



1499 Route 1&9 North
Rahway, NJ 07065
732.499.0101



January 16, 2026

Jillian Alexander, Environmental Justice Coordinator
New Jersey Department of Environmental Protection
Air Quality Regulation, Planning, and Release Prevention
401 East State St., 2nd Floor
Mail code: 401-02
P.O. Box 420
Trenton, NJ 08625-0420

Dear Ms. Alexander,

On behalf of Reworld Union (NJ), LLC. (formerly Covanta Union), please find attached to this submittal the AO-25 Response to Comments document in English prepared by Reworld for the Public Information Session held on February 13, 2025. Reworld will submit the document in Spanish at a later date.

A glossary and the Air Quality Review for Union County are included as attachments.

Please let me know if you have any questions or comments on this document.

Sincerely,

A handwritten signature in black ink that reads "Leah L. Riley". The signature is written in a cursive, flowing style.

Leah L. Riley
Environmental Compliance Specialist
Reworld Union

January 16, 2026

Mr. Jonathan Smith
Ms. Casandia Bellevue
Mr. Colin Parts
Earthjustice
X Braithwaite, Clean Water Action
The Ironbound Community Corporation

**Re: Union County Resource Recovery Facility – Title V Air Permit Renewal – AO25 Process,
PI # 41814, BOP240001**

Thank you for submitting questions and comments (March 13, 2025) on our Title V renewal application. We have worked through your comments submittal and are providing responses by major subject as they appear in your letter, using your section themes.

OUR NAME CHANGE FROM COVANTA TO REWORLD

In April of 2024, our company rebranded from Covanta to Reworld.¹ The new name is meant to better represent what actually 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 Union facility embodies these principles through our extensive ferrous and non-ferrous metals recycling program.

Reworld believes in the meaningful opportunity for all people, regardless of race, ethnicity, color, income, national origin or education level to be knowledgeable and have the right to participate in public decisions and actions which have an impact on their environment and neighborhoods.

We understand there may be a bit of confusion in how we refer to our facilities, from a “waste-to energy facility” to a “thermomechanical treatment facility” to a “resource recovery facility”. All are accurate and support the multipurpose nature of our operations, but as a step toward hopefully clarifying any confusion within the community, we will be posting a glossary on our website to define commonly used terms. That Glossary is also included with this letter as Attachment 1.

Transparency is important to Reworld, as is trying to be a good neighbor with our communities. This can be seen through our EJ policy² which has been a driving force in our operations for more than 11 years.

¹ <https://www.prnewswire.com/news-releases/covanta-celebrates-its-transformation-into-reworld-302117267.html>

² https://4944195.fs1.hubspotusercontent-na1.net/hubfs/4944195/Reworld-Community-EJ-Poster_8.5x11.pdf

PFAS

PFAS compounds are unfortunately included in numerous everyday products³ and certain higher concentration products such as fire-fighting foams. There have been numerous questions and frankly misinformation out there on our collaboration with the USEPA a few years ago on this topic. You (the public) deserve the whole story.

In 2020, EPA and Reworld entered into an agreement to conduct voluntary air emission testing for PFAS at the Union facility. The purpose of the test program was to better understand PFAS emissions from municipal waste combustors, and more importantly, to advance the science of PFAS analysis. The plan was to complete the test using normal, everyday municipal waste deliveries and did not include intentionally adding PFAS to the waste. Unfortunately, the testing was cancelled because of misinformation spread by an uninformed party, who also questioned the ethics and motivations of the USEPA at the time. As a result, NJDEP, USEPA and other involved parties mutually agreed to cancel the test, despite the loss of important data and information on PFAS emissions.

We know that PFAS compounds are present in many waste streams, and as such, it is difficult to segregate or separate wastes with known PFAS. However, certain wastes, such as aqueous film forming foams (AFFF), are understood to contain PFAS, often at high concentrations. Wastes like AFFF are comparatively easy to identify (since most is derived from firefighting supplies) and are not accepted at the Rahway facility.

Emissions are not currently being monitored for PFAS compounds. USEPA has developed draft test methods for emissions of certain PFAS compounds. EPA is working on revising and updating these methods to improve their accuracy and reliability. There are no test methods or procedures for continuous monitoring of PFAS emissions.

The science of PFAS waste management continues to evolve. We do know, however, that proper combustion practices improve emissions performance. For the Rahway facility, this includes operating the combustion units with grate temperatures typically above 2500° F and combustion gas

temperatures typically in the 1800 to 2000° F range. As required by our Title V air permit, our auxiliary burner system is available to maintain minimum operating temperatures. Additionally, the auxiliary burner system is designed to provide for start-up and shutdown of our units, and, as necessary, stabilize the combustion process. When combusting MSW, minimum combustion gas temperatures are typically much higher than 1800°F.

³ Cleaning Products: Glass and hard surface cleaners, fabric, upholstery, and carpet cleaners, waxes, polishes, and dishwashing rinse aids. Water-Resistant Fabrics: Rain jackets, umbrellas, tents, and clothing. Grease-Resistant Paper: Fast food packaging, microwave popcorn bags. Nonstick Cookware: Nonstick cookware, non-stick baking sheets, and some microwavable containers. Personal Care Products: Shampoo, dental floss, nail polish, makeup, eye makeup, mascara, eyeshadow, concealer, powder, body fragrance, sunscreen, and lipstick. Stain-Resistant Coatings: Carpets, upholstery, and other fabrics. Food Packaging: Fast food packaging (wrappers, french fry bags), microwave popcorn bags. Other MSW Items: Plumber's tape, guitar strings, candy wrappers, bicycle chain lubricant, dishwasher and laundry detergent.

Air Emissions – Criteria Pollutants and HAPs

As mentioned frequently during the public information session on this permit, the facility operates well below our permitted Potential to Emit (PTE). We went back and analyzed our actual annual emissions⁴ from 2018 through 2024 for criteria contaminants, versus our potential to emit. The table below highlights those results with the year of the maximum annual emissions during the timeframe, emissions data, PTE, and percent of PTE. The maximum annual emissions for each contaminant are shown in bold. For VOCs, our highest annual emissions over the past seven years (2018-2024) was only 15% of our potential to emit. Similarly, Attachment 2 shows the ambient concentrations of criteria pollutants in Union County dropping considerably over the last 40 years.

Table 1 – Max Annual Emissions vs PTE (2018-2024)

Year	Contaminant Actual Emissions (tpy)								
	VOC	NOx	CO	SO2	TSP	PM10	PM2.5	Pb	CO2e ⁵
2024	1.47	663.54	45.1	27.42	4.79	4.79	4.07	0.02	201,830
2023	1.24	650.37	41.22	26.51	9.44	9.44	8.03	0.01	201,730
2022	2.66	658.61	38.75	24.31	6.62	6.62	5.63	0.04	224,600
2021	1.39	667.35	38.42	42.79	3.45	3.45	2.94	0.01	197,810
2020	0.37	671.49	48.28	28.14	2.06	2.06	1.75	0.02	188,540
2019	0.61	651.18	35.85	18.26	2.54	2.54	2.16	0.01	194,320
2018	3.67	636.33	36.24	20.71	2.45	2.45	2.09	0.01	188,370
PTE (tpy)	23.8	1052	1131	645	55.9	55.9	55.9	1.58	303,812
Max Percent of PTE	15%	64%	4%	7%	17%	17%	14%	3%	74%

Notes: All Actual Emissions data was sourced from annual emissions statements and PTEs were sourced from the facility Title V air permit.

