Thomas Blvd.	Orange	NJ	07050
ose Art Industries	555 Main Street	Orange	NJ	07050
cotland Cleaners	675 Scotland Road	Orange	NJ	07050
pectraform Inc.	P.O. Box 888	Orange	NJ	07050
.V.C.S. Cleaning Service Inc.	166 Central Avenue	Orange	NJ	07050
ltra Cleaners, Inc.	180 Scotland Road	Orange	NJ	07017
nicorp	291 Cleveland Street	Orange	NJ	07050
[illegible] ociation of Essex Valley	451 Lincoln Avenue	Orange	NJ	07050
[illegible] p.	538 Freeman Street	Orange	NJ	07050
[illegible]	560 Berekely Avenue	Orange	NJ	07050
	444 Washington Street	Orange	NJ	07050
ge Chronicle	170 Scotland Road, P.O. Box 849	Orange	NJ	07050
	154 Marsh Street	Port Newark	NJ	07114
	19 Lincoln Street	Roseland	NJ	07068
	One Annin Drive	Roseland	NJ	07068
	280 Corporate Center, 3 ADP Blvd.	Roseland	NJ	07068
	[illegible] Harrison Avenue	Roseland	NJ	07068

Facility Name	Street	City	State	Zip
Barrett Paving Materials Inc.	3 Becker Farm Road	Roseland	NJ	07068
D S D, Inc.	426 Eagle Rock Avenue	Roseland	NJ	07068
Fiber Economics Bureau, Inc.	101 Eisenhower Parkway	Roseland	NJ	07068
Noble Lowndes	3 Becker Farm Road	Roseland	NJ	07008-3786
Ocumed, Inc.	119 Harrison Avenue	Roseland	NJ	07068
Rogers & Sheldon, Inc.	14 Eisenhower Parkway	Roseland	NJ	07068
University Landscape Contractors, Inc.	148 Eagle Rock Avenue	Roseland	NJ	07068
Carr Motors, Inc.	157-159 Valley Street	South Orange	NJ	07079
Jespy House Inc.	65 Academy Street	South Orange	NJ	07079
Lee's Cleaners	55 West South Orange Avenue	South Orange	NJ	07079
M & P Auto Body Inc.	362 Lackawanna Place	South Orange	NJ	07079
Poly-Bio-Marine Inc.	P.O. Box 426	South Orange	NJ	07079-0426
Rapid Print	63 Valley Street	South Orange	NJ	07079
South Orange Auto Electric, Inc.	454 Valley Street	South Orange	NJ	07079
Volk Cleaners	110 Valley Street	South Orange	NJ	07079
Alberona Auto Clinic Inc.	250 Bloomfield Avenue	Verona	NJ	07044
Annin & Company	163 Bloomfield Avenue	Verona	NJ	07044
C Technologies Inc.	772 Bloomfield Avenue	Verona	NJ	07044
Carnevale's Service Center	710 Bloomfield Avenue	Verona	NJ	07044
Dutch Maid Cleaners	308 Bloomfield Avenue	Verona	NJ	07044
Eddie's Mobil	655 Bloomfield Avenue	Verona	NJ	07044
Essex Testing Clinic, Inc.	799 Bloomfield Avenue	Verona	NJ	07044
H. H. J. Cleaners Inc. t/a Gemmell's	700 Bloomfield Avenue	Verona	NJ	07044
Hamilton Enterprises	104 Park Avenue	Verona	NJ	07044
Kiefer Brushes Inc.	56-62 Depot Street	Verona	NJ	07044
Kings Supermarkets	300 Pompton Avenue	Verona	NJ	07044
PIP Printing	269 Bloomfield Avenue	Verona	NJ	07052
Town & Country Texaco	725 Bloomfield Avenue	Verona	NJ	07044
Twin Method Cleaners	619 Bloomfield Avenue	Verona	NJ	07044
Verona Aluminum Products Co.	320 Bloomfield Avenue	Verona	NJ	07004
3M New York Sales Center	15 Henderson Drive	West Caldwell	NJ	07006
Aero Line/T. J. Bentey	15 Fairfield Place	West Caldwell	NJ	07006
Bromilow's Chocolates	891 Bloomfield Avenue, Essex Mall	West Caldwell	NJ	07009
Caldwell Toyota, Inc.	1155 Bloomfield Avenue	West Caldwell	NJ	07006
Carpenter Technology Corp.	99 Clinton Road	West Caldwell	NJ	07006
Coining Technologies Inc	16 Fairfield Place	West Caldwell	NJ	07006
Compensating Tension Controls, Inc.	11 York Avenue	West Caldwell	NJ	07006

(FACILITIES GENERATING ACCEPTABLE WASTE)

Facility Name	Street	City	State	Zip
Gateway Seven Inc.	508 Passaic Avenue	West Caldwell	NJ	07006
Grainger (Branch #522)	165 Clinton Road	West Caldwell	NJ	07006-6694
Granwell Products, Inc.	185 Fairfield Avenue, Suite 2B	West Caldwell	NJ	07006
H.F.Henderson, Inc.	45 Fairfield Place	West Caldwell	NJ	07006
Henkel Adhesives Corporation	190 Fairfield Avenue	West Caldwell	NJ	07006
Heraeus Hirsch USA, Inc.	38 Fairfield Place	West Caldwell	NJ	07007
Hewitt-Robins Corp.	40 Fairfield Place	West Caldwell	NJ	07006
Hygrade Business Group	8 Fairfield Crescent, P.O. Box 1423	West Caldwell	NJ	07006
Ivers-Lee, Division of Becton Dickinson	147 Clinton Road	West Caldwell	NJ	07006
J.K.'s Auto Shop	653 Bloomfield Avenue	West Caldwell	NJ	07006
Johnson Scale Company	235 Fairfield Avenue	West Caldwell	NJ	07006
Kings Supermarkets(All Essex Co. Locations)	875 Bloomfield Avenue	West Caldwell	NJ	07006
Konner's Chevrolet, Inc.	950 Bloomfield Avenue	West Caldwell	NJ	07006
LTS Lohmann Therapy Systems Corporation	21 Henderson Drive	West Caldwell	NJ	07006
Merrimac Industries, Inc.	41 Fairfield Place	West Caldwell	NJ	07006
Mesor Alloy Corporation	666 Passaic Avenue	West Caldwell	NJ	07006
PCI, Inc.	One Fairfield Crescent	West Caldwell	NJ	07006
Panelgraph Corporation	10 Henderson Drive	West Caldwell	NJ	07006
Pella Windows & Doors, Div. Lux Home Inc.	4 Dedrick Place, P.O. Box 1199	West Caldwell	NJ	07007
Reitman Industries	10 Patton Drive	West Caldwell	NJ	07006
Richards Industries Systems & Engineering	4 Fairfield Cresent	West Caldwell	NJ	07006
Ricoh Corporation	5 Dedrick Place	West Caldwell	NJ	07006
Sparky's Frame & Front End, Inc.	817 Passaic Avenue	West Caldwell	NJ	07006
The Quilting Bee/dba Tucker's Decorative Touc	67 Westover Avenue	West Caldwell	NJ	07006
Toyota Motor Distributors, Inc.	16 Henderson Drive	West Caldwell	NJ	07006
Vapon, Inc.	23 Fairfield Place	West Caldwell	NJ	07006
Voorheis Industries, Inc.	P.O. Box 1442	West Caldwell	NJ	07007-1442
Wallwork Bros., Inc.	9 Patton Drive	West Caldwell	NJ	07006
Adco Liberty Mfg. Corp.	33 Ashland Avenue	West Orange	NJ	07052
Alyea Motors Inc.	324 Main Street	West Orange	NJ	07052
Americana Portraits Inc.	270 Pleasant Valley Way	West Orange	NJ	07052
Ames Scrap Metal	30 Kayser Lane	West Orange	NJ	07057
Behrman House Publishers	235 Watchung Avenue	West Orange	NJ	07052
Brent Material Company	741 Northfield Avenue, Suite 203	West Orange	NJ	07052
Cedar Graphics Inc.	75 Washington Street	West Orange	NJ	07052
Clarke American	200 Executive Drive	West Orange	NJ	07052
Daughters of Israel Geriatric Center	1155 Pleasant Valley Way	West Orange	NJ	07052

Facility Name	Street	City	State	Zip
Eagle Exxon	270 Prospect Avenue	West Orange	NJ	07052
Econo Cleaners	217 Main Street	West Orange	NJ	07052
Essex Green Sunoco	480 Prospect Avenue	West Orange	NJ	07052
Fabulous Handprints, Inc.	179 Main Street	West Orange	NJ	07052
Fridel's Auto Clinic, Inc.	372 Main Street	West Orange	NJ	07052
Giovine Landscaping	68 Manger Road	West Orange	NJ	07052
Green Hill	103 Pleasant Valley Way	West Orange	NJ	07052
Haaco Industries	10 Park Avenue	West Orange	NJ	07052
Ho Bo Ro Cleaners	310 A Essesx Green Plaza	West Orange	NJ	07052
House of Rainbow (Rainbow Fund Raising)	15 Meeker Street	West Orange	NJ	07052
Hudson Industries Corporation	19 Hutton Avenue	West Orange	NJ	07052
Il Joon Cleaners, Inc.	134 South Valley Road	West Orange	NJ	07082
J & B Cleaners	2 South Valley Road	West Orange	NJ	07052
Julius Glassman Cleaners Inc.	481 Valley Road	West Orange	NJ	07052
Kenseal	19-25 Columbia Street	West Orange	NJ	07052
MCI Telecommunications	10 Marcella Avenue	West Orange	NJ	07052
MCI Telecommunications (WOR)	271 Mt. Pleasant Avenue	West Orange	NJ	07052
Mark II Bindery	303 Watchung Avenue	West Orange	NJ	07052
Marveco Corporation	271 Mount Pleasant Avenue	West Orange	NJ	07052
Mayfair Farms, Inc.	481 Eagle Rock Avenue	West Orange	NJ	07052
Metropolitan Plant Exchange	471 Mt. Pleasant Avenue	West Orange	NJ	07052
Midland Press Inc.	69 Washington Street	West Orange	NJ	07052
Newark Auto Products	177 Main Street	West Orange	NJ	07052
Organon Inc.	375 Mt. Pleasant Avenue	West Orange	NJ	07052
Pals Cabin Restaurant	205 Prospect Avenue	West Orange	NJ	07052
Paris Press	583 Valley Road	West Orange	NJ	07052
Plate-Craft, Inc.	172-174 Main Street	West Orange	NJ	07052
Prospect Exxon	486 Prospect Avenue	West Orange	NJ	07052
Quality Indexing Corporation	106-8 Harrison Avenue	West Orange	NJ	07052
Rita Kaegi, t/a Liquid Rubber Appliance Labs	45 Valley Way	West Orange	NJ	07052
S & L Garage	50 Washington Street	West Orange	NJ	07052
The Dealer Alternative, Inc.	62 Franklin Avenue	West Orange	NJ	07092
The Framery, Inc.	488 Pleasant Valley Way	West Orange	NJ	07052
Timesteps Productions Inc.	2 Glenside	West Orange	NJ	07052
Tobia Baking Co.	56 Columbia Street	West Orange	NJ	07052
Town Hall Service	13 Northfield Avenue	West Orange	NJ	07052
V & V Continental Foreign Car Repair	25 Harrison Avenue	West Orange	NJ	07052

cility Name	Street	City	State	Zip
ranelli Beauty Supply	327 Valley Road	West Orange	NJ	07052
eland-America, Inc.	741 Northfield Avenue	West Orange	NJ	07052
b Mfg. Inc.	1 Charles Street	West Orange	NJ	07052

(FACILITIES GENERATING NO WASTE)

Facility Name	Street	City	State	Zip
The Rain Barrel, Inc.	42-46 Eugene Place	Belleville	NJ	07109
Twins Service Inc.	402 Bloomfield Avenue	Caldwell	NJ	07006
Con-Ser, Inc.	258 Horseneck Road	Fairfield	NJ	07004
Gallo Asphalt Company	32 Woolsey Street	Irvington	NJ	07111
Coding Corporation of America	28 Cliffside Drive	Livingston	NJ	07039
Titan Chemical Products, Inc.	P.O. Box 20	Millburn	NJ	07078
East Orange Mill End Shop	504 Bloomfield Avenue	Montclair	NJ	07044
Dooner & Smith Chemical Co.	374 Mulberry Street	Newark	NJ	07102
Emsig Manufacturing Corporation	61 New Jersey Railroad Avenue	Newark	NJ	07105
Gateway Freight Services	Cargo Bldg. #152, Nwk Int'l Airport	Newark	NJ	07114
Orient Chemical Corporation	121 Tyler Street	Newark	NJ	07114
P & S Waste Paper Company	100 Clifford Street	Newark	NJ	07105
Raymond Petroleum Inc.	303 Raymond Blvd.	Newark	NJ	07105
Edson Enterprise Inc.	17 Speer Place	Nutley	NJ	07110
R. Michael Caulfield	1 Kingsland Street	Nutley	NJ	07110
Best Foods	103 Eisenhower Parkway	Roseland	NJ	07068
Speciality Paper Box Co.	201 Bloomfield Avenue	Verona	NJ	07044

Exhibit 18

COVANTA
Powering Today. Protecting Tomorrow.

Covanta Essex Company
183 Raymond Boulevard
Newark, NJ 07105
Tel: 973-344-0900
Fax: 973-344-4999

June 25, 2021

Via e-mail only

Mr. Anthony Fontana, Chief
NJ Department of Environmental Protection
Bureau of Solid Waste Permitting
P.O. Box 420, Mail Code: 401-02C
401 East State Street, 2nd Floor, West Wing
Trenton, NJ 08625-0420

Subject: Essex County Resource Recovery Facility
Facility ID No. 133546
15-Day Report for Incident Reported on June 4, 2021
Case Number: 21-06-04-1829-17

Dear Mr. Fontana:

On behalf of Covanta Essex Company, the following incident report has been prepared as a follow up report for the incident that was reported to the NJDEP Hotline on June 4, 2021. The report includes a summary of the incident along with information related to the determination as to whether the solid waste is hazardous and provides an explanation of the corrective measures taken to achieve compliance and prevent this from happening in the future. Approval for an extension to the deadline for submitting this report until June 25, 2021 was granted by Tom Byrne via email on June 15, 2021.

If there are any questions regarding this submittal, please do not hesitate to contact me at 973-817-7322.

Sincerely,

Patricia Earls
New Jersey Regional Environmental Manager

Via e-mail
cc: R. Gandhi – NJDEP, Bureau of Solid Waste Compliance & Enforcement
G. Lugo – NJDEP, Bureau of Solid Waste Compliance & Enforcement
T. Byrne – NJDEP Bureau of Solid Waste Permitting
K. Beccia – NJDEP Bureau of Solid Waste Permitting
M. Bendorf – NJDEP Bureau of Solid Waste Permitting
R. Gomez – NJDEP Bureau of Hazardous Waste Compliance & Enforcement

"I certify that I am authorized to represent and serve as signatory on behalf of the person to whom this NOV is issued. I also certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties, including fines or imprisonment or both, for submitting false, inaccurate or incomplete information."

David Blackmore
Facility Manager

6/25/21
Date

Summary of Incident

The filter bags that were accidentally disposed of offsite were from the last two modules in the Unit 1 baghouse. Each module has 304 filter bags so a total of 608 used filter bags were placed in the dumpster that was picked up by our third-party hauler on June 1, 2021. Per the work order instructions for the driver, the dumpster was required to have been brought to our tipping floor for processing in our boilers but was instead accidentally taken to the DART Transfer Station on Doremus Avenue in Newark, NJ. From there the waste was loaded onto rail cars and taken to the APEX Landfill in Ohio.

Determination on Whether the Solid Waste is Hazardous

Our normal practice for disposing of used filter bags once they are removed from the baghouse compartment, is to double bag them in plastic trash bags, seal the bags, and place them into a dumpster located underneath the baghouse in order to minimize exposure to the environment. The dumpster is then brought to the tipping floor of the facility and processed in our boilers. This practice follows EPA guidance referenced in the October 10, 2014 letter from the EPA which includes an interpretation from the EPA relative to the management of spent baghouse filters from waste to energy facilities. This guidance makes it unnecessary to characterize the bags when they are handled in accordance with our normal procedure described above. The EPA guidance letter is included as an attachment to this report.

In this case, because the used filter bags picked up on June 1, 2021 were inadvertently taken offsite despite our instructions to take them to the tipping floor, there was a concern by Covanta Essex Company that hazardous waste was potentially disposed of incorrectly which prompted us to report this incident to the NJDEP Hotline, Case #21-06-04-1829-17, on June 4, 2021 once it was confirmed that they were disposed of offsite. 40 CFR 262.11(d)(1) allows us to use generator process knowledge rather than testing to determine whether the waste exhibits one or more hazardous characteristics. Therefore, information is being provided based on our process knowledge which indicates that the used filter bags have the potential to exhibit a hazardous waste characteristic if they were actually subjected to testing.

On June 8, 2021, a letter was submitted to APEX Environmental, LLC, who is the owner of the landfill in Ohio, which included analytical information on the fly ash that was on the used filter bags which was derived from historical laboratory test results of fly ash samples at the Covanta Essex facility. That letter has been included as an Attachment to this report.

Corrective Measures Taken to Achieve Compliance

To prevent this from happening in the future, Covanta Essex Company has modified section API-3 of Volume IX of the Operations and Maintenance Manual to include the procedure for the disposal of used bag filters which prohibits the use of any third-party contractors for this task under section C.1. Instead, only employees of the Covanta Essex facility will be responsible for taking the used filter bags that have been double bagged and sealed to the tipping floor for processing in the MWC units at the facility. A revised section API-3 is included as an Attachment to this report.

Finally, in addition to the regular scaling out of all refuse hauler trucks, ash hauler trucks, and metal hauler trucks, all other hauler trucks leaving the site for any reason will be required to stop at the scale house for authorization to leave prior to departing from the site. This will prevent any unauthorized removal of waste from the site.

Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 10 2014

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Mr. Thomas S. Burack, Commissioner
State of New Hampshire
Department of Environmental Services
P.O. Box 95
29 Hazen Drive
Concord, New Hampshire 03302-0095

Dear Commissioner Burack:

I am responding to your June 13, 2013 letter seeking an interpretation from the Environmental Protection Agency (EPA) relative to the management of spent baghouse filters from waste-to-energy (WTE) facilities and the applicability of the EPA's statutory interpretation published in the Federal Register (FR) on February 3, 1995 (See 60 FR 6666), "Determination of Point at Which RCRA Subtitle C Jurisdiction Begins for Municipal Waste Combustion Ash at Waste-to-Energy Facilities."

Specifically, your request results from inspections at two New Hampshire municipal waste combustion WTE facilities (Wheelabrator - Concord and Wheelabrator - Claremont) during 2010. During the facility inspections, New Hampshire staff observed that spent air pollution control baghouse filters were removed from service, double-bagged in plastic bags, removed from the baghouse facility, hand-carried back into the combustion building, and then placed into the feed hopper to be burned in the boilers. According to your letter, these spent baghouse filters could contain concentrations of lead and cadmium, such that they could exhibit the toxicity characteristic for lead and cadmium.

Disposing of these spent baghouse filters generally occurs once every 3-5 years when the facility replaces all of their baghouse filters in a baghouse compartment or when they replace the baghouse filters for all compartments in the facility at once. In addition, the EPA notes that the municipal waste combustor will continue to be subject to Clean Air Act emissions standards, and the burning of the baghouse filters is not expected to significantly impact emissions from the combustor.

At issue is whether EPA's 1995 interpretation applies to spent baghouse filters, in addition to ash. EPA's interpretation states that the point at which ash generated at a WTE facility becomes subject to jurisdiction under the Resource Conservation and Recovery Act (RCRA) is the point at which the ash leaves the facility's combustion building (including connected air pollution equipment). Of particular concern is whether or not that interpretation specifically addresses spent baghouse filters. Accordingly, you pose three questions described in pertinent part below:

Question 1: Does the EPA consider Wheelabrator's spent baghouse filters to be fly ash subject to the interpretation at 60 FR 6666?

Question 2: At what point does the facility need to determine whether the spent baghouse filters are hazardous wastes (i.e., at what point would RCRA hazardous waste jurisdiction begin)?

Question 3: Would a hazardous waste permit be needed for the double-bagged spent baghouse filters to be burned in the facility's boiler?

In assessing the specific situation you pose, the EPA has determined that the answer most consistent with the statutory interpretation is that spent baghouse filters which are removed from the air pollution control equipment, double bagged to ensure containment, then removed from the baghouse building and directly transferred to the waste feed area and inserted into the combustor are still "constructively" within the resource recovery facility and thus, would remain excluded from Subtitle C control. Thus, materials transferred to the waste combustion unit as soon as possible have not left the resource recovery facility and therefore the operator does not have to determine whether the filters become subject to hazardous waste regulations.

While the focus of EPA's 1995 interpretation was on the handling of ash, the Agency also stated that, "EPA believes that it is reasonable to conclude that Congress intended to exempt all handling of any hazardous waste within the building, including the handling of hazardous ash." See 60 FR 6668. Thus, the question for the Agency is whether the spent baghouse filters have left the "resource recovery facility," which is defined in EPA's interpretation as the combustion building, including connected air pollution control equipment.

Supporting EPA's determination are several statements from the FR notice you cite. First, the resource recovery facility includes "pollution control devices that are integral components of the combustion process." 60 FR 6668. Further, ash from the control devices reconveyed back to the combustion building has not left the resource recovery facility and by virtue of the containment and direct movement of the spent baghouse filters to the combustion tipping area "does not come into contact with the environment." Id. In addition, there are certain situations in which the ash could be "constructively" considered to be within a combustion building. As stated at 60 FR 6668/9:

> A few WTE facilities may exist where the combustion device is not housed within a building. In these instances, the combustion device (including air pollution control equipment and proximate areas for handling ash) may constructively constitute a combustion building, within the meaning discussed above. Thus, if fly ash and bottom ash were handled in enclosed systems that operate in the same manner as they would if a building existed and the fly ash and bottom ash were mixed in an enclosed unit proximate to the combustion device, that management activity would be considered to take place within a combustion building as described above.

The EPA considers spent baghouse filters that are managed as discussed above, similarly, remain constructively within the combustion building. Thus, a determination as to whether RCRA Subtitle C applies is not required for those materials and a hazardous waste permit would not be needed. The EPA emphasizes that this interpretation is limited to the immediate burning of the

baghouse filters, and is not related to any other materials generated by a WTE facility that may not necessarily be managed within the resource recovery facility. Similarly, if the spent baghouse filters are managed in any location that is not in or "constructively" considered to be within a combustion building, then the operator would need to make a hazardous waste determination at that point.

Finally, state RCRA programs may always be more stringent than their federal counterpart. Therefore, New Hampshire's program may choose a different determination if it so desires.

Should you have any questions to my letter, please contact Betsy Devlin of my staff at (703) 308-7906 or devlin.betsy@epa.gov.

Sincerely,

Barnes Johnson, Director
Office of Resource Conservation and Recovery

cc: Susan Shinkman
Mary-Kay Lynch
James Owens

Attachment 2

COVANTA

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Covanta Essex Company
183 Raymond Boulevard
Newark, NJ 07105
Tel: 973-344-0900
Fax: 973-344-4999

June 8, 2021

Mr. David Cieply,
VP of Landfill Operations
APEX Environmental LLC
11 County Road 78
Amsterdam, OH 43903

Subject: Response to Information Request from APEX Environmental LLC

Dear Mr. Cieply:

The Attachment provided with this letter is our response to your emails earlier today including the following:

1) Any analytical you might have on the Ash either current or previous. If absolutely none available, would be great to run a quick sample for metals.
2) Product information (I know it's fly ash but more detail if possible)
3) Generator Process
4) Volume disposed of or delivered
5) The date/time last week of when it was discovered and then when it was "confirmed" (yesterday, early afternoon?).
6) Also, when NJDEP was first notified.

If you have any further questions or need additional information please reach out to Patricia Earls of my staff at 973-817-7322 or pearls@covanta.com. Covanta Essex would like to be included in subsequent communications with Ohio EPA or other agencies as determined necessary by APEX.

Sincerely,

David Blackmore
Facility Manager

Response to Information Request from APEX Environmental LLC – June 8, 2021

Response to Item 1:

Analytical on Fly Ash

Covanta Essex has estimated the total amount of eight RCRA metals in the container by evaluating the amount of fly ash on a typical baghouse bag and applying historical knowledge of heavy metal content. The following table summarizes those results.

Contaminant	US EPA hazardous waste number	Average concentration as parts per million (ppm)	Estimated weight of metal contaminant as pounds (Lbs)	Estimated maximum soluble concentration as mg/L	TC limit as mg/L
Arsenic	D004	105	0.1	5.3	5
Barium	D005	640	0.8	32	100
Cadmium	D006	182	0.2	9.1	1
Chromium	D007	142	0.2	7.1	5
Lead	D008	1900	2.3	95	5
Mercury	D009	15	0.02	0.75	0.2
Selenium	D010	62	0.07	3.1	1
Silver	D011	8	0.01	0.4	5

The average concentration values as ppm are derived from historical laboratory test results of fly ash samples at the Covanta Essex facility. The estimated weight of each metal contaminant is based on the average concentration applied to the total amount of flyash estimated tp be present with the 608 filter bags (maximum possible number of filter bags that could be in the roll-off container). Covanta Essex does not have analytical data from USEPA Method 1311 (Toxicity Characteristic Leaching Procedure, TCLP) for the flyash however the above table includes a worst-case estimate that assumes all metal dissolves from the TCLP test. Those results indicate the potential for flyash in filter bags to exhibit the toxicity characteristic.

Response to Item 2:

Product Information

Covanta Essex generates combined ash from the combustion of municipal solid waste (MSW). Combined ash is comprised of bottom ash and fly ash with flyash being the residue affixed to the filter bags. Flyash at Covanta Essex is comprised of inerts carried over from the combustion process, calcium salts, unreacted lime, and carbon from the air pollution control process along with trace metals. The attached Safety Data Sheet (SDS) is for combined ash which includes flyash as a component. The range of constituents considers fly ash as a separate residue.

Our combined ash is sampled hourly as required by our Solid Waste Operating Permit and a monthly composite of the collected combined ash is tested in accordance with USEPA Method 1311 (TCLP) to demonstrate that it is not hazardous waste. Results to date for the Covanta Essex facility have all been non-hazardous.

Response to Item 3:

Generator Process

The Essex County Resource Recovery Facility located in Newark, New Jersey consists of three identical processing trains, each consisting of the following components: waste feed, waste combustion (boiler), residue (ash) discharge, an air pollution control (APC) system for flue-gas emissions control, and flue for gas exhaust. The boilers are mass burn, waterwall design. Each boiler is permitted to produce 247,500 lb/hr of steam. The facility is limited to processing 985,500 tons per year of municipal solid waste (MSW).

At the exit of each boiler, flue gas is split into two equal paths (A and B). Each path includes a cyclone for removal of large particulate prior to entering the scrubber. The paths recombine after the scrubbers prior to entering the baghouse. Lime slurry is injected into the scrubbers to chemically react with acid gases, primarily HCl and SO_2, to form chlorine and sulfur salts, which are predominantly collected in the baghouse. Particulate and heavy metal collection also occurs in the baghouse. Aqueous ammonia is injected into the furnace of the boiler to chemically react with NOx, primarily NO (nitrogen oxide), to form nitrogen salts, which are predominantly collected in the baghouse. Powdered Activated Carbon (PAC) is injected at the inlet of the cyclones to adsorb mercury, which is then collected in the baghouse.

Filter bags are replaced on a nominal 4 year frequency with new filter bags. Each baghouse consists of 10 modules, each of which contain 304 filter bags. One module is replaced at a time. Once the used filter bags are removed from the baghouse compartment, they are double bagged in plastic trash bags, the bags are sealed, and they are placed into a dumpster located underneath the baghouse. The filter bags that are the subject of this event were from the last two modules in the Unit 1 baghouse. Eight other modules were previously removed however, the completion of the bag replacement effort was interrupted for a nominal 1-week period. The 608 used filter bags were placed in the dumpster that was picked up by our third party hauler on 6/1/21. Per the work order instructions for the driver, the dumpster was required to have been brought to our tipping floor for processing in our boilers but was instead accidentally taken to the DART Transfer Station on Doremus Avenue in Newark, NJ.

Response to Item #4

Volume Disposed of Or Delivered

As described above, the filter bags on two of the baghouse modules were replaced which was a total of 608 filter bags. Therefore, there were 608 used filter bags weighing approximately 3500 lbs in the dumpster that was taken to the transfer station. The total weight of material in the dumpster was 3.09 tons.

Response to Item #5

Timeline of discovery of issue and confirmation of dumpster contents

Date	Activity
May 24-26	2 modules of filter bags were removed and placed in plastic bags, tied and marked for visual identification
June 1	Driver incorrectly removed the roll-off dumpster container from the Essex facility
June 3	A review of video tape by a shift supervisor identified the truck and dumpster leaving the facility
June 3	Covanta initially contacts Action Carting who is affiliated with the DART Transfer station notifying them of a potential issue
June 4	Covanta contacts Dominic Ferrara, Transfer Station Manager for DART to determine if load could still be on site. Covanta then contacts Neil Rogers of IWS for further information on destination of waste. Covanta also contacts APEX Landfill to discuss issue.
June 4	Initial notification provided to NJDEP
June 7	Continuing review of video tape at facility and transfer station confirmed that the container with filter bags did leave the Covanta Essex property. IWS/APEX was notified of confirmation.

Response to Item #6

First notification provided to NJDEP

As stated above, the initial notification of this incident was provided to NJDEP via the NJDEP Hotline on Friday, June 4, 2021 at approximately 6:30 pm while the investigation continued. The notification was also followed up by a phone call from Mr. Robert Gomez of the NJDEP Hazardous Waste Enforcement division to Patricia Earls of Covanta Essex Company.

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Municipal Solid Waste Combined Ash

Safety Data Sheet

Section 1: Identification of the substance or mixture and of the supplier

Product Name:	Municipal Solid Waste Combined Ash (MSW Combined Ash)
Intended Use:	Residue of Combustion
Manufacturer:	Covanta Energy, LLC 445 South St. Morristown NJ, 07960
Emergency Health and Safety Number:	800-424-9300 - CHEMTREC
SDS Information:	862-345-5001

Section 2: Hazard(s) Identification

Classification

H331 – Acute Toxicity – Inhalation - Category 4
H314 – Skin Corrosion/Irritation - Category 1
H317 - Sensitization – Skin – Category 1
H318 – Eye Damage/Irritation - Category 1
H341 – Germ Cell Mutagenicity – Category 2
H350 – Carcinogenicity - Category 1A
H361 – Toxic to Reproduction – Category 1A

Label Elements



Harmful if inhaled. (H331)
Causes severe skin burns and eye damage. (H314)
May cause an allergic skin reaction. (H317)
Suspected of causing genetic effects (H341)
May cause cancer. (H350)
May damage fertility or the unborn child. (H360)

Precautionary Statement(s):

Obtain special instructions before use. (P201)
Do not handle until all safety precautions have been read and understood. (P202)
Do not breathe dust. (P260)
Wash thoroughly after handling. (P264)
Use only outdoors or in well ventilated area. (P721)
Contaminated work clothing should not be allowed out of the workplace. (P270)

Wear protective gloves/protective clothing/eye protection/face protection. (P280)
IF exposed or concerned: Get medical advice/attention. (P308 + P313)
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. (P301 + P330 + P331)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.(P305 + P351 + P338)
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). P303 + P361 + P353)
Take off contaminated clothing and wash it before reuse. (P362 + P364))
IF INHALED: Remove person to fresh air and keep comfortable for breathing. (P304 + P340)
Immediately call a POISON CENTER/doctor. (P310)
Absorb spillage to prevent material damage. (P390)
Dispose of contents/container to approved disposal facility. (P501)

Section 3: Composition / Information on Ingredients

Component	CASRN	Concentration (% by weight)
Aluminum Oxide**	1334-28-1	0.9 – 15.3
Antimony Oxide	1309-64-4	0.02 – 0.6
Barium Oxide**	1304-28-5	0.02 – 0.5
Cadmium Oxide	1306-19-0	0 – 0.2
Calcium Oxide**	1305-78-8	8 - 52
Chromium (III) Oxide	1308-38-9	0.04 – 0.4
Copper Oxide**	1317-38-0	0.04 – 4
Iron Oxide	1345-25-1	0.3 – 29
Lead Oxide**	1317-36-7	0.03 – 0.9
Magnesium Oxide	1309-48-4	1.0 – 6
Manganese Oxide	1344-43-0	0.01 – 0.3
Nickel Oxide	1313-99-1	0.01 – 0.2
Phosphorous Pentoxide	1314-56-3	0.2 – 3
Potassium Oxide	12136-45-7	0.8 – 4
Silicon Dioxide*	7631-86-9	4 – 56
Sodium Oxide**	1313-59-3	2 - 13
Titanium Dioxide	13463-67-7	0.2 – 3
Zinc Oxide	1314-13-2	0.1 – 3
Chlorine – Total**	7782-50-5	0.1 – 29
Carbon – Total**	7440-44-0	0.3 – 18
Sulfur – Total**	7704-34-9	0.2 – 7

*Crystalline silica is not detected in fly ash but bottom ash may have up to 7% crystalline silica in a large granular form that does not typically appear during air monitoring.
**The XRF analysis provides elemental results but these elements generally exist as sulfates, chlorides and carbonates. Calcium is presented as CaO, however this ash generally consists of calcium hydroxide, calcium carbonate and calcium sulfate.

Section 4: First Aid Measures

Eye Contact: Immediately move victim away from exposure and into fresh air. For direct contact, remove contact lenses if present and easy to do. Immediately hold eyelids apart and flush the affected eye(s) with clean water for at least 30 minutes. Seek immediate medical attention.

Skin Contact: Immediately flush affected area(s) with large amounts of water while removing contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

Inhalation (Breathing): Immediately move victim away from exposure and into fresh air If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): ***DO NOT INDUCE VOMITING*** If victim has any breathing difficulties, call for emergency help immediately. If victim is conscious and alert, immediately rinse mouth with water and dilute the ingested material by giving a glass of milk or water to drink; ½ glass for children under 5. Call a physician or poison center. If possible, do not leave victim unattended.

Most important symptoms and effects

Acute: May cause a rash and severe irritation and burns of the nose, throat, digestive and respiratory tract.
Chronic: None known.

Section 5: Fire-Fighting Measures

Extinguishing Media: Use extinguishing agent suitable for type of surrounding fire.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: Hazardous combustion/decomposition products may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion.

Special Protective Actions for Firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant. (See Section 8.)

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits.

Section 6: Accidental Release Measures

Personal Precautions: Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down-wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stay upwind and away from spill/release. Wear appropriate protective equipment, including respiratory protection, as conditions warrant. (See Section 8.) For small spills, sweep spill and place in suitable container for later disposal. See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods for Containment and Clean-Up: Sweep spill and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Section 7: Handling and Storage

Precautions for safe handling: Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment. (See section 8.) Do not breathe dust.

Do not enter confined spaces without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in dry, well-ventilated areas. Store only in approved containers. Keep away from any incompatible material. (See Section 10.) Protect container(s) against physical damage.

Section 8: Exposure Controls / Personal Protection

Component	ACGIH TWA	OSHA PEL TWA	Other
Aluminum Oxide**	Not Determined	15 mg/m^3 (total dust) 5 mg/m^3 (respirable)	---
Antimony Trioxide**	Low as possible	0.5 mg/m^3	0.5 mg/m^3 (NIOSH)
Barium Oxide**	0.5 mg/m^3	0.5 mg/m^3	Barium Sulfate 5mg/m^3 (ACGIH)
Cadmium Oxide (as Cd)	0.01 mg/m^3 0.002 mg/m^3 (respirable)	0.05 mg/m^3	----
Calcium Oxide**	2 mg/m^3	5 mg/m^3	---
Chromium Oxide (as Cr III)	0.5 mg/m^3 (inhalable)	0.5 mg/m^3	---
Copper Oxide**	0.1 mg/m3 (as Cu dust) 0.2 mg/m3 (as Cu fume	0.1 mg/m3 (as Cu fume)	---
Iron Oxide	5 mg/m^3 (respirable)	10 mg/m^3 (fume) 15 mg/m^3 (total dust) 5 mg/m^3 (respirable)	---
Lead Oxide**	0.05 mg/m3 (as lead)	0.05 mg/m3 (as lead)	---
Magnesium Oxide	10 mg/m^3 (inhalable)	15 mg/m^3 (fume – total particulate)	---
Manganese Oxide (as Mn)	0.02 mg/m^3 (respirable) 0.1 mg/m^3(inhalable)	0.5 mg/m^3	---
Nickel Oxide (as Ni)	0.2 mg/m^3	1 mg/m^3	---
Phosphorous Pentoxide**	Not determined	Not determined	---
Potassium Oxide**	Not determined	Not determined	---
Silicon Dioxide*	Note below.	Note below.	---
Sodium Oxide**	Not determined	Not determined	---
Titanium Dioxide	10 mg/m^3	15 mg/m^3 (total dust)	---
Zinc Oxide**	2mg/m^3 (respirable) 10mg/m^3 (respirable)	15 mg/m^3 (total) 5 mg/m^3 (respirable fraction)	---
Chlorine-Total**	0.5 ppm (TWA) 1 ppm (STEL)	1 ppm (CEIL)	---
Sulfur-Total**	Not determined	Not determined	---

*Crystalline silica is not detected in fly ash but bottom ash may have up to 7% crystalline silica in a large granular form that does not typically appear during air monitoring.
**XRF analysis provides elemental results but these elements generally exist as sulfates, chlorides and carbonates. Calcium is presented as CaO, however this ash generally consists of calcium hydroxide, calcium carbonate and calcium sulfate.
Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Personal Protective Equipment

Eye/Face Protection: The use of eye protection (such as safety goggles) is recommended when there is potential contact to the eye. Depending on conditions of use, additional equipment may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled is advised to prevent skin contact. Leather gloves are applicable but users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as boots, aprons, arm covers, hoods or coveralls.

Respiratory Protection: A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance:	Gray solid
Physical Form:	Solid
Odor:	None
Odor Threshold:	No data available
pH:	8 – 12
Vapor Pressure:	No data available
Vapor Density (air=1):	No data available
Initial Boiling Point/Range:	Not applicable
Melting/Freezing Point:	Not applicable
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water) (Kow):	No data available
Density:	No data available
Evaporation Rate (nBuAc=1):	Not applicable
Flash Point:	Not flammable
Lower Explosive Limits (vol % in air):	Not flammable
Upper Explosive Limits (vol % in air):	Not flammable
Auto-ignition Temperature:	Not flammable

Section 10: Stability and Reactivity

Reactivity: Stable under normal ambient and anticipated conditions of use.

Chemical Stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to Avoid: None known.

Materials to Avoid (Incompatible Materials): Strong oxidizers.

Hazardous Decomposition Products: Oxides of carbon and sulfur.

Hazardous Polymerization: Not known to occur.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled	-----	ATE = 2.5 mg/l
Skin Absorption	Not expected to be hazardous	----	None
Ingestion (Swallowing)	Not expected to be hazardous	----	None

Aspiration Hazard: Not an aspiration hazard.

Skin Corrosion/Irritation: Corrosive. Contact may cause severe irritation, skin burns, and permanent skin damage.

Serious Eye Damage/Irritation: Corrosive. Contact may cause severe irritation, eye burns, and permanent eye damage.

Signs and Symptoms: Overexposure can result in severe irritation and burns of the nose, throat, and respiratory tract.

Skin Sensitization: May cause an allergic skin reaction.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Minor components have been identified as carcinogens. (See below.)

Inorganic lead compounds have been identified as a carcinogen by IARC (2A). It is also identified as reasonably anticipated to be a human carcinogen by NTP.

Antimony trioxide has been identified as a possible carcinogen due to the lung effects seen in female rats. It has been identified as a carcinogen by NTP and IARC.

Cadmium and cadmium compounds cause cancer of the lung. Also, positive associations have been observed between exposure to cadmium and cadmium compounds and cancer of the kidney and of the prostate. It has been identified as a carcinogen by NTP, IARC and OSHA.

Titanium Dioxide has demonstrated carcinogenic effects in laboratory animals. These effects have not been noted in epidemiological studies. IARC has classified it as a 2B carcinogen.

Germ Cell Mutagenicity: Cadmium compounds are suspected of causing genetic effects.

Reproductive Toxicity: Inorganic lead and cadmium compounds have been determined to cause reproductive and developmental toxicity.

Section 12: Ecological Information

Not evaluated

Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" or “characteristic” hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinsates could be considered to be hazardous wastes.

Section 14: Transport Information

U.S. Department of Transportation (DOT)
Shipping Name: Municipal Solid Waste Combined Ash
UN Number: N/A
Packing Group: N/A
Hazard Class: N/A
Emergency Response Guide: N/A

Section 15: Regulatory Information

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	No
Pressure Hazard:	No
Reactive Hazard:	No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Component	Concentration (%)[1]	de minimis
Aluminum Oxide	0.9 – 15.3	1%
Antimony Compounds	0.02 – 0.6	1%
Barium Compounds	0.02- 0.5	1%
Cadmium Compounds	0 – 0.2	0.1%
Chromium (III) Compounds	0.04 – 0.4	1%
Copper Compounds	0.04 – 4%	1%
Lead Compounds	0.03 – 0.9	0.1%
Manganese Compounds	0.01 – 0.3	1%
Nickel Compounds	0.01 – 0.2	0.1%
Zinc Compounds	0.1 – 3	1%

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Antimony Trioxide	Cancer
Cadmium and cadmium compounds	Cancer
Lead and inorganic lead compounds	Cancer
Titanium Dioxide (airborne unbound particles – respirable size)	Cancer

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA

International Hazard Classification

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) soon to be called the Hazardous Products Regulations (HPR) and the SDS contains information required by the Regulations.

WHMIS Hazard Class:
E – Corrosive
D2A – Very toxic material at concentrations >0.1%

Section 16: Other Information

Date of Issue:	09-Jun-2016
Status:	Final
Previous Issue Date:	New SDS
Revised Sections or Basis for Revision:	New SDS
SDS Number:	2016001

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Workplace Hazardous Materials Information System (Canada); XRF = X-Ray Fluorescence

Disclaimer of Expressed and implied Warranties:
The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Attachment 3

WASTE FLOW CONTROL PLAN

Revision 7, April 2015
Revision 8, June 2021

VOLUME IX, CHAPTER 3

Approved by:_____ **Date:** _____

COVANTA ESSEX COMPANY
OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3

ESSEX COUNTY RESOURCE RECOVERY FACILITY
WASTE FLOW CONTROL PLAN

Revision 8, June 2021

Waste Flow Control

The following contains a discussion of the waste delivery and flow path through the facility. Included in this discussion are measures utilized to minimize the processing of prohibited waste, to handle incoming waste flow during periods of emergencies and/or equipment breakdown or shutdown, and to describe the management of internally generated plant wastes.

A. Waste Deliveries

A.1 Permitted Waste Types

The following solid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) may be accepted for disposal:

TYPE 10 Municipal Waste (household, commercial and institutional)

TYPE 23 Vegetative Waste (except bulk quantities)

TYPE 25 Animal and Food Processing Waste (small quantities only, not large quantities or full truck loads)

TYPE 27 Dry Industrial Waste (except asbestos and asbestos containing wastes; dry non-hazardous pesticides; contaminated soils; hazardous waste; radioactive waste; and Type 27 from districts which have complied with an Industrial Waste Survey.

A.2 Prohibited Waste Types

The following solid and liquid waste materials, as identified by waste ID numbers and defined in N.J.A.C 7:26-2.13(g) and (h), regulated medical waste classes as defined in N.J.A.C 7:26-3A.6(a), and bulk recyclables as defined in N.J.A.C. 7:26A are specifically prohibited from disposal at the facility:

TYPE 12 Dry Sewage Sludge
TYPE 13 Bulky Wastes
TYPE 23 Vegetative Waste (Bulk quantities)
TYPE 25 Animal and Food Processing Waste (Large quantities or full truck loads)
TYPE 27 Dry Industrial Wastes
TYPE 72 Bulk liquid and Semi-Liquids
TYPE 73 Septic Tank Clean-out Wastes
TYPE 74 Liquid Sewage Sludge
Regulated Medical Waste (RMW), all classes, N.J.A.C 7:26-3A.6 (a)
Bulk Recyclables N.J.A.C. 7:26A

A.3. Waste Flow

On-site traffic control is maintained to provide for orderly vehicular movement on the Facility grounds. Lane delineations, signals, signs, barriers ensure a controlled flow of traffic delivering waste to the Facility through the scales to the tipping floor, then leaving the tipping floor and exiting the Facility through the scale. Trucks carrying ash residue, recovered metals, unprocessible wastes, bypass wastes and/or chemical deliveries are similarly controlled and directed to minimize waste delivery traffic. Signs are posted indicating the maximum speed limit. A Facility traffic flow is represented in Appendix 1.

