




# pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

**MEMO**

**TO** James D. Rebarchak  12/21/23  
Manager, Air Quality Program  
Southeast Regional Office

**FROM** Jing Y. Guo **JYG 9/20/2023, 11/15/2023**  
Facilities Permitting Section  
Air Quality Program

**THROUGH** Janine Tulloch-Reid, P.E. **JET 12/21/2023**  
Engineering Manager, Permitting Section  
Air Quality Program

**DATE** September 20, 2023, revised 11/15/2023

**RE** Plan Approval Review  
Application No. 23-0004B  
Covanta Delaware Valley, LP. -  
Delaware Valley Resource Recovery Facility (DVRRF)  
City of Chester, Delaware County  
APS ID: 1077875, AUTH ID: 1421405, PF ID: 484329

## **Introduction**

On December 20, 2022, the Department of Environmental Protection (DEP) received the above-referenced Plan Approval application from Covanta Delaware Valley, L.P. (Covanta) for its Delaware Valley Resource Recovery facility (DVRRF) located at 10 Highland Avenue, City of Chester, Delaware County.

This facility, with a SIC Code – 4953: Trans. & Utilities – Refuse Systems, and a NAICS code – 562213: Solid Waste Combustors and Incinerators, is a resource recovery facility.

This facility is located in an Environmental Justice Community, and an area designated as moderate non-attainment for 2015 ozone.

On November 11, 2022, PADEP published the “Additional RACT requirements for major sources of NO<sub>x</sub> and VOCs for the 2015 Ozone NAAQS” of 25 Pa. Code §§129.111 –129.115 (reference 52 Pa. Bulletin 6960), commonly referred to as RACT III rule. The provisions of the RACT III rule are effective on November 12, 2022. Covanta evaluated the rule’s applicability to the sources operated at

this facility upon promulgation of the final rule and has addressed the applicable RACT III NOx requirements in this Plan Approval application submittal.

This application submittal was timely as per 25 Pa. Code Sections 129.112(a)(1)(i) and 129.115(a)(1)(i). It included and/or indicated the following:

- The applicability
  - a. this facility is a major Nitrogen Oxides (NOx) emitting and a minor Volatile Organic Compounds (VOC) emitting facility, as defined in 25 Pa. Code Section 121.1,
    - Major NOX emitting facility – a facility-wide potential to emit (PTE) greater than 100 tons per year (TPY).
    - Major VOC emitting facility – a facility-wide PTE greater than 50 TPY.
  - b. Therefore, this facility is subject to the NOx provisions of RACT III and not subject to the VOC provisions of RACT III, in accordance with 25 Pa. Code Section 129.111(a).
  - c. the presumptive RACT III NOx limitation applies to each of the following source IDs: 101, 102, 103, 104, 105 and 106 (the six (6) municipal waste combustors). This NOx emission limitation will be met through the installation and operation of an aqueous ammonia Selective Non-Catalytic Reaction (SNCR) control device on each of the six (6) municipal waste combustors (Source IDs 101 through 106).
- The RACT III notification in accordance with 25 Pa. Code § 129.115(a),
- The RACT III petition for alternative compliance schedule in accordance with 25 Pa. Code §129.112(n).

On February 1, 2023, DEP determined that this Plan Approval application is administratively completed, and the notification met the RACT III requirement as per 25 Pa. Code § 129.115(a).

In accordance with 25 Pa. Code § 129.112(n)(2)(iv), the DEP approved of the proposed interim emission limit of 165 ppmvd @ 7% oxygen, based on a daily average.

As a moderate nonattainment area, Pennsylvania is required to attain the 2015 ozone NAAQS as expeditiously as practicable, but no later than 6 years after the initial designation as nonattainment (83 FR 10376). The initial nonattainment designation occurred on August 3, 2018 (83 FR 25776) meaning Pennsylvania is required to attain the 2015 ozone NAAQS no later than August 3, 2024. Attaining the 2015 ozone NAAQS includes the complete implementation of RACT which means all RACT measures, including the installation and operation of all RACT control devices, must occur before August 3, 2024. Therefore, in accordance with 25 Pa. Code § 129.112(p), a final compliance date of August 3, 2024 was set instead of the alternate compliance of timeline of 24 months.