Air Permit Exceedances (2023-2024)

As mentioned during our live presentation, the Union facility is approximately 99.97% compliant with our CEMs standards. We are heavily regulated and take compliance with those regulations seriously. You mention 189 permit violations between 2000 and 2025. That sounds high until you remember that we have roughly 200,000 compliance periods covered by our permit conditions annually. So by your numbers, we averaged roughly 7 permit violations out of a possible 200,000 per year.

⁴ Based on annual emission statement data.

⁵ CO2e, or carbon dioxide equivalents incorporates the impacts from other warming gases such as methane (CH4) and nitrogen dioxide (N2O). CH4 has a global warming potential (GWP) of 28 and N2O has a 265, meaning that one molecule of CH4 has 28x the warming potential as one of CO2.

Notice and Public Engagement

We do not understand your comment about the placement of information on our website. Both the renewal application and recording of the recent public hearing are prominently displayed in the resources section in the middle of our Union facility home page, <https://www.reworldwaste.com/where-we-are/facilities/union>. All public engagement for this permit renewal has followed NJDEP guidance, AO25 requirements, and was conducted in accordance with our now 11-year-old EJ policy.

Unauthorized Incineration of Hazardous Wastes

The incident that you are referencing occurred from 2009 through 2013. The facility received a notice of violation (NOV) in March of 2015 from the NJDEP for accepting for destruction, a shipment of discarded, unused nicotine dermal patches. The NOV was issued in response to a self-disclosure report submitted by the Facility in December 2013. A good faith determination was made in 2009 that the patches were acceptable for destruction at the Facility. Since the NOV, the Facility has taken multiple corrective actions to ensure that nicotine patches have been eliminated from our waste receipts. This included an internal audit to ensure that no further shipments were on site. Finally, EPA no longer considers Food and Drug Administration-approved, over-the-counter nicotine replacement therapies (i.e., nicotine patches, gums and lozenges) to be hazardous waste when discarded.

The New Jersey EJ Law vs AO25

Reworld submitted this permit application in 2018, which would fall under Administrative Order 25 (AO25). We are complying with the AO25 and understand that our next permit applications will fall under the full EJ law and require an EJ impact statement submittal.

Permit Conditions

As you state, our facility utilizes emission limits that are allowed under federal and state law. We also do not write our permits. That is not how the process works. When a new facility is under consideration, an application would be submitted detailing the emission sources, associated processes, review of potential impacts (New Source Review/Prevention of Significant Deterioration), and an estimated annual emissions profile. Permit conditions are developed by NJDEP so that the facility would be in compliance with required state and federal regulations. As this is a permit renewal, the state reviews existing conditions, cited regulations and updates anything as needed. We often cite how actual emissions from the site are well below potential to emit (PTE). PTE is not an accurate representation of environmental impacts since the facility does not run at full capacity/PTE conditions, which is defined as maximum capacity for 8760 hours per year. Also, as a general comment to your Table 1, before we go through each requested permit change, each permit limit in place at our facility is allowed by law. Just because some states may have lower limits and the EPA may list lower limits for similar but unrelated processes, does not mean that we are comparing apples to apples. Permit limits are set based on geography, process and source types. An existing facility in New Jersey will not have the same limits as a new facility in Florida or California. They are different scenarios and different airsheds. The EPA also occasionally has multiple allowable emission limits based on a process and emission control scenario.

Reducing the NOx Limit to 50 ppmvd (24-hr) and 247 ppmvd (1-hr)

It was suggested that Reworld Union equip the Facility with selective catalytic reduction (SCR) technology to further reduce its NOx emissions. Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) are both control technologies designed to reduce emissions of nitrogen oxides (NOx). The Union facility utilizes SNCR to effectively control 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. 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 In its proposal for revised MACT standards for Large Municipal Waste Combustors, 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."

Concern was expressed over our annual emissions of nitrogen oxides (NOx) and ground level ozone levels, an air pollutant created when NOx and volatile organic compounds (VOCs) react in the presence of sunlight. However, NOx emissions from the Facility are already below federal guidelines for existing MWC 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% O₂ (150 ppm_{dv7}), which is consistent with New Jersey's Reasonably Available Control Technology requirements contained in the current State Implementation Plan (SIP) for ground-level ozone. All three (3) of the boilers currently average approximately 140 ppm_{dv7}, which is below applicable federal standards.

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 precursors pollutants and ozone itself can be transported into an area from sources hundreds of miles upwind. According to the 2020 National Emissions Inventory, TTFs account for only 3% of NOx emissions, on average, in the counties in which they operate. Mobile vehicles, including cars, trucks, and aircraft, are the largest source, contributing to 60% of local NOx emissions. Not including upwind sources of NOx and ozone, the Reworld Union facility represents approximately 12.5% of the NOx emissions from within Union County based on 2024 actual emissions. Two-thirds of NOx emissions in the County are from mobile sources. In addition to NOx emission sources within the County, air quality within Union 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."¹⁵

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 2**). **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 eight (8) ambient air quality monitors located in Union County and one monitor located in Bayonne, New Jersey (see **Attachment 2**). For reference, OpenAQ is a great resource for tracking ambient air concentrations in areas of interest.

CEMS for HCl, Hg, Dioxins/Furans, PFAS and real-time posting of data

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

Particulate matter (PM) CEMS are difficult to certify and require interruptions of the operation of the MWC units to establish a correlation between operational parameters and particulate emission rates. The primary performance specification for PM CEMS is USEPA Performance Specification 11 (PS-11) which provides methods for correlation testing to establish the CEM's accuracy by comparing its readings to measurements from the USEPA's manual reference method. This process is necessary for verifying the CEM's ability to provide accurate, real-time PM data for continuous compliance monitoring, rather than just checking ongoing performance or calibration. The stack opacity continuous emissions monitor indicates effective control of PM emissions.

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 follow 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.

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 (Municipal Waste Combustor), 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. Dioxins and furans are further limited to less than 30 ng/dscm corrected to 7% O₂ from each of the three MWC units as demonstrated by stack testing. The Operating Permit also contains an additional steam production rate limit of less than or equal to 526,000 pounds of steam per boiler in any discreet 4-hour block period which equates to a 4-hour average limit of 131,500 pounds of steam. Additionally, the inlet temperature to each fabric filter must not exceed 30 Fahrenheit degrees 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.

Mercury control is the primary focus of the activated carbon injection system, but the process has also been shown to have some emissions reduction benefits for dioxins and furans. Compliance with our permitted dioxins limit is met through regular stack emissions testing and compliance reporting. The site is roughly 99.5% below our permitted dioxin standard. Particulate matter emissions are controlled by a fabric filter baghouse, and as indicated in Table 1, are no more than 17% of our PTE.

CO emissions derive largely from incomplete combustion of organic wastes and carbon in the waste streams. Maintaining oxygen and moisture levels helps keep CO emissions down. The facility is also required to monitor CO emissions via periodic stack testing and through continuous emissions monitoring and report the results to the NJDEP quarterly. Per Table 1, our maximum annual CO emissions over the last seven years amounted to only 4% of our PTE.

Your statements imply that we emit the maximum that we are allowed for lead under our permit. We do not. Actual emissions are roughly 97% below our PTE, as outlined in Table 1. If the EPA were to finalize the proposed rule that you mentioned, and reduce the limit to 56 µg/dscm, the facility would evaluate the feasibility of necessary control measures needed to comply.