The control of prohibited waste is a multi—layered approach incorporating the cooperation of customers, the haulers, and Covanta Essex. One mechanism is through the guidance of the Essex County Solid Waste Management Plan, through which the company has determined which industrial wastes are prohibited at the Essex County Resource Recovery Facility.

In order to minimize prohibited waste from entering the facility, a HAULERS HANDBOOK (**copy attached as Appendix 2a**) has been developed which outlines and explains the waste acceptance criteria at the facility. This Handbook has been sent to all registered haulers utilizing the facility. The Handbook will be provided to new haulers. An abstract (as provided in Appendix 2) to the handbook pertaining to waste acceptance will be available at the scale house.

In addition, signs have been prominently posted on the facility's access road to indicate which wastes are acceptable. The signs read as follows:

THIS FACILITY RECEIVES AND BURNS ONLY HOUSEHOLD WASTE, COMMERCIAL WASTE AND INDUSTRIAL WASTE THAT DOES NOT CONTAIN HAZARDOUS WASTE – AS IDENTIFIED UNDER RCRA. INSPECTIONS WILL BE DONE TO ENSURE COMPLIANCE.

THIS FACILITY IS NOT PERMITTED TO ACCEPT BULKY WASTE. INSPECTIONS WILL BE PERFORMED TO ENSURE COMPLIANCE.

The first review of the paperwork and delivery vehicles is provided by the facility's scale house personnel. The origin and disposal (O&D) form, shown in Appendix 3, carried by the hauler denotes the origin and waste type of the material being delivered. At this time, the delivery vehicle is also checked for weight, proper registration, decals and is automatically scanned for radioactivity. If the review of documents and vehicle requirements proves satisfactory, the load information is entered into the scale house computer and the truck is released to proceed to the tipping bay. The scales are integrated into a computerized weighing system and weights of each load are recorded. Any problems encountered are brought to the attention of the appropriate supervisor.

If a delivery vehicle arrives at the facility's scale house and the O&D form indicates that it is a full truck load of Type 25 waste, the driver will be notified that the truck will be prohibited from dumping the load for processing at the facility and must be diverted to another location. The driver will receive instructions based on a previously determined agreement with the hauling company for delivering the waste to one of Covanta's New Jersey transfer stations which are permitted to accept Type 25 waste.

A.4. Tipping Floor Inspections:

Once the load has exited the scale and proceeded to the tipping floor (the waste receiving area), the load is subject to a visual inspection. Inspections are performed on a random basis by trained plant personnel. The purposes of the inspection are twofold: 1) to identify and remove prohibited or unprocessible materials prior to initiation of processing and 2) to ensure that the waste delivery vehicle is properly registered and decaled.

Under the visual inspection program, a truck being inspected will be observed for proper decals and for prohibited or unprocessible waste types as the truck unloads onto the tipping bay floor. For palletized loads of waste materials, a random sampling of the waste material will be checked against the approval paperwork (see Section D). With the inspection program, any hauler may be requested to unload contents of their truck on the tipping floor for visual inspection of waste. Once the inspection is completed, the acceptable portion of the load is pushed into the refuse pit by use of heavy equipment. Prohibited or unprocessible materials are handled as described below in Section 4. If the entire portion of the load is acceptable, the truck is released and returned to the scale house to weigh out.

Inspections will be conducted where they will least interfere with existing operational demands and flow of truck traffic. This provides for use of the tipping floor relative to the distribution of waste in the bunker and provides flexibility with regard to activities on the tipping floor.

All inspections will be recorded and these records will be used to evaluate carrier compliance and performance. An example of an inspection form in provided in Appendix 4. The enforcement of the inspection program is conducted primarily by Covanta Essex personnel. Regularly scheduled inspections by the NJDEP Solid Waste Enforcement Division also serve as a spot check of the inspection program.

A.5 Procedure for Removing Prohibited or Unprocessible Waste:

If prohibited or unprocessible waste is identified during the visual inspection, it will be separated or isolated as required.

If bulk recyclables as defined in N.J.A.C. 7:26A are identified, the vehicle will be reloaded and the material will be rejected. Class A materials consist of metals, glass, plastics and corrugated cardboard. Class B, C, and D materials would also not be acceptable at the facility due to the fact that they fit the description of ID 13, ID 23 (bulk) and ID 72.

If suspected hazardous waste, regulated medical waste (RMW) or prohibited dry industrial (Type 27) is identified, Tipping Hall personnel will initiate action to ensure proper handling of the material. If practicable and can be done safely, this material is separated from the acceptable portion of waste. If the generator can be identified and the NJDEP grants approval, the prohibited material can be rejected to the original generator. If the generator is not positively identified, the material will be secured and moved to the secured prohibited waste storage area (identified in Appendix 5) that is located a safe distance from the active disposal area. Arrangements for identification and disposal will be handled through qualified vendors.

In the case of bulky waste, the waste will be separated manually or by the use of a front-end loader. The bulky waste either be immediately rejected to the hauler or placed into the bulk storage/transport container. This container is routinely delivered to the authorized bulk acceptance site. The container is stored on the south side of the tipping floor next to Bay 15. (See Appendix 5 for arrangement drawing).

If a visual inspection spots an unidentifiable industrial container in the refuse pit, it can be removed with the overhead crane and lowered to the extended bucket of the front-end loader. The container will be separated using all necessary precautions and moved to the unprocessible waste storage area as identified in Appendix 5. Upon the identification of a bulky item in the refuse pit, the item will be picked-up by the overhead crane and deposited on the charging deck. Bulky items would be removed as described above. Depending on pit level, the bulky shear remains an option for size reduction of bulky items.

If a visual inspection indicates a small quantity of Type 25 waste in the load on the floor, the front end loader operator will be notified and the load would be pushed into the pit immediately by the front end loader. After the load has been removed from the tipping floor, a bleach solution will be applied to the affected tipping floor area and front end loader bucket for disinfection.

A.6. Special Waste

The Facility offers secured destruction for a variety of materials including Treated Regulated Medical Waste, APHIS waste, pharmaceuticals, health care products, documents and non-hazardous industrial wastes.

a. Treated Regulated Medical Waste is material which is sterilized and then destroyed beyond recognition. After successfully completing this destruction process, this material is classified as ID 10. These generators are audited prior to issuing approval. After approval is received by the generator, each load is accompanied by a letter stating the treatment of the material. A procedure for handling this material **is attached as Appendix 7** and facility's copy is also filed in the Safety Manual, Volume VI of the O&M Manual.

b. Animal and Plant Health Inspection Services (APHIS) waste generated from international sources. These loads may originate from the numerous airports or shipping ports located in the area. A separate procedure for handling **(attached here as Appendix 8)** APHIS wastes is located in the Safe Operating Procedures (SOP) Manual.

c. Pharmaceuticals, Health Care Products & Industrial Wastes are accepted at the Facility for assured destruction. This material is screened for acceptability prior to approval and receipt at the Facility. Details of the Special Waste Program are provided in Appendix 6. These materials, typically containerized and non-putrescible in nature, lend themselves to **temporary (for a period no longer than seventy-two hours) storage prior to processing.** Storage of containerized waste materials will be limited to the area denoted in Appendix 5. A procedure for handling this type of material is located in the Safety Manual, Volume 10 of the O&M Manual. Provided in Appendix 6 is Plant Specific Operating Procedure #42 Handling Special Waste Deliveries.

B. Refuse Flow By—Pass Procedure

Since the majority of the potential equipment malfunctions or emergencies are not expected to affect waste flow, the Facility will first utilize the capacity of the waste pit to handle incoming waste flow in the event of an unplanned malfunction or outage. The bunker is designed to store an estimated 14,000 tons of refuse, enough for approximately four days of operation.

In the event that the Facility is unable to accept and dispose of Acceptable Waste whether as a result of scheduled downtime for maintenance or otherwise and the permits do not authorize use of the Facility (or a portion thereof) for transfer operations (or if the permits do authorize such use, such as transfer facilities are not operational), the Essex County Utilities Authority (ECUA) will arrange for Alternate Disposal Facilities to be available for disposal of such Acceptable Waste. After being informed by Covanta Essex that waste is unable to be accepted at the Facility, the ECUA would in turn call individual municipalities and contracted haulers to redirect to the appropriate by-pass site. The haulers are instructed as to the proper procedures to follow under this condition. They will be supplied with routes from Covanta Essex and from their respected origin sites to the by-pass location. Covanta Essex will supply the ECUA with updates as to when waste acceptance will resume.

During a short term situation which may affect the acceptance of waste into the tipping hall (i.e., pit fire, two cranes down, truck accident) no waste will be kept on the floor, other than what has been thrown—down for routine inspections, without seeking approval from the NJDEP. Space restrictions inside the facility limit staging of trucks in case of short term outages to road “A”, which leads to the tipping hall, as shown in appendix 4.

During a situation which may affect the acceptance of waste into the tipping hall (i.e., bunker (pit) fire, hazardous material release, trucking accident) the refuse trucks will first be held at the entrance gate. The trucks in line will remain in place. If it appears that the situation will not be solved quickly, NJDEP will be consulted as part of the decision making process.

C. Plant Waste Management -All Sources

Management of internally generated facility waste is best categorized in terms of waste disposal methods. The Essex facility has the capacity to safely process certain amounts and types of waste materials. Other waste types, including recyclables, will be handled through off-site disposal.

C.1. <u>INTERNAL DISPOSAL</u>

a. Use of incineration for waste types ID 10 non— recyclable trash, ID 23 vegetative waste (except for leaves), ID 25 animal and food processing waste, and ID 27 (dry industrial waste) allowed by the Solid Waste Permit.

b. Use of process design and water balance to absorb normally generated industrial wastewater for wetting of ash. The storm water retention system is also used to provide water for low quality use.

c. **Waste bulk liquid oils generated from equipment maintenance will be disposed off site to Class D used oil facilities in the State of New Jersey, or other similarly licensed facilities located outside of the State of New Jersey.**

d. **Use of incineration for waste oil debris and solids generated from spills, equipment maintenance and housekeeping.**

e. Use of incineration for disposal of various sump contents.

f. Used filter bags from the boiler baghouses

1) When disposing of used filter bags from any of the boiler baghouses, bags must be shaken, blown or pulsed prior to removal to remove as much loose ash residue as possible.
2) Bags are to be removed from the cell plate and placed into sealed containers (double plastic bags or fiber drums) within the baghouse compartment or within an enclosure that prevents direct release of ash to the environment. During removal of bags, procedures must be in place to avoid the emission or spillage of any loose ash into the environment.
3) The baghouse module qualifies as “preventing a release” if the filter bags are immediately rolled up and placed in plastic bags or drums.
4) The sealed containers containing the used baghouse filter bags are to be transported to the tipping floor and discharged into the refuse pit as soon as possible. The transporting of bags to the tipping floor shall only be performed by facility personnel. Third-party contractors shall not be used for this task.
5) The container or bag that the used filter bags are placed into should be marked with a red X using spray paint or similar markings to allow for easy identification by the refuse crane operator once placed in the refuse pit.

C.2. <u>EXTERNAL DISPOSAL</u>

a. Use of solid waste disposal contractor for waste Types ID 13 (bulky waste), through the appropriate transfer station.

b. Use of sanitary sewer system for sanitary/gray discharge and “upset condition” industrial wastewater (with approval from PVSC).

c. Use of recycling contractor for designated Essex County recyclables including newspapers, glass containers, aluminum, old corrugated containers, office paper and ferrous scrap.

d. Use of appropriately licensed vendors for:

1) waste degreaser (D001);
2) spent batteries;
3) fluorescent lamps/bulbs and other mercury containing devices;
4) spent phosphoric acid sludge (D002).

e. Use of one or combination of the following methods for non—hazardous empty drum disposal: (1) return to supplier; (2) establishment of reuse procedure; and/or (3) deheading of container and crushing prior to recycling disposal as ferrous scrap.

f. Use of contract for Essex County ash residue disposal. Ash will be loaded and transported 24 hours per day, six days a week. **Ash residue and recovered metals (contained in truck bodies or containers) can be stored on the tipping floor during Sundays only.**

WASTE FLOW CONTROL PLAN

APPENDIX 1

(Appendix 1)

UNACCEPTABLE/UNPROCESSIBLE WHICH CANNOT BE ACEPTED AT THE ESSEX COUNTY RESOURCE RECOVERY FACILITY.

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE SOLID WASTE MANAGEMENT PLAN OF ESSEX COUNTY REGULATES THE PERMIT OF THE ESSEX COUNTY RESOURCE RECOVERY FACILITY TO ACCEPT ONLY HOUSEHOLD, NON-HAZARDOUS INDUSTRIAL/COMMERCIAL WASTE, CERTAIN VEGETATIVE WASTE (LEAVES ARE EXCLUDED), AND ANIMAL AND FOOD PROCESSING WASTE (EXCEPT LARGE QUANTITIES OR FULL LOADS). UNACCEPTABLE/UNPROCESSIBLE WASTE WHICH CANNOT BE RECEIVED INCLUDES ALL HAZARDOUS WASTE, CERTAIN NON-HAZARDOUS WASTES AND ALL MEDICAL/INFECTIOUS WASTES.

UNACCEPTABLE NON-HAZARDOUS INCLUDE BUT ARE NOT LIMITED TO:

BATTERIES such as dry cells, mercury batteries, vehicle batteries.

WHITE GOODS such as refrigerators, stoves, dishwashers, washers and dryers.

BULKY GOODS such as bed springs, mattresses, air conditioners, hot water heaters, water storage tanks, furnaces, oil storage tanks, any compressed storage tank, children swing sets, vehicle frame parts, crank cases, transmissions, engines, lawn equipment, snow blowers, bikes, file cabinets, metal furniture, clean fill, metal piping, fuel containers.

LARGE QUANTITIES OR FULL TRUCK LOADS OF TYPE 25 WASTE

UNACCEPTABLE MEDICAL/INFECTIOUS WASTES INCLUDE BUT ARE NOT LIMITED TO:

SURGICAL AND OBSTETICAL WASTES

PATHOLOGICAL WASTES such as human tissue, human anatomical parts.

BIOLOGICAL WASTES such as excretions, suctionings, secretions, disposable medical supplies that have come into contact with such wastes.

BLOOD SOILED MATERIALS

RENAL DIALYSIS WASTES such as tubing and needles.

UN-AUTOCLAVED OR UNSTERILIZED serums or vaccines, lab waste, sharp instruments such as hypodermic needles intravenous needles and tubing.

UNACCEPTABLE HAZARDOUS WASTE INCLUDING BUT NOT LIMITED TO:

DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC DRUMS OR OTHER LARGE ENCLOSED STEEL, METAL OR PLASTIC CONTAINERS.

BULK SLUDGES OR WET SOLIDS NOT CHARACTERISTIC TO MUNICIPAL WASTE.

LARGE AMOUNTS OF LIQUIDS OR OIL SOAKED SOLIDS OR SORBENTS, EXCEPT FOR SOLIDS OR SORBENTS CONTAINING OILY RESIDUE WHICH HAVE BEEN CERTIFIED BY THE GENERATOR OF THE WASTE TO BE NON-HAZARDOUS.

MILITARY ORDINANCE OR OTHER EXPLOSIVES.

PRESSURIZED CONTAINERS.

ANY SUSPECT CLOSED INDUSTRIAL PACKAGING.

COVANTA ESSEX COMPANY

WASTE FLOW CONTROL AND LITTER PLAN

APPENDIX 2

(APPENDIX 2) VISUAL INSPECTION SHEET

DATE:_____
INSPECTOR:_____ ***MUST OBSERVE A MINIMUM OF 15 TRUCKS PER DAY**

NAME OF HAULER	VEHICLE #/TRAILER #	RESULTS		FOLLOW-UP/COMMENTS
		GOOD	BAD	

COVANTA ESSEX COMPANY

WASTE FLOW CONTROL AND LITTER PLAN

APPENDIX 2

COVANTA ESSEX SECTION REPORT

INSPECTION TYPE: THROWDOWN VISUAL (INTO PIT)

BAY ASSIGNMENT: 2 3 4 5 6 7 8 9 10 11 12 13 14 15 CIRCLE BAY # ASSIGNED

INSPECTOR:	VEHICLE DATA:		COMPANY VEHICLE #	
DATE:	TYPE OF VEHICLE	DEP STICKER #	TRUCK #	NJ DEP # ***(Painted)***
TIME:	TRUCK			
HAULER:	ROLL-OFF		LIC PLATE # FRONT	LIC PLATE # REAR
TAG#:	TRANSFER			
WASTE TYPE:	ACCT. #			

UNACCEPTABLE WASTE TYPES AND IDENTIFIERS

POTENTIALLY HAZARDOUS:

LIQUID SOAKED DEBRIS _____

EXPLOSIVES _____

INDUSTRIAL CONTAINERS _____

RADIOACTIVE MATERIAL _____

DRY/POWDERED MATERIAL _____

PRESSURIZED VESSELS _____

WARNING LABELS _____

MOTORS _____

PAINTS _____

WET SOLIDS _____

UNUSUAL ODOR _____

REGULATED MEDICAL WASTE:

CULTURES AND STOCKS (CLASS 1) _____

PATHOLOGICAL WASTE (CLASS 2) _____

HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) _____

SHARPS (CLASS 4) _____

ANIMAL WASTE (CLASS 5) _____

ISOLATION WASTE (CLASS 6) _____

UNUSED SHARPS (CLASS 7) _____

RECYCLABLES:

ALUMINUM ____ CARDBOARD _____ PLASTIC ___ GLASS ___ BULK LOAD (100%) ____

BULKY WASTE (TYPE 13):

APPLIANCES _____
TAR PAPER/SHINGLES _____
METAL PRODUCTS _____
CEILING TILES _____
SHEET ROCK _____
BALES _____
BED SPRINGS _____
RUBBER PRODUCTS _____
C & D WASTE _____
AUTO PARTS _____
OTHER (SEE COMMENTS) _____

TYPE 27 - UNACCEPTABLE PORTIONS BASE ON P.M.K. SURVEY (SEE COMMENTS)

NJDEPE PROHIBITED WASTE _____
NON-RESPONDENT/INSUFFICIENT TO SURVEY _____
HAZARDOUS IMPACT ON EMISSIONS _____
HAZARDOUS WASTE _____
HAZ. EFFECT ON ASH _____
NON-COMBUSTIBLES _____

OVERALL RESULTS:

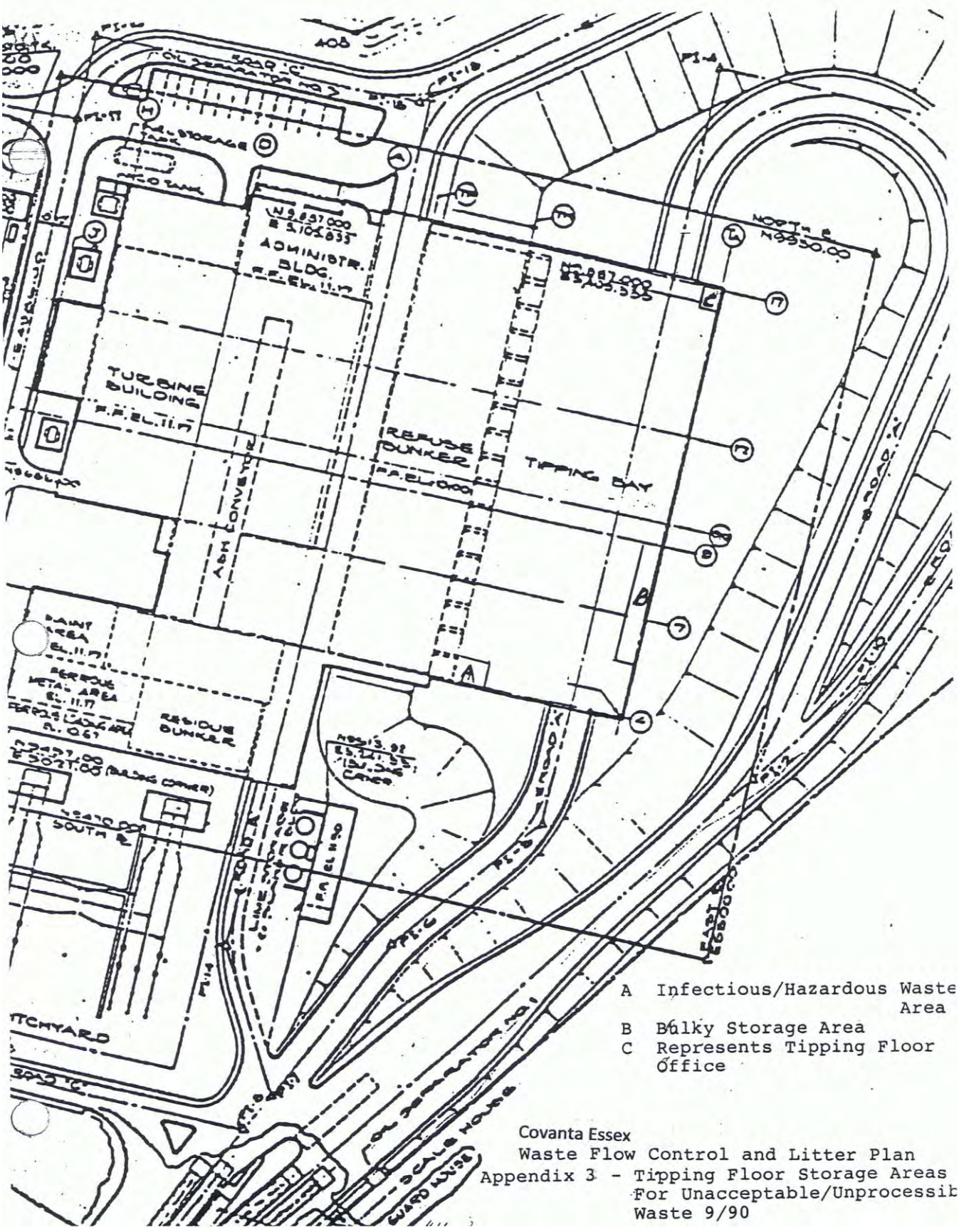
ACCEPTABLE LOAD _____ UNACCEPTABLE LOAD _____ DRIVER SAFETY VIOLATION _____

COMMENTS:

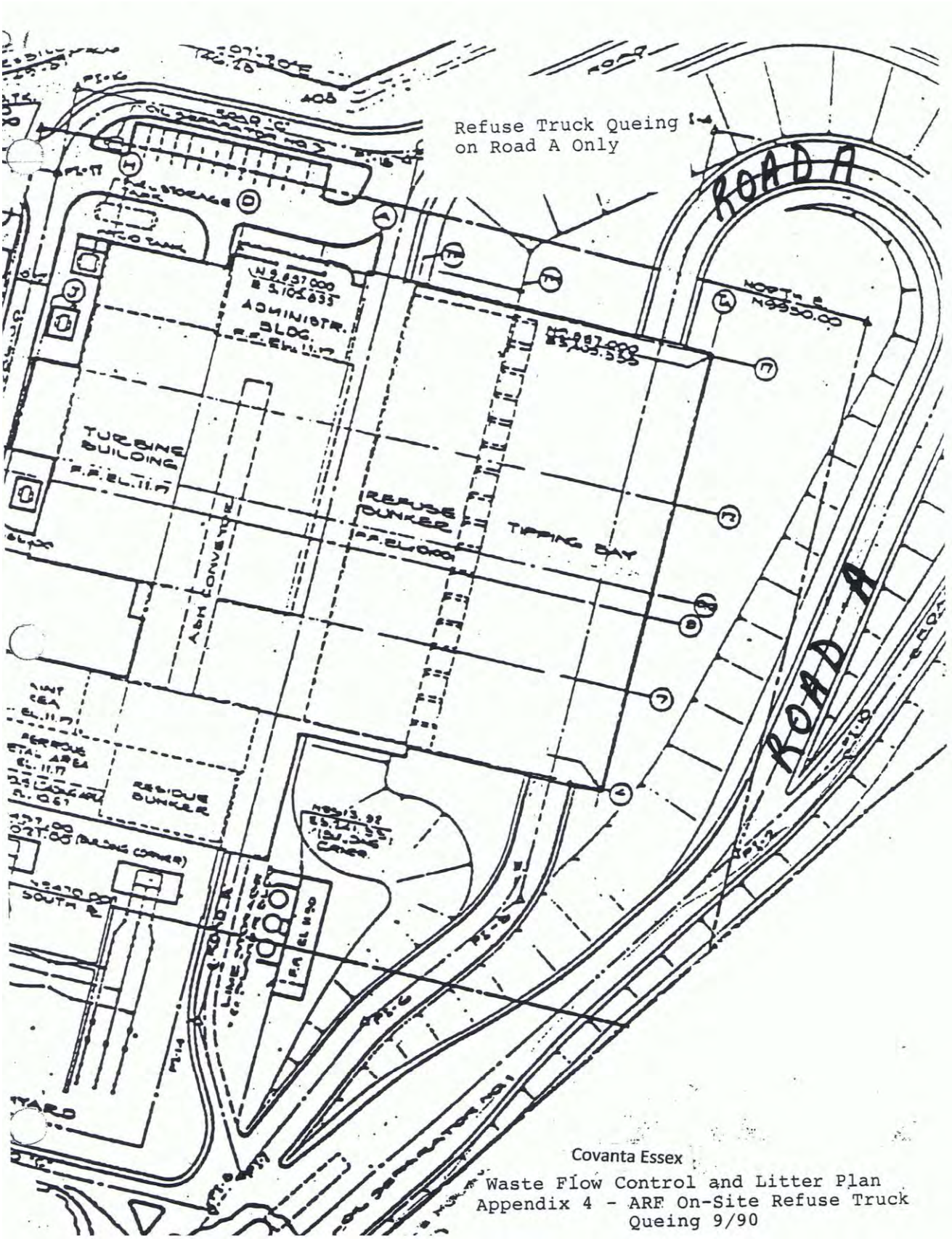
FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:

1) TONY FLURI/FUEL HANDLING LEAD TECH.		
2) SHIFT SUPERVISOR ON DUTY		
3) OPERATIONS MANAGER		

*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED



Covanta Essex
Waste Flow Control and Litter Plan
Appendix 3 - Tipping Floor Storage Areas For Unacceptable/Unprocessib Waste 9/90



Covanta Essex

Waste Flow Control and Litter Plan
Appendix 4 - ARF On-Site Refuse Truck Queing 9/90

Part	Subpart	Subpart Title
60	A	General Provisions
60	D	Standards of Performance for Fossil-Fuel-Fired Steam Generators
60	Da	Standards of Performance For Electric Utility Steam Generating Units
60	Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
60	Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
60	Ea	Standards of Performance for Municipal Waste Combustors for Which Construction is Commenced After December 20, 1989 and on or Before September 20, 1994
60	Eb	Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996
60	Ec	Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators
60	Ga	Standards of Performance for Nitric Acid Plants for Which Construction, Reconstruction, or Modification Commenced After October 14, 2011
60	J	Standards of Performance for Petroleum Refineries
60	Ja	Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007
60	BBa	Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013
60	CC	Standards of Performance for Glass Manufacturing Plants
60	VVa	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
60	DDD	Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
60	QQQ	Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems
60	WWW	Standards of Performance for Municipal Solid Waste Landfills that Commenced Construction, Reconstruction, or Modification on or After May 30, 1991, but Before July 18, 2014
60	AAAA	Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999 or for Which Modification or Reconstruction is Commenced After June 6, 2001
60	BBBB	Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units Constructed on or Before August 30, 1999
60	CCCC	Standards of Performance for Commercial and Industrial Solid Waste Incineration Units
60	DDDD	Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units
60	EEEE	Standards of Performance for Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006
60	FFFF	Emission Guidelines and Compliance Times for Other Solid Waste Incineration Units that Commenced Construction on or Before December 9, 2004
60	LLLL	Standards of Performance for New Sewage Sludge Incineration Units
60	MMMM	Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units
60	OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015
63	F, G, H	Synthetic Organic Chemical Manufacturing
63	L	Coke Ovens: Charging, Top Side, and Door Leaks
63	N	Chromium Electroplating
63	O	Ethylene Oxide Sterilization Facilities
63	S	Pulp and Paper
63	U	Group I Polymers and Resins (including Neoprene Production)
63	W	Group II Polymers and Resins
63	X	Secondary Lead Smelting
63	Y	Marine Tank Vessel Loading Operations
63	CC, UUU	Petroleum Refineries
63	HH	Oil and Natural Gas Production
63	II	Shipbuilding and Ship Repair (Surface Coating)
63	JJ	Wood Furniture Manufacturing Operations
63	KK	Printing and Publishing Industry
63	MM	Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, Stand-Alone Semichemical Pulp Mills
63	SS	Closed Vent Systems, Control Devices, Recovery, Routing to Fuel Gas System
63	TT	Equipment Leaks-Control Level 1
63	UU	Equipment Leaks-Control Level 2
63	YY	Ethylene Production
63	YY	Generic MACT I, II, Acetal Resins, Carbon Black, Cyanide Chemicals Manufacturing, Hydrogen Fluoride, Spandex Production
63	CCC	Steel Pickling--HCl Process Facilities and Hydrochloric Acid Regeneration Plants
63	EEE	Hazardous Waste Combustors
63	GGG	Pharmaceuticals Production
63	HHH	Natural Gas Transmission and Storage
63	JJJ	Polymers & Resins IV
63	MMM	Pesticide Active Ingredient Production
63	PPP	Polyether Polyols Production
63	QQQ, EEEEEE	Primary Copper Smelting (major and area sources)
63	TTT	Primary Lead Smelting
63	VVV	Publicly Owned Treatment Works
63	AAAA	Municipal Solid Waste Landfills
63	DDDD	Plywood and Composite Wood Products
63	EEEE	Organic Liquids Distribution (non-gasoline)
63	FFFF	Miscellaneous Organic Chemical Manufacturing
63	GGGG	Solvent Extraction for Vegetable Oil Production
63	HHHH	Wet Formed Fiberglass Mat Production
63	IIII	Surface Coating of Automobiles and Light-Duty Trucks
63	JJJJ	Paper and Other Web Coating

63	KKKK	Surface Coating of Metal Cans
63	MMMM	Surface Coating of Miscellaneous Metal Parts and Products
63	NNNN	Surface Coating of Large Appliances
63	OOOO	Printing, Coating, and Dyeing of Fabrics and Other Textiles
63	PPPP	Plastic Parts Surface Coating
63	QQQQ	Surface Coating of Wood Building Products
63	SSSS	Metal Coil Surface Coating
63	TTTT	Leather Finishing Operations
63	UUUU	Cellulose Products Manufacturing
63	VVVV	Boat Manufacturing
63	WWWW	Reinforced Plastic Composites Production
63	XXXX	Rubber Tire Manufacturing
63	YYYY	Stationary Combustion Turbines
63	AAAAA	Lime Manufacturing
63	BBBBB	Semiconductor Manufacturing
63	CCCCC	Coke Ovens: Pushing, Quenching, and Battery Stacks
63	EEEEE	Iron and Steel Foundries (major sources)
63	FFFFF	Integrated Iron and Steel Manufacturing
63	GGGGG	Site Remediation
63	HHHHH	Miscellaneous Coating Manufacturing
63	IIIII	Mercury Cell Chlor-Alkali Plants
63	LLLLL	Asphalt Processing and Asphalt Roofing Manufacturing
63	MMMMM	Flexible Polyurethane Foam Fabrication Operation
63	NNNNN	Hydrochloric Acid Production
63	PPPPP	Engine Test Cells/Stands
63	RRRRR	Taconite Iron Ore Processing
63	SSSSS	Refractory Products Manufacturing
63	TTTTT	Primary Magnesium Refining
63	ZZZZZ	Iron and Steel Foundries (area sources)
63	GGGGGG	Primary Nonferrous Metals Area Sources - Zinc, Cadmium, Beryl Primary Zinc Production
63	SSSSSS	Glass Manufacturing (area sources)
63	VVVVVV	Chemical Manufacturing Area Sources
63	HHHHHHH	Polyvinyl Chloride and Copolymers Production

40 C.F.R. Section	Loophole Version
60.8(c); 60.11(c)	SSM exemption
60.45(b)(6)(iii)	SSM exemption
60.48Da(a), (d), (f), (o)(2)(iv), (o)(3)(iii), (o)(4)(v), (s); 60.49Da(u)(3)	SSM exemption + Malfunction affirmative defense
60.43b(g); 60.45b(a); 60.46b(a); 60.48b(j)(4)(iii)	SSM exemption
60.43c(d); 60.47c(e)(3)	SSM exemption
60.58a(a)	SSM exemption
60.55b(c); 60.58b(a)(1), (a)(1)(iii), (a)(2)	SSM exemption + malfunction exemption
60.52c(e)	Malfunction exemption
60.74a	Malfunction affirmative defense
60.104(a)(1)	SSM exemption
60.102a(f)(3); 60.103a(h)	SSM exemption
60.284a(d)(4)(ii), (d)(5)(ii), (d)(5)(iv), (e)(3); 60.286a	SSM exemption + Malfunction affirmative defense
60.292(e)	SSM exemption
60.482-1a(e)	SSM exemption
60.562-1(b)(1)(ii), (c)(1)(i)(B)	SSM exemption
60.692-1(a)	SSM exemption
60.755(e)	SSM exemption
60.1205(a); 60.1220(a); 60.1445(b)	SSM exemption
60.1695(a); 60.1710(a); 60.1920(b)	SSM exemption
60.2235(d)	Malfunction reporting ex
60.2795(d)	Malfunction reporting ex
60.2918; 60.2971(b)	SSM exemption
60.3025; 60.3066(b)	SSM exemption
60.4861	Malfunction affirmative defense
60.5181	Malfunction affirmative defense
60.5420a(b)(14)	Malfunction reporting ex
63.102(a)(1)-(4); 63.119(f)(3)	SSM exemption
63.300(e); 63.310(i)	SSM exemption
63.342(b)(1)	Malfunction affirmative defense
63.362(b); 63.363(f)	SSM exemption
63.456	Malfunction affirmative defense
63.480(j)(4)	Malfunction affirmative defense
63.526(c)	SSM exemption
63.552	Malfunction affirmative defense
63.562(e)(7)	Malfunction affirmative defense
63.648(j)(3)(iv)-(v); 63.655(h)(10)(ii); 63.670(o)(7); 63.641; 63.1575(l)(2)	Malfunction exemption + reporting ex
63.762(d)	Malfunction affirmative defense
63.781(d)	Malfunction affirmative defense
63.800(j)	Malfunction affirmative defense
63.820(c)	Malfunction affirmative defense
63.867(d)(4)	Malfunction reporting ex
63.984(a), 63.985(a)	SSM exemption
63.1007(e)(1)(ii)(A); 63.1009(e)(1)(i)(A); 63.1012(b)(1)	SSM exemption
63.1026(e)(1)(ii)(A); 63.1028(e)(1)(i)(A); 63.1031(b)(1)	SSM exemption
63.1103(e)(2), (4) (cross-ref. 63.670); 63.1107(h)(3)(iv), (v); 63.1110(a)(10)(iv)	Malfunction exemption + reporting ex
63.1108(a)(1), (2), (5)	SSM exemption
63.1155(d)	Malfunction affirmative defense
63.1206(b)(1)(i); 63.1206(c)(2)(v)(A)(2); 63.1206(c)(2)(v)(B)(4)	SSM exemption
63.1250(g)(4)	Malfunction affirmative defense
63.1272(d)	Malfunction affirmative defense
63.1310(k)	Malfunction affirmative defense
63.1360(k)	Malfunction affirmative defense
63.1420(i)	Malfunction affirmative defense
63.1448(a); 63.11148(b)(3), (f)(4); 63.11149(d)	SSM exemption
63.1551	Malfunction affirmative defense
63.1590(h)	Malfunction reporting ex
63.1981(n)	Malfunction reporting ex
63.2281(l)	Malfunction reporting ex
63.2386(j)	Malfunction reporting ex
63.2480(e)(3)(iv)-(v); 63.2520(i); 63.2550	Malfunction exemption + reporting ex
63.2861(i)	Malfunction reporting ex
63.3000(g)	Malfunction reporting ex
63.3120(h)	Malfunction reporting ex
63.3400(j)	Malfunction reporting ex

63.3511(h)	Malfunction reporting ex
63.3920(h)	Malfunction reporting ex
63.4121(e)	Malfunction reporting ex
63.4311(h)	Malfunction reporting ex
63.4520(h)	Malfunction reporting ex
63.4720(d)(4)	Malfunction reporting ex
63.5181(e)	Malfunction reporting ex
63.5420(c)(5)	Malfunction reporting ex
63.5580(k)	Malfunction reporting ex
63.5765(f)	Malfunction reporting ex
63.5912(f)	Malfunction reporting ex
63.6010(j)	Malfunction reporting ex
63.6150(i)	Malfunction reporting ex
63.7131(j)	Malfunction reporting ex
63.7185(a)	SSM exemption
63.7310(a); 63.7336(b)(1)	SSM exemption
63.7751(i)	Malfunction reporting ex
63.7841(f)	Malfunction reporting ex
63.7923(f); 63.7951(h); 63.7957	Malfunction exemption + reporting ex
63.8075(k)	Malfunction reporting ex
63.8226(a); 63.8248(b)	SSM exemption
63.8693(i)	Malfunction reporting ex
63.8794(b); 63.8812(d)	SSM exemption
63.9050(n)	Malfunction reporting ex
63.9350(i)	Malfunction reporting ex
63.9641(h)	Malfunction reporting ex
63.9792(a); 63.9810(e)(2)	SSM exemption
63.9910(a); 63.9925(b)(1)	SSM exemption
63.10899(g)	Malfunction reporting ex
63.11162(k); 63.11163(i)	SSM exemption
63.11455(a)	SSM exemption
63.11501(e)	Malfunction affirmative defense
63.11895	Malfunction affirmative defense

Attachment 2- Human Health Risk Assessment (HHRA)

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Air Quality Evaluation and Modeling Report

Hazardous Air Pollutants Risk Assessment

Covanta Essex Co

Project number: 60563449

March 1, 2019

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1. Report Overview

Covanta Essex Company (Covanta Essex), a wholly owned subsidiary of Covanta Energy Corporation (Covanta Energy), operates the Essex County Resource Recovery Facility (the ECRRF or the facility), under Program Interest Number 07736. To support the Operating Permit renewal, Permit Activity Number: BOP170001, the New Jersey Department of Environmental Protection (NJDEP) has determined that a facility-wide risk assessment is required in order to continue their review of the renewal application, in accordance with N.J.A.C. 7:27-22.3(cc) given the operating permit contains air toxics emission limits above reporting thresholds.

Covanta is submitting this report to document the dispersion modeling and second-level facility-wide risk screening assessment as requested by NJDEP (November 6, 2017 email). This second-level risk screening assessment was conducted consistent with the methodology outlined in the *Air Quality Evaluation and Modeling Protocol, Revision #3, July 26, 2018.* The July 26, 2018 modeling protocol was revised based on comments received from NJDEP on a revised protocol submitted February 27, 2018 and the incorporation of recent stack testing. The approval of the modeling protocol was received in the August 24, 2018 letter from the NJDEP (see **Appendix D**), and was conditional pending comments to be addressed in the modeling report. This report has addressed those comments. The analysis was also conducted in accordance with the requirements in NJDEP's *Technical Manual 1003 - Guidance on Risk Assessment for Air Contaminant Emissions (November 18, 2009)* and NJDEP's *Technical Manual 1002 - Guideline on Air Quality Impact Modeling Analysis (November, 2009)*. Details of this modeling are provided in the following sections of this report. The electronic modeling files, including the risk calculation spreadsheet, are provided in **Appendix C** on compact disc (CD) to facilitate NJDEPs review of the analysis.

1.1 Organization of the Report

This report addresses the requirements applicable to the air dispersion modeling and health risk analysis. Specific sections of the application include:

Section 2 – Regulatory Review describes the New Jersey state regulations that may influence dispersion modeling requirements and the standards applicable to the modeled sources.

Section 3 – Source Description provides descriptions of site location, evaluated sources, applicable air pollution controls, and emission rates.

Section 4 – Modeling Approach describes the modeling approach and model selection.

Section 5 – Modeling Results provides the modeling results.

Section 6 – References.

Appendix A – Facility Plot Plan.

Appendix B – Risk Calculation Spreadsheet.

Appendix C – Modeling File Archive CD.

Appendix D – NJDEP Approval of the Modeling Protocol.

2. Regulatory Review

In accordance with N.J.A.C. 7:27-22.3(cc), given the operating permit for the ECRRF contains air toxics emission limits above reporting thresholds, NJDEP requires a facility-wide health risk assessment to support the renewal application. The Health Risk Evaluation requirements are detailed in Technical Manual 1003 and are briefly discussed below.

2.1 Health Risk Evaluation

The NJDEP requires applicants to address potential inhalation-based health risks for sources of hazardous air pollutants (HAPs) for which potential emissions exceed the HAP-specific reporting thresholds stated in Subchapter 22, *Operating Permits*. The first step is typically a risk screening procedure to conservatively estimate health risk where ambient concentrations for annual and short-term averaging periods are conservatively estimated using emission rates and dispersion look-up tables combined within the NJDEP's risk screening spreadsheet. Impacts of HAPs can also be predicted through air quality dispersion modeling, and the predicted impacts can be incorporated into the NJDEP's risk screening spreadsheet.

The first-level risk screening is designed to evaluate a calculated risk below the "negligible" threshold which is defined as cancer risk less than or equal to ten in a million (Table 5.2 of Technical Manual 1003) and a hazard quotient of less than or equal to one for non-carcinogenic risk (Table 5.3 of Technical Manual 1003) for a facility-wide assessment. If the conservatively calculated risk is above negligible thresholds, second tier analysis is required.

A second-level risk screening assessment was conducted for the ECRRF that utilized dispersion modeling results obtained from application of the U.S Environmental Protection Agency's (USEPA) AERMOD model. The short-term and annual AERMOD results were incorporated into the NJDEP's risk screening spreadsheet which carries out the proper calculations to estimate cancer and non-cancer health risk based on the facility permitted emission rates. Health risk results were also assessed for actual emissions for informational purposes.

3. Source Description

3.1 Site Description and Location

3.1.1 Description

Covanta Essex's ECRRF is an energy-from-waste (EfW) facility with three (3) large, identically sized independent municipal waste combustion units (MWC units). The three (3) MWC units each vent out of their own flue from a single stack structure that is 279 feet in height. The ECRRF is a major source subject to air permitting under N.J.A.C. 7:27-22, Operating Permits, as well as a major source of HAPs.

The ECRRF produces high temperature, high-pressure steam from the combustion of solid waste. The steam is utilized to generate electricity at the facility for sale to Public Service Electric and Gas and for in-plant use. Municipal solid waste (MSW) delivery hours are twenty-four (24) hours per day, Monday through Saturday. The Facility is permitted to combust MSW twenty-four (24) hours per day, 7 days per week, up to a maximum of 985,500 tons of solid waste per year.

The site plot plan of the ECRRF is provided in **Appendix A**. The various system operations are housed predominately in one main building structure consisting of: the tipping hall, the refuse storage bunker, the boiler building, the turbine- generator building, the residue processing facility, the residue bunker, and ferrous and non-ferrous metal storage areas, and the facility administrative offices. Auxiliary support buildings and equipment located separate from the main building structure include: the maintenance building, the induced draft fan control building, the air-cooled condensers, the air quality control systems, the scalehouse, the electrical switchyard, the activated carbon and lime storage silos, the aqueous ammonia storage tank, the raw water storage tank, the wastewater storage tank, the demineralized water storage tank, the condensate storage tank, and the No.2 fuel oil storage tank.