## **Facility Description**

This Covanta facility operates six (6) rotary waterwall combustors (Westinghouse Model RC170) (Source IDs 101 through 106), commenced in 1991. Each of the combustors has a capacity to burn 448 tons/day of municipal waste and to produce 161,000 lbs/hr of steam for power generation. This facility generates approximately 90 net megawatts of electricity per hour for internal use and to be sold on the electrical grid.

Each of the rotary waterwall combustor consists of two operating zones, a waste rotary chamber and a boiler (furnace) section:

Waste rotary chamber: waste is unloaded onto the tipping room floor, where it is pushed onto conveyors to each rotary combustor. The waste rotary chamber is about 18 feet in diameter and 60 feet long, and it is inclined at ~6°. It rotates three times per hour, and waste takes about 40 minutes to pass from one end to the other. Each unit has four (4) units of 12.5 MMBtu/hr auxiliary burners, firing on natural gas.

Boiler (Furnace) section: exhaust from the waste combustion chamber enters the waterwall boiler (furnace) section, where water in waterwall tubes is heated to produce steam for power generation. Flue gas temperature in this section is maintained in a required range to ensure that VOC and HAP organic compounds emissions meets the permitted limits.

### **Control Devices for Rotary Combustor Exhaust**

The exhaust from each of the rotary combustors enters its associated spray dryer absorber (dry scrubber), where lime slurry is sprayed into the exhaust stream for acidic gas (SO<sub>x</sub> and HCl) removal. Next the exhaust enters the associated pulse-jet baghouse for PM removal, which consists of six cells with 188 bags per cell. An induction fan, at downstream of the baghouse, then pulls the exhaust through the stack and discharges it into the atmosphere. The flow diagram of the current exhaust emission control is as shown below:

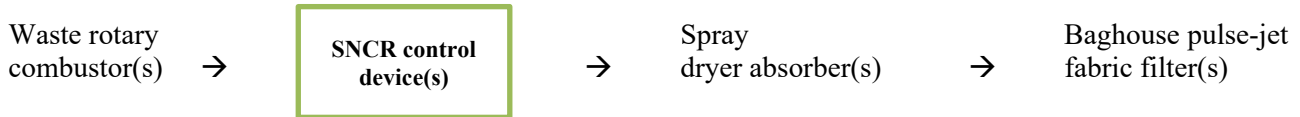
Waste rotary combustor                      →                      Spray dryer absorber                      →                      Baghouse pulse-jet filter fabric

## **Scope of Plan Approval**

The scope of this Plan Approval is to install an aqueous ammonia SNCR control device on each of the waste rotary combustors [a total of six (6) aqueous ammonia SNCR control devices for Source IDs 101 through 106], in order to meet the presumptive RACT III NO<sub>x</sub> emission limitation as defined in 25 Pa. Code § 129.112(f),

*“The owner and operator of a municipal waste combustor subject to § 129.111 shall comply with the presumptive RACT emission limitation of 110 ppmvd NO<sub>x</sub> @ 7% oxygen.”*

The proposed SNCR control devices will be installed at the upper stream of the Spray Dryer Absorbers for each of the combustors (Source IDs 101 through 106), as indicated in the diagram below (see Appendix A – Facility Side View):



The proposed SNCR system injects aqueous ammonia solution and carrier water through six injection nozzles into the first pass of each rotary combustor (see Appendix A – Facility Side View). Aqueous ammonia, the reagent for NO<sub>x</sub> reduction, will be delivered and stored in a new aboveground storage tank, located in a new secondary containment dike. The low concentration of ammonia (less than 20% wt.) does not trigger the additional requirements of the USEPA Accidental Release Prevention regulations.

The proposed SNCR system consists of the following:

- an aqueous ammonia storage tank,
- aqueous ammonia feed pumps (one pump for each combustor, six pumps),
- carrier water supply from the boiler demineralized make-up water system,
- purge air blower system,
- aqueous ammonia injection nozzles, and
- an automatic control system.

This SNCR system is designed based on the field testing results, conducted at the facility in 2022. A design flowrate of maximum 30 gallons per hour of 19% aqueous ammonia/81% water solution will be injected into each combustor. Control will be accomplished through the facility’s distributive control system (DCS) which will control reagent flows using the NO<sub>x</sub> signal from the facility’s Continuous Emission Monitors (CEMS). Compliance demonstration with the NO<sub>x</sub> limit will be monitored using the existing PADEP-certified CEMS.