Table 2 – HAPs Actual Emissions vs PTE (TPY)

	As	Be	Cd	Cr	HCl	HF	Pb	Hg	Ni	P.O.M.	2,3,7,8-TCDD
2024	1.23E+03	4.50E+05	7.70E+04	9.10E+03	2.44E+01	4.74E+01	2.00E+02	3.00E+03	1.36E+02	1.37E+02	0.00E+00
2023	1.23E+03	4.50E+05	7.85E+04	9.11E+03	1.64E+01	4.75E+01	1.00E+02	3.36E+03	1.36E+02	1.37E+02	0.00E+00
2022	1.22E+03	4.00E+05	4.09E+03	9.04E+03	1.06E+01	4.70E+01	4.00E+02	2.43E+03	1.35E+02	1.36E+02	0.00E+00
2021	8.15E+04	4.00E+05	6.50E+04	1.16E+02	2.18E+01	3.80E+01	1.00E+02	2.61E+03	2.83E+02	1.36E+02	0.00E+00
2020	8.15E+04	4.00E+05	5.20E+04	1.15E+02	1.96E+01	3.80E+01	2.00E+02	3.36E+03	2.80E+02	1.35E+02	0.00E+00
2019	5.70E+04	4.00E+05	7.15E+04	1.19E+02	6.41E+00	4.40E+01	1.00E+02	2.96E+03	7.14E+03	1.36E+02	0.00E+00
2018	5.65E+04	4.00E+05	1.09E+03	1.18E+02	1.01E+01	4.30E+01	1.00E+02	3.55E+03	7.13E+03	1.36E+02	0.00E+00
AVG	9.19E+04	4.14E+05	1.23E+03	1.06E+02	1.56E+01	4.36E+01	1.71E+02	3.03E+03	1.59E+02	1.36E+02	0.00E+00
PTE	2.50E+02	5.91E+04	9.86E+02	5.91E+02	2.15E+02	8.28E+00	1.58E+00	1.27E+01	7.88E+01	1.98E+02	1.44E+06
% of PTE	4%	7%	1%	18%	7%	6%	1%	2%	2%	69%	0%

Notes: All Actual Emissions data was sourced from annual emissions statements and PTEs were sourced from the facility Title V air permit.

Cadmium emissions are driven largely by the content of cadmium in the waste. Per Table 2 above, our cadmium emissions average roughly 1% of our PTE.

SO₂ emissions are monitored through CEMs and stack testing.⁶ The sulfur content in our distillate fuel oil is capped and monitored through review of delivery receipts. As discussed during our public hearing, actual emissions per year from the site are roughly 85% below the federal standard, and per Table 1, and 93% below our permitted PTE.

HCL emissions are driven largely by the presence of chlorine in the waste stream, which is converted to HCL during combustion. Chlorine is found in many household items (for example, wood and textiles) but is most notably found in plastics. Due to their ubiquitous nature, sorting and filtering these plastics out of the waste stream once they get to our facility is unrealistic. Ideally these would be filtered out on the user end so that fewer are processed as municipal solid waste (MSW). The current Title V permit has multiple HCL emissions limits, based on various operating scenarios. All limits comply with NJDEP regulations as cited in the relevant sections of the permit. Per Table 2 above, our average HCL emissions are roughly 7% of our PTE.

The existing permit has VOC mass and concentration-based limits (lbs/hr, tons/yr, and ppmdv @7%O₂ (1-hr average)). Facility specific requirement number 27 (OS1) details the 15 ppmdv @7%O₂ 1-hr average requirements that are monitored by stack testing. Obviously, the existing limit is well below the 50 ppmdv that was proposed in your comments. Annual emissions from the site are also a small fraction, roughly 0.01% of other sources in the area. By far the largest source is solvent use, which accounts for roughly 41% of local VOC emissions⁶.

Percent Reduction Option

Percent reduction is just another way of saying “control efficiency” and each compliance option listed in the permit is in accordance with both EPA and state regulations. Percent reduction standards reflect the inherent variability that occurs in MSW. Emissions of SO₂, HCl and Hg are driven by the content of the waste received, and during normal operations, spikes in inlet concentrations can and do occur. Fortunately, we have seen a reduction in inlet Hg concentrations due to improved recovery and recycling efforts. Even with the best emission control equipment, increasing inlet concentrations means that a short-term increase in associated emissions of SO₂ and HCl may result. EPA’s consideration of percent reduction standards for SO₂ and HCl dates back to 1989, when EPA proposed emission guidelines and standards of performance for municipal waste combustors. In both the proposed rule and the emission guidelines, EPA specifically addressed the issue of percent reduction standards for acid gases (SO₂ and HCl) stating that “[a] percent reduction standard was selected because it is the most accurate and representative measure of the performance of acid gas control systems.”⁷

⁶ Stack testing is required for SO₂, nitrous oxides, SO₃, H₂SO₄, arsenic, beryllium, chromium, nickel, ammonia and Benzo (A) pyrene.

⁷ 54 Fed. Reg. at 52233, 52274.

PFAS/PCBs/Other HAPs

The matter of our previous PFAS/EPA Study was addressed on pages 1-2 of this document. Other Test Method (OTM) OTM -45 and OTM-50 are both still in the development stage. Sites around the country use the methods and report back to the EPA to inform what will eventually become a final standard test method. Neither OTM provides or references an emission standard or specific utilization for MSW incinerators. New Jersey has issued PFOA and PFOS initial threshold screening levels, but they are not applicable to our facility at this time, and only for drinking water and certain remediation applications.

CEMs units must be operated in accordance with established protocols and are budgeted for in response to regulatory drivers in that state. Reworld will continue to comply with the requirements in our operating permit.

Per Table 2 above, our annual HAPs emissions are well below all of our PTEs.

Emission Limits for hexavalent chromium, carbon tetrachloride, formaldehyde, trichloroethylene, vinyl chloride, and PERC

The limits that you cite from our Essex permit are a carryover from prior to the baghouse installation at that facility. Since the boilers at the Union plant are considerably smaller than Essex, the NJDEP determined that monitoring via intermittent stack testing and reporting was appropriate.

SSM and Affirmative Defense Provisions

Reworld 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. SSM and affirmative defense provisions are allowed in New Jersey under certain circumstances. These have become more stringent over time. Reworld will continue to comply with our permit requirements on this topic.⁸

CEMS for HCL, Mercury, Dioxins/Furans, PFAS, and PM and Not Changing PM Testing Frequency

CEMS are not required for any of these contaminants under current operating conditions at our site. The use of CEMS onsite is detailed previously in this document.

The 2018 renewal application requested a reduction in the frequency of PM testing from once a year to once every five years for our Total Suspended Particulate (TSP) limit of 0.1 gr/dscf@ 12% CO₂, since we have shown compliance with existing testing frequencies and limits. Two of our other facilities contain the same regulatory requirement and successfully stack test for it on a once every five-year basis. Testing once in five years can be just as effective as testing every year. Please also note that this request only pertains to one of our PM stack testing conditions; the remaining PM testing conditions would still be on an annual testing basis.

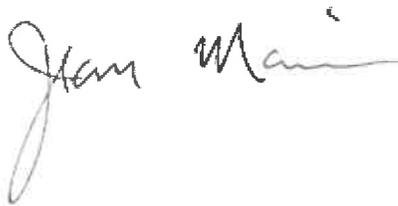
⁸ https://dep.nj.gov/wp-content/uploads/rules/adoptions/adopt_20171106b.pdf

Risk Management Plans

The site is not subject to CAA Section 112(r) since we do not use ammonia in the form or concentration that would trigger the applicability.