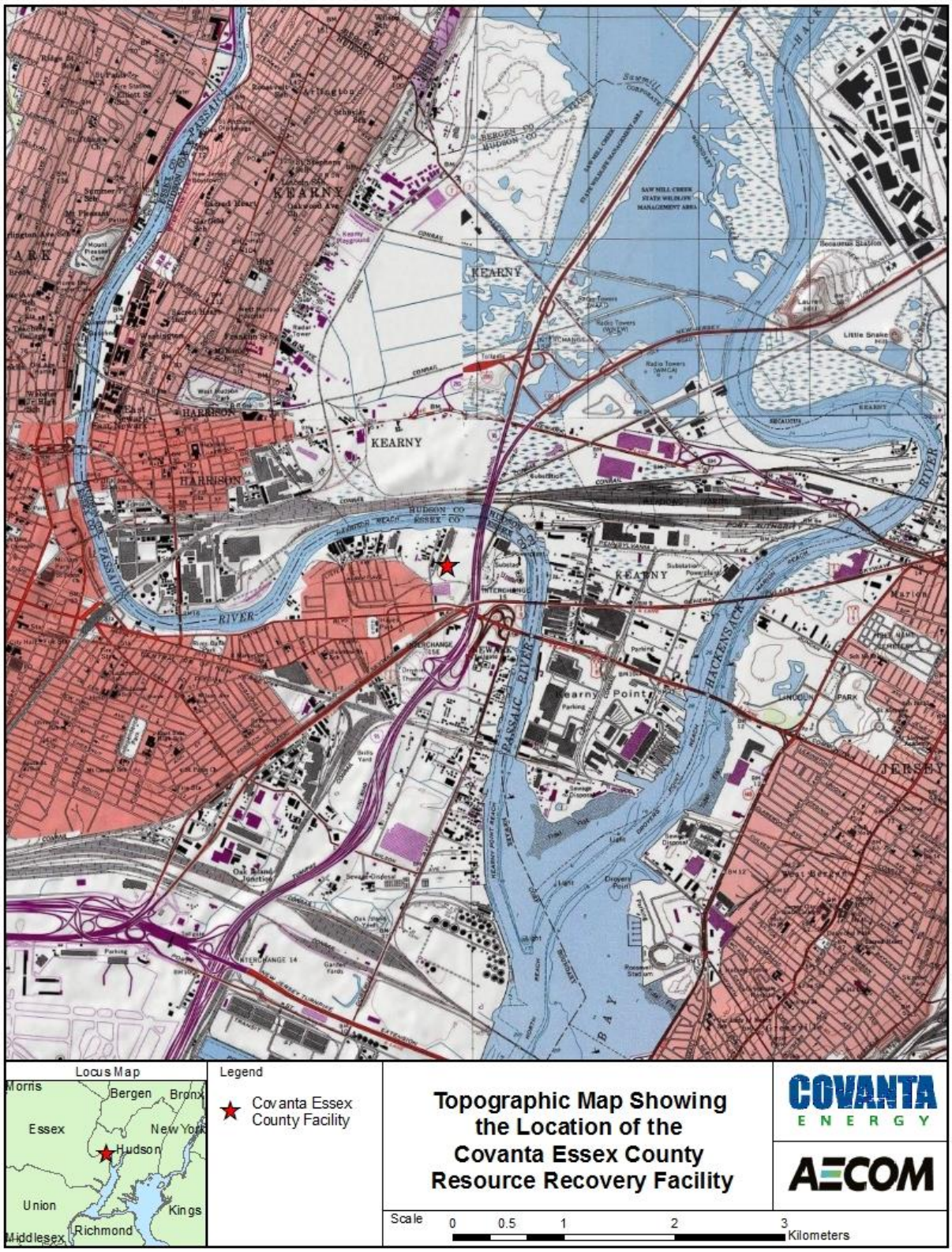
The three (3) MWC units for the combustion of waste, the generation of steam, and the handling of ash generated by the combustion process are the sources of HAPs at the facility. Each of three (3) MWC units contains the following combustion equipment: a charging hopper which is loaded from the waste storage pit by overhead cranes, a feed chute, a ram feeder, roller grates, primary, secondary, and low NOx air systems, auxiliary fuel oil burners, and flues and ducts. Each MWC unit also includes the following steam generation equipment: economizer, main steam drum, the waterwalls (water-filled tubes that line the combustion chamber), a bank evaporator, a superheater, a spray attemperator, safety valves and blowdown tanks. The superheated steam produced at the facility is passed through two (2) turbine-generators to produce electricity. Each turbine-generator is rated at 36 megawatts ("MW"), for a total generating capacity of approximately 72 MW.

In 2012, Covanta Essex entered into an agreement with NJDEP to replace the existing electrostatic precipitator (ESP) on each of the three (3) MWC units with its own fabric filter baghouse to enhance the reduction of particulate matter and HAP metal emissions from the facility. Toxic modeling was conducted at the time as part of the application for this Fabric Filter Upgrade project. The results of that modeling predicted acceptable concentrations. These units are the focus of the requested second tier risk assessment as part of the Title V renewal process.

3.1.2 Location

The ECRRF is located at 183 Raymond Boulevard in Newark, Essex County, NJ, as shown on **Figure 3-1**. As shown in **Figure 3-1**, the ECRRF is located off of U.S. Routes 1/9 and the New Jersey Turnpike.

Figure 3-1 Location of the Covanta Essex County Resource Recovery Facility



3.2 Emission Points Evaluated

As noted, the ECRRF stack contains three (3) flues, one for each MWC unit, that are housed in a single stack structure that is 279 feet in height. The stack parameters summarized in **Table 3-1** were obtained from both the 2012 Fabric Filter Upgrade project application and the 2013 operating permit. Modeling was conducted for both the annual and short-term averaging periods. The annual flue gas flow rate and exhaust temperature are based on average operation of each MWC unit. The short-term flue gas flow rate and exhaust temperature are based on the minimum operation of each MWC unit.

Table 3-1 Stack Parameters

Parameter	Units	Short-Term[5]	Annual[5]
Stack Height	feet	279	
Base Elevation	feet	11	
Flue Diameter	feet	7.54	
Number of Flues	N/A	3	
Effective Stack Diameter [1]	feet	13.06	
Stack Coordinates X [2]	meters	573,748.954	
Stack Coordinates Y [2]	meters	4,510,051.448	
Stack Flue Gas Rate [3]	acfm	140,000	212,000
Stack Velocity [4]	ft/sec	52.23	79.10
Stack Gas Temperature	°F	270	295

(1) Equivalent diameter of three flues.
(2) Based on NAD83, Zone 18.
(3) Values are per MWC unit.
(4) Based on sum of flue gas volumes for all three MWC units and equivalent diameter of three flues (i.e., merged flue gas rates).
(5) Short-term exhaust flow rate and temperature are minimum values, and annual exhaust flow rate and temperature are average values from the operating permit.

3.3 Potential to Emit

Covanta Essex's Title V permit (BOP090003) contains limits on emissions of select HAPs. These limits, included within Facility Specific Requirements portion of the permit, along with the NJDEP reporting thresholds, are presented in **Table 3-2**. Emission limits in the existing operating permit were established based on reporting thresholds for the following compounds: benzo (a) pyrene, carbon tetrachloride, formaldehyde, tetrachloroethylene, trichloroethylene and vinyl chloride. Emissions data derived from recent stack testing (conducted in 2018, and subsequent to installation of the fabric filter) for these compounds were used in the analysis and are listed in **Table 3-2**. The proposed emission rates for carbon tetrachloride, formaldehyde, trichloroethylene and vinyl chloride are based on the 2018 stack test results with a 10% safety factor as approved by NJDEP (February 22, 2019 email from Ted Chleboski). Emissions of benzo (a) pyrene and tetrachloroethylene will remain below the reporting thresholds.

The reporting thresholds in **Table 3-2** represent the updates made official on January 16, 2018, listed in N.J.A.C. 7:27-17.9.

For informational purposes, emission rates based on stack tests performed in 2016 and 2017 for select pollutants are also presented in **Table 3-3**.

Table 3-2 Potential to Emit

Pollutant	Potential to Emit [per MWC unit]		Reporting Thresholds[1]		Report?
	lb/hr	ton/yr	lb/yr	ton/yr	
Ammonia	10.1	44.33	---	---	---
Arsenic	0.0037	0.015	0.01	5.0x10-6	Yes
Beryllium	0.00025	0.001	0.02	1.0x10-5	Yes
Cadmium	0.0037	0.015	0.01	5.0x10-6	Yes
Chromium	0.012	0.048	1,000	0.5	No
Chromium VI[2]	0.0012	0.0048	0.004	2.0x10-6	Yes
Dioxin (TCDD 2,3,7,8)	0.00001	0.000040	0.0000012	6.0x10-10	Yes
Dioxins/Furans (total)	0.000011	0.000043	0.00012	6.0x10-8	Yes
Hydrogen Chloride	21.6	94.67	900	0.45	Yes
Hydrogen Fluoride	0.82	3.60	600	0.3	Yes
Lead	0.037	0.15	2	0.001	Yes
Mercury	0.01	0.040	2	0.001	Yes
Nickel	0.0033	0.013	0.6	3.0x10-4	Yes
Polycyclic Organic Matter	0.29	1.27	2	0.001	Yes
Benzo(a)pyrene[3]	(3)	(3)	0.04	2.0x10-5	No
Carbon tetrachloride[4]	0.007	0.03	8	0.004	Yes
Formaldehyde[4]	0.082	0.359	3.5	0.00175	Yes
Perchloroethylene (tetrachloroethylene) [3]	(3)	(3)	180	0.09	No
Trichloroethylene[4]	0.006	0.026	8	0.004	Yes
Vinyl chloride[4]	0.003	0.012	5	0.0025	Yes

Note(s):

1. Reporting thresholds found in N.J.A.C. 7:27-17.9(b) Table 2. Thresholds are compared to the per unit emission rates.
2. Chromium VI is assumed to be 10% of Chromium emissions (consistent with the Fabric Filter project application).
3. Emission rate will be below reporting threshold.
4. Emission rates based on proposed limits derived from 2018 stack test results with applied 10% safety factor.

Table 3-3 Emission Rates from Stack Testing (values are per unit)

Pollutant	2016 MWC Unit 3 (lb/hr)	2016 MWC Unit 2 (lb/hr)	2017 MWC Unit 1 (lb/hr)	2017 MWC Unit 2 (lb/hr)	2017 MWC Unit 3 (lb/hr)
Cadmium	<0.000042	0.000033	0.0000584	0.0000388	0.0000326
Dioxin (TCDD 2,3,7,8)	2.56E-11	0.000	<3.79E-10	0.000	---
Dioxins/Furans (total)	4.22E-08	7.37E-08	1.18E-07	4.87E-08	---
Hydrogen Chloride	2.7	0.5	0.284	2.76	1.56
Lead	0.00024	0.0005	0.000728	0.000774	0.000829
Mercury	0.001	<0.00043	<0.000428	<0.000459	<0.000457

4. Modeling Approach

The USEPA's AERMOD dispersion model (version 18081) was used for the evaluation to predict concentrations ($\mu g/m^3$) from the emission rates detailed in **Section 3.3**.

The suitability of an air quality dispersion model for a particular application is dependent upon several factors. For this study, four selection criteria were evaluated. The selection of AERMOD was based upon analysis of the following criteria:

- stack height relative to nearby structures;
- dispersion environment;
- local terrain; and
- representative meteorological data.

4.1 Good Engineering Practice (GEP) Stack Height Analysis

Good engineering practice (GEP) stack height is defined as the stack height necessary to ensure that emissions from the stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes or eddy effects created by the source, nearby structures or terrain features. A GEP stack height analysis was conducted with the USEPA's Building Profile Input Processor (BPIP) in accordance with USEPA's guidelines (USEPA, 1985). The location of the stack and buildings layout are shown in **Figure 4-1**. Given the height of the stack (279 feet, 85.04 meters), the size of the structures off-site, buildings of downwash influence are limited to those structures on site. The GEP height for the modeled stack, H_{GEP}, is determined from the dimensions of all buildings which are within the region of influence:

$$H_{GEP} = H + 1.5L$$

where:

H = height of the structure within 5L of the stack which maximizes Hg, and

L = lesser dimension (height or projected width) of the structure.

For a squat structure, i.e., height less than projected width, the formula reduces to:

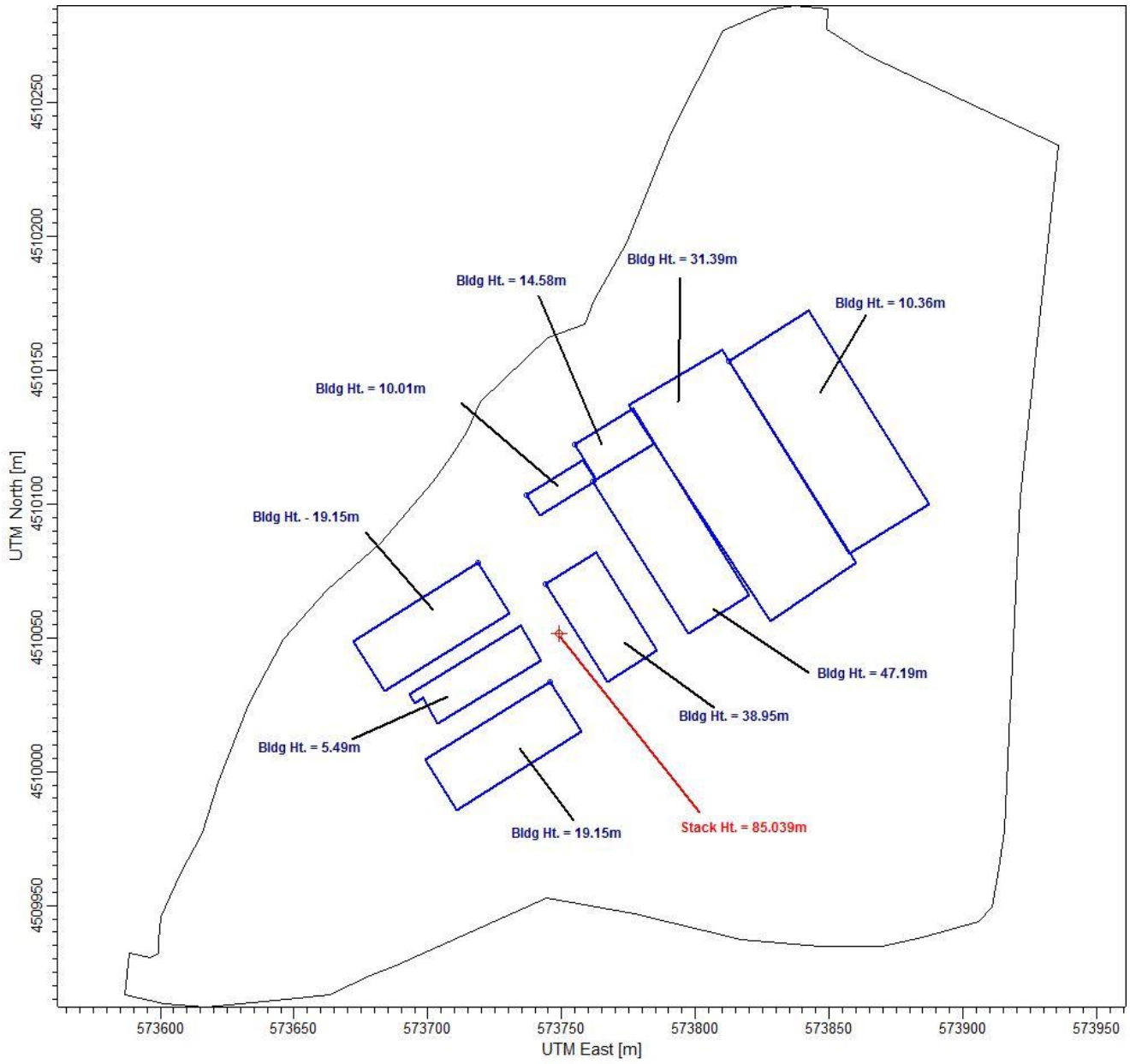
$$H_{GEP} = 2.5H$$

As required by AERMOD, the PRIME version of the BPIP program was employed. The direction-specific building dimensions generated by BPIP-PRIME were input to AERMOD. **Table 4-1** details the overall GEP summary.

Table 4-1 GEP Summary

Stack	Stack Height (m)	Building Height (m)	Maximum Projected Building Width (m)	Distance from Stack (m)	5L Distance (m)	Calculated Formula GEP Stack Height (m)
Combined 3 MWC Units	85.04	47.19 (Boiler Building)	66.48	41.0	235.5	118.02

Figure 4-1 GEP Figure



4.2 Dispersion Environment and Local Topography

The application of the AERMOD model requires characterization of the local (within 3 kilometers) dispersion environment as either urban or rural based on prevalent land use. According to USEPA modeling guidelines, if more than 50 percent of an area within a 3 kilometer radius of the proposed project is classified as rural, then rural dispersion coefficients are to be used in the dispersion modeling analysis.

Based on land-use information provided on United States Geological Survey (USGS) topographic maps and recent aerial photography, the area within 3 kilometers of the ECRRF is considered urban. Therefore, the urban option was used in the application of AERMOD. The urban option was also used in the toxics modeling conducted in support of the Fabric Filter Upgrade project. The population value used in AERMOD was the 2016 population for Newark, NJ of 281,764.

4.3 Meteorological Data

The meteorological data used in the analysis was processed by NJDEP and provided to Covanta Essex for the risk modeling. The meteorological database consists of five years (2010-2014) of surface data from the National Weather Service (NWS) at Newark International Airport, NJ, and concurrent mixing heights from Brookhaven, NY.

4.4 AERMOD Receptors

A Cartesian receptor grid was generated for use in the AERMOD modeling. The grid consisted of the following receptors:

- Along the property boundary with 20 meters spacing;
- From the property boundary to 1 km with 70 meters spacing;
- From 1 km to 2 km with 100 meters spacing;
- From 2 km to 3 km with 250 meters spacing;
- From 3 km to 5 km with 500 meters spacing;
- From 5 km to 10 km with 1,000 meters spacing; and
- From 10 km to 20 km with 2,000 meters spacing.

Receptor height scales at each receptor location (used in AERMOD) was developed by AERMAP (version 18081), the terrain preprocessor for AERMOD, which requires processing of terrain data files. The current version of AERMAP has the ability to process USGS National Elevation Dataset (NED) data in place of digital elevation model (DEM) data. The appropriate file for 1/3-arc-second, or 10-meters, NED data was obtained. NED data files contain profiles of terrain elevations, which in conjunction with receptor data are used to generate receptor height scales. The height scale is the terrain elevation in the vicinity of a receptor that has the greatest influence on dispersion at that location and is used in AERMOD's predictions in complex terrain areas. The receptor coordinates are referenced to North American Datum (NAD) 1983. The receptor grid used in the modeling analysis is shown in **Figures 4-2** and **4-3**.

4.4.1 Sensitive Receptors

Technical Manual 1003 guidance indicates that special attention should be allotted to areas that are considered to be sensitive. Examples of sensitive receptor locations are nearby residences, hospitals, schools and parks. For this analysis all areas outside of the property line of the facility were considered sensitive receptors.

Figure 4-2 Near-Field Receptor Grid

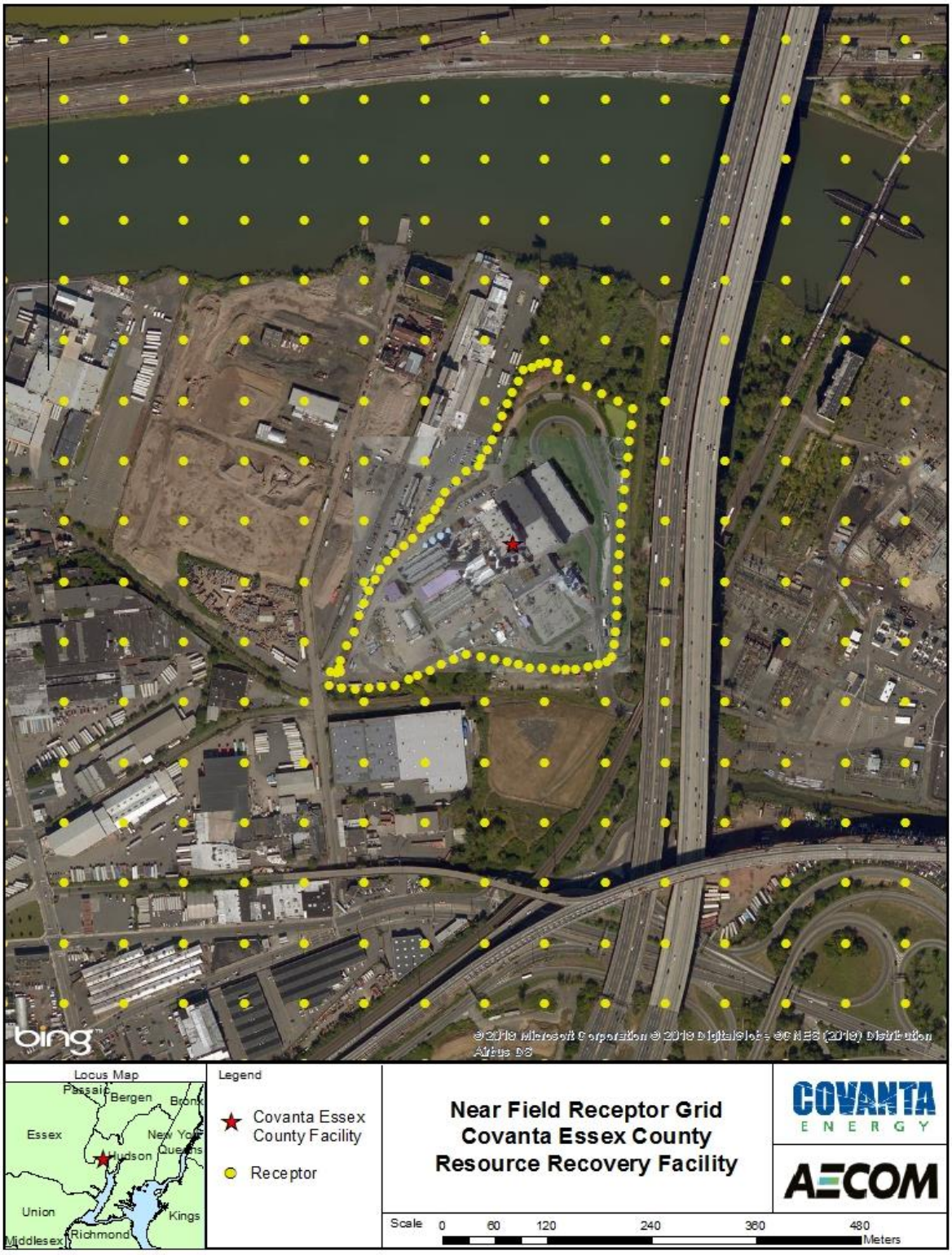
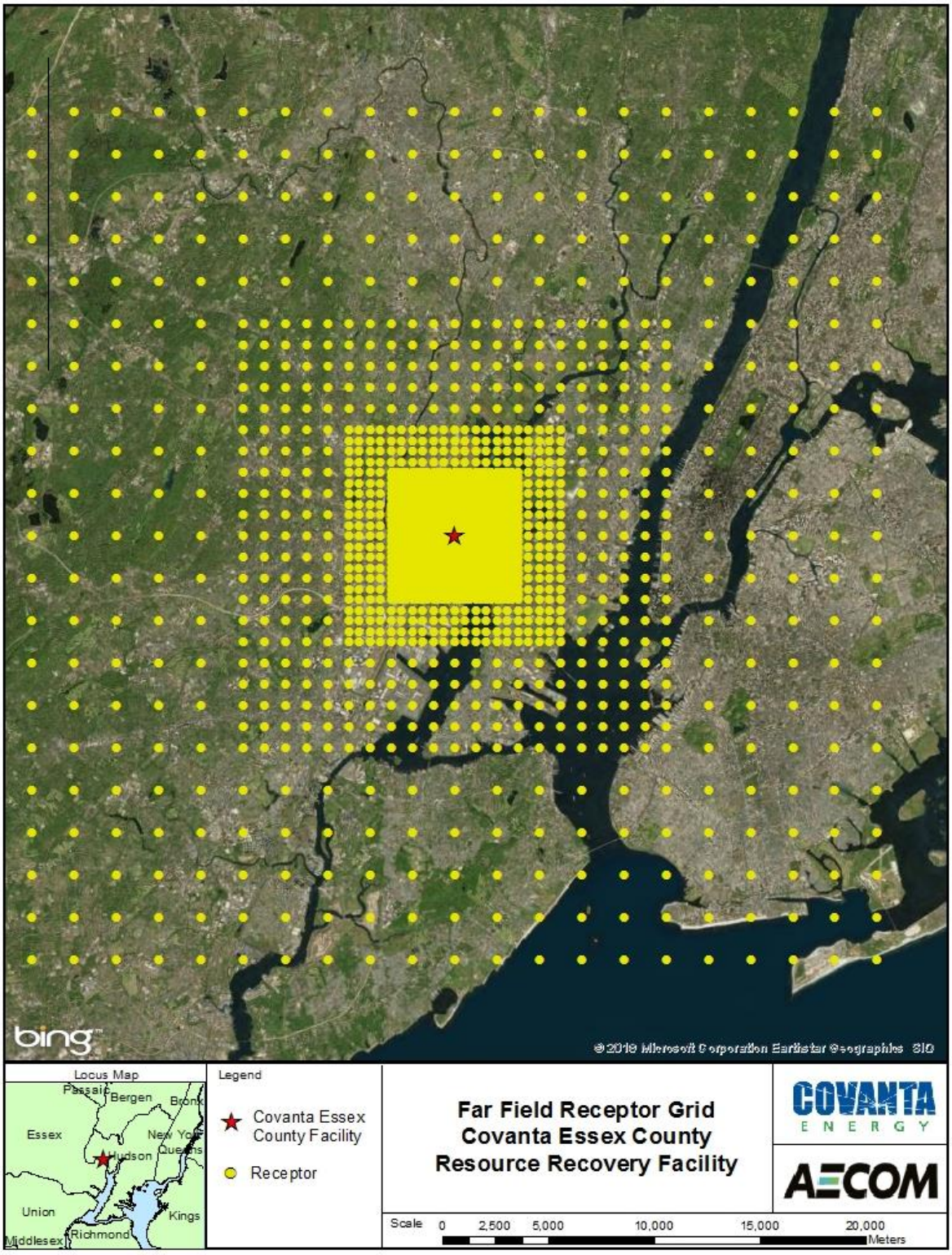


Figure 4-3 Far-Field Receptor Grid



4.5 Source Parameters and Emission Rates

Facility-wide modeling was conducted for compounds over the reporting thresholds as noted in **Table 3-2**, for both the annual and short-term averaging periods. Stack parameters for both short-term and annual modeling periods were presented previously in **Table 3-1**. The emission rates for the second-level risk screening analysis are shown in **Table 4-2**. These rates are based on all three MWCs. The annual emission rates are based on each MWC unit operating at maximum continuous rating (MCR) and short term emission rates assume 110 percent of MCR.

Additionally, the risk screening assessment considered actual emissions determined from stack testing (**Table 4-3**) for informational purposes. These rates are based on maximum stack test results between the 2016 and 2017 tests shown in **Table 3-3**.

Table 4-2 Emission Rates - Potential to Emit

Pollutant	STACK[1]	
	Short Term (g/s)	Annual (g/s)
Ammonia	3.82E+00	3.83E+00
Arsenic	1.40E-03	1.27E-03
Beryllium	9.45E-05	8.63E-05
Cadmium	1.40E-03	1.27E-03
Chromium VI	4.54E-04	4.11E-04
Dioxin (TCDD 2,3,7,8)	3.78E-06	3.42E-06
Dioxins/Furans (total)	4.16E-06	3.74E-06
Hydrogen Chloride	8.16E+00	8.17E+00
Hydrogen Fluoride	3.10E-01	3.11E-01
Lead	1.40E-02	1.27E-02
Mercury	3.78E-03	3.45E-03
Nickel	1.25E-03	1.12E-03
Polycyclic Organic Matter	1.10E-01	1.10E-01
Carbon Tetrachloride	2.65E-03	2.59E-03
Formaldehyde	3.10E-02	3.10E-02
Trichloroethylene	2.27E-03	2.24E-03
Vinyl Chloride	1.13E-03	1.13E-03

Note(s):

1. Total emission rate for all three MWCs.

Table 4-3 Emission Rates Based on Stack Testing

Pollutant	STACK			
	Short Term[1]		Annual[2]	
	(lb/hr)	(g/s)	(tpy)	(g/s)
Cadmium	1.75E-04	2.21E-05	7.67E-04	2.21E-05
Dioxin (TCDD 2,3,7,8)	1.14E-09	1.43E-10	4.98E-09	1.43E-10
Dioxins/Furans (total)	3.54E-07	4.46E-08	1.55E-06	4.46E-08
Hydrogen Chloride	8.28E+00	1.04E+00	3.63E+01	1.04E+00
Lead	2.49E-03	3.13E-04	1.09E-02	3.13E-04
Mercury	3.00E-03	3.78E-04	1.31E-02	3.78E-04

Note(s):

1. Based on the maximum stack test result for all units and the 2 years of data.
2. Based on the maximum short-term rate and 8760 hours operation assumed for all three units.

4.6 Comprehensive Risk Assessment Steps

The following provides details on methodology conducted for the risk assessment organized in steps outlined in NJDEP's Guidance on Risk Assessment for Air Contaminant Emissions (Technical Manual 1003, November 18, 2009).

4.6.1 Hazard Identification

The existing operating permit contains air toxics emission limits above reporting thresholds. In accordance with N.J.A.C. 7:27-22.3(cc), the NJDEP determined that a Facility-Wide Risk Assessment is required in order to continue with the review of the permit application. These pollutants are listed in **Table 3-2**.

4.6.2 Dose-Response Assessment

Applicable unit risk factors (URFs) for long-term (chronic) exposure and reference concentrations (RfCs) for long-term and short term exposures were used as provided in the latest NJDEP screening spreadsheet (updated October 2017). These factors have been determined by NJDEP using inhalation information from USEPA Integrated Risk Information System (IRIS), California Office of Environmental Health Hazard Assessment (OEHHA) and other appropriate sources. See detailed spreadsheet in **Appendix B**.

For dioxins and furans, URF and RfC for 2,3,7,8-tetrachlorodibenzo-p-dioxin was used and compared against total dioxin and furans concentrations.

For total polycyclic aromatic hydrocarbons (PAHs), URF benzo(a)pyrene was used.

4.6.3 Exposure Assessment

Dispersion modeling was conducted based on the specifications previously noted in **Section 4.1** through **Section 4.5**. AERMOD was executed with a unit emission rate of one (1) grams per second to determine the maximum normalized concentrations for annual, 1-hour and 24-hour averaging periods. Resultant maximum normalized concentrations per averaging period were then multiplied by the specific HAP emission rate noted in **Table 4-2** to determine the maximum concentration for each individual HAP required to be evaluated. See detailed spreadsheet in **Appendix B**.

4.6.4 Risk Characterization

For carcinogens, human health risks estimates in terms of cancer risk were based on the following equation:

Cancer Risk = C x URF

Where:

C = maximum annual/short-term average ambient air concentration ($\mu g/m^3$) [concentration determined during Exposure Assessment step]

URF = pollutant-specific inhalation risk factor $(\mu g/m^3)^{-1}$

For noncarcinogens, human health risks in terms of hazard quotient were based on the following equation:

Hazard Quotient = C/RfC

Where:

C = maximum annual average ambient air concentration ($\mu g/m^3$) [concentration determined during Exposure Assessment step]

RfC = pollutant-specific reference concentration ($\mu g/m^3$)

See detailed spreadsheet in **Appendix B**.

5. Modeling Results

The maximum annual and maximum hourly average pollutant concentrations at all offsite receptors (sensitive and non-sensitive locations) are presented below in **Table 5-1**. As described in **Section 4.6**, the maximum predicted annual concentration was multiplied by the URF for carcinogenic risk for each pollutant above reporting threshold to calculate the carcinogenic incremental risk. Resultant risks for each compound were then compared to the cancer risk threshold. Facility-wide cancer risk less than or equal to ten in a million are considered negligible, and values greater than 100 in a million are deemed unacceptable per NJDEP Technical Manual 1003. For both the short-term and long-term non-carcinogenic effects, the predicted impacts were divided by the reference concentration to derive the hazard quotient. Hazard quotients less than or equal to 1 indicate that the risk is negligible. As shown in **Table 5-1**, facility-wide cancer risks and non-carcinogenic risks are negligible for all compounds at the maximally impacted receptor. For informational purposes, **Table 5-2** depicts the facility-wide results for actual emissions. As the actual, stack-tested emission rates (see **Tables 3-3** and **4-3**), are lower than potential emissions, the calculated cancer and non-cancer risks are even further below the risk thresholds.

The modeling files and risk calculation spreadsheet are provided on the CD in **Appendix C**.

Table 5-1 Second-Level Risk Screening Assessment Results – PTE Emissions

	LONG-TERM EFFECTS								SHORT-TERM EFFECTS					
Air Toxic	Annual Maximum Emission Rate[4] (g/s)	Concentration (C)[1] (µg/m^3)	Inhalation Risk Factor (URF) (µg/m^3)-1	Cancer Risk (IR)[2]	> IR Negligible Threshold (10E^6)?	Reference Concentration (RfC) (µg/m^3)	Hazard Quotient (HQ)[3]	> Hazard Quotient/Index Negligible Threshold (1)?	Hourly Maximum Emission Rate[4] (g/s)	Exposure Period (hr)	Concentration (C)[1] (µg/m^3)	RfCst (µg/m^3)	Hazard Quotient (HQ)[3]	> Hazard Quotient/Index Negligible Threshold (1)?
Ammonia	3.83E+00	8.92E-02	--	--	--	100	8.92E-04	N	3.82E+00	1	4.52E+00	3200	1.41E-03	N
Arsenic (inorganic)	1.27E-03	2.95E-05	4.30E-03	1.27E-07	N	0.015	1.97E-03	N	1.40E-03	1	1.66E-03	0.2	8.29E-03	N
Beryllium	8.63E-05	2.01E-06	2.40E-03	4.83E-09	N	0.02	1.01E-04	N	9.45E-05	1	1.12E-04	--	--	--
Cadmium	1.27E-03	2.95E-05	4.20E-03	1.24E-07	N	0.02	1.48E-03	N	1.40E-03	1	1.66E-03	--	--	--
Carbon Tetrachloride	2.59E-03	6.04E-05	6.00E-06	3.62E-10	N	40	1.51E-06	N	2.65E-03	1	3.14E-03	1900	1.65E-06	N
Chromium VI (total)	4.11E-04	9.59E-06	1.20E-02	1.15E-07	N	--	--	--	4.54E-04	1	5.37E-04	--	--	--
Tetrachlorodibenzo(p)dioxin (2,3,7,8-)	3.74E-06	8.72E-08	3.80E+01	3.31E-06	N	0.00004	2.18E-03	N	4.16E-06	1	4.93E-06	--	--	--
Formaldehyde	3.10E-02	7.22E-04	1.30E-05	9.39E-09	N	9	8.03E-05	N	3.10E-02	1	3.67E-02	55	6.68E-04	N
Hydrogen Chloride	8.17E+00	1.91E-01	--	--	--	20	9.53E-03	N	8.16E+00	1	9.67E+00	2100	4.61E-03	N
Hydrogen Fluoride	3.11E-01	7.25E-03	--	--	--	14	5.18E-04	N	3.10E-01	1	3.67E-01	240	1.53E-03	N
Lead	1.27E-02	2.95E-04	1.20E-05	3.54E-09	N	--	--	--	1.40E-02	24	5.42E-03	0.1	5.42E-02	N
Mercury (elemental)	3.45E-03	8.05E-05	--	--	--	0.3	2.68E-04	N	3.78E-03	1	4.48E-03	--	--	--
Nickel and Compounds	1.12E-03	2.62E-05	2.40E-04	6.28E-09	N	0.014	1.87E-03	N	1.25E-03	1	1.48E-03	0.2	7.39E-03	N
[Polycyclic Organic Matter] Benzo(a)pyrene	1.10E-01	2.56E-03	1.10E-03	2.81E-06	N	--	--	--	1.10E-01	1	1.30E-01	--	--	--
Trichloroethylene	2.24E-03	5.23E-05	4.80E-06	2.51E-10	N	2	2.62E-05	N	2.27E-03	24	8.78E-04	2	4.39E-04	N
Vinyl chloride	1.13E-03	2.64E-05	8.80E-06	2.33E-10	N	100	2.64E-07	N	1.13E-03	1	1.34E-03	180000	7.47E-09	N

1. Concentration = Modeled air impact value ((µg/m^3)/(g/s)) x Maximum Emission Rate (g/s) [for short term, multiply by appropriate 1-hr or 24-hr modeled concentration]
2. Cancer Risk = Concentration (µg/m^3) x URF ((µg/m^3)-1)
3. Hazard Quotient = Concentration (µg/m^3) / RfC(µg/m^3)
4. Emissions for all three units.

Table 5-2 Second-Level Risk Screening Assessment Results – Actual Emissions

	LONG-TERM EFFECTS								SHORT-TERM EFFECTS					
Air Toxic	**Annual Maximum Emission Rate[4]** (g/s)	**Concentration (C)[1]** (µg/m^3)	**Inhalation Risk Factor (URF)** (µg/m^3)-1	**Cancer Risk (IR)[2]**	**> IR Negligible Threshold (10E^6)?**	**Reference Concentration (RfC)** (µg/m^3)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**	**Hourly Maximum Emission Rate[4]** (g/s)	**Exposure Period** (hr)	**Concentration (C)[1]** (µg/m^3)	**RfCst** (µg/m^3)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**
Cadmium	2.21E-05	5.15E-07	4.20E-03	2.16E-09	N	0.02	2.57E-05	N	2.21E-05	1	2.62E-05	--	--	--
Tetrachlorodibenzo(p)dioxin (2,3,7,8-)	4.46E-08	1.04E-09	3.80E+01	3.95E-08	N	0.00004	2.60E-05	N	4.46E-08	1	5.29E-08			
Hydrogen Chloride	1.04E+00	2.43E-02	--	--	--	20	1.22E-03	N	1.04E+00	1	1.24E+00	2100	5.9E-04	N
Lead	3.13E-04	7.31E-06	1.20E-05	8.77E-11	N	--	--	--	3.13E-04	24	1.21E-04	0.1	1.2E-03	N
Mercury (elemental)	3.78E-04	8.81E-06	--	--	--	0.3	2.94E-05	N	3.78E-04	1	4.48E-04	--	--	--

1. Concentration = Modeled air impact value ((µg/m^3)/(g/s)) x Maximum Emission Rate (g/s) [for short term, multiply by appropriate 1-hr or 24-hr modeled concentration]
2. Cancer Risk = Concentration (µg/m^3) x URF ((µg/m^3)-1)
3. Hazard Quotient = Concentration (µg/m^3) / RfC(µg/m^3)
4. Emissions for all three units.

6. References

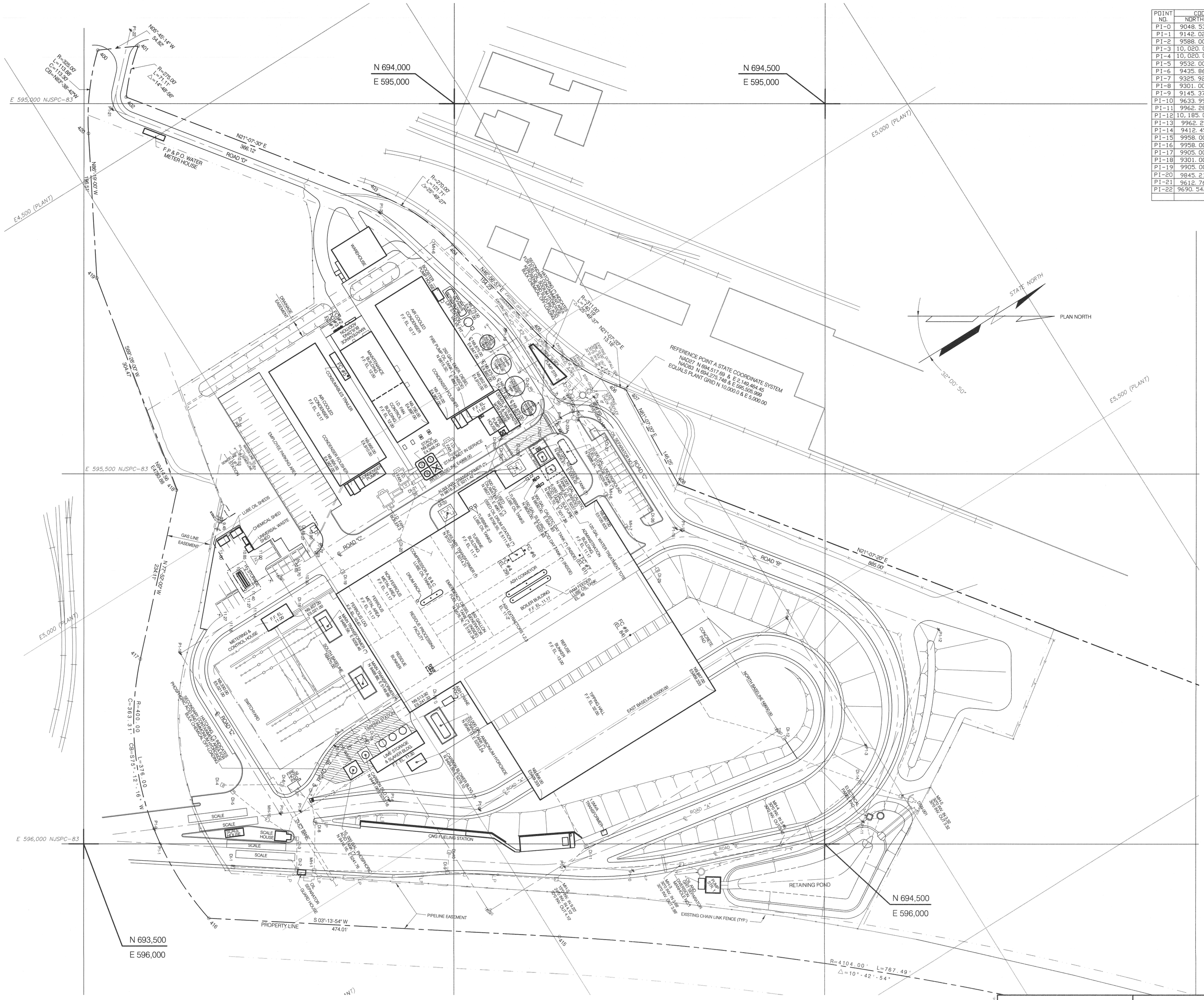
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USEPA 1985. Guideline for Determination of Good Engineering Practice Stack Height. EPA Document No. EPA-450/4-80-023R. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. June 1985.

USEPA 2017. Guideline on Air Quality Models (Revised). Codified in the Appendix W to 40 CFR Part 51. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC. January 2017.