The field testing indicates that the presumptive RACT III NO<sub>x</sub> emission limitation is achievable using aqueous ammonia as reagent for NO<sub>x</sub> reduction. If urea was used as reagent, it would have similar NO<sub>x</sub> reduction effectiveness<sup>1</sup> as using aqueous ammonia, but urea was not tested at this facility. Therefore, use of urea is not considered because it would require additional field testing to ensure its effectiveness and delay the compliance with the RACT III NO<sub>x</sub> standard by August 3, 2024 (Appendix B). Using SNCR for NO<sub>x</sub> control at other facilities that have rotary combustion chambers have not been tested. Furthermore, it was reported that urea-based reduction generates significantly

<sup>1</sup> Chapter 1, “Selective Noncatalytic Reduction”, U.S. EPA, April 2019, John L. Sorrels

more Nitrous Oxide (N<sub>2</sub>O) than ammonia-based systems; up to 30% of the NO<sub>x</sub> can be transformed into N<sub>2</sub>O<sup>23</sup>, which is an ozone depleter and greenhouse gas.

### **NO<sub>x</sub> Emission Control Technology Analysis**

NO<sub>x</sub> emission control techniques for municipal waste combustors can be grouped into two fundamentally different methods:

- Combustion controls; and
- Post-combustion controls (flue gas treatment)

Typically, expected uncontrolled NO<sub>x</sub> emissions are in a range of 250 to 300 ppmvd at 7% oxygen for municipal waste combustors. Feasibility of each of the NO<sub>x</sub> control options are largely based on their economic standpoint even if they are technologically feasible.

#### **1. Combustion controls**

There are two principal mechanisms of NO<sub>x</sub> formation in municipal waste combustors: thermal NO<sub>x</sub> and fuel NO<sub>x</sub>. Thermal NO<sub>x</sub> account for the majority of the NO<sub>x</sub> formed as natural gas contains virtually no fuel nitrogen. The major factors that influence thermal NO<sub>x</sub> formation are temperature, concentrations of oxygen and nitrogen, and residence time. If the temperature or the concentration of oxygen or nitrogen can be reduced quickly after combustion, thermal NO<sub>x</sub> formation can be suppressed.

#### **Combustion Air Control Technology**

There are several NO<sub>x</sub> control options that can be retrofitted to the Covanta combustors to control flame temperature, such as utilizing low excess air operation, staged combustion, or in combination of these options. Combustion air optimization to reduce NO<sub>x</sub> formation has the potential to reduce NO<sub>x</sub> emission rates by up to 10%. However, this technology alone is infeasible to achieve the RACT III NO<sub>x</sub> emission limit.

#### **Flue Gas Recirculation (FGR)**

Flue gas recirculation into the combustion air has proven to be a successful method of NO<sub>x</sub> control for municipal waste combustors. Typically, about 10% of flue gas is recirculated to the combustion chamber to replace part of the fresh combustion air. It has the double effect of cooling the flame temperature and limiting the O<sub>2</sub> content for nitrogen oxidation; therefore, thermal NO<sub>x</sub> formation is reduced. But, utilizing stand-alone FGR application for Covanta cannot meet the RACT III NO<sub>x</sub> emission limit.

---

<sup>2</sup> Evaluating the SNCR Process for Tangentially-Fired Boilers. Presented at the 1993 Joint Symposium on Stationary Combustion NO<sub>x</sub> Control, Bal Harbor, Florida. May 24–27, 1993. Rini, M.J., J.A. Nicholson, and M.B. Cohen.

<sup>3</sup> Combustion of Coal as a Source of N<sub>2</sub>O Emission. Fuel Processing Technology, Vol 34. 1993. Wojtowicz, M., J. Pels, and J. Moulijn.

## 2. Post-combustion Control (flue gas treatment)

### Selective Noncatalytic Reduction (SNCR)

SNCR is a post combustion emissions control technology for reducing NO<sub>x</sub> by injecting an ammonia reagent (or urea) into a combustor.

The process begins with an ammonia based reagent, ammonia (NH<sub>3</sub>) or urea [CO(NH<sub>2</sub>)<sub>2</sub>], being vaporized either before injection by a vaporizer or after injection by the heat of the combustor. By-product emissions of SNCR are N<sub>2</sub>O and NH<sub>3</sub> slip. The NH<sub>3</sub> (or urea) reagent must be injected into specific high-temperature zones for this method to be effective. If the flue gas temperature at the point of NH<sub>3</sub> injection is above the SNCR operating range, the injected reagent will oxidize to form NO<sub>x</sub>. If the flue gas temperature is below the SNCR operating range, the reagent does not react with NO<sub>x</sub> and is emitted to the atmosphere as NH<sub>3</sub>.