We hope this answers your questions, but should you have any follow-ups or want more information please feel free to contact us at ReworldUnionFacility@reworldwaste.com.

Regards,

A handwritten signature in black ink, appearing to read "Jean Marion". The signature is written in a cursive style with a large initial "J" and a distinct "M".

Jean Marion
Facility Manager

Enc

January 16, 2026

Ms. Brooke Helmick, Director of Policy
New Jersey Environmental Justice Alliance
NJ NAACP Environmental and Climate Justice Committee
NJ NAACP Rahway – Branch Executive Committee
New Jersey Food and Water Watch
Vote Solar

**Re: Union County Resource Recovery Facility – Title V Air Permit Renewal – AO25 Process,
PI # 41814, BOP240001**

Ms. Helmick,

Thank you for submitting questions and comments (March 13, 2025) on our Title V renewal application. Please see the following responses based on major comment topics as they appeared in your submittal.

Transparency and public participation

Both the renewal application and recording of the recent public hearing are prominently displayed in the resources section in the middle of our Union plant home page, <https://www.reworldwaste.com/where-we-are/facilities/union>. We will be posting the documents that you requested once they are all completed. All public engagement for this permit renewal has followed NJDEP guidance and Administrative Order 2021-25 or AO25, and was conducted in accordance with our now 11+ year old EJ policy. Each of our New Jersey sites has a team of community outreach specialists who are dedicated to accessibility, supporting community initiatives, and providing honest feedback.

Rahway as an Overburdened Community

There is a lot of industrial activity in Rahway. The area is extremely congested with emission sources, with 11 scrap metal sites, four recycling centers, eight major sources of air emissions, and three transfer stations all within roughly 3-4 miles. You comment that “4.3 times as many permitted air sites per square mile compared to the rest of New Jersey” alludes to this source congestion. Waste to energy facilities have historically been sited near these communities because there is a need to process large volumes of wastes (largely due to the congestion of sources noted earlier). Local and state governments have always led the siting process. It is important to look at the composition of ambient emissions in Union County. There is a lot going on. The EPA’s National Emissions Inventory (NEI) database attempts to quantify this sort of complexity for the country and contains filterable datasets that can get down to the county level. Table 1 below details the emissions in Union County for 2020, the most current full year of data that EPA has available. You will notice below that point sources make up a fraction of the overall emissions and Reworld’s contributions to that total are quite small, as indicated in the bottom line of the table.

Table 1 – National Emissions Inventory (NEI) Data¹

Contaminant Emissions (tons)							
Source	CO	NOx	VOC	NH3	PM10	PM2.5	SO2
Sum (Six Source Types) ²	32184.37	7564.02	8722.17	370.27	1887.15	1237.76	194.53
Point Sources % of total	3%	35%	14%	20%	27%	33%	62%
Point Source Emissions in Union County	842.32	2646.06	1186.14	72.50	501.67	412.88	120.05
Reworld Union (% of Point Sources)	5%	25%	0.2%	2%	1%	1%	20%
2022 Reworld Union Actual Emissions ³	38.75	658.61	2.66	1.39	6.62	5.63	24.31
Reworld Union (% of All Source Emissions in Union County)	0.1%	9%	0.03%	0.4%	0.4%	0.5%	12%

Reworld was an early supporter of the New Jersey EJ law because we see the data and understand what is creating overburdened communities. As always, we will comply with NJDEP guidance and continually look for ways to improve our operations. Improving outcomes for the community means focusing on the largest sources of the concerns. While we will continue to operate our facility with the lowest emissions profile currently feasible for the site, we hope that other larger sources of emissions in the area will follow suit and in time ambient concentrations of all pollutants will come down. We submitted this application in 2018, and its consideration thereby falls under Administrative Order 25, which does not have an EJ impact statement (EJIS) component. Reworld understands that any future permit renewals or modifications will fall under the EJ law and require EJIS considerations.

Emissions – The Impacts of Greenhouse Gases and Criteria co-pollutants

Actual emissions performance versus PTE was a topic covered at length during our public information session, so we will not repeat the same information here. We went back and analyzed our actual annual emissions⁴ from 2018 through 2024 for criteria contaminants, versus our potential to emit. The table below highlights those results with the year of the maximum annual emissions during the timeframe, emissions data, PTE, and percent of PTE. The maximum annual emissions for each contaminant is bolded. For VOCs, this meant our highest annual emissions over the past seven years (2018) was still only 15% of our potential to emit.

Table 2 – Max Annual Emissions vs PTE (2018-2024)

Contaminant Actual Emissions (tpy)									
Year	VOC	NOx	CO	SO2	TSP	PM10	PM2.5	Pb	CO2e
2024	1.47	663.54	45.1	27.42	4.79	4.79	4.07	0.02	201,830
2023	1.24	650.37	41.22	26.51	9.44	9.44	8.03	0.01	201,730
2022	2.66	658.61	38.75	24.31	6.62	6.62	5.63	0.04	224,600
2021	1.39	667.35	38.42	42.79	3.45	3.45	2.94	0.01	197,810
2020	0.37	671.49	48.28	28.14	2.06	2.06	1.75	0.02	188,540
2019	0.61	651.18	35.85	18.26	2.54	2.54	2.16	0.01	194,320
2018	3.67	636.33	36.24	20.71	2.45	2.45	2.09	0.01	188,370
PTE (tpy)	23.8	1052	1131	645	55.9	55.9	55.9	1.58	303,812
Max Percent of PTE	15%	64%	4%	7%	17%	17%	14%	3%	74%

Notes: All Actual Emissions data was sourced from annual emissions statements and PTEs were sourced from the facility Title V air permit.

PM2.5 and health impacts – no safe level

We understand the concerns about PM emissions as research has shown them to be one of the leading drivers of multiple respiratory ailments. Unfortunately, there are a myriad of sources of PM emissions, and as was detailed during the information session, our site’s emissions are a small fraction of what is going into the ambient air in the community. Per Table 2 above, even in highest emissions year of the last seven, we were still only between 14-17% of our PM PTEs.

Emissions vs the rest of Union County

We shared the slides of our facility emissions compared to other local sources to highlight the fact that although cumulative impacts is a serious problem, the main causes of that problem are not always the most visible facility. For all criteria contaminants, our actual emissions are a small fraction of the total ambient burden.

Permit Violations and increased enforcement actions

The internal Reworld database goes back to 2015, and the excess emissions count for the Union facility from 2015 through 2024 is 56 exceedances. This equates to roughly five per year. Our air permit has roughly 200,000 possible compliance periods if you count all our permitted emission limits. Approximately five violations per year equated to over a 99.99% compliance rate.

Permit Amendments

We understand your question about how our claim to support continuous improvement can be supported by the fact that we are not reducing permit limits in this application. That just is not how permits are written. Reworld may request changes to operating conditions or processes, but all emissions limits are tied back to regulatory thresholds with applicability to each determined by the NJDEP. We comply with the emission thresholds that they set for us. It should also be noted that even if a PTE were reduced, the actual emissions likely would not change.

Permit Conditions

As you state, our facility utilizes emission limits that are allowed under federal and state law. We also do not write our permits. That is not how the process works. When a new facility is under consideration, we would be required to submit an application detailing the emission sources, associated processes, review of potential impacts (New Source Review/Prevention of Significant Deterioration), and an estimated annual emissions profile. Permit conditions are then developed by NJDEP so that we will be in compliance with required state and federal regulations. As this is a permit renewal, the state reviews existing conditions, cited regulations and updates anything as needed.