Appendix A - Plot Plan


N 694,000
E 595,000
N 694,500
E 595,000
E 595,000 NJSPC-83
E 595,500 NJSPC-83
E 596,000 NJSPC-83
N 693,500
E 596,000
N 694,500
E 596,000
E5,000 (PLANT)
E4,500 (PLANT)
E5,500 (PLANT)
STATE NORTH
PLAN NORTH
32°-00'-50"
N21°-07'-20" E
386.12
ROAD "D"
F.P.P.&P.O. WATER METER HOUSE
N25°-45'-14" W
54.62'
R=326.00'
L=118.66'
CB=N36°-38'-42"W
R=275.00'
Δ=14°-49'-56"
N68°-19'-00" W
361.5'
S69°-29'-00" W
304.47'
N44°-54'-00" E
276.88'
N17°-52'-00" W
234.11'
R=270.00'
L=121.71'
Δ=25°-49'-27"
N68°-56'-57" E
154.22'
R=1197.00'
L=141.37'
Δ=6°-46'-37"
N21°-07'-20" E
13.16'
N21°-07'-20" E
149.25'
N21°-07'-20" E
865.00'
R=4104.00'
L=767.49'
Δ=10°-42'-54"
R=400.00'
CB=S75°-12'-16"W
L=376.00'
S 03°-13'-54" W
474.01'
PROPERTY LINE
PIPELINE EASEMENT
GAS LINE EASEMENT
REFERENCE POINT A STATE COORDINATE SYSTEM
NAD27 N 694,517.69 & E 2,140,464.45
NAD83 N 694,275.748 & E 595,505.898
EQUALS PLANT GRID N 10,000.0 & E 5,000.00
ROAD "A"
ROAD "B"
ROAD "C"
ROAD "D"
WAREHOUSE
METERING & CONTROL HOUSE
SWITCHYARD
ELECTRICAL SWITCH HOUSE
TIPPING HALL F.F. EL. 0.00
REFUSE BUNKER F.F. EL. 0.00
RESOURCE PROCESSING FACILITY
BOILER BUILDING F.F. EL. 11'-0"
ASH CONVEYOR
ASH CRANE
LIME STORAGE & SILO BLDG. F.F. EL. 11'-0"
CARBON SILO
CARBON SILO BLDG.
ADMINISTRATION F.F. EL. 11'-0"
EMPLOYEE PARKING AREA
MAINTENANCE F.F. EL. 12'-0"
AIR-COOLED CONDENSER F.F. EL. 12'-7"
CONDENSATE POLISHER
FIRE PUMP HOUSE
CHEMICAL SHED
UNIVERSAL WASTE SHED
LUBE OIL SHEDS
SECONDARY CONTAINMENT AREAS FOR CHEMICAL OFF-LOADING
FLAMMABLE MATERIALS CABINET
CNG FUELING STATION
RETAINING POND
EXISTING CHAIN LINK FENCE (TYP.)
SCALE HOUSE
SCALE
SEPARATOR
QUARD HOUSE
QUAD BANK
10 000 GAL. DIESEL FUEL TANK
1 000 GAL. WATER TREATMENT TOTE
1 000 GAL. CHEMICAL STORAGE TANK
1 000 GAL. CHEMICAL FEED TANK
TURBINE LUBE OIL TANKS
TURBINE F.F. EL. 11'-7"
GENERATOR F.F. EL. 11'-7"
CONDENSER F.F. EL. 11'-7"
MAIN STEAM LINE
MAIN FEEDWATER LINE
EMERGENCY OVERFLOW PIPE
EMERGENCY FEEDWATER PUMP
EMERGENCY FEEDWATER TANK
MAIN FEEDWATER PUMP
MAIN FEEDWATER PUMP MOTOR
MAIN FEEDWATER PUMP TURBINE
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Appendix B – Risk Calculation Spreadsheet

	LONG-TERM EFFECTS								SHORT-TERM EFFECTS					
Air Toxic	**Annual Maximum Emission Rate[4]** (g/s)	**Concentration (C)[1]** ($\mu g/m^3$)	**Inhalation Risk Factor (URF)** ($\mu g/m^3$)-1	**Cancer Risk (IR)[2]**	**> IR Negligible Threshold ($10E^6$)?**	**Reference Concentration (RfC)** ($\mu g/m^3$)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**	**Hourly Maximum Emission Rate[4]** (g/s)	**Exposure Period** (hr)	**Concentration (C)[1]** ($\mu g/m^3$)	**RfCst** ($\mu g/m^3$)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**
Ammonia	3.83E+00	8.92E-02				100	8.92E-04	N	3.82E+00	1	4.52E+00	3200	1.41E-03	N
Arsenic (inorganic)	1.27E-03	2.95E-05	4.30E-03	1.27E-07	N	0.015	1.97E-03	N	1.40E-03	1	1.66E-03	0.2	8.29E-03	N
Beryllium	8.63E-05	2.01E-06	2.40E-03	4.83E-09	N	0.02	1.01E-04	N	9.45E-05	1	1.12E-04			
Cadmium	1.27E-03	2.95E-05	4.20E-03	1.24E-07	N	0.02	1.48E-03	N	1.40E-03	1	1.66E-03			
Carbon Tetrachloride	2.59E-03	6.04E-05	6.00E-06	3.62E-10	N	40	1.51E-06	N	2.65E-03	1	3.14E-03	1900	1.65E-06	N
Chromium VI (total)	4.11E-04	9.59E-06	1.20E-02	1.15E-07	N				4.54E-04	1	5.37E-04			
Tetrachlorodibenzo(p)dioxin (2,3,7,8-)	3.74E-06	8.72E-08	3.80E+01	3.31E-06	N	0.00004	2.18E-03	N	4.16E-06	1	4.93E-06			
Formaldehyde	3.10E-02	7.22E-04	1.30E-05	9.39E-09	N	9	8.03E-05	N	3.10E-02	1	3.67E-02	55	6.68E-04	N
Hydrogen Chloride	8.17E+00	1.91E-01				20	9.53E-03	N	8.16E+00	1	9.67E+00	2100	4.61E-03	N
Hydrogen Fluoride	3.11E-01	7.25E-03				14	5.18E-04	N	3.10E-01	1	3.67E-01	240	1.53E-03	N
Lead	1.27E-02	2.95E-04	1.20E-05	3.54E-09	N				1.40E-02	24	5.42E-03	0.1	5.42E-02	N
Mercury (elemental)	3.45E-03	8.05E-05				0.3	2.68E-04	N	3.78E-03	1	4.48E-03			
Nickel and Compounds	1.12E-03	2.62E-05	2.40E-04	6.28E-09	N	0.014	1.87E-03	N	1.25E-03	1	1.48E-03	0.2	7.39E-03	N
[Polycyclic Organic Matter] Benzo(a)pyrene	1.10E-01	2.56E-03	1.10E-03	2.81E-06	N				1.10E-01	1	1.30E-01			
Trichloroethylene	2.24E-03	5.23E-05	4.80E-06	2.51E-10	N	2	2.62E-05	N	2.27E-03	24	8.78E-04	2	4.39E-04	N
Vinyl chloride	1.13E-03	2.64E-05	8.80E-06	2.33E-10	N	100	2.64E-07	N	1.13E-03	1	1.34E-03	180000	7.47E-09	N

1. Concentration = Modeled air impact value (($\mu g/m^3$)/(g/s)) x Maximum Emission Rate (g/s) [for short term, multiply by appropriate 1-hr or 24-hr modeled concentration]
2. Cancer Risk = Concentration ($\mu g/m^3$) x URF (($\mu g/m^3$)-1)
3. Hazard Quotient = Concentration ($\mu g/m^3$) / RfC($\mu g/m^3$)
4. Emissions for all three units.

Maximum modeled **annual** air impact value	0.02332	($\mu g/m^3$)/(g/s)
Maximum modeled **24-hour** air impact value	0.3873	($\mu g/m^3$)/(g/s)
Maximum modeled **1-hour** air impact value	1.18498	($\mu g/m^3$)/(g/s)

	LONG-TERM EFFECTS								SHORT-TERM EFFECTS					
Air Toxic	**Annual Maximum Emission Rate[4]** (g/s)	**Concentration (C)[1]** ($\mu g/m^3$)	**Inhalation Risk Factor (URF)** ($\mu g/m^3$)-1	**Cancer Risk (IR)[2]**	**> IR Negligible Threshold ($10E^6$)?**	**Reference Concentration (RfC)** ($\mu g/m^3$)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**	**Hourly Maximum Emission Rate[4]** (g/s)	**Exposure Period** (hr)	**Concentration (C)[1]** ($\mu g/m^3$)	**RfCst** ($\mu g/m^3$)	**Hazard Quotient (HQ)[3]**	**> Hazard Quotient/Index Negligible Threshold (1)?**
Cadmium	2.21E-05	5.15E-07	4.20E-03	2.16E-09	N	0.02	2.57E-05	N	2.21E-05	1	2.62E-05			
Tetrachlorodibenzo(p)dioxin (2,3,7,8-)	4.46E-08	1.04E-09	3.80E+01	3.95E-08	N	0.00004	2.60E-05	N	4.46E-08	1	5.29E-08			
Hydrogen Chloride	1.04E+00	2.43E-02				20	1.22E-03	N	1.04E+00	1	1.24E+00	2100	5.9E-04	N
Lead	3.13E-04	7.31E-06	1.20E-05	8.77E-11	N				3.13E-04	24	1.21E-04	0.1	1.2E-03	N
Mercury (elemental)	3.78E-04	8.81E-06				0.3	2.94E-05	N	3.78E-04	1	4.48E-04			

1. Concentration = Modeled air impact value (($\mu g/m^3$)/(g/s)) x Maximum Emission Rate (g/s) [for short term, multiply by appropriate 1-hr or 24-hr modeled concentration]
2. Cancer Risk = Concentration ($\mu g/m^3$) x URF (($\mu g/m^3$)-1)
3. Hazard Quotient = Concentration ($\mu g/m^3$) / RfC($\mu g/m^3$)
4. Emissions for all three units.

Maximum modeled **annual** air impact value	0.02332	($\mu g/m^3$)/(g/s)
Maximum modeled **24-hour** air impact value	0.3873	($\mu g/m^3$)/(g/s)
Maximum modeled **1-hour** air impact value	1.18498	($\mu g/m^3$)/(g/s)

	Modeled Concentration (µg/m^3)					
Averaging Period	**2010**	**2011**	**2012**	**2013**	**2014**	**Max**
Annual	0.02332	0.01868	0.01772	0.0213	0.01754	**0.02332**
24	0.3873	0.33423	0.34051	0.33477	0.34281	**0.38730**
1	1.11737	1.11957	1.0956	1.13037	1.18498	**1.18498**

Air Toxic	Facility Emissions				
	Short Term			Annual	
	(lb/hr) per unit	(lb/hr) three units	(g/s) three units	(tons/yr) three units	(g/s) three units
Ammonia	10.1	3.03E+01	3.82E+00	133	3.83E+00
Arsenic	0.0037	1.11E-02	1.40E-03	0.044	1.27E-03
Beryllium	0.00025	7.50E-04	9.45E-05	0.003	8.63E-05
Cadmium	0.0037	1.11E-02	1.40E-03	0.044	1.27E-03
Chromium	0.012	3.60E-02	4.54E-03	0.143	4.11E-03
Chromium VI			4.54E-04		4.11E-04
Dioxin (TCDD 2,3,7,8)	0.00001	3.00E-05	3.78E-06	0.00012	3.42E-06
Dioxins/Furans (total)	0.000011	3.30E-05	4.16E-06	0.00013	3.74E-06
Hydrogen Chloride	21.6	6.48E+01	8.16E+00	284.0	8.17E+00
Hydrogen Fluoride	0.82	2.46E+00	3.10E-01	10.8	3.11E-01
Lead	0.037	1.11E-01	1.40E-02	0.44	1.27E-02
Mercury	0.01	3.00E-02	3.78E-03	0.12	3.45E-03
Nickel	0.0033	9.90E-03	1.25E-03	0.039	1.12E-03
Polycyclic Organic Matter	0.29	8.70E-01	1.10E-01	3.81	1.10E-01
benzo (a) pyrene[1]					
carbon tetrachloride[2]		2.10E-02	2.65E-03	0.0900	2.59E-03
formaldehyde[2]		2.46E-01	3.10E-02	1.0770	3.10E-02
perchloroethylene (tetrachloroethylene)[1]					
trichloroethylene[2]		1.80E-02	2.27E-03	0.0780	2.24E-03
vinyl chloride[2]		9.00E-03	1.13E-03	0.0360	1.13E-03

Note (1) - Emission rate will be below reporting threshold

Note (2) - based on proposed limits derived from 2018 stack test results with applied 10% safety factor.

Cr VI as a % of Cr:	10%

Air Toxic	Emission Rates - Stack Test			
	Short Term		Annual	
	(lb/hr) three units	(g/s) three units	(tons/yr) three units	(g/s) three units
Cadmium	1.75E-04	2.21E-05	7.67E-04	2.21E-05
Dioxin (TCDD 2,3,7,8)	1.14E-09	1.43E-10	4.98E-09	1.43E-10
Dioxins/Furans (total)	3.54E-07	4.46E-08	1.55E-06	4.46E-08
Hydrogen Chloride	8.28E+00	1.04E+00	3.63E+01	1.04E+00
Lead	2.49E-03	3.13E-04	1.09E-02	3.13E-04
Mercury	3.00E-03	3.78E-04	1.31E-02	3.78E-04

Appendix C – Modeling File Archive CD

Appendix D – NJDEP Approval of Modeling Protocol

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CLIMATE AND ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR QUALITY
P.O. Box 420 Mailcode 401-02
TRENTON, NJ 08625-0420
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PHILIP D. MURPHY
Governor

SHEILA OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

August 24, 2018

Ms. Kimberly Zuk
AECOM
250 Apollo Drive
Chelmsford, MA 01824

SUBJECT: Air Quality Evaluation and Modeling Protocol; Covanta Essex Co.; Newark, Essex County; Program Interest # 07736, Permit Activity # BOP170001

The Bureau of Evaluation and Planning (BEP) has reviewed the Air Quality Evaluation and Modeling Protocol for the facility-wide risk assessment of HAPs emissions as part of Covanta Essex Co. (Covanta) operating permit renewal application. The protocol is conditionally approved, provided the following comments are properly addressed in the air dispersion modeling and risk assessment report.

Protocol Overview

1. Paragraph 2 of this section referred to a NJDEP email of November 6, 2017. Please correct the email date.

Section 3.1.2 Location

2. This section referred Figure 3-1 twice as Figure 2-1.

Section 3.2 Emission Points Evaluated

3. This section lists stack discharge information for each of the three municipal waste combustors (MWC). For annual and short-term impact, Covanta proposes to use each MWC's maximum continuous rating (MCR) and 110% MCR, respectively. For annual impacts, average exhaust temperature and flow rate can be used; and, for short-term impact, the minimum temperature and minimum flow rate should be used for assessing health impacts.

Section 4 Modeling Approach

4. The protocol states that AERMOD model version 16216r will be used to perform air dispersion modeling. The current version is v18081. Please make sure this latest version is used in modeling.

Section 4.3 Meteorological Data

5. The most recent meteorological data processed by NJDEP for the Newark International Airport has been emailed to Kimberly Zuk and Brian Stormwind on August 20, 2018. Please use this data for AERMOD modeling.

Section 4.4 AERMOD Receptors

6. The current version of AERMAP is V18081. Please make sure this version is used in the modeling.

Section 4.5 Source Parameters and Emission Rates

7. The first paragraph referred to Table 2-1. It should be Table 3-1.

Table 4-2 Emission Rates – PTEs

8. Please change "Chromium IV" to "Chromium VI".

Section 4.6.1 Hazard Identification

9. This section referred to Table 2-2. It is assumed the reference was meant to be Table 3-2; please revise.

Section 4.6.4 Risk Characterization

10. For concentration C definition, please change "annual average" to "annual/short-term average".

Section 4.7 Modeling Results

11. In accordance with the NJDEP risk assessment policy, incremental cancer risk of each carcinogen, instead of all carcinogens, is compared to the facility-wide negligible threshold of 10 in a million. Therefore, please take out the sentence "Resultant risks for all compounds will be summed together for comparison to the cancer and non-cancer risk thresholds."

12. In accordance with the NJDEP risk assessment policy, long-term and short-term hazard quotient of each toxic air pollutant, instead of combined hazard quotient, is compared to the facility-wide negligible threshold of 1.0. Please revise the sentence "Combined hazard quotients less than or equal to 1 indicate that the risk is negligible."

Sincerely,

Yiling Zhang

CC: T. Chleboski, BSS; Y. Sivaganesh, BSS; G. John, BEP; Y. Zhang, BEP

Attachment 3- U.S. Waste-to-Energy GHG Reduction Overview

U.S. Thermomechanical Treatment GHG Avoidance Overview

Thermomechanical Treatment Facilities (TTFs), also known as waste-to-energy (WTE) facilities, provide economy-wide greenhouse gas (GHG) benefits on a lifecycle basis.[1] An independently verified Lifecycle Assessment (LCA) states that **Reworld U.S. TTFs avoid 2.4 tons of GHGs (expressed as CO_2 equivalents (CO_2e)) for every ton of municipal solid waste (MSW) diverted from landfills**.[2]

U.S. EPA scientists, in a prominent peer reviewed paper, concluded TTFs reduce GHG emissions relative to even those landfills equipped with energy recovery systems.[3] In addition, many other governmental and nongovernmental organizations have formally recognized TTFs for its role in reducing world-wide GHG emissions including the:

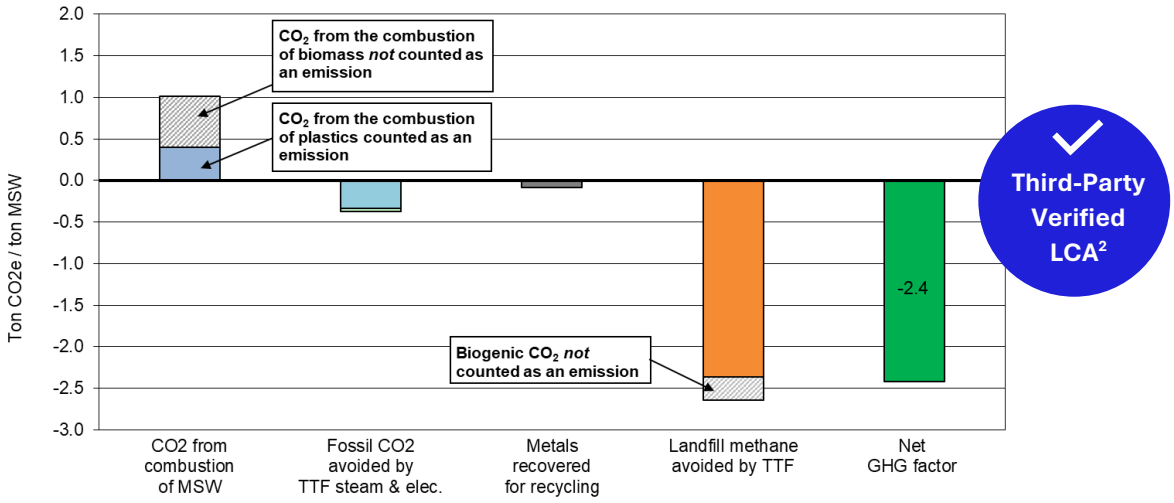
- Intergovernmental Panel on Climate Change (IPCC), which called TTFs a "key GHG mitigation technology,"[4]
- World Economic Forum (WEF) which identified TTFs as one of eight renewable energy sources expected to make a significant contribution to a future low carbon energy system,[5]
- U.S. EPA[6] and European Union, [7,8]
- California Air Resources Board, the California Department of Resources Recycling and Recovery (CalRecycle), and other states including Maine, Florida, and Maryland, [9-14]
- Clean Development Mechanism of the Kyoto Protocol,[15]
- Voluntary carbon markets,[16]
- Joint Institute for Strategic Energy Analysis & NREL scientists,[17]
- Third Way[18] and the Center for American Progress.[19]

> Energy recovery from combustion "generates a renewable energy source and reduces carbon emissions by offsetting the need for energy from fossil sources and reduces methane generation from landfills."
>
> U.S. EPA (2016)[5]

> "Life cycle assessment studies published in the literature have generally been consistent in suggesting that MSW combustion is a better alternative to landfill disposal in terms of net energy impacts and CO_2-equivalent GHG emissions. The results from this study match that expectation. In this report, WTE leads to a higher reduction in emissions compared to landfill-to-energy disposal per kWh production."
>
> JISA / NREL (2013)[16]

> "Based on best available information, California WTE facilities provide net avoided GHG emissions from methane that would have been generated if the waste was disposed in a California landfill.
>
> "Published studies including lifecycle analyses support WTE GHG benefits from avoided landfill methane, and indicate additional lifecycle GHG benefits from renewable that would not occur if the waste was disposed in a landfill."
>
> CalRecycle (2012)[10]

Figure 1. U.S. Average Lifecycle Assessment of TTF GHG Avoidance



Lifecycle Assessment of TTF GHG Avoidance

TTF GHG avoidance is quantified using a life cycle assessment (LCA) approach that includes GHG reductions from avoided methane emissions from landfills, electrical generation that offsets or displaces fossil-fuel based electrical generation, and the recovery of metals for recycling. The GHG avoidance associated with these three factors more than offset the fossil-based CO_2 emissions from combustion of plastics and other fossil fuel based MSW components.

The major inputs and assumptions used in the Life Cycle Assessment are summarized below.

Avoided Landfill Methane Emissions:

Methane is the second largest contributor to global climate change.[20] A short lived climate pollutant (SLCP) increasingly under international scrutiny, methane has a large climate impact, and its atmospheric concentrations continue to rise.[21] Landfills are a significant source of methane domestically and globally.

Methane Generation

- Landfill gas emissions and collection efficiency are not routinely measured and there is significant variation in both over the various stages of landfill operation and closure, and among landfills. On a national basis, approximately 8% of waste landfilled is managed in landfills with no gas collection, 66% of waste is managed in landfills with energy recovery and 26% in landfills with flares.[22]
- Data from recent studies using aircraft and satellite indicate landfill emissions are underestimated.[23-27] A recent UNEP report underscores this finding, which states landfill methane emissions are likely underreported by a factor of 2-3x.[28]
- Current lifecycle models apply default collection efficiencies based on the type of cover material and collection system present. Over its life in a landfill, a ton of waste will be subjected to a series of collection systems and cover types, beginning with no gas collection when waste is initially placed, to a final cap and cover system with the highest collection efficiency, and ending with a return to no gas collection, once gas collection is no longer required by regulation, or no longer economically attractive, whichever is longer.
- This assessment uses updated and peer-reviewed collection efficiencies that incorporate landfill methane measurement data published over the past two decades. Updated collection efficiencies[i] are 41%, 69% and 71% for daily, intermediate, and final cover, respectively.[29]
- Over the life of waste in a landfill, these updated collection efficiencies yield a lifetime collection efficiency of 45% - 51%, well within the published range of 35 – 70%,[30-32] which accounts for variation in collection efficiencies over time as described above.
- The U.S. EPA's default value for methane generation potential of waste (L_0) of 100 m^3 / Mg was used in this analysis. This value represents the amount of methane that a ton of waste is expected to generate over its lifetime in a landfill.

Global Warming Potential of Methane

- This assessment uses the 20-year Global Warming Potential (GWP) from the IPCC's Sixth Assessment Report to convert 1 ton of methane to 80.8 tons of CO_2e, in order to highlight the importance of reducing the SLCP in the next few decades in order to meet global climate targets.
- The selection of the 20-year or 100-year GWP depends solely on the policy objectives in mind. [33]
  There is growing precedent to assess methane using the 20-year global warming potential, in recognition of its acute, short-term impact on the climate system and the recognition that quick action is necessary to meet increasingly shorter-term climate goals. Policy objectives should emphasize decreasing SLCP emissions.[34]
- Recent peer-reviewed literature have concluded that the 100-year GWP is not well-suited to represent the warming effect at specific points in time from sustained SLCPs.[35, 36] Instead, studies find that the 20-year GWP provides the most accurate perspective on the speed at which SLCP emissions will impact the atmosphere and, thus, the effectiveness of SLCP emission controls. [37]

[i] These landfill gas collection efficiencies are lower than those currently used in the U.S. EPA WARM and MSW-DST Tools, as well as the GHG Reporting Program, which have not been updated with recent landfill emissions data.

- In fact, California, New York, and New Jersey have all begun to assess methane impacts using the 20-year GWP.[38, 39, 40]

> "Cutting methane is the strongest lever we have to slow climate change over the next 25 years"
>
> Inger Andersen, Executive Director of UNEP on UN 2021 Global Methane Assessment[40]

Avoided CO_2e Emissions from Fossil Fuel Fired Power Plants and Steam Generation:

- The average TTF in the U.S. provides approximately 500 kWh / ton MSW of net electrical power to the grid. New TTFs can supply up to 700 kWh / ton of electricity generation.
- GHG emissions from displacement of electricity generation are based on the U.S. EPA's eGRID national non-baseload CO_2e emission rate and actual net electrical generation. To quantify the GHG avoidance from TTF steam export, it is assumed that the alternative would be an industrial natural gas boiler.

Avoided GHG emissions associated with the recovery and recycling of ferrous and non-ferrous metals:

- Most TTFs recover ferrous and non-ferrous metal recovery systems for recycling.
- Each ton of ferrous metal recycled saves 2.0 tons of CO_2e.[42]
- For aluminum, the predominate component in nonferrous metals recovered, the GHG savings is equal to 10 tons of CO_2e / ton aluminum.[43]

TTF Fossil Based CO_2 Emissions

- On a national basis, 40% of CO_2 emissions from TTFs are fossil based derived primarily from the combustion of plastics or other MSW components that may be derived from fossil fuel. The majority of CO_2 emissions are biogenic and derived from the combustion of the organic or biomass components of MSW.
- The biogenic fraction of CO_2 is determined by the radiocarbon dating of quarterly samples collected at TTFs in the U.S as required under USEPA GHG reporting regulations.

TTF Biogenic CO_2 Emissions

There is a growing recognition that the use of biogenic sources of carbon should not be universally considered carbon neutral; however, waste sources of biomass used for energy are widely recognized as being low to zero carbon. Most significantly, the EPA, in a 2014 policy memo, outlined its intent to recognize the "biogenic CO_2 and climate policy benefits" of waste-derived feedstocks.[44]

The carbon benefits associated with the use of waste sources of biomass are not only recognized by the U.S. EPA and the Scientific Advisory Board (SAB) subgroup it established, but also by prominent academics and NGOs. In the *Science* article "Beneficial Biofuels – The Food, Energy, and Environment Trilemma," the authors identify five feedstocks, including municipal and industrial wastes and sustainably harvested wood and forestry residues as beneficial biofuels. In the influential article "Fixing a Critical Climate Accounting Error," the authors specifically distinguish between residues or biowastes and other sources of biomass.[45]

> "Information considered in preparing the second draft of the Framework, including the [Scientific Advisory Board] peer review and stakeholder input, supports the finding that use of waste-derived feedstocks and certain forest derived industrial byproducts are likely to have minimal or no net atmospheric contributions of biogenic CO_2 emissions, or even reduce such impacts, when compared with an alternate fate of disposal.
>
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Sources

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Attachment 4 –Purple Plumes Reports, Green Toxicology, LLC and AECOM

COVANTA
Powering Today. Protecting Tomorrow.

Covanta Essex Company
183 Raymond Blvd
Newark, NJ 07105
Tel 973 344 0900

November 19, 2020

Mr. Jeffrey Meyer
Manager
Division of Air Enforcement
Bureau of Air Compliance and Enforcement – Northern
7 Ridgedale Avenue
Cedar Knolls, NJ 07927

Subject: Covanta Essex Company - Condition (a)1 of Phase II, Section B of Administrative Consent Order EA ID# 200001-07736

Mr. Meyer;

The Administrative Consent Order ("ACO") entered into by Covanta Essex Company ("Covanta Essex") with the Commissioner of the New Jersey Department of Environmental Protection ("Department") on October 9, 2020 included condition (a.1.) of Phase II of Section B compliance Schedule as follows;

> Prior to conducting and modeling or health risk assessment COVANTA ESSEX COMPANY shall provide detailed estimates of all emissions associated with the purple plumes including but not limited to, iodine and other associated acid gases and, the methodologies used to estimate the amount and duration of emissions within 45 days of the Effective Date of this ACO.

The attached report is provided to the Department to fulfill this condition of the ACO.

Sincerely,

David Blackmore
Facility Manager

Attachment

Iodine emissions to ambient air from the Covanta Essex Resource Recovery Facility (prepared by Green Toxicology LLC)

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this letter and all attached documents and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for submitting false, inaccurate, or incomplete information."

David Blackmore
Facility Manager

11/19/20
Date

1.0 Introduction

The New Jersey Department of Environmental Protection ("Department") has required COVANTA ESSEX COMPANY to provide a written report with detailed estimates of all emissions associated with the purple plumes including but not limited to, iodine and other associated acid gases and the methodologies used to estimate the amount and duration of emissions.

2.0 Background

The Covanta Essex facility (the Facility) had multiple events in 2019 and early-2020 where a colored plume was recorded as opacity at or above the Operating Permit limit of 10% as a 6-minute block average. The plume was described as a pink color with varying degrees of intensity. Colored plumes have infrequently been observed at certain facilities and have been correlated to iodine due to its known chemical and physical properties including;

- Solid iodine exists as a black crystalline solid with a melting point of 113.7 °C and a boiling point of 184.3 °C.
- It forms a purple vapor when present at certain concentrations

The following information explains the procedures used to estimate the amount of iodine as I_2 in stack flue gas to create a visible colored plume.

3.0 Iodine concentration related to plume formation

The amount of iodine as I_2 to form a colored plume was estimated through several steps;

1. identify the operating period in each flue when opacity exceeded the 10% 6-minute standard and a purple plume was observed;

2. identify stack flue dimensions, opacity monitor specifications and estimate stack flue characteristics;

3. provide information from steps 1 and 2 to an independent third-party expert for evaluation.

Table 1 provides a summary of the results with the estimated I_2 concentration values as "parts per million (ppm)" being an average concentration based on correlations described in subsequent sections.

3.1 Flue dimensions and flue gas parameters

The facility design criteria that were used in this evaluation are:

Parameter	Value	Source
Flue diameter	15.08 feet	Stack Design
Opacity monitor	Lighthawk 560 Continuous Monitoring Systems, Teledyne Monitor Labs	Equipment specification
Flue gas temperature	Varies with each event	Stack instrument
Flue gas flow rate	Varies with each event	Stack flow rate monitor
Opacity as %	Varies with each event	Stack opacity monitor

3.2 Correlation of stack opacity with iodine concentration

Green Toxicology LLC is an independent consultancy with expertise in a wide variety of environmental and health-based matters. Green Toxicology LLC demonstrated proficiency in analyzing colored plumes by correlating stack opacity with iodine emission factors at the facility operated by Covanta Lancaster, Inc. for the Lancaster County Solid Waste Management Authority (the Lancaster facility). That evaluation was specific to the Lancaster facility including stack flue diameter, flue gas temperature and the type of opacity monitor. Covanta Essex selected Green Toxicology LLC to complete a similar analysis for design and operating conditions at Covanta Essex. The complete report provided by Green Toxicology LLC including methodologies and results is provided as Attachment 1.

The calculation methodology in the Green Toxicology LLC report considered several correlations which are summarized below with Figure 1 illustrating the results.

For high accuracy (<1% of ppm estimate as calculated by the methodology):
$P = 103.5 \times (-\ln(1 - (K - C)/100)) \times (1 + 0.0018 \times (T - 300))$

For medium accuracy (<5% of ppm estimate up to 60% opacity)
$P = 1.0 \times (K - C) \times (1 + 0.009 \times (K - C)) \times (1 + 0.0018 \times (T - 300))$

For an easy to calculate estimate with less accuracy (<10% of ppm estimate as calculated by the methodology)
$P = 1.07 \times (K - C)$ for $(K - C) \leq 10.5\%$
$P = -2.71 + 1.32 \times (K - C)$ for $10.6\% \leq (K - C) \leq 35.5\%$
$P = -25.9 + 1.98 \times (K - C)$ for $35.6\% \leq (K - C) \leq 60\%$

These apply within the stated accuracy for all three units for 250<T<350 °F. For each of the above correlations;
K = opacity reading (%)
C = background or drift of opacity meter (%)
T = baghouse outlet temperature (°F)
P = iodine ppm in stack gas

Figure 1 presents iodine concentration as a function of opacity and temperature however flue gas temperature has a comparatively minor impact. The Y-axis is a multiplier that can be used to estimate I_2 concentration directly from opacity. As an example, the I_2 concentration at 10, 20 and 30 % opacity is estimated by the following;

Opacity	Estimated factor	Estimated I2 as ppm
10	1.0	10
20	1.1	22
30	1.2	36

This correlation is an estimate based on the eleven events in Table 1.

3.3 Other acid gas emissions

The reaction between I_2 and SO_2 has been well documented in scientific literature and is generally described by the following equation;

$I_2 + SO_2 + H_2O$ = unknown products

The forward reaction is highly favorable so that all SO_2 would react in the presence of sufficient I_2. I_2 present at a concentration greater than SO_2 would be present in the stack flue and the source of a potentially visible colored plume.

Equilibrium data for I_2 and iodic acid (HI) identifies that I_2 would be the predominant species of iodine at the inlet to the air pollution control system and stack. If HI was present at the economizer location, that acid gas would be removed by the semi dry scrubbing system.

4.0 Summary and conclusions

An independent third party developed a relationship between iodine (as I_2) concentration and opacity using facility specific information. That relationship is based on the general principle that iodine vapor absorbs light in the wavelength range monitored by the opacity-measuring continuous emission monitor. The estimated I_2 concentration from this relationship is the basis of the iodine emission factors used in air dispersion modeling analysis.

Table 1 Estimate of iodine in flue gas correlated with opacity

Reference	Unit	Date	Time [1]	% Opacity[2]	I_2 Mass Emission Rate[3] (g/sec)	I_2 as ppm
1	Unit1	1/14/2019	-	-	-	-
	Unit2	1/14/2019	17:12	8.6	7.2	8.8
	Unit3	1/14/2019	16:10	9.2	8.2	10.6
2	Unit1	1/28/2019	-	-	-	-
	Unit2	1/28/2019	-	-	-	-
	Unit3	1/28/2019	17:25	17.7	15.2	19.7
3	Unit1	5/2/2019	-	-	-	-
	Unit2	5/2/2019	15:53	7.0	4.8	7.7
	Unit3	5/2/2019	-	-	-	-
4	Unit1	6/3/2019	-	-	-	-
	Unit2	6/3/2019	19:29	19.7	11.4	21.8
	Unit3	6/3/2019	18:56	10.9	7.2	10.2
5	Unit1	6/16/2019	4:03	6.4	4.4	6.3
	Unit2	6/16/2019	-	-	-	-
	Unit3	6/16/2019	-	-	-	-
6	Unit1	6/19/2019	13:00	6.0	4.13	5.3
	Unit2	6/19/2019	12:24	29.7	27.0	38.4
	Unit3	6/19/2019	12:28	24.4	23.0	27.8
7	Unit1	6/24/2019	5:08	9.7	8.6	10.4
	Unit2	6/24/2019	1:15	9.2	6.4	9.9
	Unit3	6/24/2019	-	-	-	-
8	Unit1	8/7/2019	-	-	-	-
	Unit2	8/7/2019	-	-	-	-
	Unit3	8/7/2019	9:40	8.7	5.5	6.8
9	Unit1	9/20/2019	-	-	-	-
	Unit2	9/20/2019	-	-	-	-
	Unit3	9/20/2019	18:04	6.7	5.8	7.1
10	Unit1	10/10/2019	14:46	16.5	12.4	18.9
	Unit2	10/10/2019	-	-	-	-
	Unit3	10/10/2019	-	-	-	-
11	Unit1	2/5/2020	18:52	6.6	3.7	5.4
	Unit2	2/5/2020	-	-	-	-
	Unit3	2/5/2020	-	-	-	-

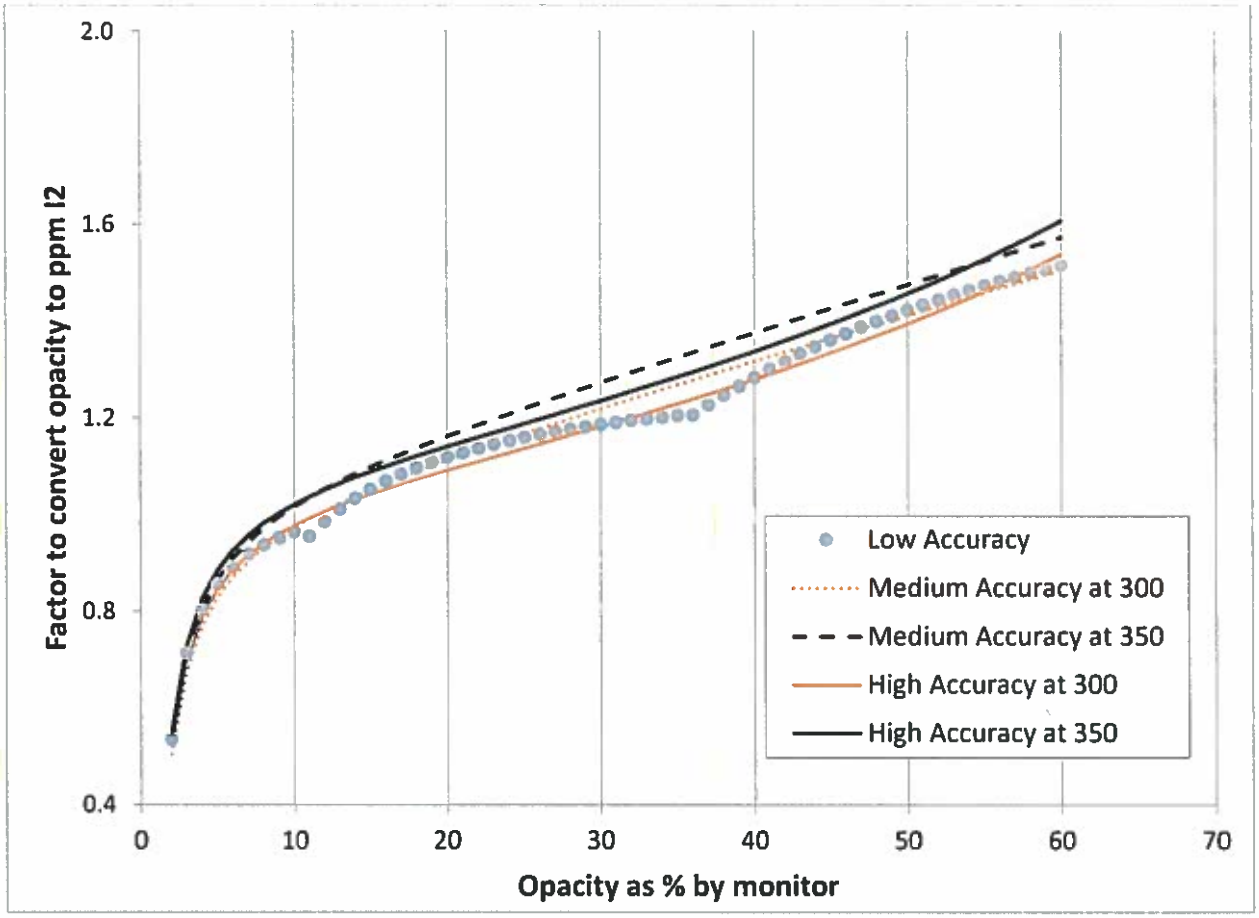
(1) Starting time for 60-min maximum emissions.

(2) Average opacity over 60-min period corresponding to emission rate.

(3) 60-min maximum emissions.

(4) AERMOD can only model 60-minute periods that begin on the hour. Since the mass emission rate time period does not begin right on the hour, modeling was conducted for the two "model hours" that captured the actual 60-minute period.

Figure 1. Illustration of correlations: High and medium accuracy at 300 and 350 F and low accuracy



Attachment 1:

Iodine emissions to ambient air from the Covanta Essex Resource Recovery Facility (prepared by Green Toxicology LLC)

Memorandum

To: Brian Bahor and Gary Pierce, Covanta
From: Edmund A.C. Crouch, Ph.D.
Date: June 25, 2020
Subject: Iodine emissions to ambient air from the Covanta Essex Resource Recovery Facility

Introduction

The Covanta Essex resource recovery facility has experienced multiple episodes of atmospheric releases of iodine in sufficient quantities to cause purple colored plumes, with corresponding opacities measured at up to 50% over brief time-intervals. I have evaluated the levels of iodine emissions required to cause the measured increases in opacity, based on measurements of iodine optical-absorption cross-section and characteristics of the opacity monitors, combined with minute-by-minute continuous emission monitor readings of stack gas characteristics (opacity, temperature, and flow rate).

Estimation of iodine emissions based on stack gas characteristics

Methodology

Emissions of iodine are estimated by realizing that iodine vapor absorbs light in the wavelength range monitored by the opacity-measuring continuous emission monitor (CEM). Literature studies on the absorption of light by iodine vapor are used to construct a relationship between light extinction and the concentration of iodine in stack-gas as a function of light wavelength and temperature. This relationship in turn is used in conjunction with the specific light characteristics of the opacity CEM to derive a relationship between CEM opacity measurement, temperature, and the concentration of iodine in stack gas. This relationship is then used to infer stack-gas concentrations of iodine from recorded CEM measurements of opacity and temperature. Subsequent multiplication of the concentrations by flowrates results in estimates of mass emission rates.

Extinction coefficient for iodine vapor

The wavelength dependence of the extinction coefficient (equivalently, the absorption cross-section) for iodine vapor at room temperature (295 K) and in air at atmospheric pressure has been accurately measured by Saiz-Lopez et al. (2004) at high resolution in the relevant wavelength interval (Figure 1). These measurements clearly resolve the band structure, and

agree[1] reasonably well on average with earlier lõwer-resolution measurements at room temperature (extrapolated to zero pressure) by Tellinghuisen (1973; see Figure 1), and with earlier work. Sulzer and Wieland (1952) also provide lower resolution measurements at temperatures of 423 K, 873 K, and 1323 K, together with a theoretical analysis of the major contributing component to the extinction coefficient in the relevant wavelength range. This theoretical analysis omits various smaller contributions (e.g. providing the band structure) but allows extrapolation between temperatures and provides a smooth interpolation across the band structure — see the curves shown as "Theory" in Figure 1. The Sulzer and Wieland (1952) curve shape for the extinction (absorption) coefficient ε as a function of wavelength λ and temperature T is given by:[2]

$$\varepsilon(T,\lambda) = \varepsilon_o \left(\frac{\lambda_0}{\lambda}\right)^2 \sqrt{\tanh\left(\frac{\theta}{2T}\right)} \exp\left\{-\tanh\left(\frac{\theta}{2T}\right)\left(\frac{1/\lambda - 1/\lambda_0}{1/\Delta\lambda}\right)^2\right\}$$

where λ is the wavelength and T is the absolute temperature. Fitting the Saiz-Lopez et al. (2004) data (minimizing the sum of squared differences for all points measured between 450 and 630 nm) gives the constants:

	ε_0	= 278.54 m^2 $mole^{-1}$
	λ_0	= 529.67 nm
	$\Delta\lambda$	= 8654.6 nm
with	θ	= 308.62 K based on Sulzer and Wieland (1952).[3]

Opacity meter response

The wavelength-dependence of the opacity meter responses in Units 1, 2, and 3 are provided at the 10 nm intervals measured as part of the standard quality control procedures for these instruments (all units use Lighthawk 560 Continuous Monitoring Systems, Teledyne Monitor Labs, 2006a, b, c). The measurements were performed on representative samples from the manufacturing production runs, not on the installed instruments themselves; the same sample was used for the Unit 1 and 2 instruments, with a different (later) sample for Unit 3. The LED

---

[1] The agreement shown in Figure 1 is not as good as that indicated by Saiz-Lopez et al. (2004) in their paper, but I have not been able to locate the discrepancy. This agreement requires assuming that all earlier workers reported extinction coefficients with units based on moles of atomic iodine, rather than the moles of iodine vapor shown in Figure 1.

[2] This curve is a Gaussian on a frequency scale. It is written here on the wavelength scale of Figure 1.

[3] θ has a theoretical interpretation, but changes in its value simply change the estimated values for the other constants without affecting the curve fit.

light source should provide a smooth spectrum (with no narrow band structure or peaks), so interpolation of these measurements (shown on Figure 1) should be accurate. Six point Lagrange interpolation to 0.5 nm intervals was used for the Unit 1 and 2 response, and four point for the Unit 3 response.[4] Figure 1 shows that the opacity CEM response matches the absorption characteristics of iodine vapor well, so CEM measurements should be sensitive to sufficiently high iodine concentrations.

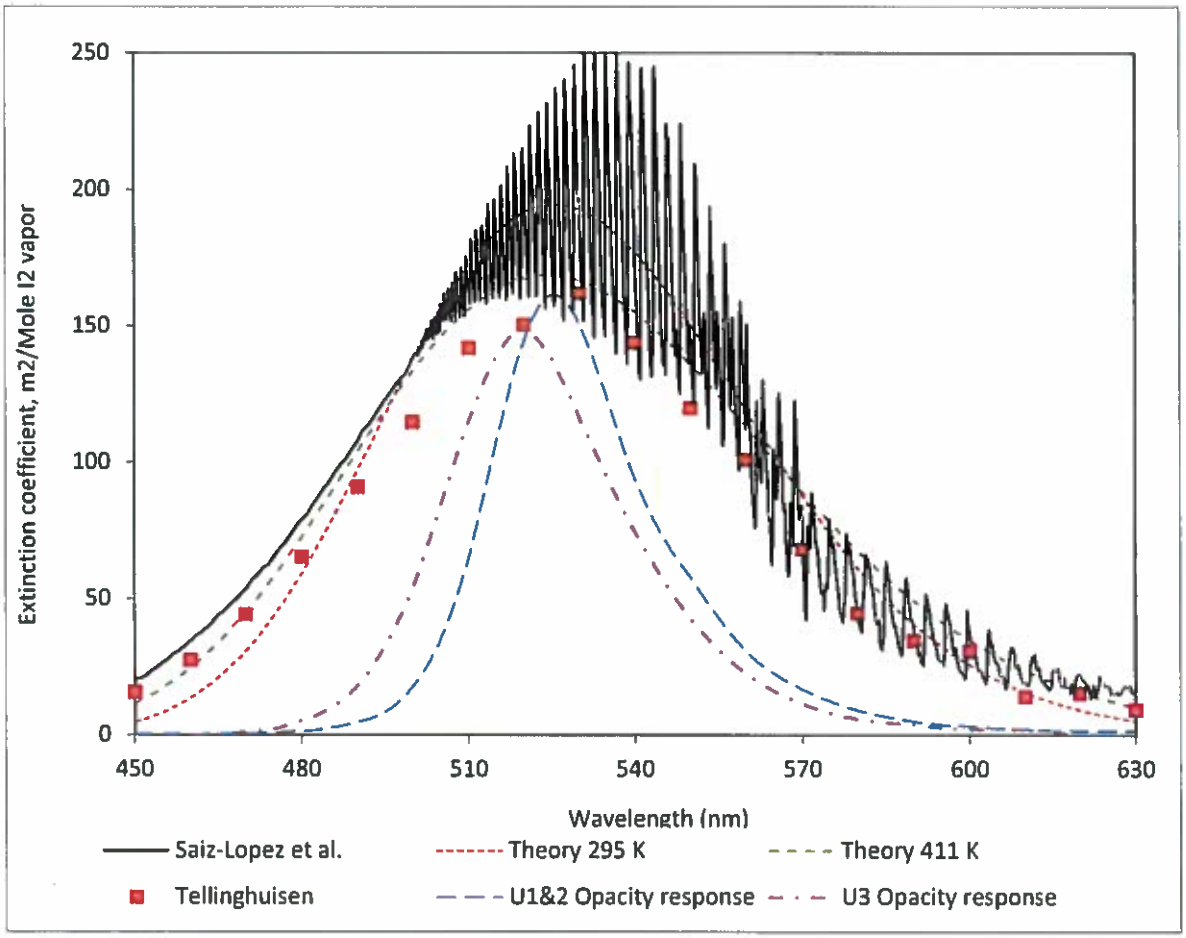


Figure 1 Extinction coefficient for I_2 vapor at 295 K, theoretical curve (see text) at 295 K and 411 K, and the opacity meter responses in Units 1, 2, and 3 (arbitrary units, but with equal areas under the curves).