For operating SNCR controls on municipal waste combustors using an estimated throughput of 500 tons per day of municipal waste, adjusted to 2020 dollars<sup>4</sup>, DEP found that the cost-effectiveness to retrofit uncontrolled MWCs with SNCR controls operating with 40% NO<sub>x</sub> emissions reduction efficiency to a limitation of 110 ppmvd @ 7% oxygen is approximately \$2,465 per ton of NO<sub>x</sub> emissions reduced. Therefore, SNCR is an economically feasible option for municipal waste combustors.

### Selective Catalytic Reduction (SCR)

DEP evaluated SCR technology for municipal waste combustors and found that performance of SCR can be detrimentally affected if the catalyst becomes de-activated due to poisoning or masking of catalyst. 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 municipal waste combustion. Catalyst masking can occur when the catalyst surface becomes coated with a foreign material, preventing the flue gas from physically contacting with the catalyst. DEP determined that installing SCR for NO<sub>x</sub> emissions control on municipal waste combustors would likely not be considered RACT because of its technical infeasibility<sup>4</sup> and its cost ineffectiveness.

Summarized in Table 1 below are feasibility and cost effectiveness analysis of NO<sub>x</sub> control options.

---

<sup>4</sup> 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<sub>x</sub> and VOCs for the 2015 ozone NAAQS (RACT III), April 2022.

Table 1 Summary of NOx Control Options for Municipal Waste Combustors

NOx Control Methods	NOx Reduction	Feasibility	Cost Effectiveness <sup>1)</sup>
Combustion air control	10% reduction	infeasible to achieve 110 ppmvd emission limit	-
Flue gas recirculation	-	infeasible to achieve 110 ppmvd emission limit	\$3,470/ton NOx <sup>5</sup>
Selective non-catalytic reduction (SNCR)	40% reduction, < 110 ppmvd	feasible	\$2,465/ton NOx <sup>4</sup>
Selective catalytic reduction (SCR)	~ 45 ppmvd	infeasible	\$15,898/ton NOx <sup>5</sup>

1) Per ton of NOx removed, based on 6% interest rate and in 2020 dollars.

**Regulatory Analysis**

BAT (Best Available Technology) Analysis

For this project, installing NOx emission control devices on the existing municipal waste combustors, BAT is not applicable as Covanta will not construct any new emission sources, pursuant to 25 Pa. Code § 127.1.

NSR (New Source Review) Analysis

NSR is not applicable as there will be no new emission sources constructed, no modification of any existing sources and no emission increase as a result of this project.

RACT III Regulation — *Additional RACT Requirements for Major Sources of NOx and VOCs for the 2015 Ozone NAAQS (25 Pa. Code §§ 129.111 – 129.115)*

Covanta is a major NOx emitting facility and a minor VOC emitting facility as defined in 25 Pa. Code §121.1. Therefore, it is subject to the following NOx provisions of RACT III, and not subject to the VOC provisions of RACT III.

*25 Pa. Code §129.115(a)(1)(i) — Notification Submission Deadline*

Covanta, a major NOx emitting facility prior to August 3, 2018, provided the required notification to DEP on December 20, 2022, prior to the December 31, 2022 deadline, in accordance with the requirements of the RACT III Rule for the facility’s NOx emitting sources.

*25 Pa. Code §129.115(a)(2)(i) — Identification of Air Contamination Sources That Commenced Operation on or Before August 3, 2018*

<sup>5</sup> “Municipal Waste Combustor Workgroup Report”, Prepared by the Ozone Transport Commission Stationary and Area Sources Committee, Revised April 2022.

Covanta evaluated the rule's applicability to the waste rotary combustors operated at the facility and has addressed the RACT III NOx emission limitation for the municipal waste combustors in this application that was submitted to PADEP on December 20, 2022.

*25 Pa. Code § 129.112(f) — Emission limitation*

Covanta shall meet the NOx emission limitation as defined in 25 Pa. Code § 129.112(f),

*“The owner and operator of a municipal waste combustor subject to § 129.111 shall comply with the presumptive RACT emission limitation of 110 ppmvd NOx @ 7% oxygen.”*

Compliance with the presumptive RACT III emission standard assures compliance with the EPA Good Neighbor Plan NOx limitations expressed in Table I.B-7, for solid waste combustors, which was finalized on March 15, 2023 [[Good Neighbor Plan for 2015 Ozone NAAQS | US EPA](#)].