We often cite how actual emissions from the site are well below potential to emit (PTE). PTE is not an accurate representation of environmental impacts since the facility does not run at full capacity/PTE conditions, which is defined as maximum capacity for 8760 hours per year. Also, as a general comment to your Table 1, before we go through each requested permit change, each permit limit in place at our facility is allowed by law. Just because some states may have lower limits and the EPA may list lower limits for similar but unrelated processes, does not mean that we are comparing apples to apples. Permit limits are set based on geography, process and source types. An existing facility in New Jersey will not have the same limits as a new facility in Florida or California. They're different scenarios and different airsheds. The EPA also occasionally has multiple allowable emission limits based on a process and emission control scenario.

CEMS and Public Data – posted in raw and clean formats

As you are aware the facility posts its CEMS data⁵ on the main page of our website, with roughly a day or two lag. CEMS data for CO, SO₂, NO_x, and Opacity are presented in an easy-to-read format that condenses dozens of data points for each metric into each reportable value. The online presentation also lists critical table notes that give background and reference information for the metrics. Our data is corrected and presented in the same units as the permit limits, and the raw data would typically be lower than the corrected data.

Reducing PM testing from once a year to once every five years

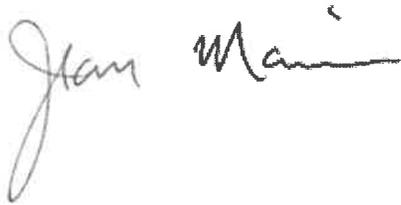
Our PM testing results have routinely come back well below permitted thresholds, a fact that is also supported by actual emissions each year being roughly 17% of our PTE. The 2018 renewal application requested a reduction in the frequency of PM testing from once a year to once every five years for our Total Suspended Particulate (TSP) limit of 0.1 gr/dscf@ 12% CO₂, since we have shown compliance with existing testing frequencies and limits. Two of our other facilities contain the same regulatory requirement and successfully monitor for it on a once in five-year basis. Testing once in five years can be just as effective as testing every year. Please also note that this request only pertains to stack testing for one of our PM emission limits, the remaining PM emission limit testing conditions would still apply on an annual testing basis.

SSM conditions

SSM and affirmative defense provisions are allowed in New Jersey under certain circumstances. These have become more stringent over time. Reworld will continue to comply with our permit requirements on this topic.

We hope this answers your questions, but should you have any follow-ups or want more information please feel free to contact us at ReworldUnionFacility@reworldwaste.com.

Regards,

A handwritten signature in black ink, appearing to read "Jean Marion". The signature is written in a cursive style with a large initial "J" and a distinct "M".

Jean Marion
Facility Manager

January 16, 2026

Mr. Jeffrey Robinson, Chairman
Environmental Commission
City of Rahway

**Re: Union County Resource Recovery Facility – Title V Air Permit Renewal –
AO25 Process, -PI # 41814, BOP240001**

Mr. Robinson,

Thank you for submitting questions and comments (March 2, 2025) on our Title V renewal application. PFAS compounds are unfortunately included in numerous everyday products¹ and certain higher concentration products such as fire-fighting foams. There have been numerous questions and frankly misinformation out there on our collaboration with the USEPA a few years ago on this topic. You (the public) deserve the whole story.

In 2020, USEPA and Reworld entered into an agreement to conduct voluntary air emission testing for PFAS at the Union facility. The purpose of the test program was to better understand PFAS emissions from municipal waste combustors, and more importantly, to advance the science of PFAS analysis. The plan was to complete the test using normal, everyday municipal waste deliveries and did not include intentionally adding PFAS to the waste. Unfortunately, the testing was cancelled as a result of misinformation spread by an uninformed party, who also questioned the ethics and motivations of the USEPA at the time. As a result, NJDEP, USEPA and other involved parties mutually agreed to cancel the test, despite the loss of important data and information on PFAS emissions.

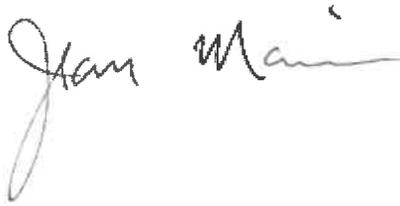
Please see the numbered list below for replies to your specific questions.

1. **Are attempts being made to identify and deal with trash items that are known to contain PFAS chemicals prior to incineration?** We know that PFAS compounds are present in many waste streams, and as such, it is difficult to segregate or separate wastes with known PFAS. However, certain wastes, such as aqueous film forming foams (AFFF), are understood to contain PFAS, often at high concentrations. Wastes like AFFF are comparatively easy to identify (since most is derived from firefighting supplies) and are excluded from acceptance at the Rahway facility.
2. **Are emissions from the facility being monitored for PFAS chemicals?** Emissions are not currently being monitored for PFAS compounds. USEPA has developed draft test methods for emissions of certain PFAS compounds. EPA is working on revising and updating these methods to improve their accuracy. There are no test methods or procedures for continuous monitoring of PFAS emissions.

3. **What is being done to mitigate any release of PFAS compounds in facility emissions?** The science of PFAS waste management continues to evolve. We do know, however, that proper combustion practices improve emissions performance. For the Rahway facility, this includes operating at combustion gas temperatures in the 1,800 to 2,000° F range. As required by our Title V Operating Permit, our auxiliary burner system is to be utilized to maintain minimum operating temperatures. Additionally, the auxiliary burner system is designed to provide start-up and shutdown of our units, and, as necessary, stabilize the combustion process. When combusting MSW, operating temperatures are typically much higher than 1,800°F as a minimum.

We hope this answers your questions, but should you have any follow-ups or want more information please feel free to contact us at ReworldUnionFacility@reworldwaste.com.

Regards,

A handwritten signature in black ink that reads "Jean Marion". The signature is written in a cursive style with a large, looped initial "J" and a long, sweeping underline.

Jean Marion
Facility Manager

Enc

January 16, 2026

Mr. Kartik Amarnath
Mid-Atlantic Regional Director
Vote Solar

Re: Union County Resource Recovery Facility – Title V Air Permit Renewal – AO25 Process, PI # 41814, BOP240001

Mr. Amarnath,

Thank you for submitting questions and comments on our Title V renewal application. Please see the subject sections below for responses to your comments in the order that they were received.

Establish a system of continuous and transparent emissions reporting for all pollutants

USEPA has issued standards for continuous emission monitors (CEMS) to ensure that they operate as designed and provide the public with the assurance that our emissions data is accurate. To date, EPA has not issued standards for metals, including lead, cadmium, and beryllium, PM-10, PM2.5, dioxins/furans or PFAS due to the state of monitoring science for these emission parameters not being sufficiently advanced to allow for reliable data generation. For mercury emissions monitoring, Reworld installed monitors at facilities in West Palm Beach and Hillsborough County, Florida, and in Onondaga, New York. These monitors were approved to be removed from service by the state environmental regulatory agencies when the results validated our low mercury stack testing results. Reworld continuous emissions monitoring data is publicly available on each Reworld facility's websites. For the Reworld Union facility, the data can be viewed by going to <https://www.reworldwaste.com/where-we-are/facilities/union>. Data is posted on the main page with roughly a day or two lag to allow for quality assurance/quality control (QA/QC) review to ensure that the data meets both our permit standards and EPA/DEP requirements for data accuracy.