[4] The overall response was given at 10 nm intervals from 360 to 750 nm for units 1 and 2, although the response was less than 1% of the maximum outside the range 480 to 630 nm. For unit 3, the overall response was given as zero outside the range 470 to 610 nm. The different interpolation orders were chosen to give smooth transitions at the end-points of the useful ranges, and variations in interpolation order have negligible effect on the result.

Overall opacity sensitivities to iodine vapor

The sensitivities of the opacity meter to iodine vapor were obtained by convolving the opacity meter responses with the extinction coefficient for iodine at the temperature of the stack gas. With the opacity meter responses shown, the band structure in the extinction coefficient will be averaged, and suitably accurate estimates may be obtained by using the smooth approximate theoretical curves of Sulzer and Wieland (1952). These theoretical curves match the average extinction coefficient over the wavelength range of the opacity meter response with reasonable accuracy at 295 K, and have the advantage of allowing extrapolating to higher temperatures (where the height and width of the curve and the band structure are all modified). Performing these convolutions[5] for stack temperatures in the range of 250 °F to 350 °F gives the wavelength integrated extinction coefficients (absorptivities) shown in Figure 2. The curves are quadratic fits to values calculated at 5 °F intervals, which values deviate negligibly from these curves.

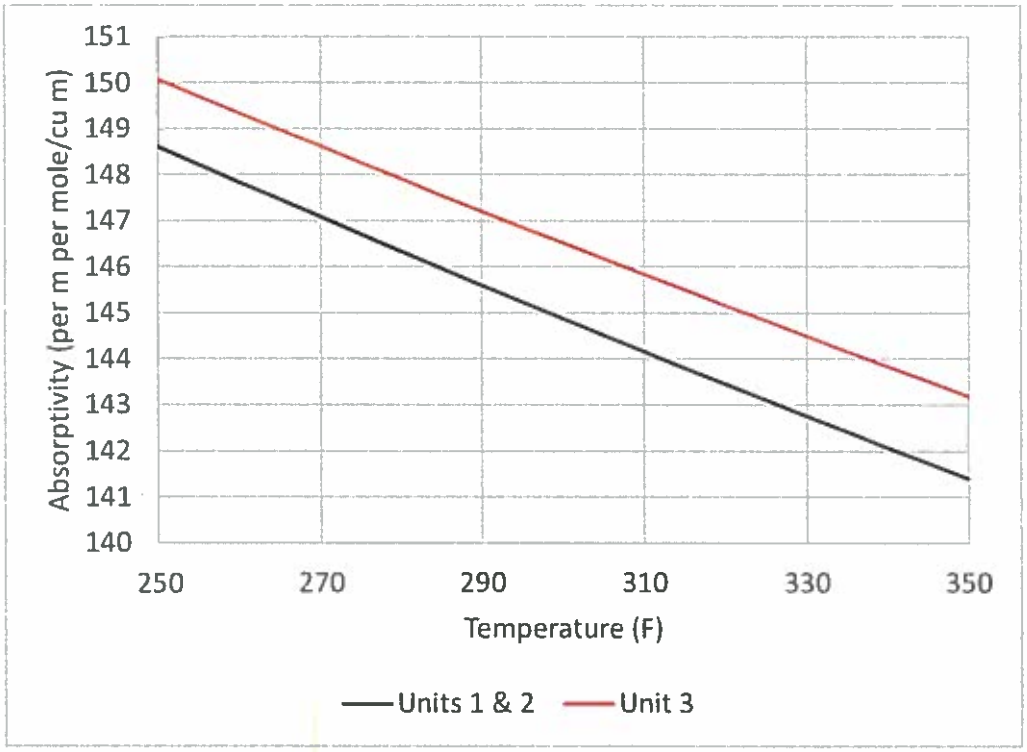


Figure 2 Wavelength integrated extinction coefficients (absorptivities) for Units 1, 2, and 3.

[5] Numerical convolution at 0.5 nm wavelength intervals using the trapezoidal rule.

Calculation of iodine emission rates

Iodine emission rates E (grams/second) were estimated from the stack gas opacity K (%), wavelength integrated extinction coefficient $H(T)$ (m^2/mole from Figure 2) at the stack temperature T (°F), and the stack flow rate (actual) V (m^3/sec), using

$$E = \frac{-\ln(1-(K-C)/100)}{LH(T)} VM$$

where C (%) is a cut-off opacity to account for drift of the opacity meter and background opacity from other materials, L (m) is the opacity meter optical path length through the stack gas (2.337 m for Units 1 and 2, 2.318 m for Unit 3), and M is the molar weight of diatomic iodine vapor (253.81 g/mole). All opacity-values above the cut-off C were assumed to be due to iodine.

Results

Total emissions and maximum emission rates

A total of 15 emission events were modeled, each one consisting of one or more peaks of opacity over periods extending up to several hours, with summary results shown in Table 1 for total mass of iodine emitted during the day, and maximum emission rates averaged over 1 minute, 15 minutes, and 1 hour, and the initial minute for the given maximum.[6] The cut-off opacity selected for each event was estimated empirically by selecting a value that just suppressed any estimate of emissions outside the event in an approximately 24-hour period containing the event. The selections were made by visual observation of graphs of opacity and emission estimates (see appendix). The various estimates are probably uncertain to at least 10% due to the limited precision of the opacity meters, which report opacity to 0.1%, and the potential drift of these meters such that positive opacity may be reported as 0% (see, for example, the lack of a longer tail to the opacity and emission curve for the event in Unit 2 on 05-02-19). In addition, there is an uncertainty of unknown size in the theoretical analysis above, in that it has not been tested empirically; such uncertainty could be evaluated by injection of iodine in known quantities into the stack gas after the baghouse and measuring the resulting opacity.

[6] Note that the U2 01-14-19 times look a little odd compared with the rest, but examination of the figure for that case makes the reason clear — the initial spike in concentration gives the highest 1 and 15 minute averages, but the more sustained but lower later peaks give the highest 1 hour average.

Unit & date	Total emissions (kg)	Maximum emission rate averages (grams/second)			Time of initial minute for given maximum			Cutoff (%)
		1 min	15 min	60 min	1 min	15 min	60 min	
U1 02-05-20	34.8	7.9	6.4	3.7	19:04	18:56	18:52	1.6
U1 06-16-19	34.2	9.7	7.9	4.4	04:13	04:11	04:03	0.5
U1 06-24-19	32.6	53.2	26.4	8.6	05:20	05:15	05:08	0.9
U1 10-10-19	45.8	35.8	25.3	12.4	14:52	14:49	14:46	0.0
U2 01-14-19	49.3	16.5	12.8	7.2	16:24	16:18	17:12	0.0
U2 05-02-19	17.5	9.7	8.2	4.8	16:08	16:06	15:53	0.0
U2 06-03-19	82.0	33.3	21.6	11.4	20:57	19:38	19:29	0.0
U2 06-19-19	157.9	61.8	46.6	27.0	12:48	12:45	12:24	0.0
U2 06-24-19	38.9	10.8	9.3	6.4	01:35	01:25	01:15	0.0
U3 01-14-19	30.7	24.9	19.8	8.2	16:24	16:19	16:10	0.7
U3 01-28-19	75.1	28.0	23.4	15.2	18:16	18:12	17:25	0.4
U3 06-03-19	35.1	19.1	13.1	7.2	19:07	18:59	18:56	1.2
U3 06-19-19	139.6	56.8	37.3	23.0	12:58	12:55	12:28	0.9
U3 08-07-19	21.0	8.8	8.0	5.5	10:00	09:54	09:40	2.2
U3 09-20-19	31.1	13.4	9.3	5.8	18:15	18:12	18:04	0.0

Table 1 Summary results of emission modeling for 15 iodine emission events

I understand that these emission rates will be translated via air dispersion modeling into estimated impacts to ambient air, and hence to estimated risks to public health.

Graphs of opacity and emission rate estimates versus time for these events are included in the appendix.

Conversion of opacity reading to iodine volume mixing ratio

Using the methodology described allows a calculation of the iodine volume mixing ratio (measured in ppm) in the stack gas based on the opacity reading, as follows.

Let

K = opacity reading (%)
C = background or drift of opacity meter (%)
T = baghouse outlet temperature (°F)
P = iodine ppm in stack gas

For high accuracy (<1% of ppm estimate as calculated by the methodology):

$$P = 103.5 \times (-\ln(1 - (K - C)/100)) \times \left(1 + 0.0018 \times (T - 300)\right)$$

For medium accuracy (<5% of ppm estimate up to 60% opacity)

$$P = 1.0 \times (K - C) \times \left(1 + 0.009 \times (K - C)\right) \times \left(1 + 0.0018 \times (T - 300)\right)$$

For an easy to calculate estimate with less accuracy (<10% of ppm estimate as calculated by the methodology)

$$P = 1.07 \times (K - C) \quad \text{for} \quad (K - C) \leq 10.5\%$$
$$P = -2.71 + 1.32 \times (K - C) \quad \text{for} \quad 10.6\% \leq (K - C) \leq 35.5\%$$
$$P = -25.9 + 1.98 \times (K - C) \quad \text{for} \quad 35.6\% \leq (K - C) \leq 60\%$$

These apply within the stated accuracy for all three units for 250<*T*<350 °F (the slight difference in LED light sources is almost exactly cancelled by the slight difference in light path length).

References

Saiz-Lopez A, Saunders RW, Joseph DM, Ashworth SH, Plane JMC. 2004. Absolute absorption cross-section and photolysis rate of I_2. Atmos Chem Phys 4(5):1443–1450.

Sulzer von P, Wieland K. 1952. Intensitätsverteilung eines kontinuierlichen Absorptions-spektrums in Abhängigkeit von Temperatur und Wellenzahl. Helv Phys Acta 25(6):653–676. [In German].

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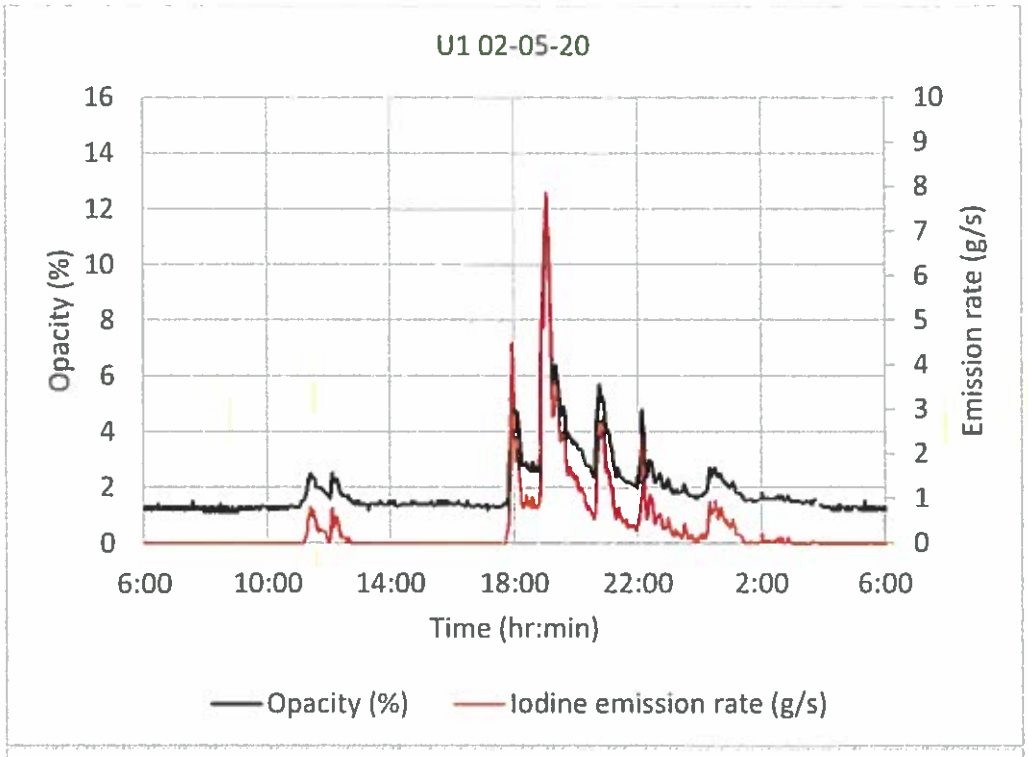
Teledyne Monitor Labs Inc. 2006b. Manufacturer's certificate of conformance with design specifications per 40CFR60, Appendix B, Performance Specification 1, Published August 2000. LightHawk 560 Continuous Monitoring System (COMS). For Covanta Energy, Unit 2, Serial Number: 5602655. August 2014.

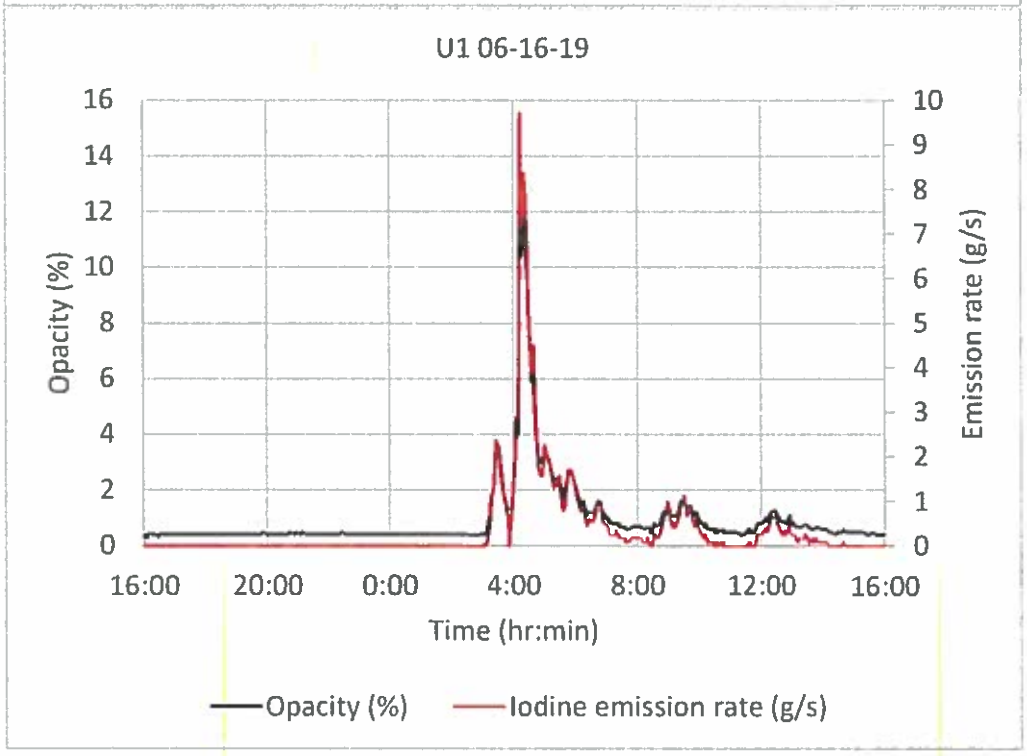
Teledyne Monitor Labs Inc. 2006c. Manufacturer's certificate of conformance with design specifications per 40CFR60, Appendix B, Performance Specification 1, Published August 2000. LightHawk 560 Continuous Monitoring System (COMS). For Covanta Essex Company, Unit 4, Serial Number: 5602790. August 2015. [Note: this instrument is installed in Unit 3; it was given the designation "Unit 4" due to a misunderstanding.]

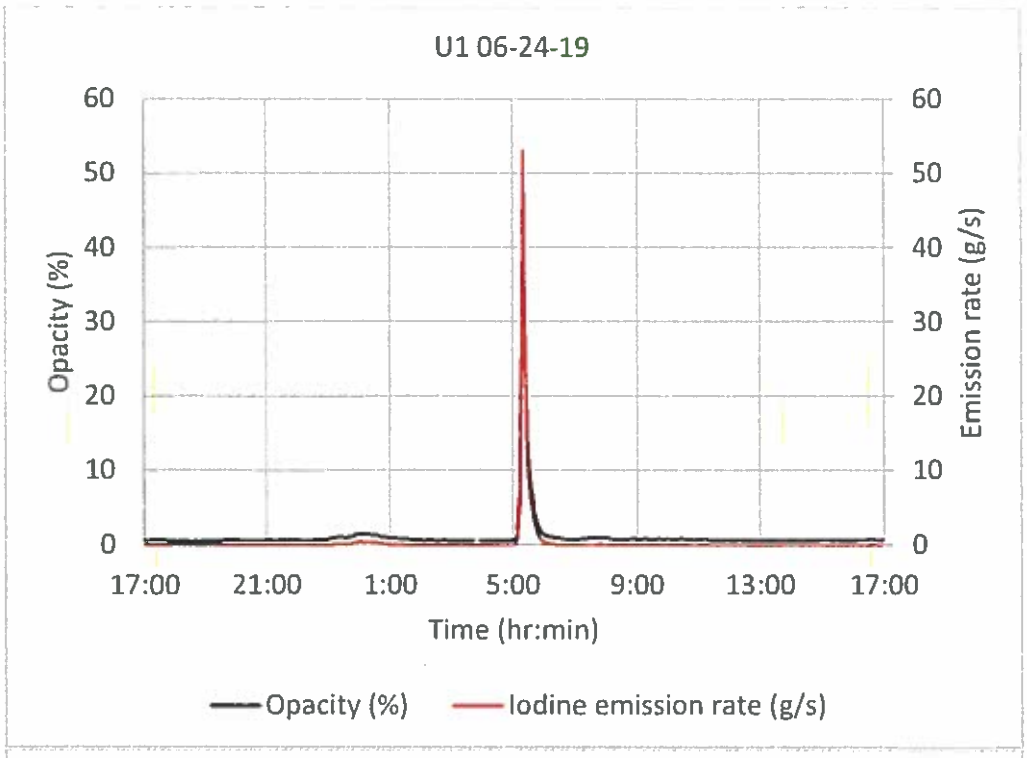
Tellinghuisen J. 1973. Resolution of the visible-infrared absorption spectrum of I_2 into three contributing transitions. J Chem Phys 58(7):2821–2834.

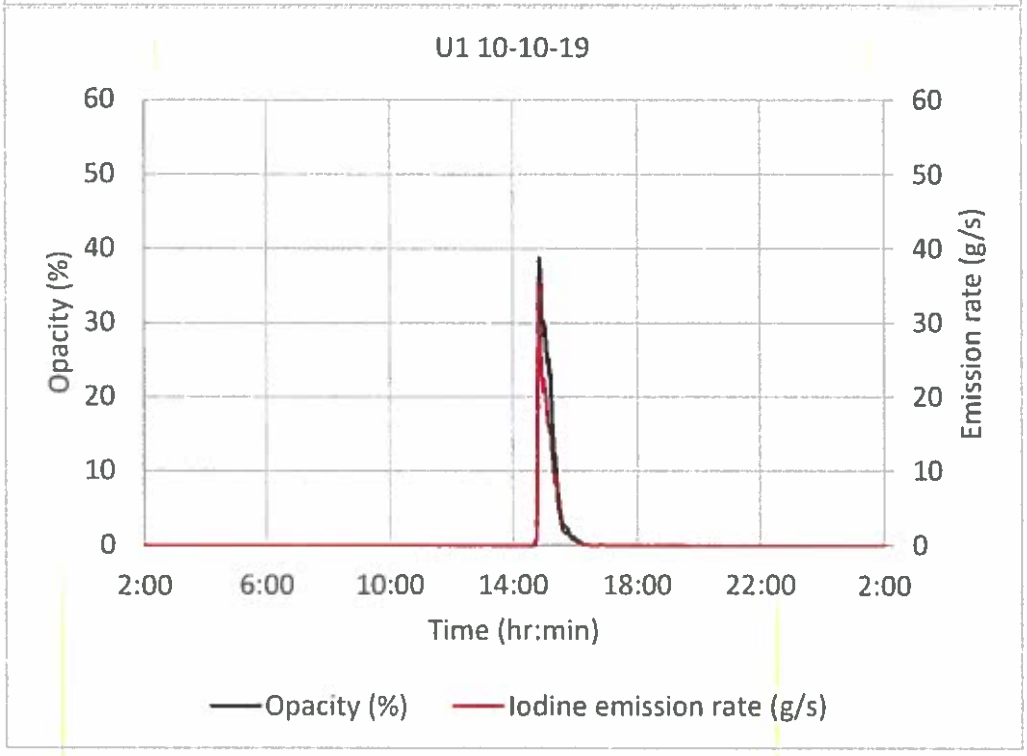
APPENDIX

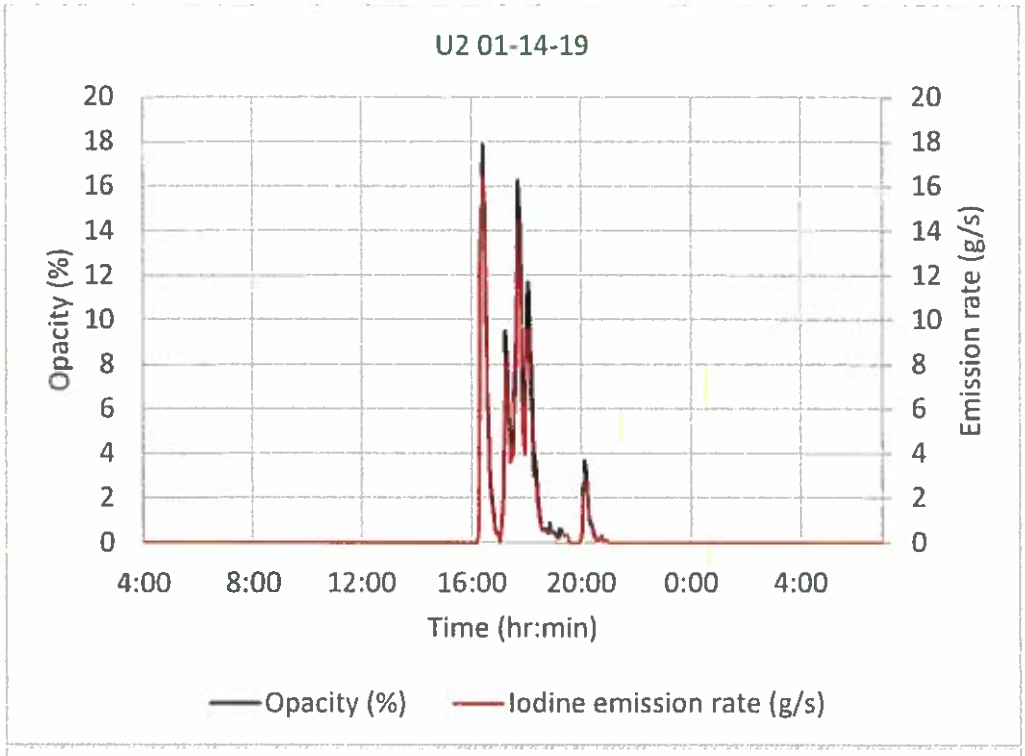
Graphs of opacity and estimated emission rate for each atmospheric iodine-release event

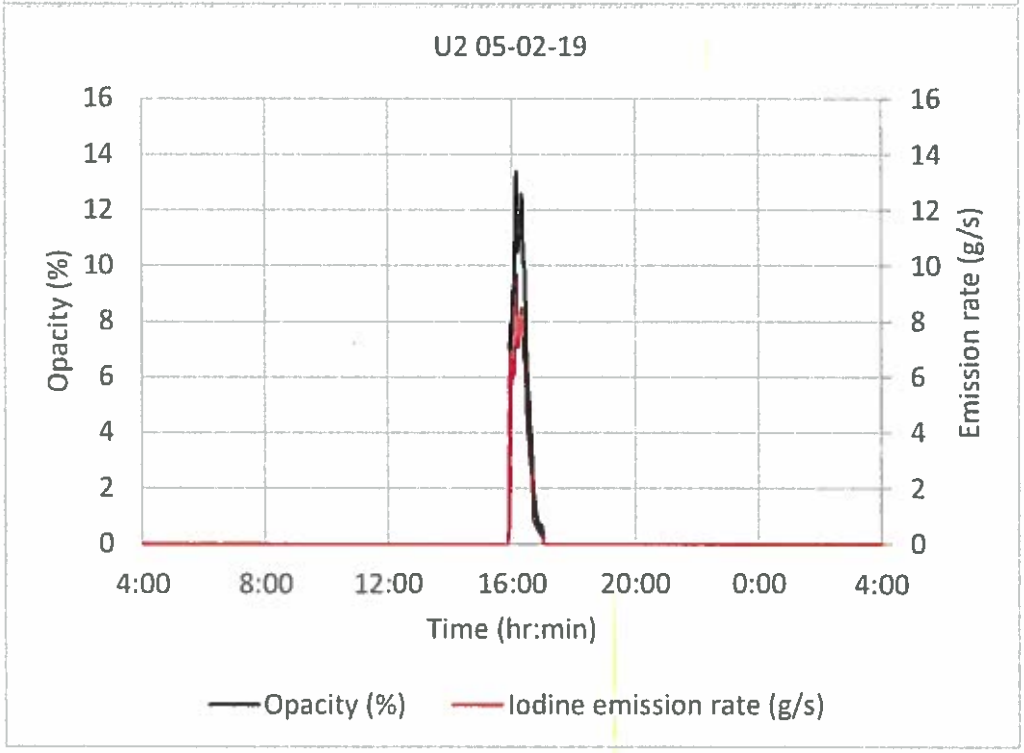

U1 02-05-20
Opacity (%)
Emission rate (g/s)
16
14
12
10
8
6
4
2
0
10
9
8
7
6
5
4
3
2
1
0
6:00
10:00
14:00
18:00
22:00
2:00
6:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

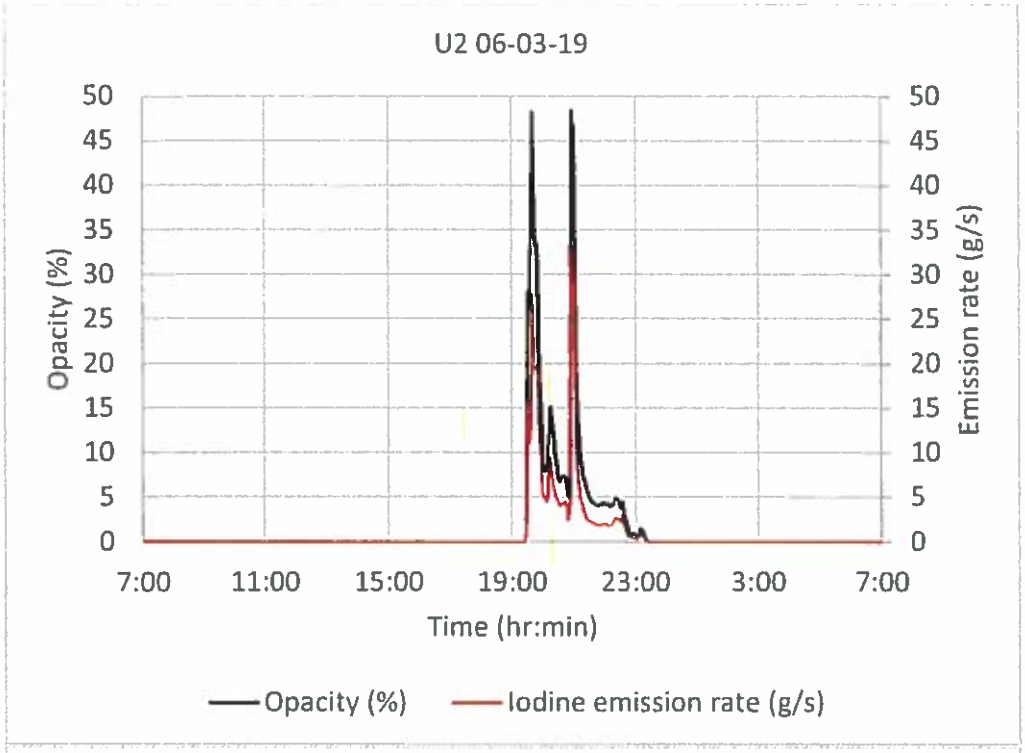

U1 06-16-19
Opacity (%)
Emission rate (g/s)
16
14
12
10
8
6
4
2
0
10
9
8
7
6
5
4
3
2
1
0
16:00
20:00
0:00
4:00
8:00
12:00
16:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

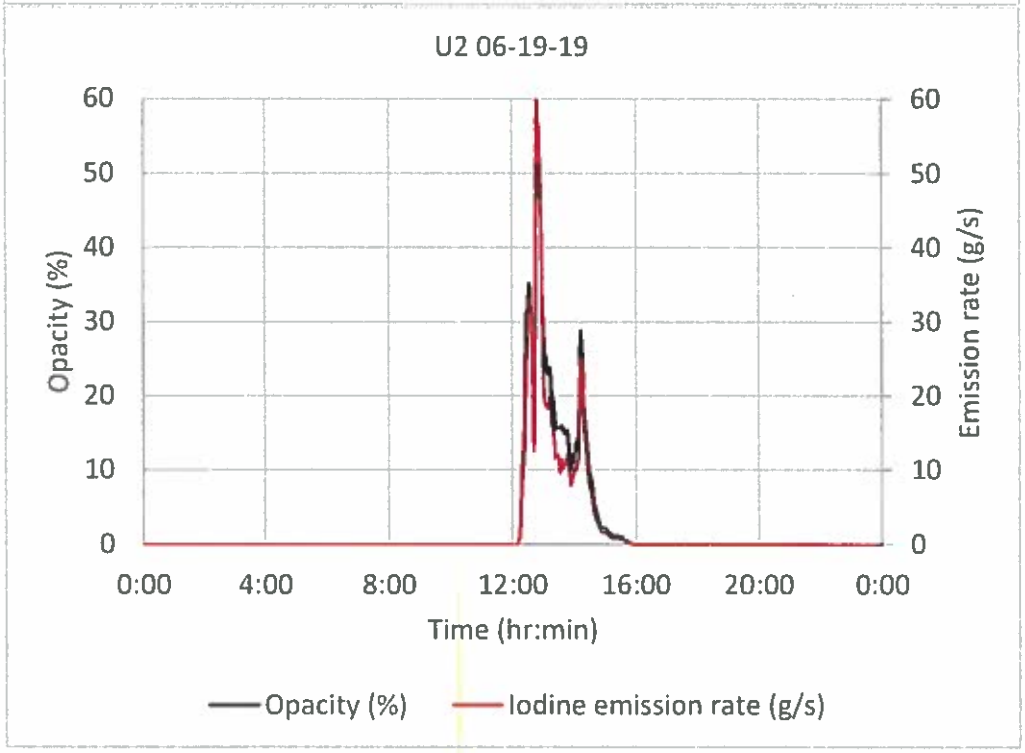

U1 06-24-19
Opacity (%)
Emission rate (g/s)
0
10
20
30
40
50
60
17:00
21:00
1:00
5:00
9:00
13:00
17:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

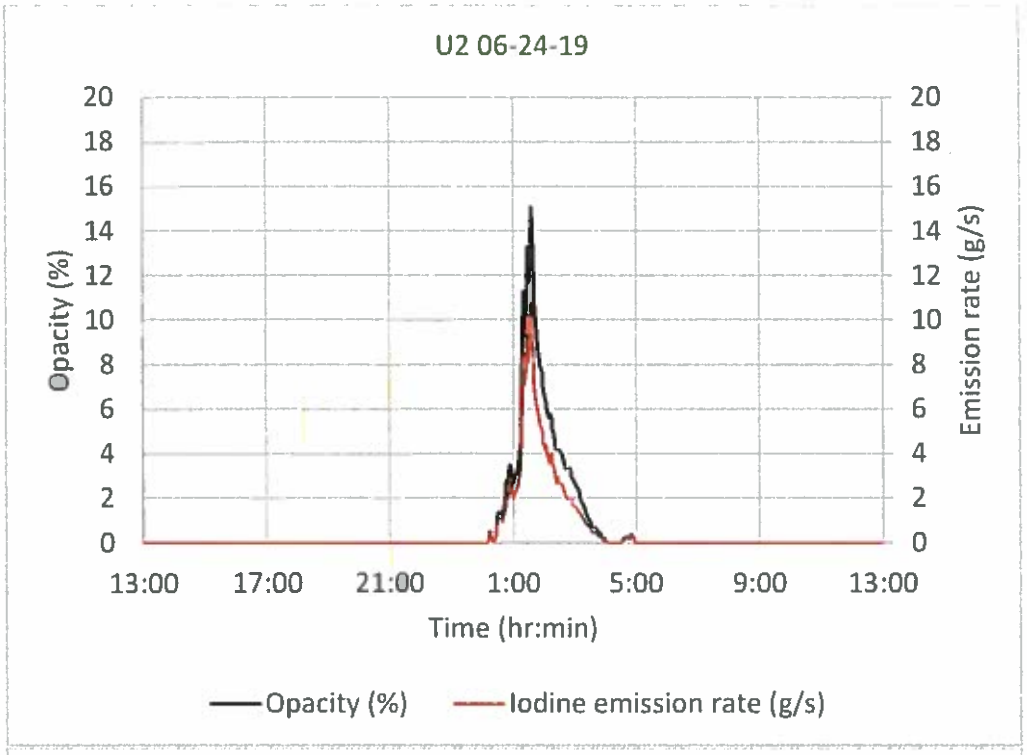

U1 10-10-19
Opacity (%)
Emission rate (g/s)
0
10
20
30
40
50
60
2:00
6:00
10:00
14:00
18:00
22:00
2:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

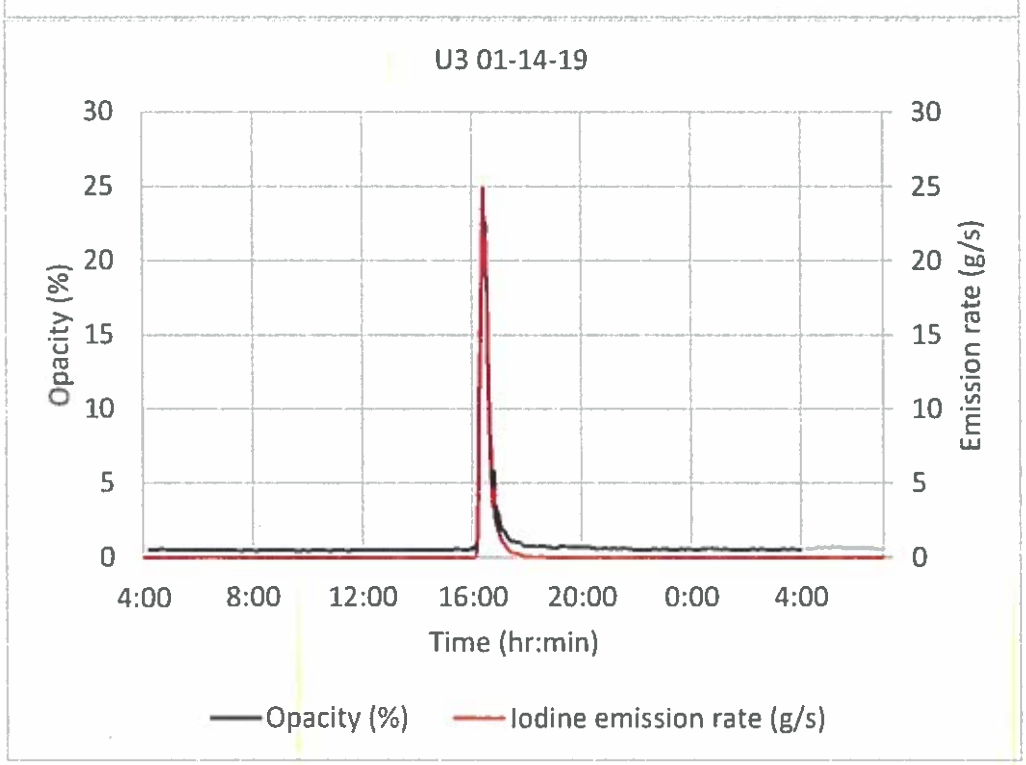

U2 01-14-19
Opacity (%)
Emission rate (g/s)
0
2
4
6
8
10
12
14
16
18
20
4:00
8:00
12:00
16:00
20:00
0:00
4:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

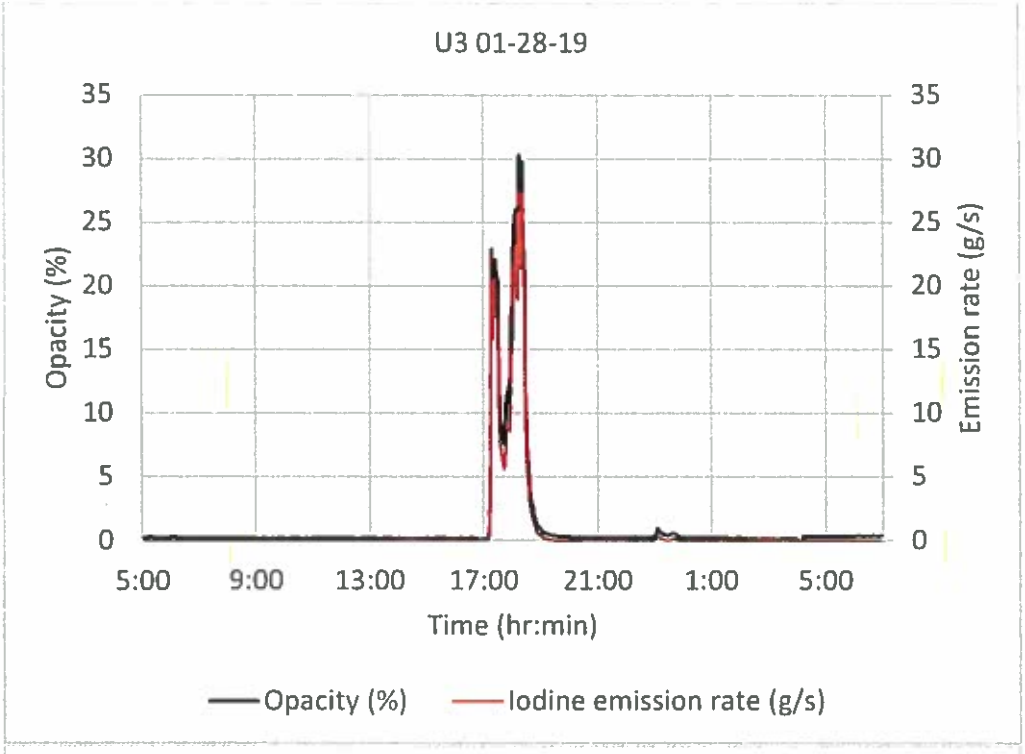

U2 05-02-19
Opacity (%)
Emission rate (g/s)
0
2
4
6
8
10
12
14
16
4:00
8:00
12:00
16:00
20:00
0:00
4:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

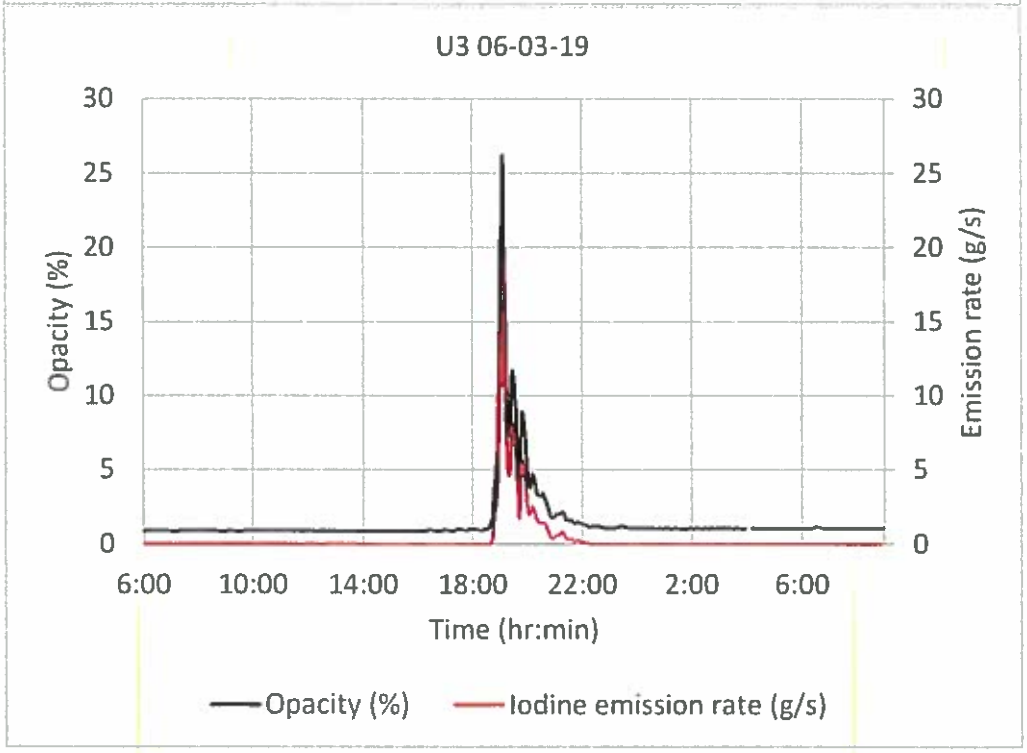

U2 06-03-19
Opacity (%)
Emission rate (g/s)
0
5
10
15
20
25
30
35
40
45
50
7:00
11:00
15:00
19:00
23:00
3:00
7:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

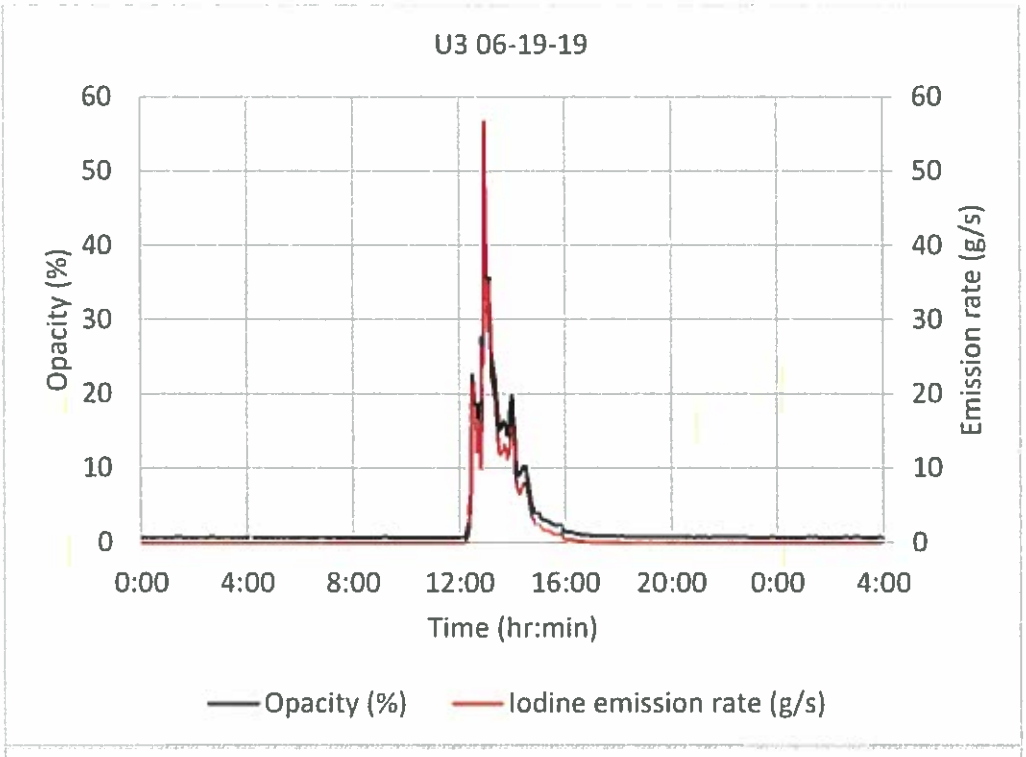

U2 06-19-19
Opacity (%)
Emission rate (g/s)
0
10
20
30
40
50
60
0:00
4:00
8:00
12:00
16:00
20:00
0:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

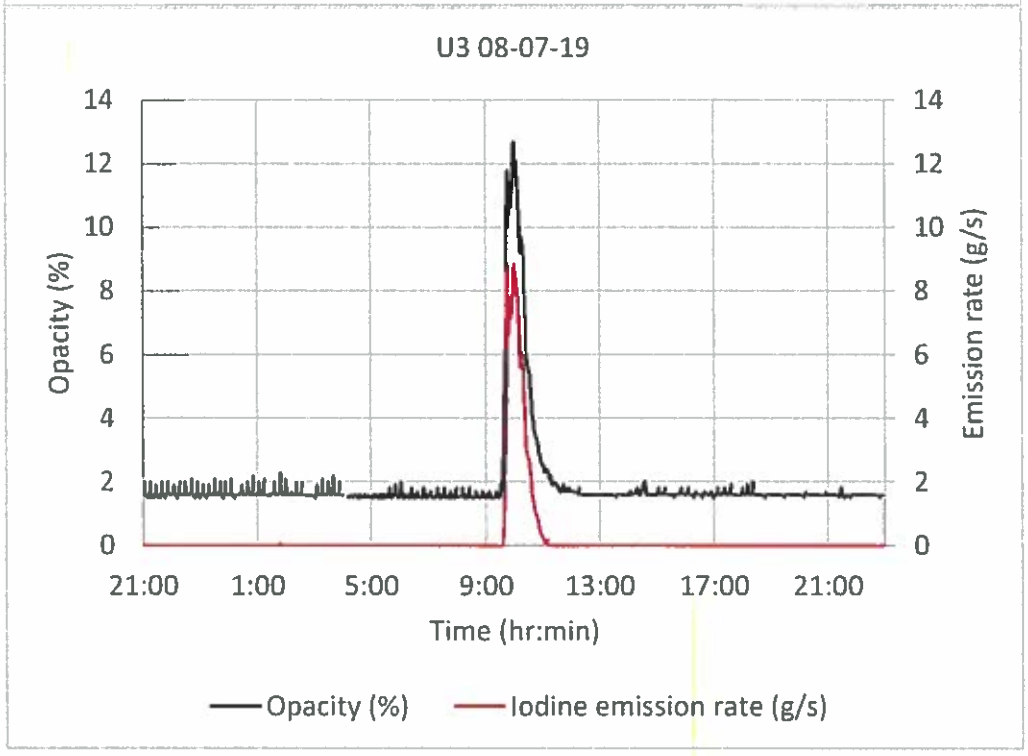

U2 06-24-19
Opacity (%)
Emission rate (g/s)
0
2
4
6
8
10
12
14
16
18
20
13:00
17:00
21:00
1:00
5:00
9:00
13:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

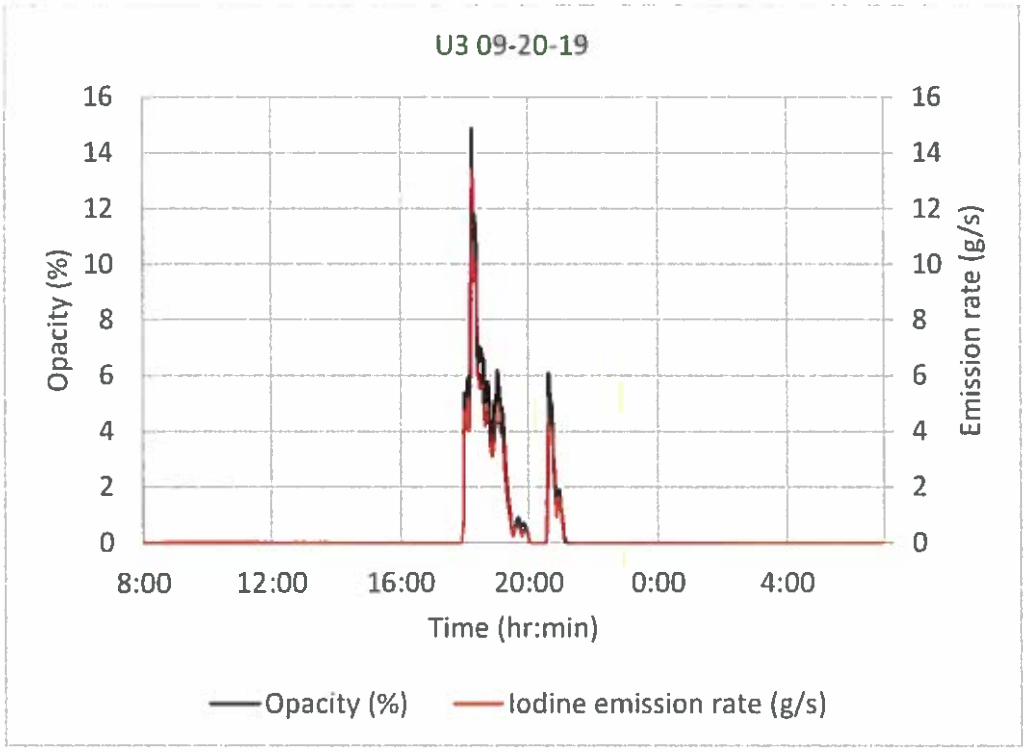

U3 01-14-19
Opacity (%)
Emission rate (g/s)
0
5
10
15
20
25
30
4:00
8:00
12:00
16:00
20:00
0:00
4:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)


U3 01-28-19
Opacity (%)
Emission rate (g/s)
0
5
10
15
20
25
30
35
5:00
9:00
13:00
17:00
21:00
1:00
5:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)


U3 06-03-19
Opacity (%)
Emission rate (g/s)
0
5
10
15
20
25
30
6:00
10:00
14:00
18:00
22:00
2:00
6:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)


U3 06-19-19
Opacity (%)
Emission rate (g/s)
0
10
20
30
40
50
60
0:00
4:00
8:00
12:00
16:00
20:00
0:00
4:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)


U3 08-07-19
Opacity (%)
Emission rate (g/s)
0
2
4
6
8
10
12
14
21:00
1:00
5:00
9:00
13:00
17:00
21:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)


U3 09-20-19
16
14
12
10
8
6
4
2
0
Opacity (%)
Emission rate (g/s)
8:00
12:00
16:00
20:00
0:00
4:00
Time (hr:min)
Opacity (%)
Iodine emission rate (g/s)

Attachment 5 – Odor Impacts Study

Privileged and Confidential, Prepared at the Request of Counsel

COMMUNITY ODOR ASSESSMENT FOR COVANTA ESSEX NEWARK, NJ

By

ODOR SCIENCE & ENGINEERING, INC.
Martha A. O'Brien

October, 2007

OS&E Project No. 1638-M-00

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4.0 SUMMARY AND CONCLUSIONS 4-1

1.0 Introduction

In response to recent concerns about odors in the Ironbound Community of Newark, NJ, Odor Science & Engineering, Inc. (OS&E) was retained to perform a baseline odor study for the area surrounding the Covanta Essex resource recovery facility located at 183 Raymond Boulevard in Newark. The objective on the odor study was to determine the extent of off-site odor impact (if any) from the Covanta Essex facility and to document what odor sources currently exist in the surrounding area (including the Ironbound Community) and the extent of their impact.

The baseline odor monitoring was conducted by OS&E during the period of September 10th through 14th, 2007. Throughout this period surveys were conducted at various times of day and night to document the locations, character, intensities and sources of any odors detected within an approximate 1-2 mile radius of the Covanta Essex facility. A photo of the area surveyed is shown in Figure 1-1.

The methodology used to develop the odor baseline is described in Section 2.0. The odor baseline results are presented in Section 3.0.

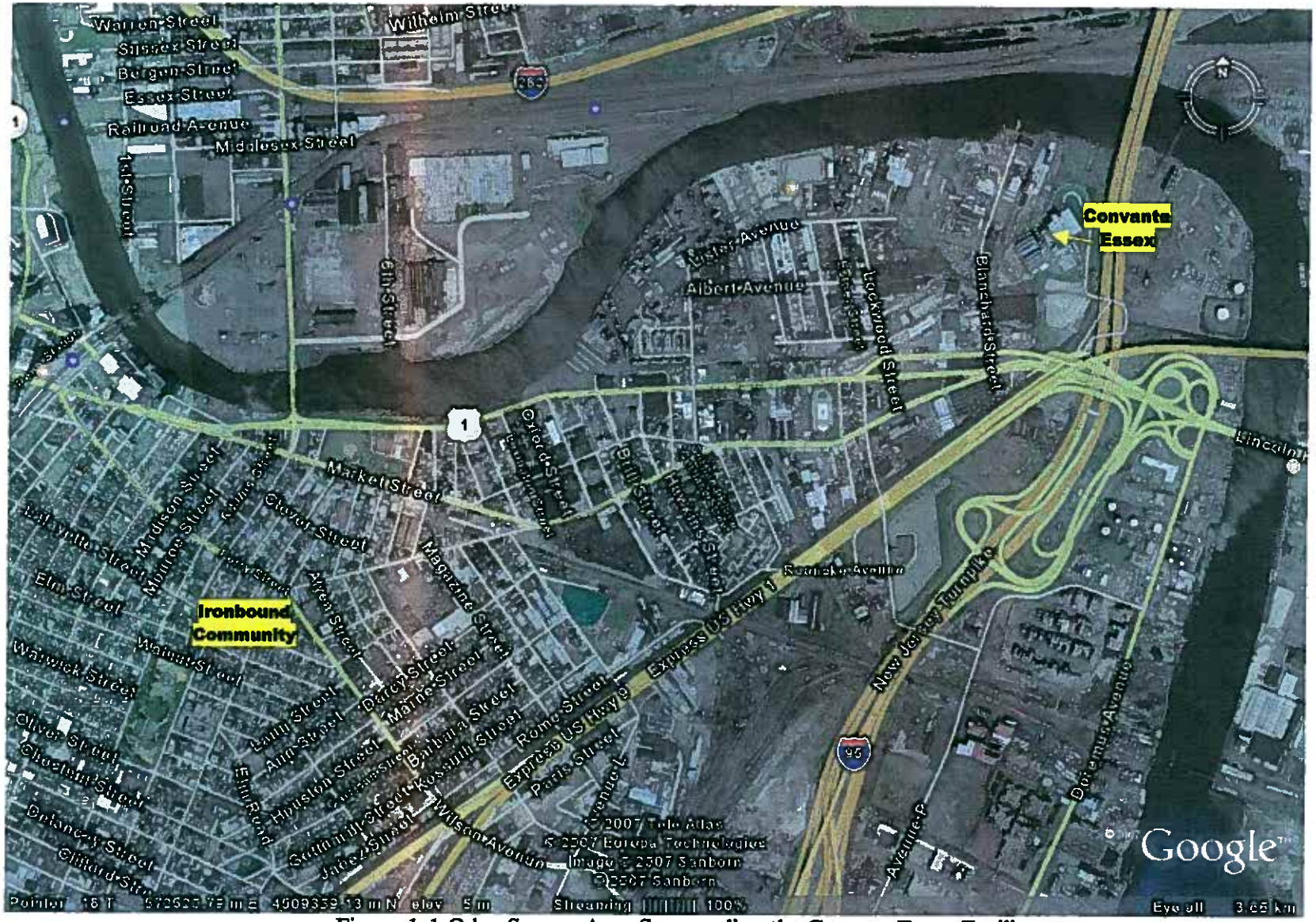


Figure 1-1 Odor Survey Area Surrounding the Covanta Essex Facility

2.0 METHODOLOGY

The Community Odor Assessment was conducted by two experienced OS&E odor scientists during the period of September 10th through September 14th, 2007. Twelve (12) individual ambient odor monitoring surveys were conducted during this period. The surveys were conducted at various times of the day and night throughout the area surrounding the Covanta Essex facility including the Ironbound neighborhood located to the southwest. The area was monitored during each survey by walking or slowly driving through the area in a vehicle with all windows open. Whenever an odor was detected the time, location, odor concentration, odor intensity and odor character were recorded. Where possible, the odor was tracked to its source. Wind speed and direction, sky condition and air temperature were also logged based on local observations and hourly data reported for Newark International Airport. The techniques used to measure odor concentration and intensity are described in Sections 2.1 and 2.2, respectively. A third property of the odor sensation, being odor character, is not quantifiable. This property, however, allows us to track an odor to its source. Its meaning and significance are discussed in Section 2.3.

2.1 Odor Concentration

Odor concentration or detectability is defined as the number of dilutions with odor free air needed to reduce a given volume of odorous air to the threshold level where it becomes undetectable. The odor concentrations reported in this study represent the number of dilutions required to reach the recognition odor threshold as determined by an experienced odor scientist using a Scentometer.

A Scentometer, as shown in Figure 2-1, is a hand-held instrument containing two beds of activated carbon. On its bottom panel the instrument contains a series of holes of increasing diameters. These holes admit odorous ambient air into the instrument where it is mixed with the odor-free air that has passed through the carbon filters. To make a measurement, the observer closes the bottom panel holes and uses the nosepieces to breathe odor-free air purified by passing through the carbon into the central chamber. After having adjusted to breathing odor-free air, the observer opens the smallest hole thus

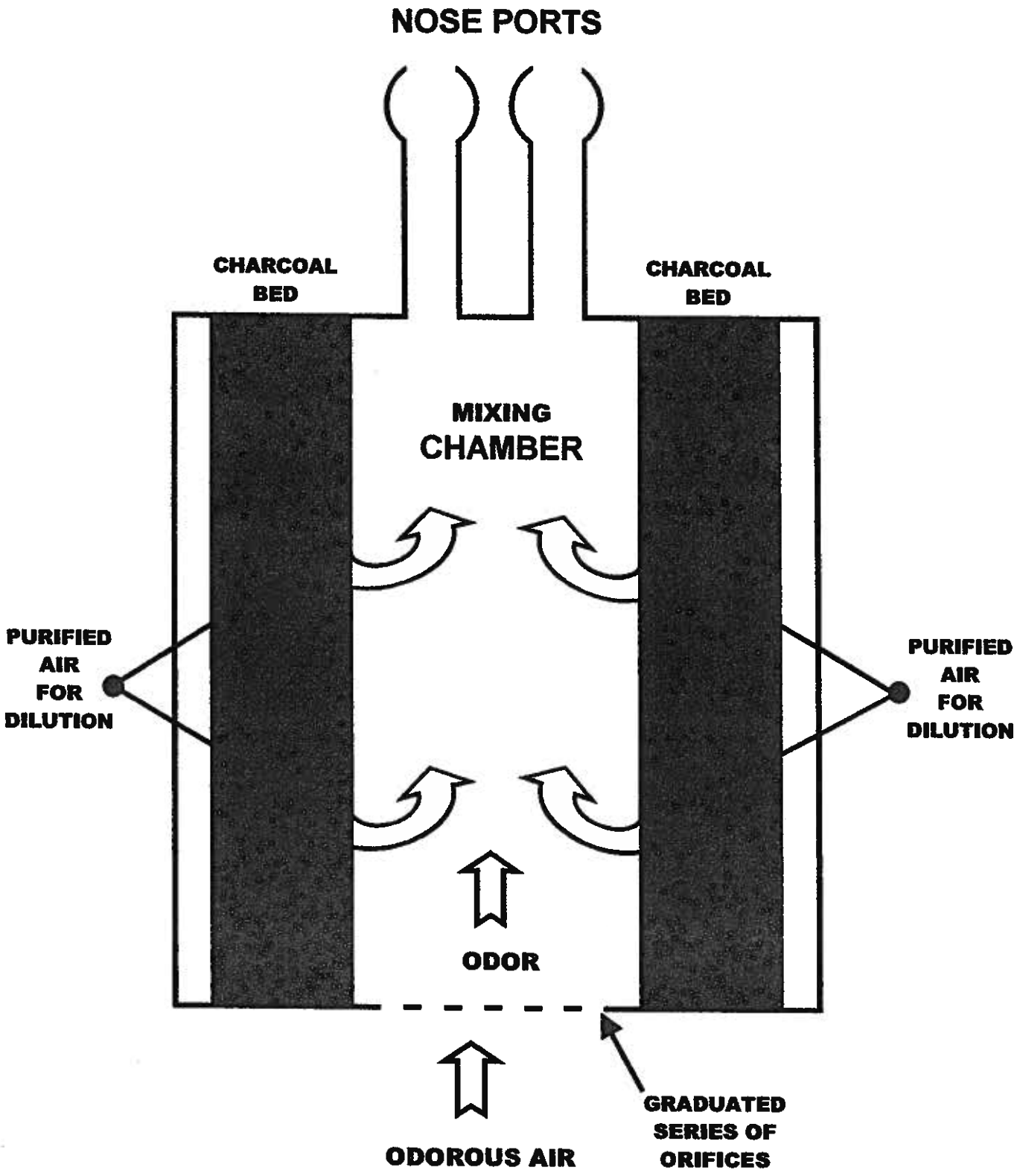


Figure 2-1. Schematic of the Scentometer

allowing a small amount of odorous ambient air to mix with the carbon-filtered air within the instrument. The ratio of the area of this hole to the combined areas of the holes admitting air to the two carbon beds is 1/350. Thus, the dilution factor at this smallest hole is 350:1. If the observer does not detect an odor at that dilution level he closes the hole and opens the next larger hole and again attempts to detect an odor. The dilution factor at this hole is 170:1. The dilution factors of the next four (4) holes are 31:1, 15:1, 7:1 and 2:1. The observer continues this procedure until an odor is detected. The odor concentration is then reported as the range between the dilution at which the odor was first detected and the next highest dilution. This recognizes the fact that the true odor concentration is somewhat higher than the highest dilution at which an odor is actually detected.

In the United States, most region's odor regulations are covered under the general nuisance law with no definition of a nuisance or acceptable odor level. Some thirteen states and/or air pollution agencies have quantitative odor regulations which define some quantitative limit for ambient odor impacts. Of these, most regulate odor based on concentration (D/T) with the majority limiting ambient odors to a maximum of 7 D/T. The Scentometer is a device that can be used to monitor ambient odors and determine compliance with this regulatory limit.

2.2 Odor Intensity

Odor intensity is the perceived strength of the odor sensation. More than any other property of odor, perceived odor intensity is what triggers odor complaints. It is measured by comparing the intensity of the odor perceived to that noted when sniffing standardized concentrations of a reference odorant. In the United States, n-butanol is used as the reference odorant as described in ASTM Method E544-99, "Recommended Standard Practices for Referencing Suprathreshold Odor Intensity". The now widely used n-butanol odor intensity scale is based on n-butanol vapor as the odorant at eight concentrations. The concentration increases by a factor of 2 at each intensity step starting with approximately 15 ppm at step 1 and ending with approximately 2000 ppm at step 8. OS&E has developed a field kit which uses aqueous solutions of n-butanol to produce the standard vapor concentrations in the head space of the eight individual containers. In

comparing intensities of various odors the differences in odor character are ignored as in comparing the intensities of lights of different colors. As stated above, the intensity of a perceived odor is the basic cause of people filing nuisance odor complaints. Even so-called pleasant odors such as bakeries, restaurants and coffee roasters will cause nuisance odor complaints if neighbors perceive the odors frequently enough at sufficiently high intensities. For example, the South Coast Air Quality Management District (SCAQMD) in southern California (greater Los Angeles) uses a category estimate scale as a guide for their inspectors to determine whether a perceived ambient odor should be judged to be a nuisance warranting issuance of a Notice of Violation to the alleged source of the odor. OS&E scientists worked with the SCAQMD to standardize its category estimate scale by having people compare their judgements to the eight point n-butanol scale. The results are summarized in Table 2-1.

As shown in this table, an odor with an intensity of greater than 3.0 on the n-butanol scale would be considered to be a possible nuisance in a residential area by SCAQMD inspectors. This has been verified in many OS&E field studies conducted across the country and internationally has been found to be essentially a universal standard except in areas where the population has become sensitized to odors because of very frequent exposure to relatively high intensities of ambient odors. In these cases, such "sensitized individuals" may complain about odors of much lower intensities than 3.0 on the n-butanol scale.

A description of the perceived odor at increasing intensity levels is shown below:

n-butanol intensity level (0-8) ASTM E544-99	description of perceived odor
0.5 – 1	**Very Faint:** An odor that would ordinarily not be noticed by the average person, but could be detected by the experienced inspector or a hypersensitive individual.
1-2	**Faint:** An odor so weak that the average person might detect if his attentions are called to it, but that would not otherwise attract his attention.
3	**Distinct, Easily Noticeable:** An odor of moderate intensity that would be readily detected and might be regarded with disfavor. (A possible nuisance in inhabited areas.)
4 and higher	**Strong, Decided:** An odor that would force itself upon the attention and that might make the air very unpleasant (a probable nuisance, if found in inhabited areas.)

Table 2-1.
Comparison of Butanol Intensity Rating Scale with SCAQMD Odor Nuisance Classification System made by an Odor Panel Comprised of 6 Members*

SCAQMD Categories	Nuisance Definition	Butanol Rating					
		C. Koerner	W. Acedera	E. Bonnett	S. Wong	R. Duffee	A. Astle
0. No Odor	No detectable odor				1,2		
1. Very Faint	An odor that would ordinarily not be noticed by the average person, but could be detected by the experienced inspector or a hypersensitive individual.	1,2	1,2	1,2	3	1,2	1.5
2. Faint	An odor so weak that the average person might detect if his attentions are called to it, but that would not otherwise attract his attention.	3,4	3,4	3	4	3	3
3. Distinct, Easily Noticeable	An odor of moderate intensity that would be readily detected and might be regarded with disfavor. (A possible nuisance in inhabited areas.)	5,6	6	4,5	5,6	4,5	5
4. Strong, Decided	An odor that would force itself upon the attention and that might make the air very unpleasant (a probable nuisance, if found in inhabited areas.)	7,8	6	6,7	7,8	6,7,8	7
5. Very Strong	An odor of such intensity that the air would be absolutely unfit to breathe. (Term to be used only in extreme cases.)	>8	7	8	>8	>8	>8

NOTE: The panel was comprised of two OS&E odor scientists, a SCAQMD inspector, two staff members of the California Department of Health Services and an Orange County Health Department staff member.

2.3 Odor Character

Odor character refers to the terms which we use to describe an odor. This property of the odor sensation makes it possible to differentiate among the odors of different substances or different sources. Odor character descriptors are either general such as "sweet", "burnt", "pungent" or specific such as "rotten eggs", "paint", or the odorous chemical such as hydrogen sulfide, n-butyl acetate, etc. In addition to odor concentration and intensity, the character of observed ambient odors was described by the OS&E odor monitor during the ambient surveys. This odor property made it possible to discriminate between odor sources.

3.0 RESULTS OF THE SEPTEMBER 2007 ODOR SURVEYS

Community odor surveys were conducted on September 10th, 11th, 12th, 13th & 14th, 2007. Surveys were conducted at various times of the day and night to document the effects of diurnal variations in atmospheric stability on ambient odors.

A total of twelve (12) individual odor surveys were conducted. The intensity, concentration, character and likely source of each odor detected during the odor surveys were recorded along with the concurrent meteorological conditions of wind speed, wind direction, cloud cover and ambient temperature. The results of the individual odor surveys are summarized and illustrated in Figures 3-1 through 3-12. The red numbers represent the area/extent of detectable odors. The locations of the individual zones of odor are numbered in the order in which the observations were made. The numbers correspond to the entries in table on each figure which provide the details of each odor observance.

Summary

The survey area previously shown in shown in Figure 1-1 was canvassed over the 5 days in September 2007. Additionally, during periods with westerly winds, although not detailed on Figures 3-1 through 3-12, areas directly to the east of the Covanta Essex facility including up and down Interstate 95 and across the river to the east on Lincoln Highway, Center Avenue, Pennsylvania Avenue and Jacobus Avenue were also investigated. The odor monitoring was conducted specifically looking for Covanta Essex-related odors and, if found, to document the extent of their impact particularly on the nearby Ironbound Community. The survey periods encompassed both day and nighttime hours during a variety of wind speeds, directions and meteorological conditions typical of summertime conditions. The Covanta Essex facility has not been found to be the source of any significant off-site odor impact.

Observed "Garbage-Related" Odors

Light "garbage" odors were often detected in the 95 underpass/Raymond Blvd. exit near the entrance to the Covanta Essex Facility. These odors were generally found to be light in intensity (0.25-1.5) and were attributable to the general condition of the streets and the refuse truck traffic. Rain on Tuesday, September 11th, led to flooding of the storm drains in that area which provided a washing of the streets. After the area eventually dryed out on Wednesday, the residual garbage odors from the streets were greatly reduced.

Other areas of "garbage" odor were occasionally detected in localized areas throughout the surrounding neighborhoods. These odors, however, were not due to the Covanta plant, but were due to localized sources such as restaurant/residential refuse and garbage truck traffic through the streets for residential pick up. The Waste Management site located on Saint Charles Street at US RT 1 was also found to be the source of "rotten garbage/compost" odors in the Ironbound Community (see Figure 3-12, survey No. 12).

Most Pervasive Odors

The most pervasive odor observed throughout the Ironbound Community was that of "food/cooking/grilling/barbeque" from homes and neighborhood restaurants. "Bakery" odors and "fragrant" odors from the area's laundromats were also frequently observed in the neighborhood streets during the odor surveys.

Industrial Odor Sources

Many other industrial odors were detected during the neighborhood odor surveys including:

- "Paint" odor from various auto body shops
- "Sour/wet paper" from – a paper recycling operation on Lockwood Street
- "Chemical/solvent/sour milk" odors from a chemical waste handling facility, Benjamin Moore Paint and Atlas Refining on Lockwood St./Lister Ave.
- "Sweet/detergent" odors from Arol Chemical Co. on Ferry St./Foundry St.
- "Glue/styrene" odor from CWC Industries on Foundry St.
- "Petroleum" odors from area scrap yards, trailers, storage tanks and tank cars
- "Burnt metal/foundry" odor from Federal Bronze Casting Co. on Backus St. between Gotthardt St./Jabez St.
- "Burning/smoke" and "wood" odors from a wood pallet company off of Lockwood Street and local construction sites

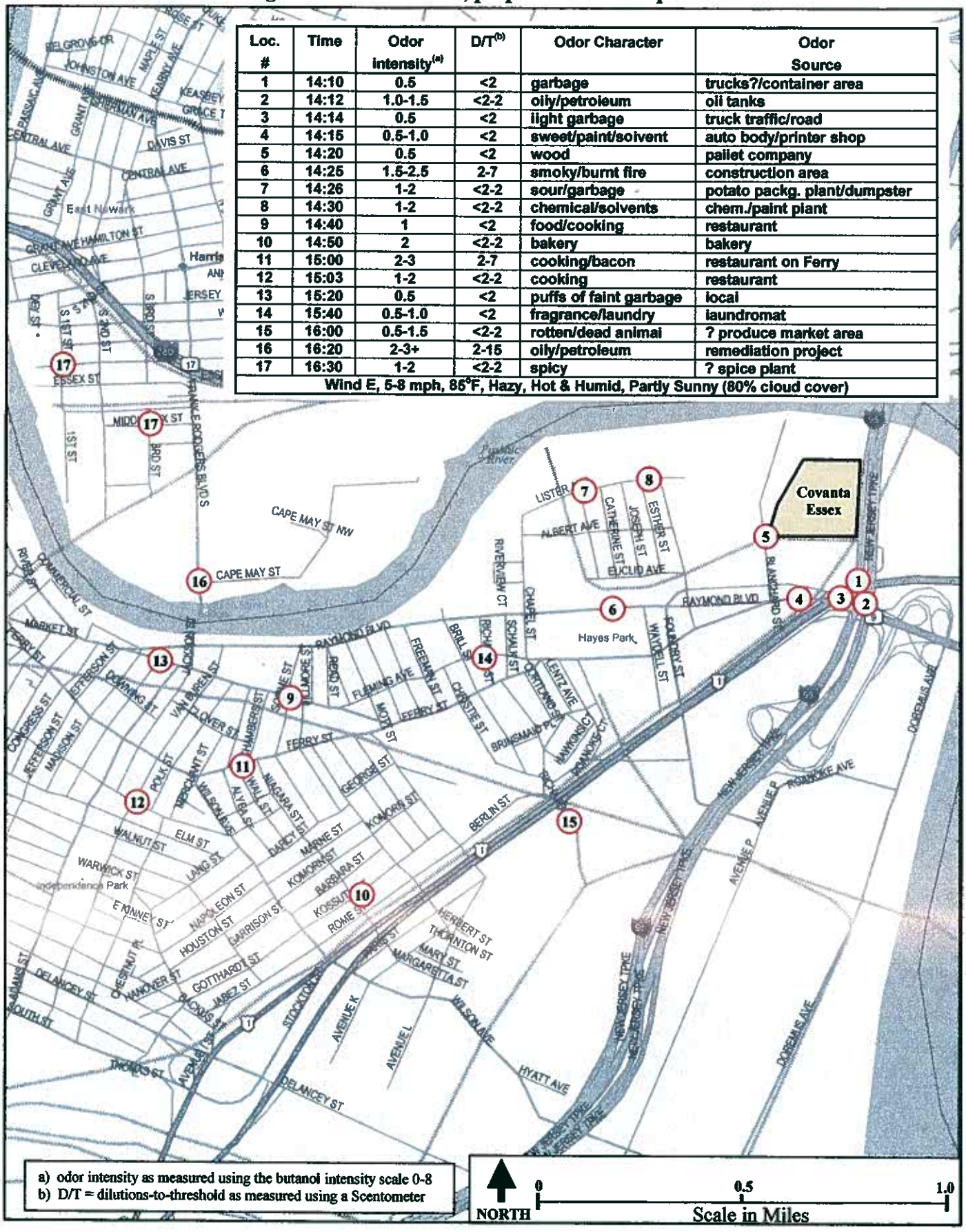
Major Industrial Odor Sources

The major industrial odor sources in the area detected during the surveys were:

Source	Location
American Halal Meat slaughter house	corner of Raymond and Lockwood
PSE&G remediation project (s)	north side of the Jackson Street Bridge in Harrison
Passaic Valley Sewage Commission Wastewater Treatment Plant (WWTP)	Wilson Avenue at Doremus
Darling International Plant	across the street from the WWTP on Wilson
Cluster of Chemical Plants: Reichhold Chemical General Chemical Quantum Chemical Elan Chemical	on Doremus Avenue between Wilson & Roanoke

Each of these sources was found to produce very intense and potentially objectionable level odors in the Ironbound Community area during the September 2007 odor monitoring. Observed odor impacts from these major industrial sources exceeded intensity levels of 3.0 with ambient odor concentrations measuring up to 170 D/T with the Scentometer.

The location of the various industrial odor sources detected in the areas surrounding Newark's Ironbound Community are shown in Figure 3-13.

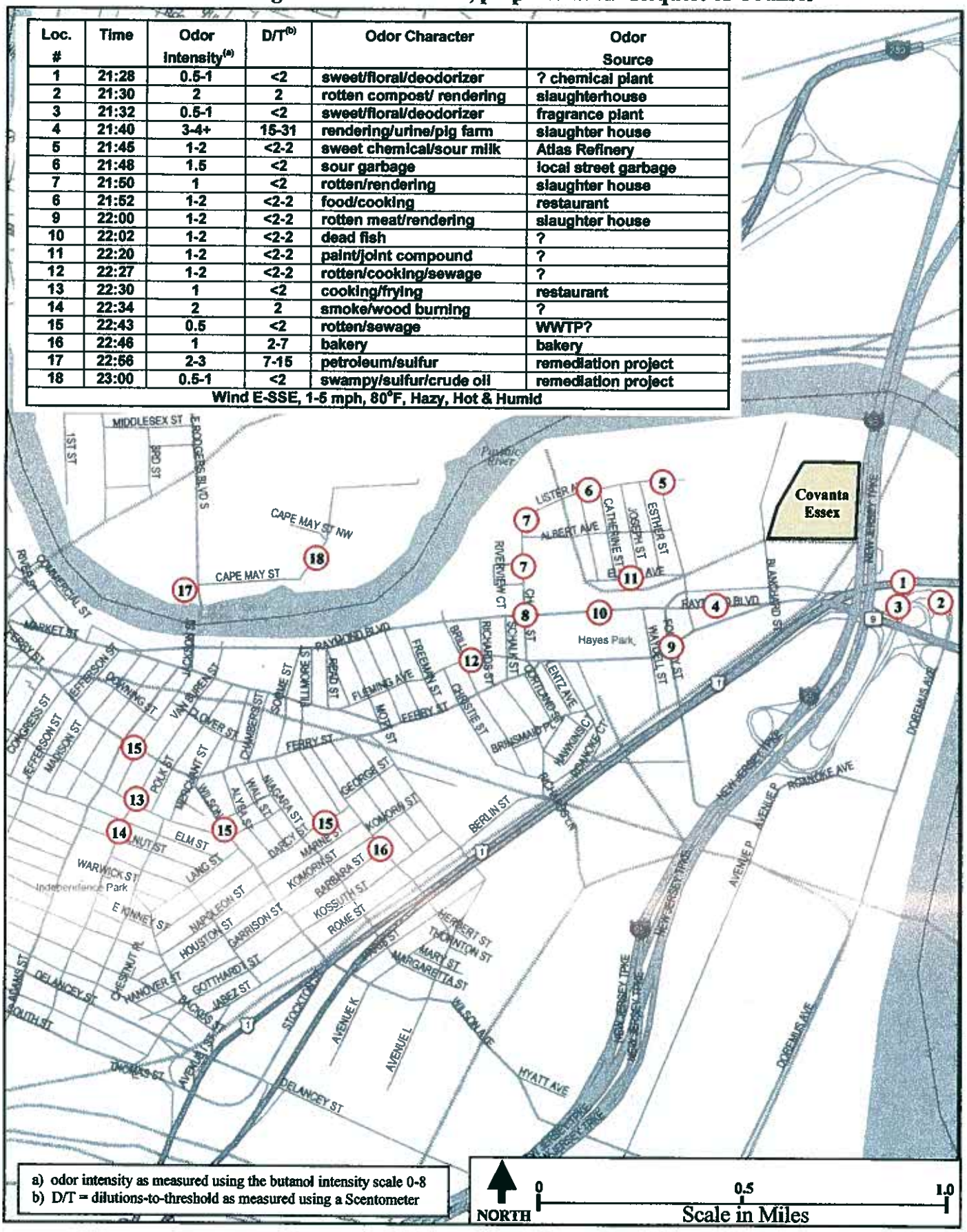


Loc. #	Time	Odor intensity[a]	D/T[b]	Odor Character	Odor Source
1	14:10	0.5	<2	garbage	trucks?/container area
2	14:12	1.0-1.5	<2-2	oily/petroleum	oil tanks
3	14:14	0.5	<2	light garbage	truck traffic/road
4	14:15	0.5-1.0	<2	sweet/paint/solvent	auto body/printer shop
5	14:20	0.5	<2	wood	pallet company
6	14:25	1.5-2.5	2-7	smoky/burnt fire	construction area
7	14:26	1-2	<2-2	sour/garbage	potato packg. plant/dumpster
8	14:30	1-2	<2-2	chemical/solvents	chem./paint plant
9	14:40	1	<2	food/cooking	restaurant
10	14:50	2	<2-2	bakery	bakery
11	15:00	2-3	2-7	cooking/bacon	restaurant on Ferry
12	15:03	1-2	<2-2	cooking	restaurant
13	15:20	0.5	<2	puffs of faint garbage	local
14	15:40	0.5-1.0	<2	fragrance/laundry	laundromat
15	16:00	0.5-1.5	<2-2	rotten/dead animal	? produce market area
16	16:20	2-3+	2-15	oily/petroleum	remediation project
17	16:30	1-2	<2-2	spicy	? spice plant
Wind E, 5-8 mph, 85°F, Hazy, Hot & Humid, Partly Sunny (80% cloud cover)					

a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-1. Community Odor Survey No. 1 (9/10/07 14:00-17:00)

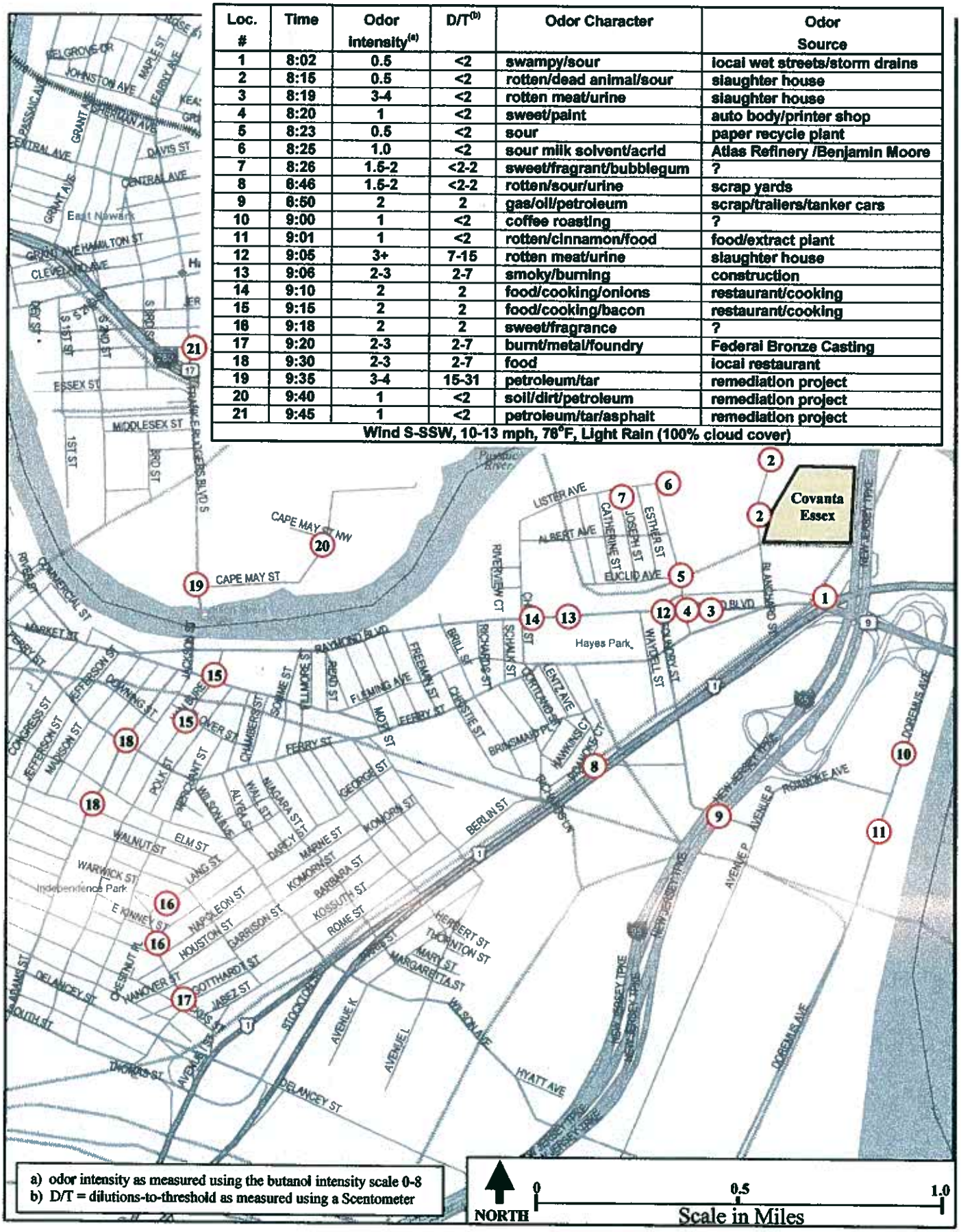
Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	21:28	0.5-1	<2	sweet/floral/deodorizer	? chemical plant
2	21:30	2	2	rotten compost/ rendering	slaughterhouse
3	21:32	0.5-1	<2	sweet/floral/deodorizer	fragrance plant
4	21:40	3-4+	15-31	rendering/urine/pig farm	slaughter house
5	21:45	1-2	<2-2	sweet chemical/sour milk	Atlas Refinery
6	21:48	1.5	<2	sour garbage	local street garbage
7	21:50	1	<2	rotten/rendering	slaughter house
8	21:52	1-2	<2-2	food/cooking	restaurant
9	22:00	1-2	<2-2	rotten meat/rendering	slaughter house
10	22:02	1-2	<2-2	dead fish	?
11	22:20	1-2	<2-2	paint/joint compound	?
12	22:27	1-2	<2-2	rotten/cooking/sewage	?
13	22:30	1	<2	cooking/frying	restaurant
14	22:34	2	2	smoke/wood burning	?
15	22:43	0.5	<2	rotten/sewage	WWTP?
16	22:46	1	2-7	bakery	bakery
17	22:56	2-3	7-15	petroleum/sulfur	remediation project
18	23:00	0.5-1	<2	swampy/sulfur/crude oil	remediation project
Wind E-SSE, 1-5 mph, 80°F, Hazy, Hot & Humid					



a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-2. Community Odor Survey No. 2 (09/10/07 21:30-23:00)

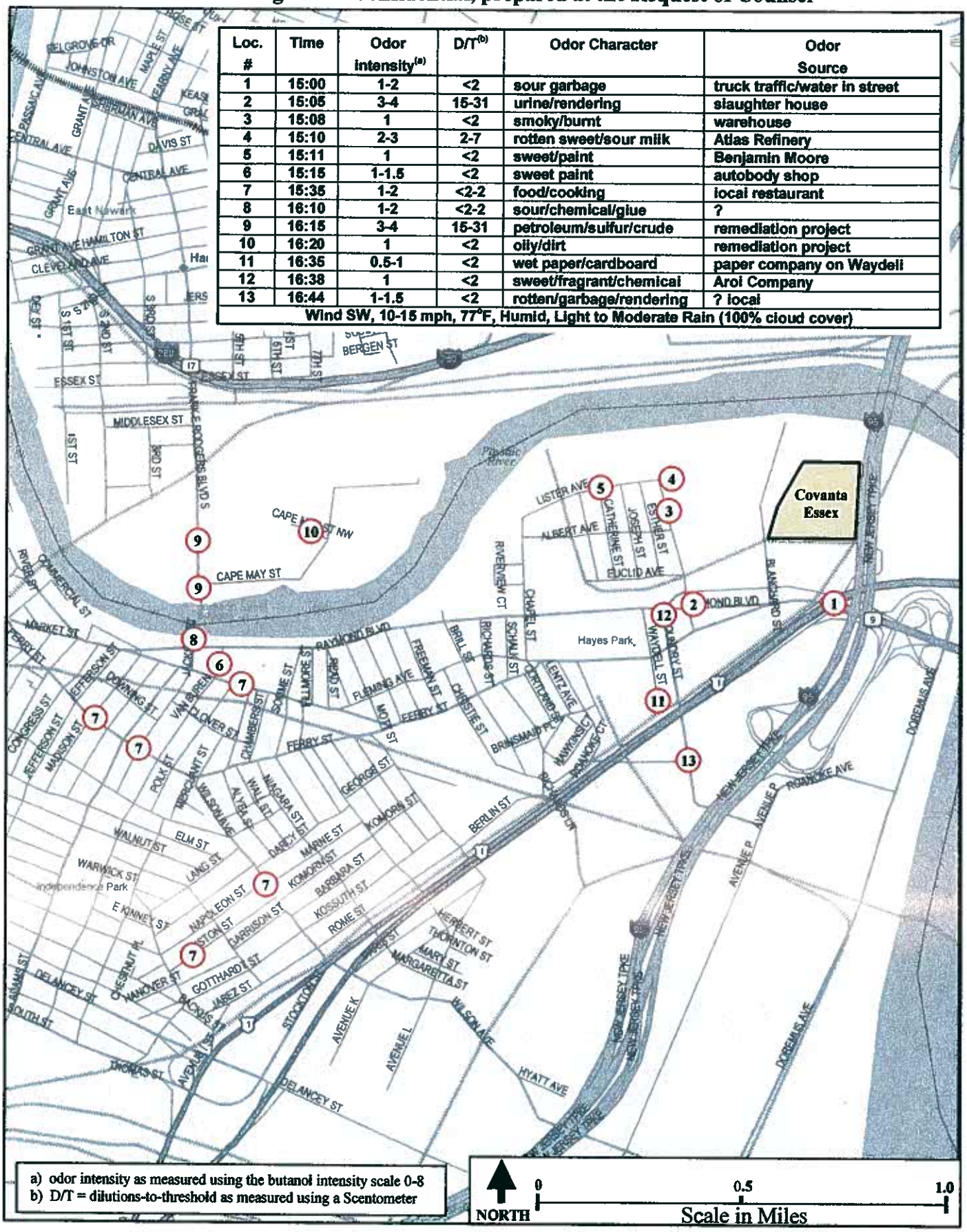
Loc. #	Time	Odor intensity[a]	D/T[b]	Odor Character	Odor Source
1	8:02	0.5	<2	swampy/sour	local wet streets/storm drains
2	8:15	0.5	<2	rotten/dead animal/sour	slaughter house
3	8:19	3-4	<2	rotten meat/urine	slaughter house
4	8:20	1	<2	sweet/paint	auto body/printer shop
5	8:23	0.5	<2	sour	paper recycle plant
6	8:25	1.0	<2	sour milk solvent/acrid	Atlas Refinery /Benjamin Moore
7	8:26	1.5-2	<2-2	sweet/fragrant/bubblegum	?
8	8:46	1.5-2	<2-2	rotten/sour/urine	scrap yards
9	8:50	2	2	gas/oil/petroleum	scrap/trailers/tanker cars
10	9:00	1	<2	coffee roasting	?
11	9:01	1	<2	rotten/cinnamon/food	food/extract plant
12	9:05	3+	7-15	rotten meat/urine	slaughter house
13	9:06	2-3	2-7	smoky/burning	construction
14	9:10	2	2	food/cooking/onions	restaurant/cooking
15	9:15	2	2	food/cooking/bacon	restaurant/cooking
16	9:18	2	2	sweet/fragrance	?
17	9:20	2-3	2-7	burnt/metal/foundry	Federal Bronze Casting
18	9:30	2-3	2-7	food	local restaurant
19	9:35	3-4	15-31	petroleum/tar	remediation project
20	9:40	1	<2	soil/dirt/petroleum	remediation project
21	9:45	1	<2	petroleum/tar/asphalt	remediation project
Wind S-SSW, 10-13 mph, 78°F, Light Rain (100% cloud cover)					



a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-3. Community odor Survey No. 3 (09/11/07 08:00-10:00)