Establish transparent measures to reduce emissions of HAPs that the facility currently has the potential to emit beyond DEP thresholds

Reworld believes in transparency, and we are proud of our environmental performance. We have prepared a table below (**Table 1**) that includes actual facility emissions for the years 2018-2024 and compared that to our permitted potential to emit (PTE). In each case, we are considerably under the PTE, and in most cases, we are roughly 95-98% below.

Table 1— HAPs Actual Emissions vs PTE (TPY)

	As	Be	Cd	Cr	HCl	HF	Pb	Hg	Ni	P.O.M.	2,3,7,8-TCDD
2024	1.23E-03	4.50E-05	7.70E-04	9.10E-03	2.44E+01	4.74E-01	2.00E-02	3.00E-03	1.36E-02	1.37E-02	0.0E+00
2023	1.23E-03	4.50E-05	7.85E-04	9.11E-03	1.64E+01	4.75E-01	1.00E-02	3.36E-03	1.36E-02	1.37E-02	0.0E+00
2022	1.22E-03	4.00E-05	4.09E-03	9.04E-03	1.06E+01	4.70E-01	4.00E-02	2.43E-03	1.35E-02	1.36E-02	0.0E+00
2021	8.15E-04	4.00E-05	6.50E-04	1.16E-02	2.18E+01	3.80E-01	1.00E-02	2.61E-03	2.83E-02	1.36E-02	0.0E+00
2020	8.15E-04	4.00E-05	5.20E-04	1.15E-02	1.96E+01	3.80E-01	2.00E-02	3.36E-03	2.80E-02	1.35E-02	0.0E+00
2019	5.70E-04	4.00E-05	7.15E-04	1.19E-02	6.41E+00	4.40E-01	1.00E-02	2.96E-03	7.14E-03	1.36E-02	0.0E+00
2018	5.65E-04	4.00E-05	1.09E-03	1.18E-02	1.01E+01	4.30E-01	1.00E-02	3.55E-03	7.13E-03	1.36E-02	0.0E+00
AVG	9.19E-04	4.14E-05	1.23E-03	1.06E-02	1.56E+01	4.36E-01	1.71E-02	3.03E-03	1.59E-02	1.36E-02	0.0E+00
PTE	2.50E-02	5.91E-04	9.86E-02	5.91E-02	2.15E+02	8.28E+00	1.58E+00	1.27E-01	7.88E-01	1.98E-02	1.44E-06
% of PTE	4%	7%	1%	18%	7%	6%	1%	2%	2%	69%	0%

Notes: All Actual Emissions data was sourced from annual emissions statements and PTEs were sourced from the facility Title V air permit.

Cadmium emissions are driven largely by the contents of the waste stream. Per **Table 1** above, our cadmium emissions average roughly 1% of our PTE.

HCL emissions are driven largely by the presence of chlorine in the waste stream, which is converted to HCL during combustion. Chlorine is found in many household items (for example, wood and textiles) but is most notably found in plastics PVC. Due to their ubiquitous nature, sorting and filtering these plastics out of the waste stream once they get to our facility is unrealistic. Ideally, these would be removed on the user end so that fewer are processed as municipal solid waste (MSW). The current Title V Operating Permit has multiple HCL emissions limits, based on various operating scenarios. All of the limits comply with NJDEP regulations as cited in the relevant sections of the permit. Per **Table 1** above, our average HCL emissions are roughly 7% of our PTE.

The existing permit has VOC mass and concentration-based limits (lbs/hr, tons/y, ppmvd @7%O₂ (1-hr average)). Facility specific requirement number 27 (OS1) details the 15 ppmvd@7%O₂ 1-hr average requirements to be monitored by stack testing. Obviously, the existing limit is well below the 50 ppmvd that was proposed in your comments. Annual emissions from the site are also a small fraction, roughly 0.01%, of other sources in the area. By far the largest source is solvent use which accounts for roughly 41% of local VOC emissions.

Our post combustion sorting processes utilize magnetic separation to recover ferrous and Eddy current separation to recover non-ferrous metals from residual ash. Eddy current separation is a process that uses changing magnetic fields to separate non-ferrous, electrically conductive metals from other materials.

Replace SNCR with SCR

Many suggested that Reworld Union equip the Facility with selective catalytic reduction (SCR) technology to further reduce its NO_x emissions. Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) are both control technologies designed to reduce emissions of nitrogen oxides (NO_x). The Union facility utilizes SNCR to effectively control NO_x 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. 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 NO_x emissions and other ozone precursors both in local airsheds and from upwind sources.¹⁴ In its proposal for revised MACT standards for Large Municipal Waste Combustors, 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."

Installing new emission controls is a lengthy capital-intensive process that must first go through technical and economic feasibility analysis. Your suggestion for a hybrid SCR/SNCR system is interesting but again not necessarily possible at this site. This analysis must be site-specific, and although such a retrofit was possible at another site, it may not be here. As stated during our public hearing, NO_x emissions from the site are roughly 32% below our permitted PTE.

Remove SSM conditions

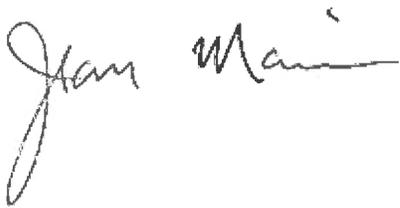
Startup, Shutdown and Malfunction (SSM) and affirmative defense provisions are allowed in New Jersey under certain circumstances. These have become more stringent over time. Reworld will continue to comply with our permit requirements on this topic.¹

Affirmative Defense

Reworld 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. SSM and affirmative defense provisions are allowed in New Jersey under certain circumstances. These have become more stringent over time. Reworld will continue to comply with our permit requirements on this topic.²

We hope this answers your questions, but should you have any follow-ups or want more information please feel free to contact us at ReworldUnionFacility@reworldwaste.com.

Regards,

A handwritten signature in black ink that reads "Jean Marion". The signature is written in a cursive style with a large, looped initial "J" and a long horizontal stroke at the end.

Jean Marion
Facility Manager

Enc

¹ https://dep.nj.gov/wp-content/uploads/rules/adoptions/adopt_20171106b.pdf

² https://dep.nj.gov/wp-content/uploads/rules/adoptions/adopt_20171106b.pdf

January 16, 2026

Ms. Lori Caughman, Esq. Rahway Chapter of the NAACP
Mr. Charlie Kravitol, Food and Water Watch
Ms. Brooke Helmick, Director of Policy, New Jersey Environmental Justice Alliance
Mr. Danny Cooper, Earthjustice

Re: Union County Resource Recovery Facility – Title V Air Permit Renewal – AO25 Process, PI # 41814, BOP2-40001, Responses to live comments from 2/13/25 Public Information Session

The following are Reworld's replies to comments received during the referenced Public Information Session related to the Union facility Title V air permit renewal. Replies are listed in the order that comments were received.

Ms. Lori Caughman, Esq. (NAACP – Rahway Chapter),

First, thank you for your comments. The part where you mentioned your family's battles with cancer was especially poignant. It is an ugly disease that affects far too many every year. Rahway is a densely populated area, with people and industry, and all permitted sites in the community need to do their best to be good neighbors. That is a big deal for us at Reworld, and something that we take very seriously. Our facility processes roughly 556,000 tons of municipal solid waste (MSW) each year, most of which would have otherwise ended up in landfills. The site must recertify every year that we are meeting emission standards through stack testing, where we measure our emissions outputs at maximum rated operating capacity. This is a conservative test since we will rarely actually run at maximum capacity. The stack height is also set to minimize any potential impacts to the community. The state of New Jersey also requires us to utilize continuous emissions monitoring systems (CEMs) on all of our units, to reflect real time emissions data. Particulate Matter and hazardous air pollutant emissions are some of the main drivers for lung cancer rates. As shown in the information session slides, our actual emission rates for both pollutant categories are well below our potential to emit and also fractions of the total emissions in the community. All industrial sites have the potential to impact their community; we know this and have been taking steps to minimize our impacts. The area is extremely congested with emission sources, with 11 scrap metal sites, four recycling centers, eight major sources of air emissions, and three transfer stations all within roughly 3-4 miles. Reworld was an early supporter of the New Jersey EJ law because we see the data and understand what is creating overburdened communities. As always, we will comply with NJDEP guidance and continually look for ways to improve our operations.

Mr. Charlie Kravitol (Food and Water Watch),

Thank you for your comments, Charlie, and your continued interest in our operations. We have always respected your passion.

Currently, there are only two methods for disposing of very large volumes of MSW, landfilling or waste-to-energy, also known as thermomechanical treatment. Other methods such as recycling and composting have helped with lesser small volumes but have not grown enough yet to reduce our overall throughputs. I think we can also agree that landfilling cannot be the answer, since the method produces so many environmental harms and no benefits other than moving the MSW out of state.

As this renewal application was submitted in 2018, it falls under Administrative Order 25 and does not include an EJS submittal. Reworld is aware that our next permit renewal or modification will require an EJS under the EJ law, and we will comply accordingly.

Ms. Brooke Helmick (NJEJA),

Thank you for your comments and your passionate leadership through the NJEJA. As your verbal comments closely mirror the written package that NJEJA submitted, please see our reply letter to the NJEJA for responses to your comments and questions.

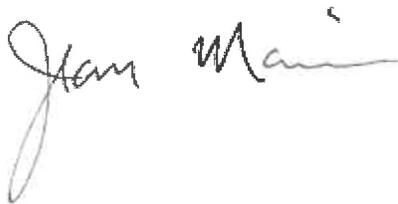
However, we want to address one critical point from your live comments - that you did not feel it was appropriate to compare our emissions to other local sources. We are not only comparing emissions but highlighting the challenges facing the local community in regard to cumulative impacts. The area is extremely congested with emission sources, with 11 scrap metal sites, four recycling centers, eight major sources of air emissions, and three transfer stations all within roughly 3-4 miles. Improving outcomes for the community means focusing on the largest sources of the problems. While we will continue to operate our facility with the lowest emissions profile currently feasible for the site, we hope that other larger sources of emissions in the area will follow suit and in time ambient concentrations of all pollutants will come down.

Mr. Danny Cooper (Earthjustice),

Thank you for your comments. As your verbal comments closely mirror the written package that Earthjustice submitted, please see our reply letter to Earthjustice for responses to your comments and questions.

We hope this answers your questions, but should you have any follow-ups or want more information please feel free to contact us at ReworldUnionFacility@reworldwaste.com.

Regards,



Jean Marion
Facility Manager

ATTACHMENTS

Glossary

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. The activated carbon feed rate for the Union facility is also limited to a minimum feed rate of 20 lbs/hr based on the original optimization testing done.

Activated Carbon Injection (ACT) - ACT 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 ACT 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 Union 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 6.5 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 Union 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.

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 Opacity, NOx, CO, and SO2.

CO – Carbon monoxide. A colorless, odorless gas that can displace oxygen in the blood and lead to carbon monoxide poisoning.

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.

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.

¹ <https://www.sciencedirect.com/topics/engineering/activated-carbon-injection-system>

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 Union 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, byproduct 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.

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 (O₃) - 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 – NO_x 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.

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.

PM₁₀/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 NO_x emissions.

SNCR – Ammonia injection systems utilized to reduce NO_x emissions.

SO₂ – 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 recover metal for recycling, 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.

<https://swana.org/resources/solid-waste-glossary>

Air Quality Review

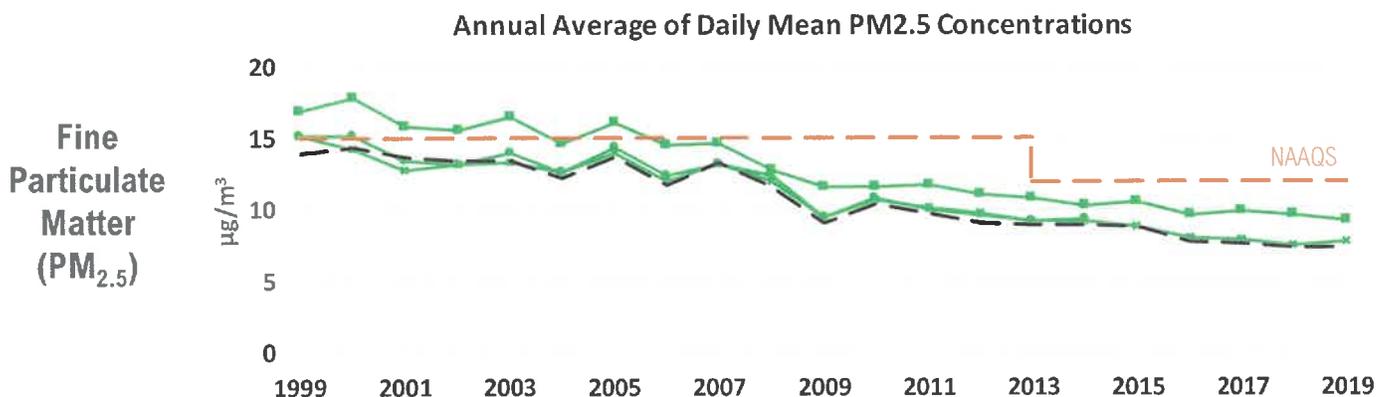
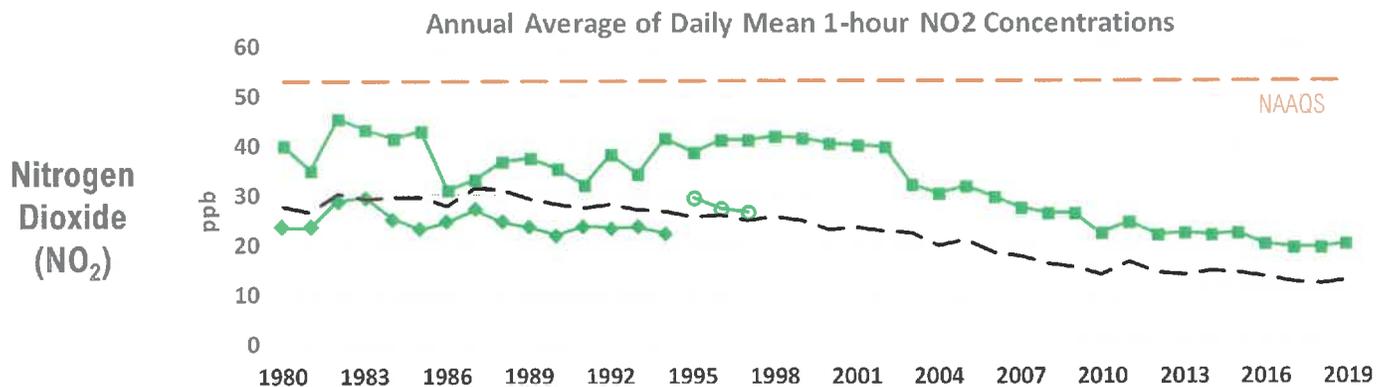
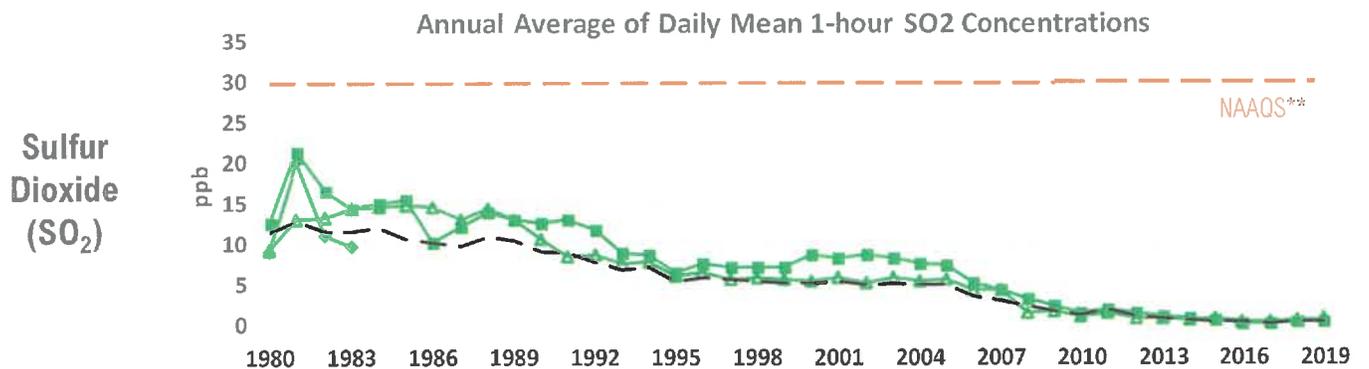
Union County, NJ