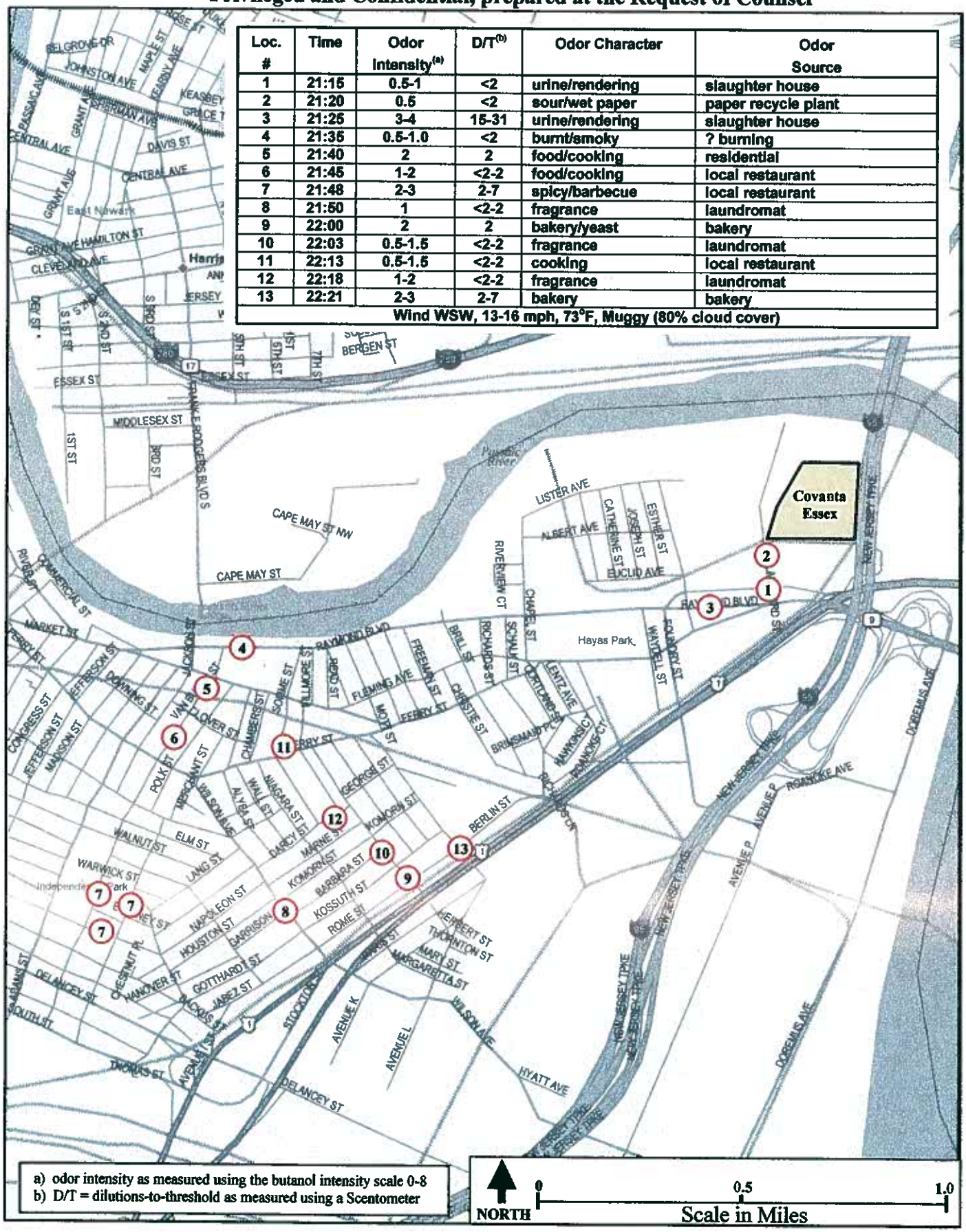
Loc. #	Time	Odor intensity[a]	D/T[b]	Odor Character	Odor Source
1	15:00	1-2	<2	sour garbage	truck traffic/water in street
2	15:05	3-4	15-31	urine/rendering	slaughter house
3	15:08	1	<2	smoky/burnt	warehouse
4	15:10	2-3	2-7	rotten sweet/sour milk	Atlas Refinery
5	15:11	1	<2	sweet/paint	Benjamin Moore
6	15:15	1-1.5	<2	sweet paint	autobody shop
7	15:35	1-2	<2-2	food/cooking	local restaurant
8	16:10	1-2	<2-2	sour/chemical/glue	?
9	16:15	3-4	15-31	petroleum/sulfur/crude	remediation project
10	16:20	1	<2	oily/dirt	remediation project
11	16:35	0.5-1	<2	wet paper/cardboard	paper company on Waydell
12	16:38	1	<2	sweet/fragrant/chemical	Aroi Company
13	16:44	1-1.5	<2	rotten/garbage/rendering	? local
Wind SW, 10-15 mph, 77°F, Humid, Light to Moderate Rain (100% cloud cover)					



a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-4. Community Odor Survey No.4 (09/11/07 15:00-17:00)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	21:15	0.5-1	<2	urine/rendering	slaughter house
2	21:20	0.5	<2	sour/wet paper	paper recycle plant
3	21:25	3-4	15-31	urine/rendering	slaughter house
4	21:35	0.5-1.0	<2	burnt/smoky	? burning
5	21:40	2	2	food/cooking	residential
6	21:45	1-2	<2-2	food/cooking	local restaurant
7	21:48	2-3	2-7	spicy/barbecue	local restaurant
8	21:50	1	<2-2	fragrance	laundromat
9	22:00	2	2	bakery/yeast	bakery
10	22:03	0.5-1.5	<2-2	fragrance	laundromat
11	22:13	0.5-1.5	<2-2	cooking	local restaurant
12	22:18	1-2	<2-2	fragrance	laundromat
13	22:21	2-3	2-7	bakery	bakery
Wind WSW, 13-16 mph, 73°F, Muggy (80% cloud cover)					



a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-5. Community Odor Survey No. 5 (09/11/07 21:00-23:00)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	9:02	1-2	<2-2	smoky/burnt	pallet company
2	9:10	2	2	burnt/petroleum mix	?
3	9:12	3-4	15-31	rendering/barnyard/urine	slaughter house
4	9:14	1	<2	sweet/chemical	Atlas Refinery
5	9:15	1-2	<2-2	glue/solvent/paint	Benjamin Moore Paint
6	9:16	1	<2	sweet/fruit/chemical	chemical plant
7	9:18	1	<2	garbage/rotten vegetation/food	produce company
8	9:25	1-2	<2-2	smoky/burnt/fire	construction
9	9:30	2-3	7-15	fragrant/sweet/detergent	Arol Company
10	9:32	2-3	7-15	glue/sour/styrene	CWC Industries
Wind W, 10-13 mph, 68°F, Clear, Sunny (10% cloud cover)					

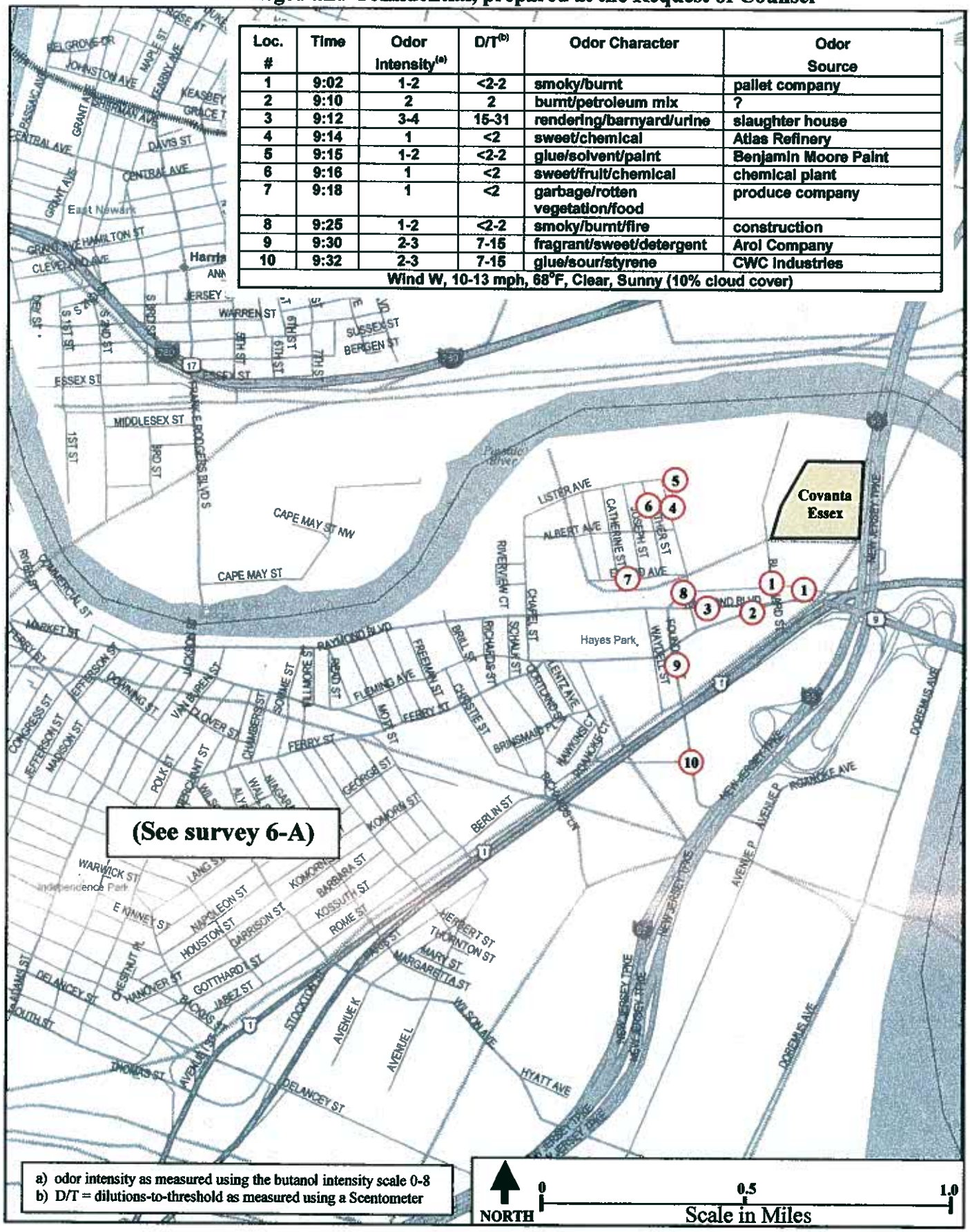


Figure 3-6. Community Odor Survey No. 6 (09/12/07 9:00-10:20)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	10:22	1	<2	paint	autobody shop/iron works
2	10:25	1	<2	paint	autobody shop
3	10:30	1.5	<2	burnt petroleum	remediation site
4	10:37	1-1.5	<2	traffic/exhaust/food	traffic/restaurant
5	10:40	2	2-7	grill/barbecue	restaurant
6	10:42	2	2	fragrant/detergent	Arol Company
7	10:50	2	2	bakery/yeast	bakery
8	10:53	2	2	bakery	bakery
9	11:00	1-2	<2-2	food/cooking	restaurant
10	11:03	1-3	2-7	food/cooking	restaurant
11	11:15	1-2	<2-2	burnt petroleum	remediation project
12	11:25	5+	>170	petroleum/tar/asphalt/ naphthalene	remediation project
Wind W-NW, 10-15 mph, 74°F, Clear, Sunny (0% cloud cover)					

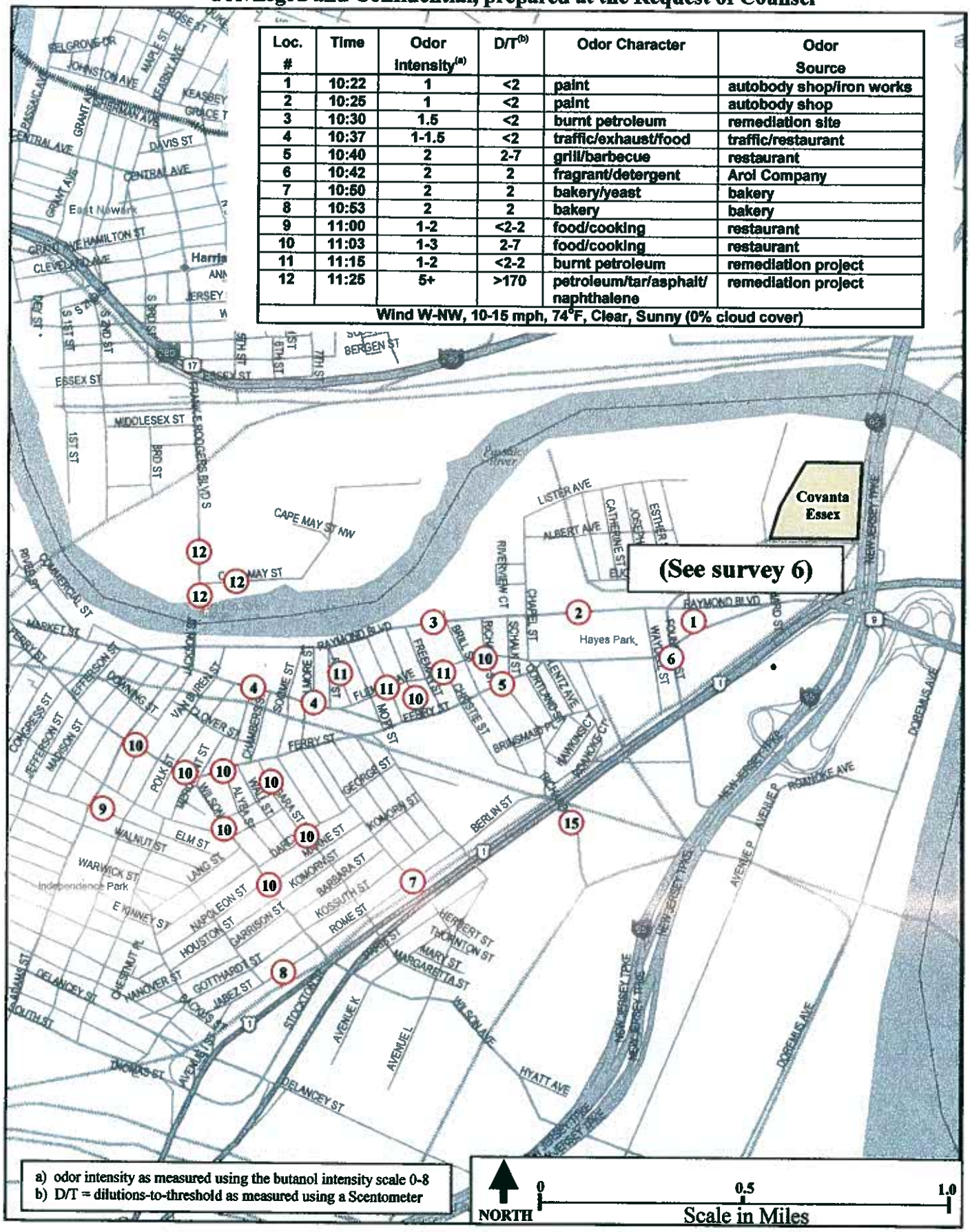


Figure 6a. Community Odor Survey No. 6a (09/12/07 10:20-11:30) 3-10

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	15:29	0.5-1	<2	wood	pallet company
2	15:31	0.5	<2	sweet/sour/chemical/paint	Benjamin Moore paint plant
3	15:39	0.5	<2	sour/glue/solvent	Benjamin Moore paint plant
4	15:51	0.5-0.75	<2	sour garbage	localized street garbage
5	15:50	0.5-0.75	<2	sweet fragrance	laundromat
6	15:54	2-3	2-7	sweet fragrance	Aroi Company
7	16:13	0.5-1	<2-2	food/cooking	local restaurant
8	16:21	0.5	<2-2	sour/petroleum/muddy water	remediation project
9	16:25	1-2	<2-2	food/cooking	local restaurant
10	16:29	0.5-1	<2	sour/petroleum/chemical/river	remediation project /river?
11	17:09	0.5-1.5	<2-2	sour, sludgy/rotten	remediation project /river?
12	17:11	2.5-4	15-31	sour/petroleum/sulfur	remediation project
13	17:13	1-2	<2-2	musty/ wet/earthy/dirt	remediation project
14	17:40	1-2	<2-2	bakery	bakery
15	17:52	0.75-1.5	<2-2	fresh fragrance	laundromat
Wind W-WNW, 11-14 mph, 75°F, Mostly Sunny (25% cloud cover)					

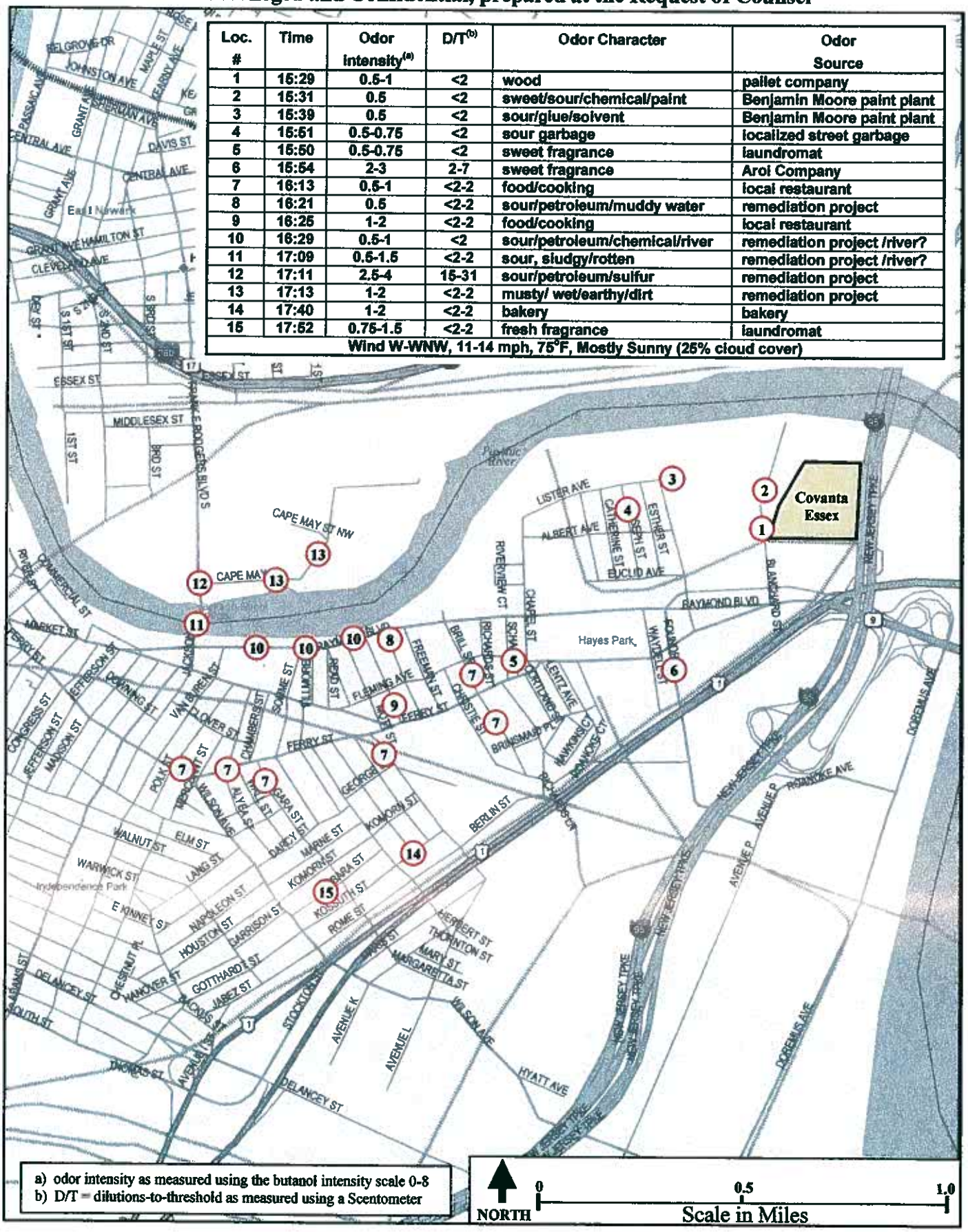


Figure 3-7. Community Odor Survey No. 7 (09/12/07 15:25-18:00)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	20:30	1-1.5	<2	sour garbage	garbage trucks
2	20:33	0.5-0.75	<2	sour wood	pallet company
3	20:45	0.5-1.5	<2	sour/earthy/dirt/oily	remediation project
4	20:49	1-1.75	<2-2	sweet/sour/fermented fruit	?
5	20:53	0.5	<2	sour/earthy/dirt	remediation project
6	20:58	1-2	<2-2	food/cooking	local restaurant
7	21:00	0.5-1	<2	food/cooking	local homes
8	21:04	0.5	<2	sour garbage	street trash
9	21:06	1-2	<2-2	baked food	bakery
10	21:10	1-1.5	<2	food/cooking	local restaurant
11	21:20	1-1.5	<2	food/cooking/burnt	local restaurant
12	21:28	1-1.5	<2	food/cooking	local restaurant
13	21:39	1.5-2	<2-2	sour/rotten meat	slaughter house
Wind WNW-NW, 6-8 mph, 70°F, Sunny (0% cloud cover)					

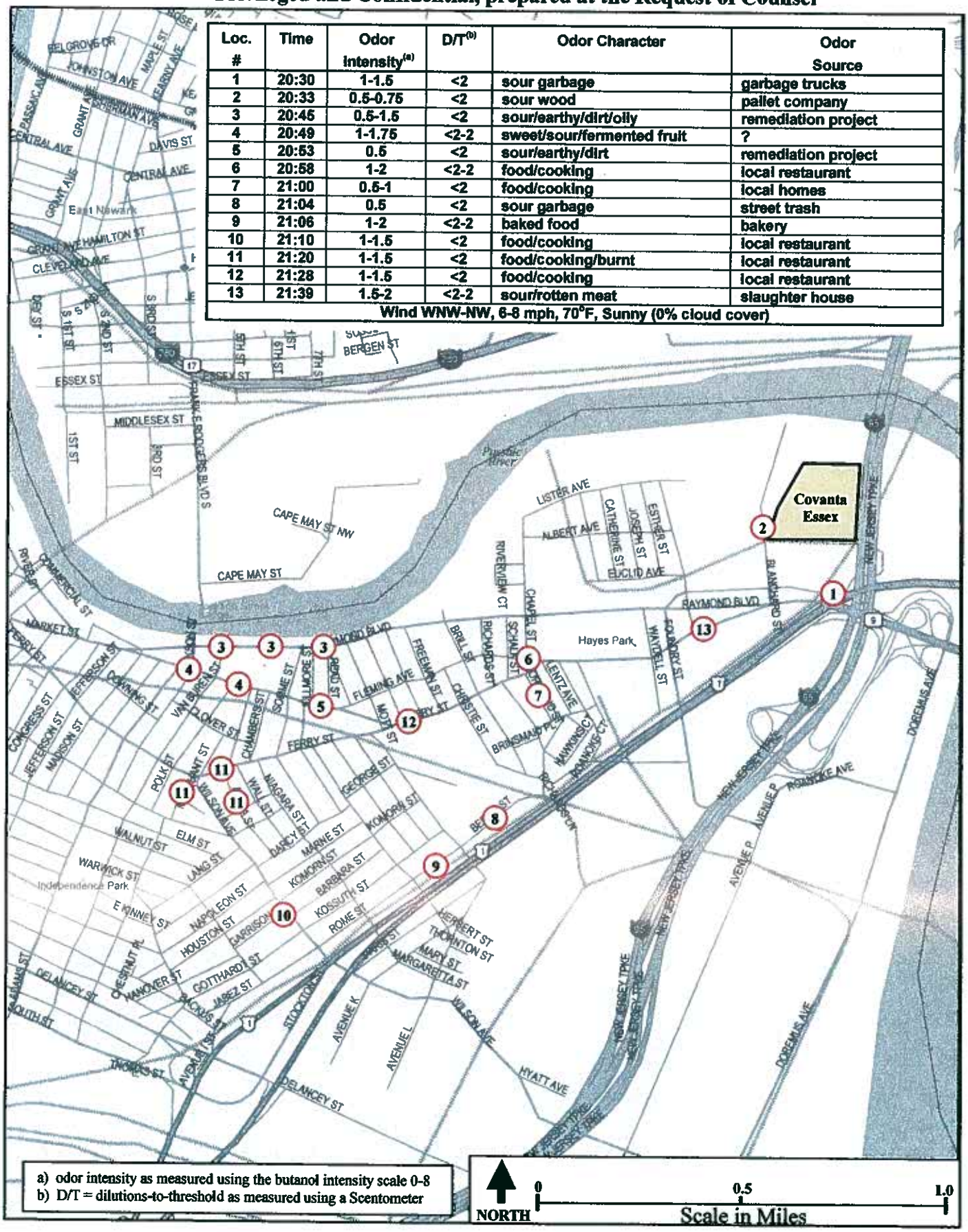
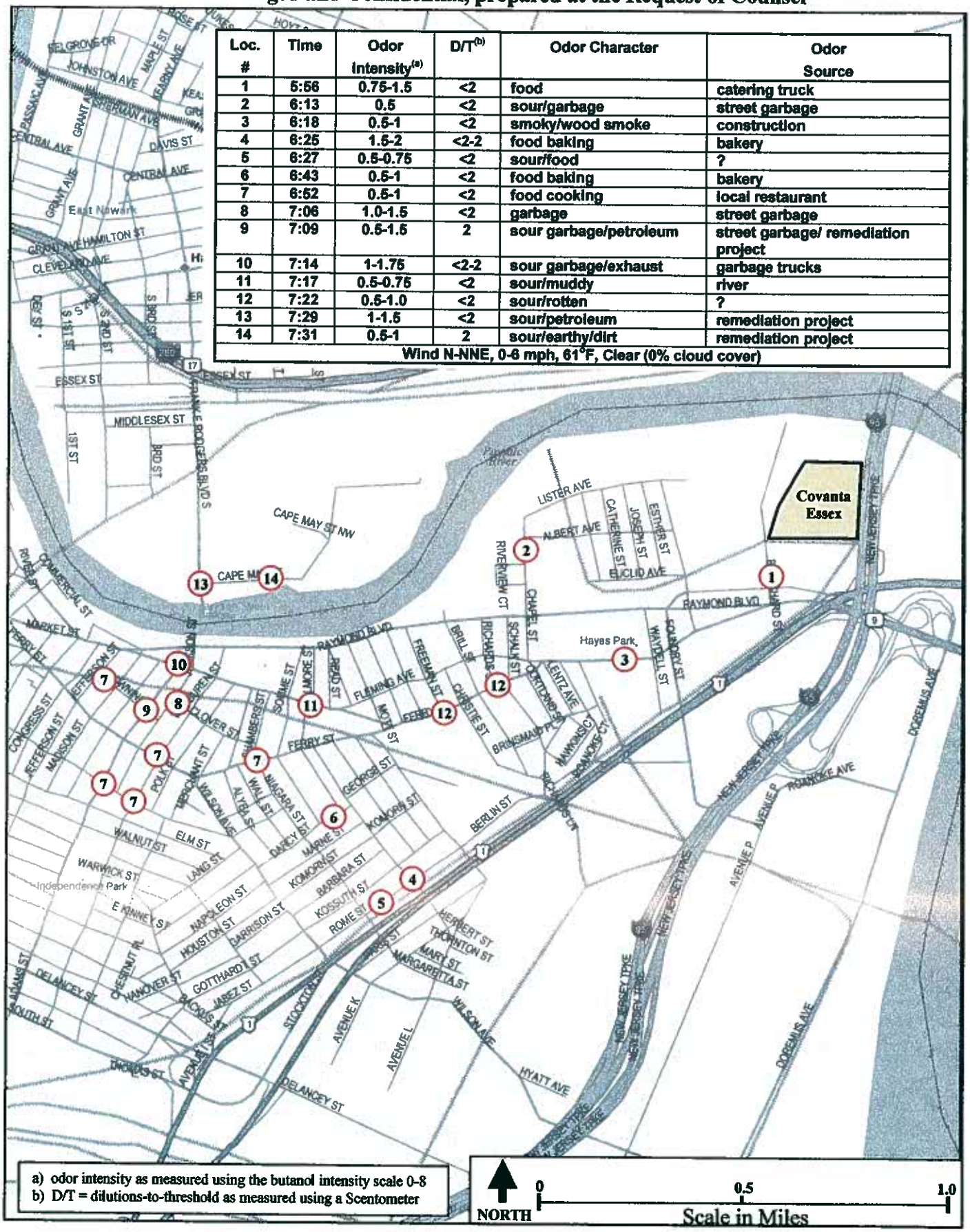


Figure 3-8. Community Odor Survey No. 8 (09/12/07 20:30-2202)



Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	5:56	0.75-1.5	<2	food	catering truck
2	6:13	0.5	<2	sour/garbage	street garbage
3	6:18	0.5-1	<2	smoky/wood smoke	construction
4	6:25	1.5-2	<2-2	food baking	bakery
5	6:27	0.5-0.75	<2	sour/food	?
6	6:43	0.5-1	<2	food baking	bakery
7	6:52	0.5-1	<2	food cooking	local restaurant
8	7:06	1.0-1.5	<2	garbage	street garbage
9	7:09	0.5-1.5	2	sour garbage/petroleum	street garbage/ remediation project
10	7:14	1-1.75	<2-2	sour garbage/exhaust	garbage trucks
11	7:17	0.5-0.75	<2	sour/muddy	river
12	7:22	0.5-1.0	<2	sour/rotten	?
13	7:29	1-1.5	<2	sour/petroleum	remediation project
14	7:31	0.5-1	2	sour/earthy/dirt	remediation project
Wind N-NNE, 0-6 mph, 61°F, Clear (0% cloud cover)					

a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-9. Community Odor Survey No. 9 (09/13/07 05:55-08:00)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	11:55	0.75-1.25	<2	sour garbage	garbage trucks/street
2	11:58	0.5	<2	sour garbage	paper recycle plant
3	12:01	1-2	<2-2	rotten meat/urine	slaughter house
4	12:03	1	<2	sour milk/chemical	Atlas Refinery
5	12:05	0.5-0.75	<2	sweet/sour/paint	Benjamin Moore plant
6	12:08	1-1.75	<2-2	fishy/rotten	seafood/shrimp company
7	12:12	1-1.5	<2-2	sour garbage	local street trash
8	12:20	1-2	<2-2	earthy/dirt/solvent/chemical	remediation site
9	12:39	0.5-1	<2	food cooking	local restaurant
10	12: 55	2.5-4	15-31	sour/rancid garbage	local garbage/road kill by PSEG remediation project
11	13:27	1	<2	sour garbage	garbage trucks
12	12:30	1	<2	sour garbage	garbage cans on street
13	13:32	1.5	<2	sweet/fragrant	auto detailer shop
14	13:36	1-1.5	<2	sour/chemical	?
15	13:41	1-1.5	<2	oily/petroleum	?
16	13:53	1.5-2	<2-2	garbage/urine/musty	underpass area
17	14:03	1-1.5	<2	sweet/detergent/fragrant	Arol Company
18	14:09	1-1.5	<2	smoky/burnt	construction
Wind SSE-N, 7-10 mph, 76°F, Mostly Sunny (25% cloud cover)					

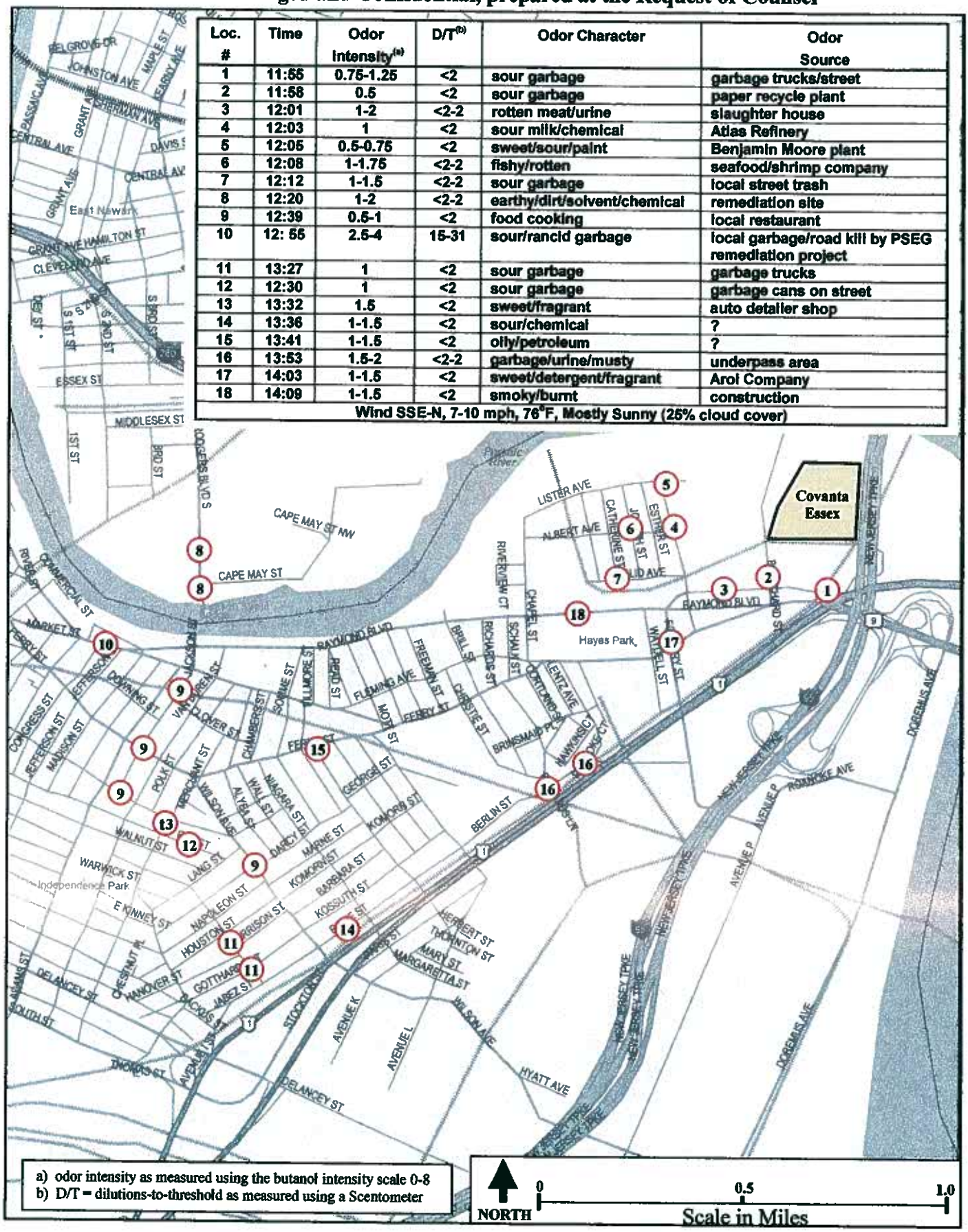


Figure 3-10. Community Odor Survey No. 10 (09/13/07 11:55-14:15)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	18:30	0.5-0.75	<2	sour garbage	local street
2	18:34	0.5	<2	sour/chemical/plastic	printer shop
3	18:38	2.5-3.5	<2	rotten meat/urine	slaughter house
4	18:42	1-2	<2	sour milk/glue	Atlas Refinery
5	18:49	1-1.5	<2	rotten/fermented fruits	chemical plants on Doremus
6	18:56	1-1.5	<2	rotten/fermented fruits	chemical plants on Doremus
7	19:06	0.75	<2-2	sour/chemical	chemical plants on Doremus
8	19:11	1.5-2.5	<2-2	sour/rotten	chemical plants on Doremus
9	19:17	4-7	>170	H_2S/sewage/sludge	WWTP
10	19:20	3.5-5	31-170	sweet/sour/chemical/solvent	Elan Chemical
11	19:25	4-5	31-170	rotten meat	Darling International?
12	19:27	2-3	2-15	rotten/chemical/oily	Reichold Chemical
13	19:39	1	<2	sweet/earthy/metallic	scrap metal plant
14	19:41	1-2	<2-2	sweet/earthy/metallic/sour	scrap metal plant
15	19:45	1-2	<2-2	food/cooking	local restaurant
16	19:59	0.75-1	<2	baking	restaurant/local home?
17	20:05	1-1.5	<2	baking	bakery
18	20:12	1-1.5	<2	sour/rotten fish	?
19	20:43	1-1.5	<2	sweet/dryer fragrance	laundromat
20	20:52	1-2	<2-2	sour/rotten/sewage/sludge	WWTP?
Wind S-SSW, 6-9 mph, 71°F, Sunny (0% cloud cover)					

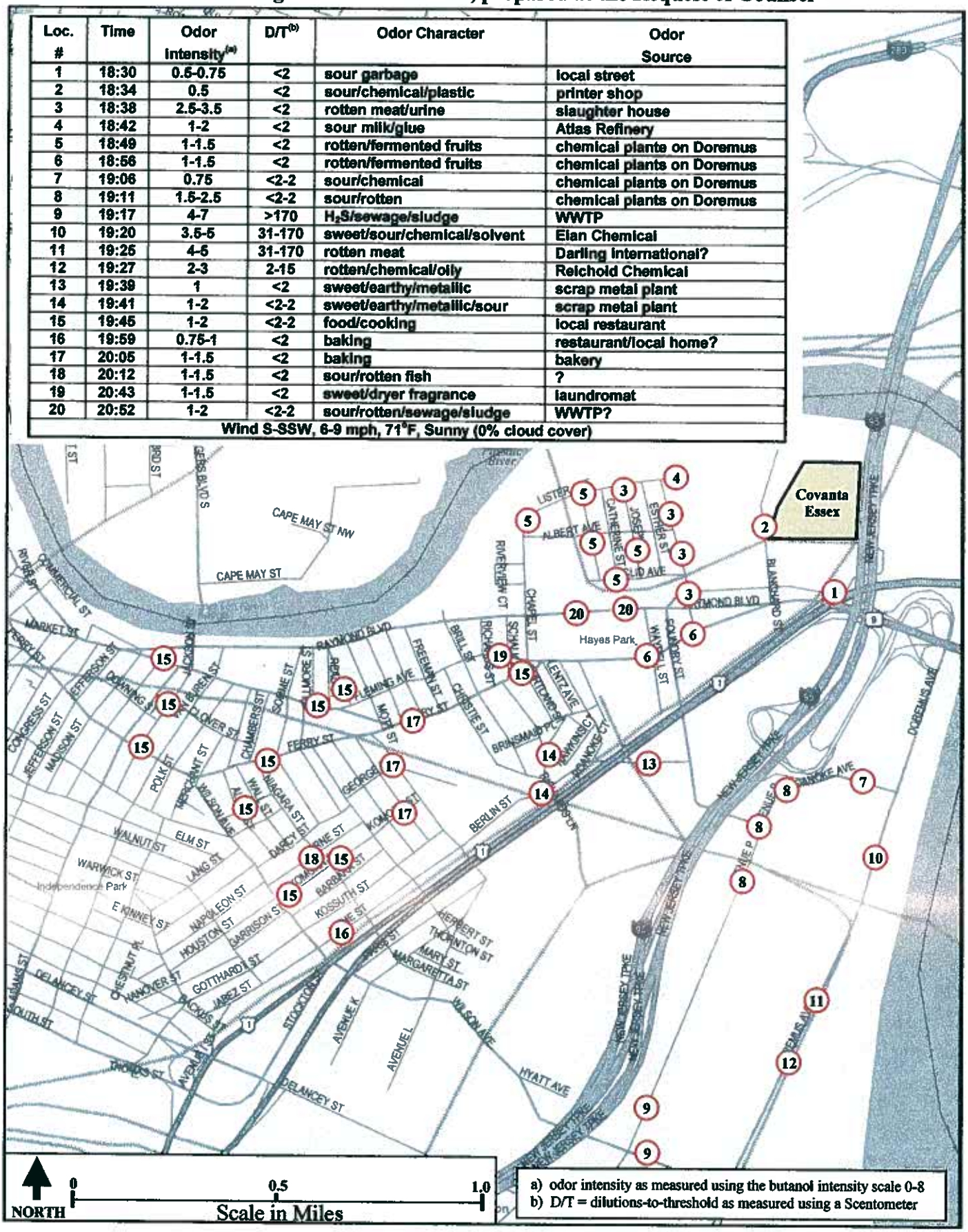
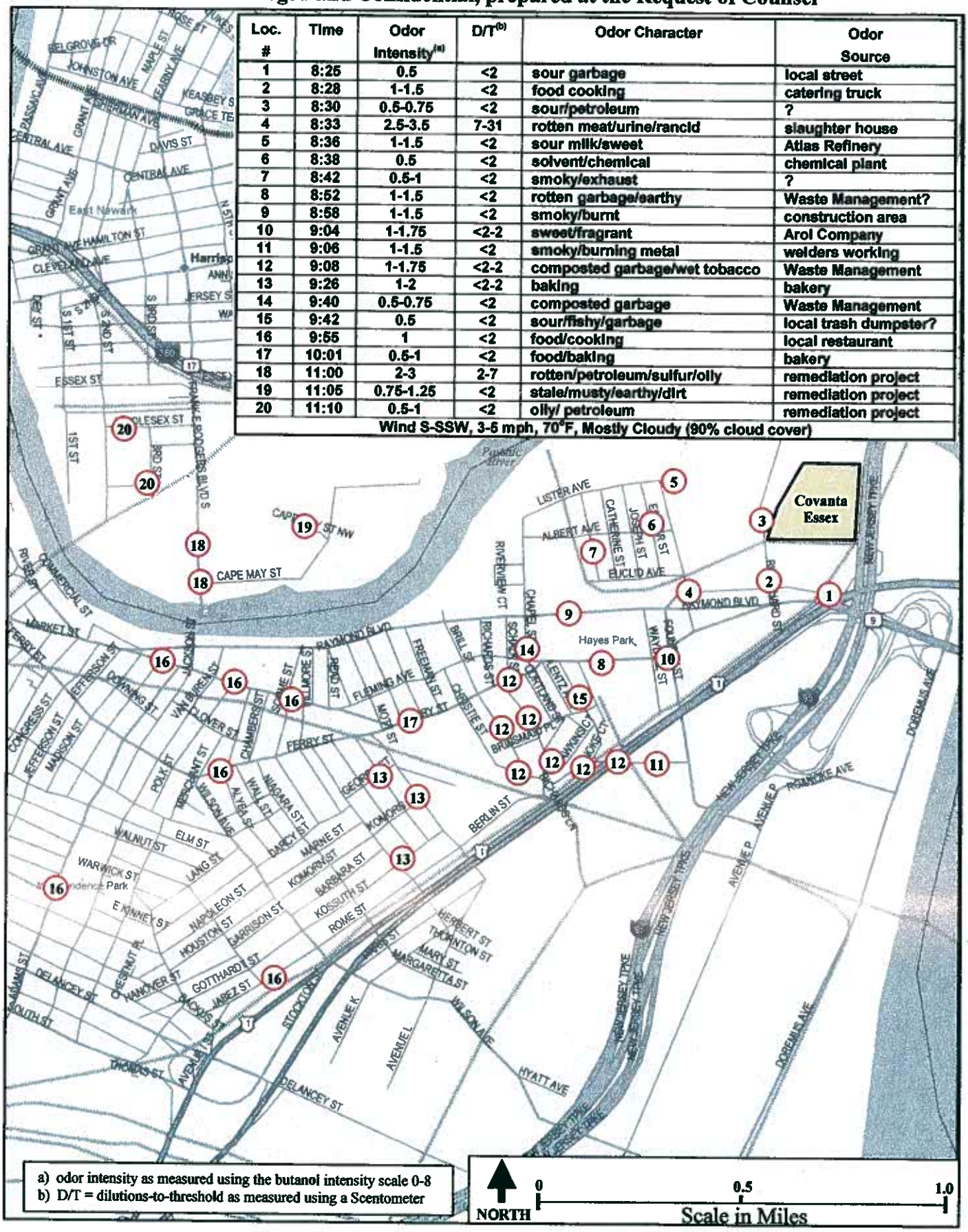


Figure 3-11. Community Odor Survey No. 11 (09/13/07 18:30-20:55)

Loc. #	Time	Odor Intensity[a]	D/T[b]	Odor Character	Odor Source
1	8:25	0.5	<2	sour garbage	local street
2	8:28	1-1.5	<2	food cooking	catering truck
3	8:30	0.5-0.75	<2	sour/petroleum	?
4	8:33	2.5-3.5	7-31	rotten meat/urine/rancid	slaughter house
5	8:36	1-1.5	<2	sour milk/sweet	Atlas Refinery
6	8:38	0.5	<2	solvent/chemical	chemical plant
7	8:42	0.5-1	<2	smoky/exhaust	?
8	8:52	1-1.5	<2	rotten garbage/earthy	Waste Management?
9	8:58	1-1.5	<2	smoky/burnt	construction area
10	9:04	1-1.75	<2-2	sweet/fragrant	Arol Company
11	9:06	1-1.5	<2	smoky/burning metal	welders working
12	9:08	1-1.75	<2-2	composted garbage/wet tobacco	Waste Management
13	9:26	1-2	<2-2	baking	bakery
14	9:40	0.5-0.75	<2	composted garbage	Waste Management
15	9:42	0.5	<2	sour/fishy/garbage	local trash dumpster?
16	9:55	1	<2	food/cooking	local restaurant
17	10:01	0.5-1	<2	food/baking	bakery
18	11:00	2-3	2-7	rotten/petroleum/sulfur/oily	remediation project
19	11:05	0.75-1.25	<2	stale/musty/earthy/dirt	remediation project
20	11:10	0.5-1	<2	oily/ petroleum	remediation project
Wind S-SSW, 3-5 mph, 70°F, Mostly Cloudy (90% cloud cover)					



a) odor intensity as measured using the butanol intensity scale 0-8
b) D/T = dilutions-to-threshold as measured using a Scentometer

Figure 3-12. Community Odor Survey No. 12 (09/13/07 08:25-11:20) 3-16

Privileged and Confidential, Prepared at the Request of Counsel

COMMUNITY ODOR ASSESSMENT FOR COVANTA ESSEX – NEWARK, NJ

Certification Page

I represent that I have personally examined and am familiar with the information submitted above this representation. Based on my own knowledge and upon my inquiry of those individuals responsible for obtaining the information presented, the foregoing information is true, accurate and complete. I am aware that this information is being requested for the purpose of determining compliance with local, state or federal laws and may be submitted to appropriate governmental regulatory agencies for those purposes. I am aware that there are significant penalties for submitting false information to such agencies, including the possibility of fine and imprisonment.