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.

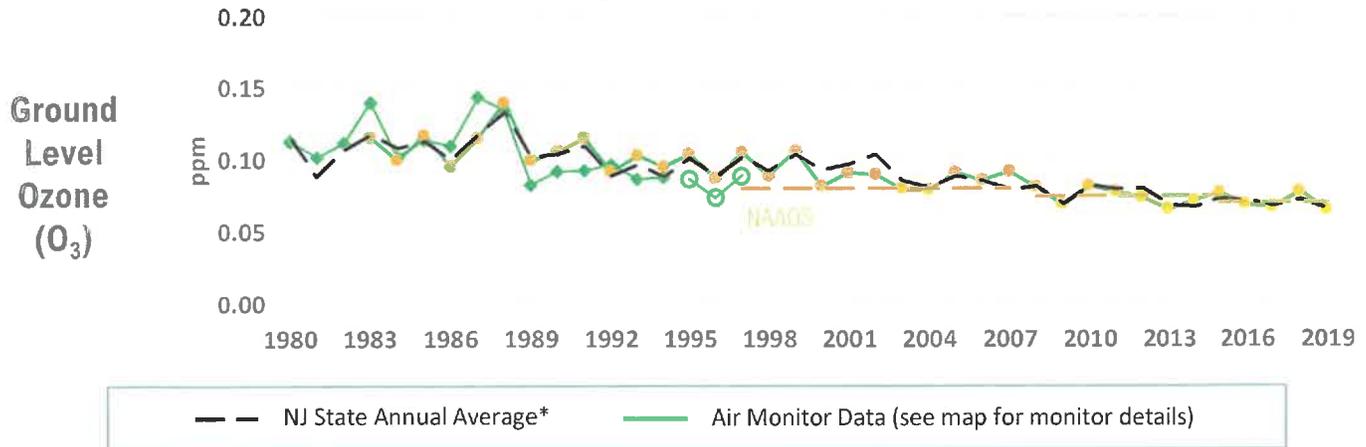
Criteria Air Pollutant Trends

— — NJ State Annual Average* — Air Monitor Data (see map for monitor details)



¹ NJ DEP (2019) 2018 New Jersey Air Quality Report. <https://www.nj.gov/dep/airmon/pdf/2018%20NJ%20AQ%20Report-bookmarked.pdf>

Annual 4th Highest Daily Max 8-hour Ozone Concentrations



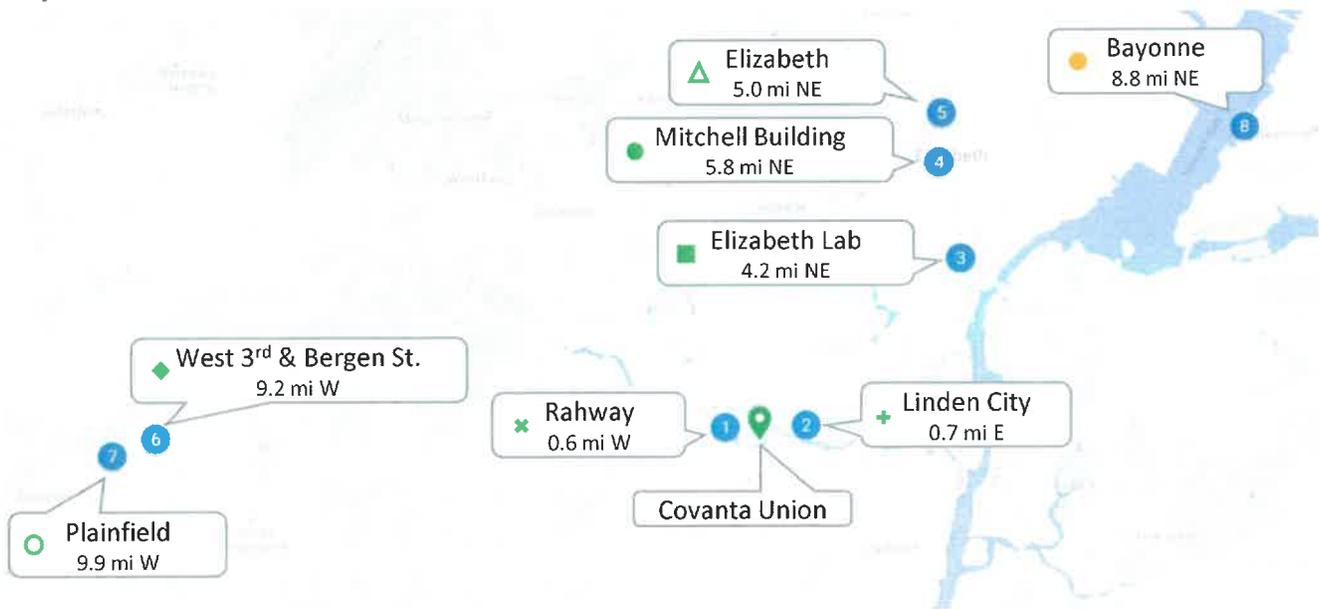
* The annual state average provides a useful comparison to local air quality results. Determination of NJ's compliance with standards is evaluated differently, using the State Design Values.

** The 1971 NAAQS standard of 30 ppb (annual arithmetic mean SO₂ 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.

Union County monitors within 10 miles of the Covanta Union Facility were used for this assessment and are shown below, along with the distances and directions from the facility. Though not in Union County, the Bayonne monitor was included to show recent Ozone data.



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>