Martha A. O'Brien
Principal
Odor Science & Engineering, Inc.
1350 Blue Hills Avenue
Bloomfield, CT 06002

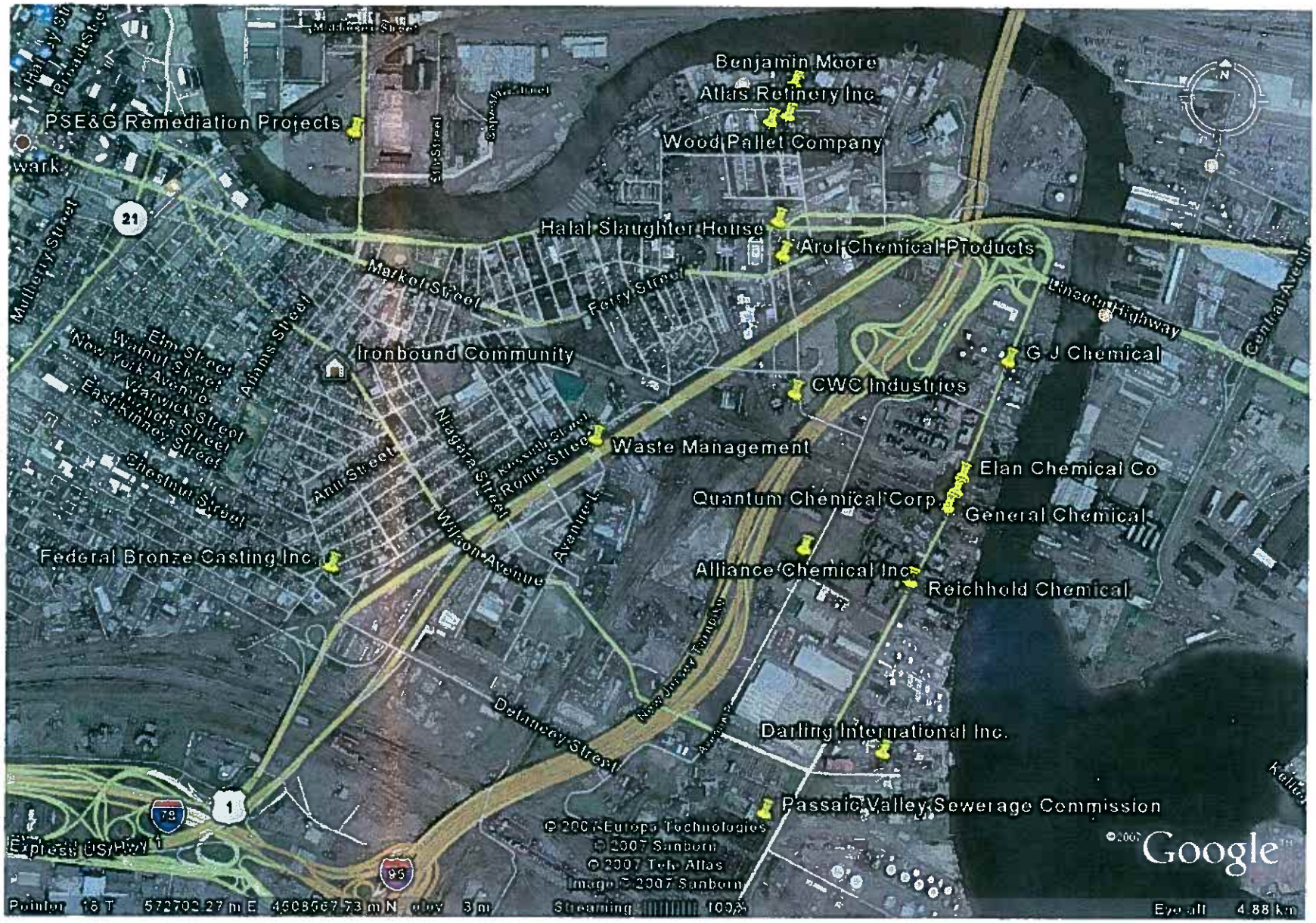


Figure 3-13 Industrial Odor Sources Detected In Areas Surrounding Newark's Ironbound Community – September 2007

Attachment 6 – Approved Truck Routes

Covanta Essex County Resource Recovery Facility (ECRRF)

AO25 - Response to Comments

Attachment 6 - Approved Truck Routes

1	Belleville	Route 21 South to Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
2	Bloomfield	Belleville Avenue to Route 21 South to Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
3	Caldwell	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
4	Cedar Grove	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
5	East Orange	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
6	Essex Fells	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
7	Fairfield	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
8	Glen Ridge	Belleville Avenue to Route 21 South to Route 280 East to N.J. Turnpike South. Exit Turnpike at jughandle.
9	Irvington	Lyons Avenue to Route 78-24 East Route 1-9 North. Exit at interchange 15E. Enter facility at jughandle.
10	Livingston	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
11	Maplewood	Route 78-24 East to Route 1-9 North. Exit at interchange 15E. Enter facility at jughandle.
12	Millburn	Route 78-24 East to Route 1-9 North. Exit at interchange 15E. Enter facility at jughandle.
13	Montclair	Route 280 East to N.J. Turnpike south. Exit Turnpike at interchange 15E. Enter facility at jughandle.
14	North Caldwell	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
15	Nutley	Route 21 South to Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
16	Orange	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
17	Roseland	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
18	South Orange	Route 78-24 East to Route 1-9 North. Exit at interchange 15E. Enter facility at jughandle.
19	Verona	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
20	West Caldwell	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.
21	West Orange	Route 280 East to N.J. Turnpike South. Exit Turnpike at interchange 15E. Enter facility at jughandle.

Attachment 7 – Glossary

Glossary

(last updated November 22, 2025)

Activated Carbon Feed Rate – The rate at which activated carbon is added to the flue gas to achieve a desired emissions reduction. This feed rate for mercury control is calibrated through optimization testing per our Title V air permit. Above the optimal feed rate there is no appreciable reduction in mercury emissions relative to the amount of carbon added. Mercury emissions onsite are limited to below 0.12 tons per calendar year. The activated carbon feed rate for the Essex facility is also limited to a minimum feed rate of 34 lbs/hr based on the original optimization testing done.

Activated Carbon Injection (ACI) - ACI is implemented by pneumatically injecting a fine powder of activated carbon into the flue-gas duct upstream of the particulate device. In most cases the carbon is injected between the air heater and primary particulate control device, although some processes involve carbon injection between the economizer and air heater. An ACI system typically consists of a storage silo, solids feeders, blowers, transport lines, and injection lances. Per our permit, the system is designed to reduce at least 80% of the mercury emissions from each MSW incinerator.[1] At the Essex facility, removal efficiencies of 90% are consistently achieved.

Ammonia Injection System – An ammonia injection system is used to introduce ammonia into a system, often for the purpose of removing nitrogen oxides (NOx) from combustion exhaust gases in Selective Non-Catalytic Reduction (SNCR) systems. Ammonia emissions are limited to less than 10.1 pounds per hour with a maximum anticipated slip of 50 ppm.

Ash quenching system - An ash quenching system is a method used in power plants and incineration plants to cool down hot ash by mixing it with water. This process helps to prevent dust pollution and reduces the potential for clinker formation (lumps of hardened ash). The cooled ash is then typically transported to a storage area or disposal site. At the Essex facility, the cooled ash, referred to as bottom ash, is transported to the metal recovery system where ferrous and non-ferrous metal is recovered from the ash for recycling.

Back blade – Refers to a step in the screening where the incoming wastes are spread out so that site personnel can best view MSW contents.

Boiler Steam Flow Rate - Boiler steam flow rate refers to the quantity of steam produced by a boiler within a specific timeframe, typically measured in pounds per hour (lb/hr)

CEMS – Continuous Emissions Monitoring Systems operate whenever applicable emission units are operating to measure their emissions compared to relevant permitted emission limits. The CEMS onsite are operated per NJDEP Technical Manual 1005 and relevant EPA Part 60 and Part 75 guidance. The site has CEMS for NOx, CO, and SO2.

CO – Carbon monoxide. A colorless, odorless gas that can displace oxygen in the blood and lead to carbon monoxide poisoning.

[1] https://www.sciencedirect.com/topics/engineering/activated-carbon-injection-system

Criteria Pollutants are a group of six air pollutants regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act. These include particulate matter, ground-level ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead.

Dry Volume - Air emissions "dry volume" refers to the volume of emitted gases without any water vapor. It's calculated by removing the volume of water vapor from the total volume of emitted gases. This is important for accurately measuring and comparing pollutant concentrations.

ECRRF – Essex County Resource Recovery Facility (name of our Essex location)

Ferrous – Metals that contain iron and iron oxides. Ferrous metals are magnetic, and Reworld uses magnetic separation to recover them from the ash produced by our combustion processes.

Flue Gas Scrubbers - Flue gas scrubbers are air pollution control devices that remove pollutants from industrial exhaust streams, primarily focusing on removing sulfur dioxide (SO2) and other acid gases. They achieve this by bringing the flue gas into contact with a scrubbing liquid, which can be a slurry, water, or other chemical solution, to absorb the pollutants. The Essex facility uses lime slurry as the scrubbing liquid.

Furnace Temperature – The actual temperature inside of the furnace will vary depending on the stage of the process (startup, combustion, and cool down), but ideally combustion should occur between 1600-1900F.

HCL – hydrochloric acid. Colorless, corrosive, biproduct of some industrial processes.

Incinerator - "Burning" or "incinerating" means any method using combustion to decompose or otherwise change the physical, chemical, or biological composition of a solid waste. (per solid waste rule definitions 7:26-1.4). “Incinerator” means a thermal device in which solid waste is burned for the purposes of volume reduction (an incinerator used to obtain energy shall be classified as a resource recovery facility).

NO_x – Oxides of nitrogen. Known product of fossil fuel combustion and a precursor to ozone formation.

Non-ferrous – Does not contain iron or steel. Non-ferrous metal is also recovered from the ash produced by the combustion process for recycling using Eddy current separation which is a process that uses changing magnetic fields to separate non-ferrous, electrically conductive metals from other materials.

Opacity Limit - Opacity limits define the acceptable level of visible emissions from industrial sources like smokestacks. Generally, these limits are expressed as a percentage of how much light is blocked by the emissions, with 10% being our permitted maximum 6-minute block average. These limits are established to reduce air pollution and protect public health.

OTC – Ozone Transport Commission. The Ozone Transport Commission (OTC) is a multi-state organization created under the Clean Air Act. We are responsible for advising EPA on developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The OTC itself is not a regulatory authority and does not adopt these as requirements for the region. Each OTC member that opts to adopt a model rule or guideline may modify it according to its own circumstances, and each OTC member is the primary authority on interpreting its rules and guidelines within its jurisdiction.

Oxygen Concentrations in Flue Gas - In industrial combustion processes, flue gas typically contains a residual amount of oxygen, indicating incomplete combustion or excess air used for combustion. The oxygen concentration in flue gas is usually measured in parts per million (ppm) or as a percentage by volume. Optimum combustion often aims for a balance between complete fuel utilization and minimizing excess oxygen, which can lead to higher flue gas temperatures and reduced efficiency.

Ozone (O_3) - A secondary pollutant formed from the reaction of nitrogen oxides and volatile organic compounds (VOCs). It can damage lung tissue and cause respiratory issues.

Ozone Season – NOx and VOC react in ambient air to create ozone at warmer temperatures. Accordingly, ozone season occurs when the ambient temperature is warmer, typically in New Jersey from March 1 through October 31st.

Particulate Control Device Inlet Temperature – The inlet temperature of a particulate control device is the temperature of the gas stream entering the device. It's a crucial factor affecting the device's efficiency and performance. Particulate control devices like baghouses and electrostatic precipitators (ESPs) have temperature limits they cannot exceed for proper operation. This is one of the parameters that is included in our semi-annual reporting.

Ppmdv7 – Parts per million dry volume at 7% oxygen content

PTE – potential to emit. A facility's PTE is the expected emissions profile that would result from consuming permitted fuels, in permitted emission units, at maximum capacity for a maximum of 8760 hours per year.

PM – Particulate Matter. Tiny particles of dust, soot, and other substances that can penetrate deep into the lungs and cause respiratory and cardiovascular problems.

PM_{10}/$PM_{2.5}$ – Particulate matter smaller than 10 microns, smaller than 2.5 microns.

RRF – Resource Recovery Facility. Means any place, equipment, device, or plant designed and/or operated to separate or process solid or liquid waste into usable secondary materials, including fuel and energy.

SCR – Selective catalytic reduction systems utilize catalysts to reduce NOx emissions. Reworld does not have an SCR system at the Essex facility due to the fact that it is technically infeasible for that site.

SNCR – Ammonia injection systems utilized to reduce NOx emissions.

SO_2 – Sulfur dioxide. Colorless, toxic gas that can smell like burnt matches.

"Thermal destruction facility (TDF) " means a nonhazardous solid waste facility which utilizes a thermal device to either burn waste or chemically decompose waste by heating it in an oxygen deficient atmosphere. Energy recovery systems may be utilized in conjunction with the thermal device (per solid waste rule definitions 7:26-1.4).

Thermomechanical Treatment Facility (TTF) - integrated systems of waste management technologies that reuse and recycle materials, provide secure disposal, generate renewable energy, produce carbon offsets and yield community and commercial benefits.

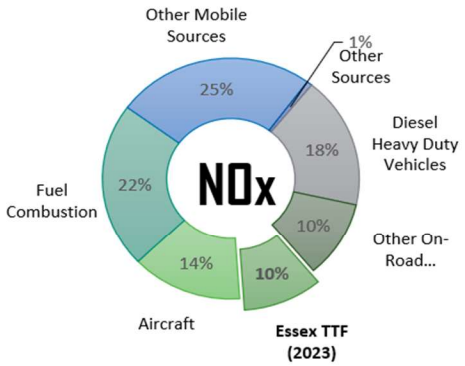
Visible emissions, as defined by the EPA, are emissions that can be seen by the human eye. These emissions can include smoke, vapor, and particulate matter. They are regulated under federal, state, and local air pollution regulations.

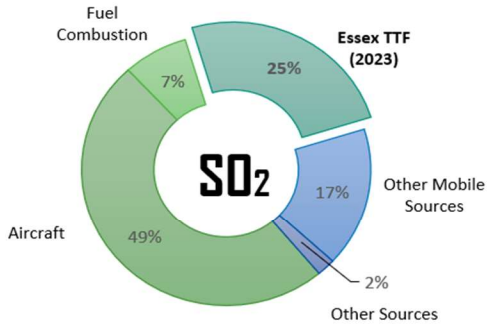
VOC – Volatile organic compounds. Known ozone precursor. Emitted from fossil fuel production, mobile sources, paint and surface coating operations.

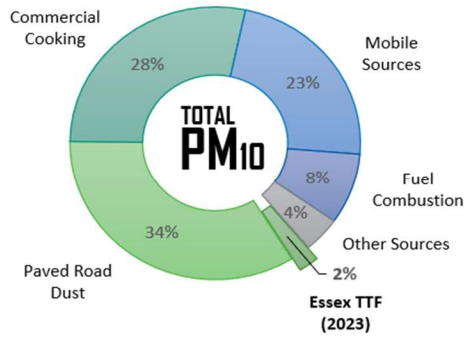
Attachment 8 – Emissions Graphs- Percent of Airshed (Based on NEI Data)

Essex

NOx			SO2			PM10 Primary (Filt + Cond)	
Essex TTF (2023)	860	10%	Aircraft	130	49%	Essex TTF (2023)	49
Aircraft	1198	14%	Fuel Combustion	19	7%	Paved Road Dust	730
Fuel Combustion	1910	22%	Essex TTF (2023)	65	25%	Commercial Cooking	604
Other Mobile Sources	2154	25%	Other Mobile Sources	44	17%	Mobile Sources	492
Other Sources	58	1%	Other Sources	5	2%	Fuel Combustion	182
Diesel Heavy Duty Vehicles	1517	18%				Other Sources	89
Other On-Road Mobile Sources	893	10%					
Grand Total	**8591**	**100%**	**Grand Total**	**263**	**100%**	**Grand Total**	**2146**



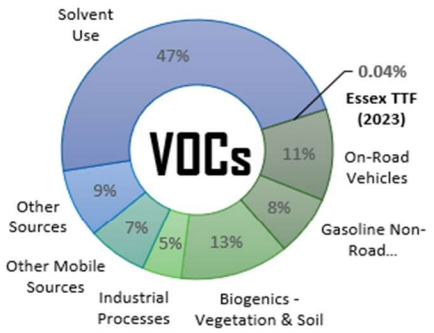


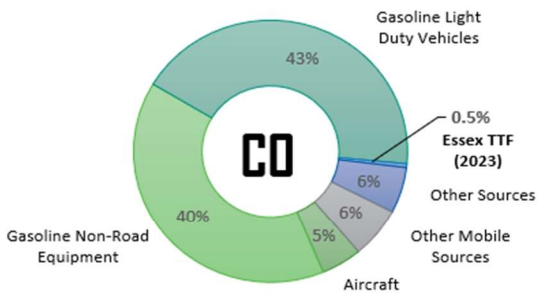


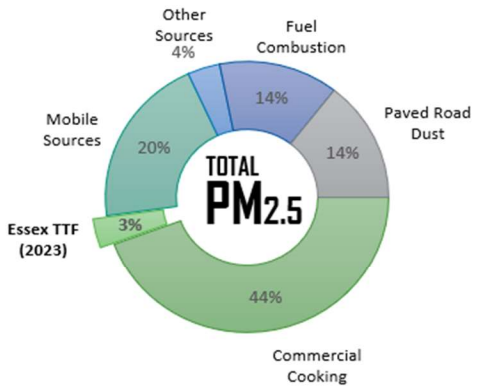
VOCs		
Biogenics - Vegetation & Soil	1377	13%
Industrial Processes	496	5%
Other Mobile Sources	761	7%
Other Sources	913	9%
Solvent Use	5022	47%
Essex TTF (2023)	4	0.04%
On-Road Vehicles	1201	11%
Gasoline Non-Road Equipment	802	8%
Grand Total	**10576**	**100%**

CO		
Aircraft	1838	5%
Gasoline Non-Road Equipment	15161	40%
Gasoline Light Duty Vehicles	16306	43%
Essex TTF (2023)	181	0.5%
Other Sources	2150	6%
Other Mobile Sources	2390	6%
Grand Total	**38026**	**100%**

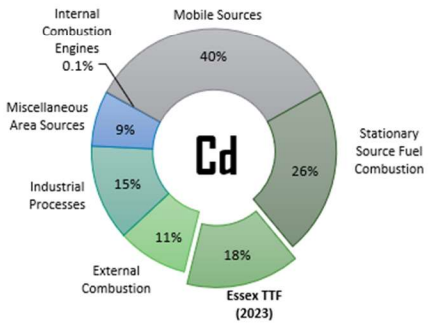
PM2.5 Primary (Filt + Cond)	
Commercial Cooking	560.8
Essex TTF (2023)	44.0
Mobile Sources	257.2
Other Sources	46.8
Fuel Combustion	172.7
Paved Road Dust	182.6
Grand Total	**1264**



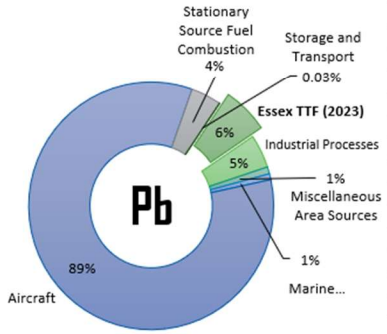




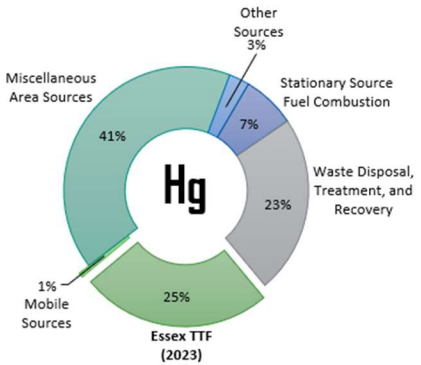
Cadmium		
Essex TTF (2023)	2.3	18%
External Combustion	1.4	11%
Industrial Processes	1.9	15%
Miscellaneous Area Sources	1.1	9%
Internal Combustion Engines	0.0	0.1%
Mobile Sources	5.2	40%
Stationary Source Fuel Combust	3.392026967	26%
Total	13	100%
Grand Total	**15**	



Lead		
Essex TTF (2023)	23.8	6%
Industrial Processes	17.1	5%
Miscellaneous Area Sources	3.6	1%
Aircraft	3.0	1%
Marine Vessels	328.0	89%
Stationary Source Fuel Combust	15.6	4%
Storage and Transport	0.1	0.03%
Total	367	100%
Grand Total	**391**	



Essex TTF (2023)	11.1	25%
Other Sources	0.3	1%
Miscellaneous Area Sources	18.3	41%
Mobile Sources	1.2	3%
Stationary Source Fuel Combust	3.1	7%
Waste Disposal, Treatment, and	10	23%
Total	44	100%
Total	**44**	



Attachment 9 – Excerpt from 2023 NJDEP Ambient Air Quality Report

OZONE TRENDS

Studies have shown that to decrease ground-level ozone concentrations, emissions of VOCs and NOx must be reduced. Over the past couple of decades, emissions reductions have resulted in a relatively steady lowering of ozone levels in New Jersey. The chart in Figure 4-8 shows the maximum value from all NJDEP air monitoring stations of the annual 4th highest daily maximum 8-hour average concentration and the maximum ozone design value from all NJDEP stations for each year since 1997. The data for Figure 4-8 can be found in Table 4-4.

Figure 4-9 shows the total number days the 8-hour average ozone NAAQS was exceeded in New Jersey since 2000.

Figure 4-8
Statewide New Jersey Ozone Trends, 1997-2023
Maximum 4th-Highest Daily Maximum 8-Hour Averages and
Maximum 3-Year Average of 4th Highest Daily Maximum 8-Hour Averages (Design Value)
Parts per Million (ppm)

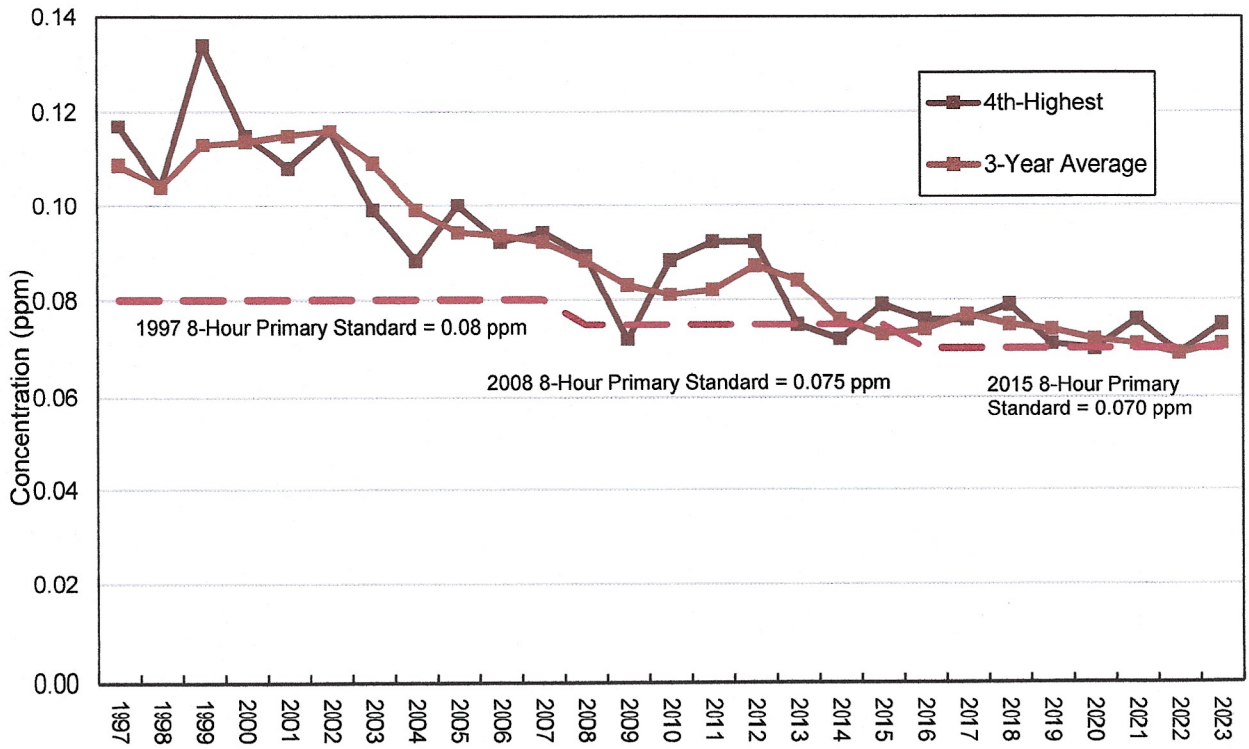
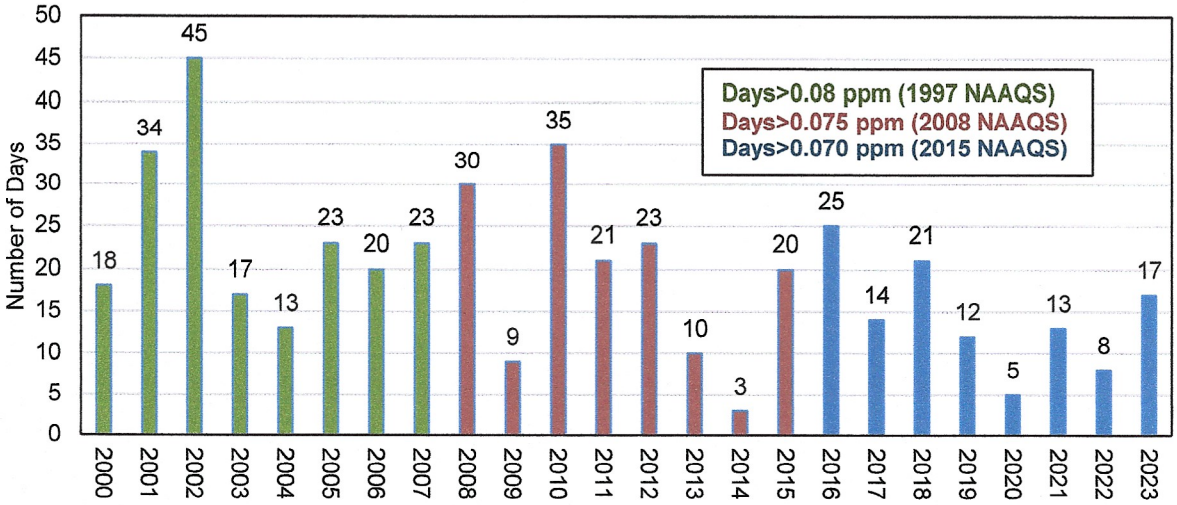


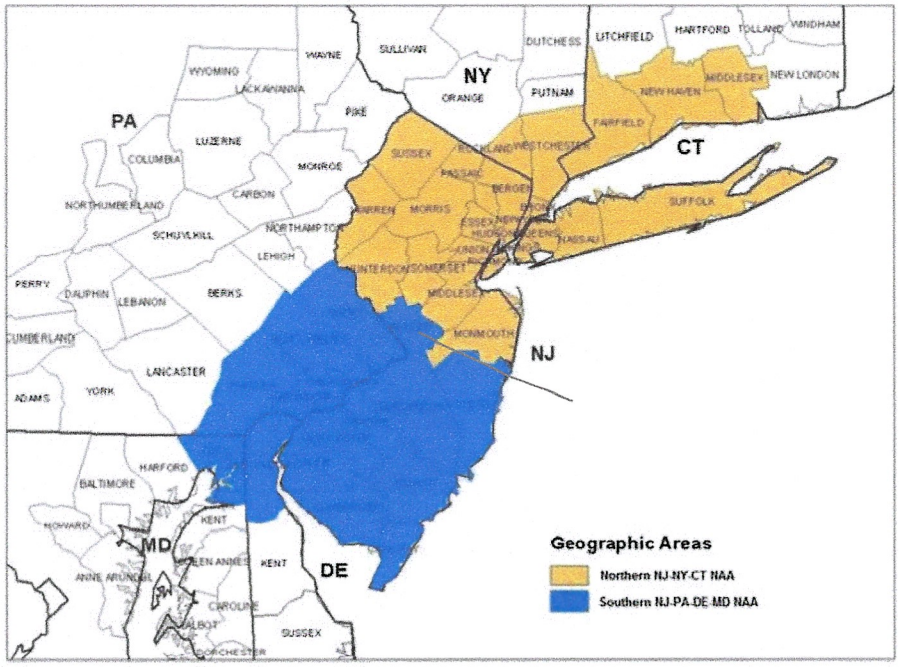
Figure 4-9
Number of Days 8-Hour Ozone NAAQS was Exceeded in New Jersey, 2000-2023



OZONE NONATTAINMENT AREAS IN NEW JERSEY

The Clean Air Act requires that all areas of the country be evaluated for attainment or nonattainment of each of the NAAQS. The entire state of New Jersey is designated as nonattainment for the ozone NAAQS, but in two separate sections that extend into neighboring states. New Jersey's nonattainment areas for the 2008 (0.075 ppm) and 2015 (0.070 ppm) 8-hour standards are shown in Figure 4-10.

Figure 4-10
New Jersey 8-Hour Ozone Nonattainment Areas (NAA)
0.075 & 0.070 ppm NAAQS



Source: NJDEP. State Implementation Plan (SIP) Revision for the Attainment and Maintenance of the Ozone NAAQS

Attachment 10 – Covanta – Essex County Ambient Air Report

Air Quality Review

Newark, NJ Area

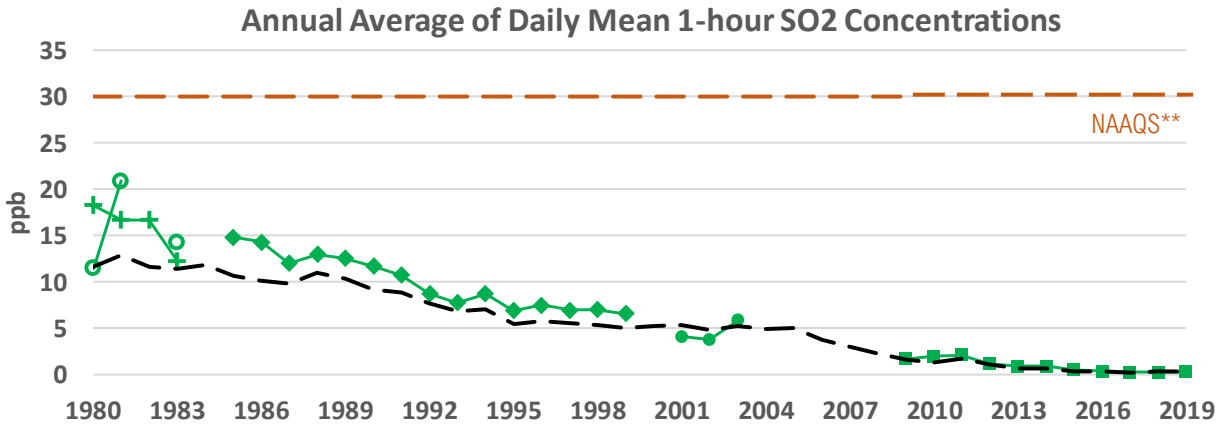
Air quality trends in your neighborhood

According to the NJDEP, "New Jersey has been monitoring air quality since 1965. Pollution levels have improved significantly over the decades as a result of state, regional and national air pollution reduction efforts."[1] The charts below show local air quality as measured by monitoring stations in the county, alongside the NJ State Average and the National Ambient Air Quality Standards set by the U.S. EPA.

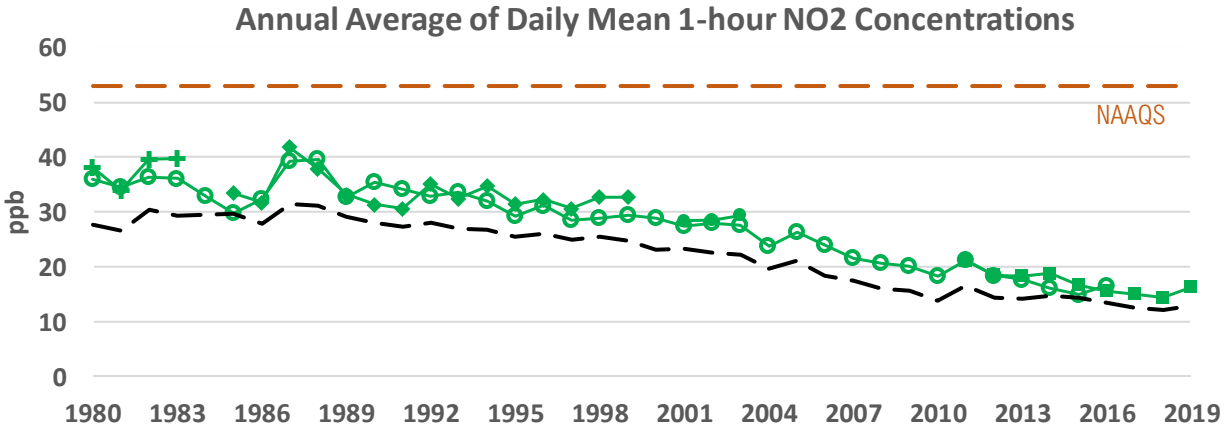
Criteria Air Pollutant Trends



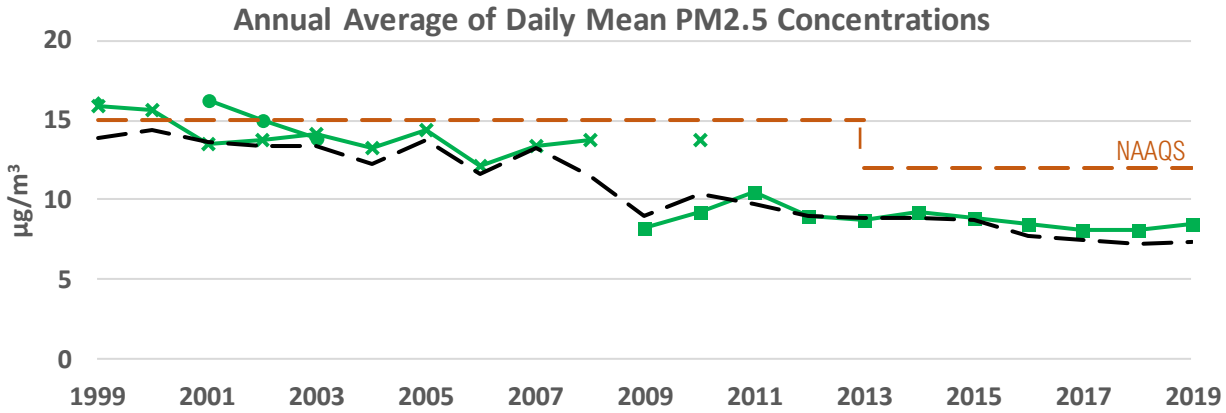
Sulfur Dioxide (SO_2)



Nitrogen Dioxide (NO_2)

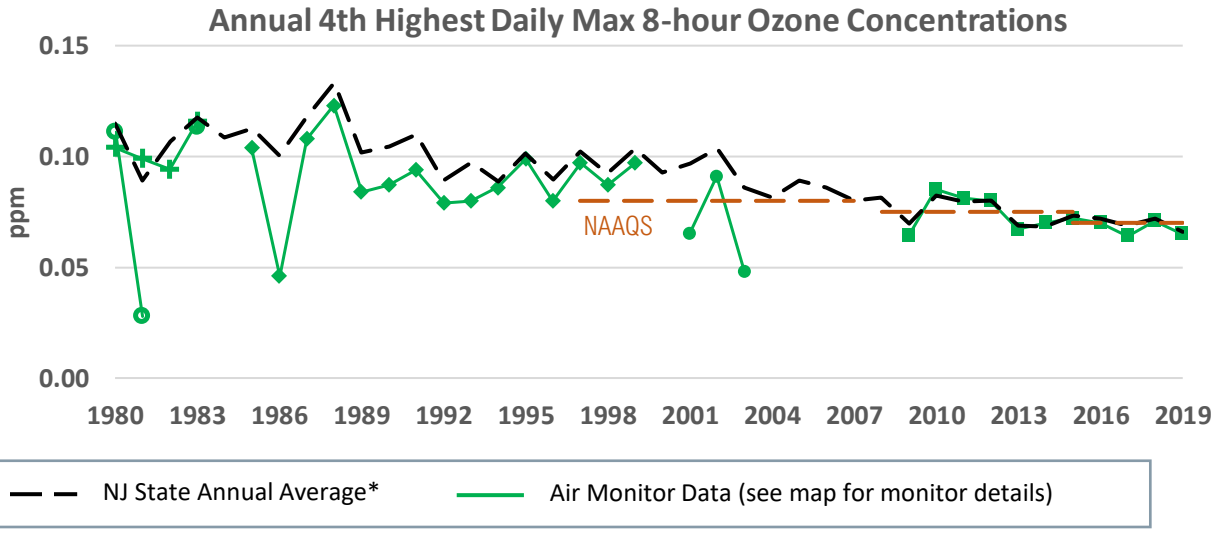


Fine Particulate Matter ($PM_{2.5}$)



[1] NJ DEP (2019) *2018 New Jersey Air Quality Report.* https://www.nj.gov/dep/airmon/pdf/2018%20NJ%20AQ%20Report-bookmarked.pdf

Ground Level Ozone (O_3)



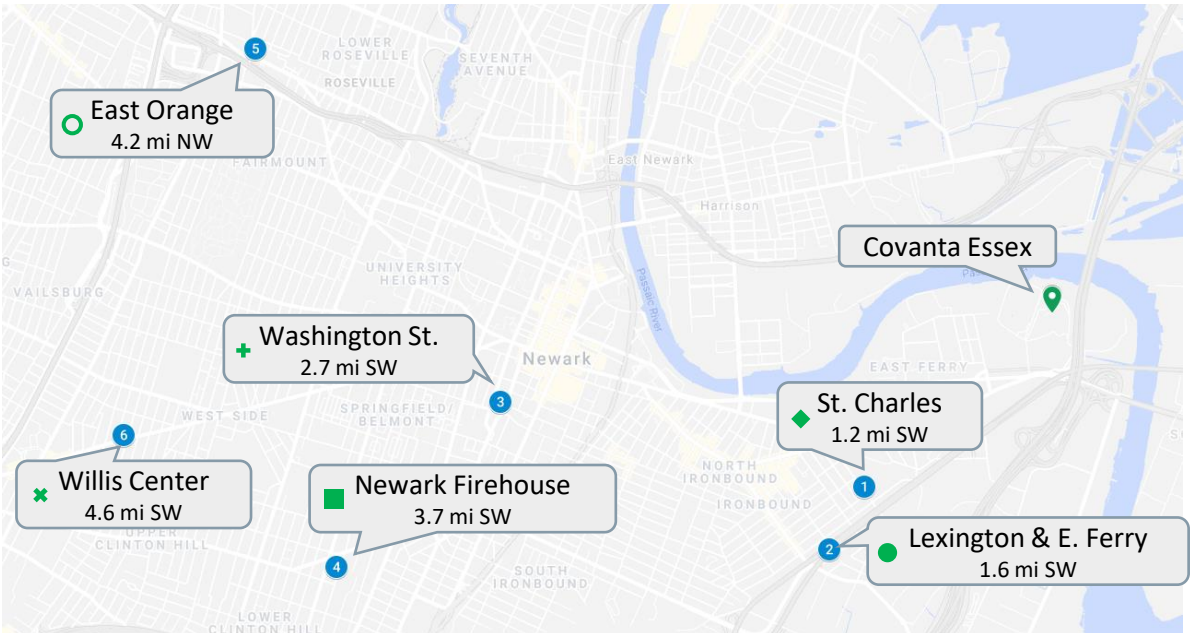
* The annual state average provides a useful comparison to local air quality results. Determination of NJ's compliance with standards is evaluated differently, using the State Design Values.

** The 1971 NAAQS standard of 30 ppb (annual arithmetic mean SO_2 concentration), as shown, was replaced in 2010. The new standard is defined as 75 ppb (99th percentile of 1-hour daily maximum). For clarity and consistency, the 1971 NAAQS standard was used.

Data Sources and Background

NJ DEP operates and collects data from local air quality monitors across New Jersey. These monitors provide information and data on local air quality that the state uses for its air quality forecasts. The data is also used to determine local compliance with the National Ambient Air Quality Standards and to help inform policy decisions. Using the data, we can also look for trends in local air quality. The location of the monitors can change over time, but the objective to measure local air quality remains the same.

Essex County monitors within 10 miles of the Covanta Essex Facility were used for this assessment and are shown below, along with the distances and directions from the facility.



Data Sources

USEPA Monitor Values Report: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report
USEPA Air Data – Concentration Plot: https://www.epa.gov/outdoor-air-quality-data/air-data-concentration-plot
2018 New Jersey Air Quality Report: https://www.nj.gov/dep/airmon/pdf/2018%20NJ%20AQ%20Report-bookmarked.pdf