*25 Pa. Code § 129.112 (n) — submit a petition for alternative compliance schedule*

This plan approval application includes the RACT III petition for alternative compliance schedule in accordance with 25 Pa. Code § 129.112(n). The petition indicated that the sources would comply with an interim NOx emission limit of **165 ppmvd @ 7% oxygen, averaged daily**.

*§129.115(b)(3) — Demonstrate compliance with NOx emission limitation*

Covanta shall demonstrate compliance with the RACT III NOx emission limitation by performing the following monitoring and testing procedures:

- (a) using a daily average in accordance with the requirements in Chapter 139, Subchapter C; and
- (b) 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 continuous source monitoring manual.

*§129.115(f) — Recordkeeping*

Covanta shall keep records to demonstrate compliance with all applicable requirements and NOx emission limitation as defined in the RACT III.

*RACT III Compliance Schedule*

As a moderate nonattainment area, Pennsylvania is required to attain the 2015 ozone NAAQS as expeditiously as practicable, but no later than 6 years after the initial designation as nonattainment (83 FR 10376). The initial nonattainment designation occurred on August 3, 2018 (83 FR 25776) meaning Pennsylvania is required to attain the 2015 ozone NAAQS no later than August 3, 2024. Attaining the 2015 ozone NAAQS includes the complete implementation of RACT which means all RACT measures, including the installation and operation of all RACT control devices, must occur before August 3, 2024.



In accordance with 25 Pa. Code § 129.112(n)(2)(iv) and 129.112(p), DEP approves of the proposed interim emission limit of 165 ppmvd @ 7% oxygen, based on a daily average and the alternate compliance date of August 3, 2024.

Applicable Requirements already addressed in Title V Operating Permit

**40 C. F. R. 60 Subpart Cb**—*Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994*

Pursuant to 40 C. F. R. 60 Subpart Cb, the Department developed Section 111(d)/129 State Plan for Large Municipal Waste Combustors (MWCs) that are constructed on or before September 20, 1994 (State Implementation Plan or State Plan). The State Implementation Plan, as protective as the Subpart Cb requirements, was approved by the USEPA as indicated in 40 C. F. R. §62.9640:

*The 111(d)/129 plan for municipal waste combustors (MWC) units with a capacity greater than 250 tons per day (TPD) and the associated Pennsylvania Department of Environmental Protection operating permits that were submitted to EPA on April 27, 1998, and as amended on September 8, 1998, and July 7, 2000, including supplemental information dated August 15, 2000. All affected facilities must achieve full compliance with all 111(d)/129 plan requirements on or before December 19, 2000. [66 FR 43511, Aug. 20, 2001] ”*

The facility opted to comply with the State Implementation Plan emission limitations and requirements; therefore, the combustors are not subject to 40 C. F. R. 60 Subparts Cb.

**40 C. F. R. 60 Subpart Ea**—*Standards of Performance for Municipal Waste Combustors for Which Construction Is Commenced After December 20, 1989 and On or Before September 20, 1994*

The combustors are not subject to this subpart as they operate under the DEP Waste Program Permit No. 400593, as per Section 3005 of Subtitle C, under the Solid Waste Disposal Act.

**40 C. F. R. 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*

The combustors are not subject to 40 C. F. R. 60 Subpart Eb as they were constructed in 1991 and there are no modification and reconstruction after the construction.

**40 C. F. R. 60 Subpart Db** — *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units*

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),

*“Any affected facility that meets the applicability requirements and is subject to an EPA approved State or Federal section 111(d)/129 plan implementing subpart Cb or subpart BBBB of this part is not covered by this subpart.”*

**40 C. F. R. PART 64** — *Compliance Assurance Monitoring (CAM) for Combustors (Source IDs 101 through 106)*

In accordance with 40 C. F. R. § 64.2(b)(1) states that *“Exempt emission limitations or standards. The requirements of this part shall not apply to any of the following emission limitations or standards:*

*(i) Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act,”*

Therefore, the combustors are not subject to the CAM requirements as they are subject to the State Implementation Plan with emission limitations and/or standards as protective as the NSPS Subpart Cb requirements which were promulgated after November 1990.

**US EPA “Good Neighbor Plan” for the 2015 Ozone National Ambient Air Quality Standards**

On March 15, 2023, the U.S. Environmental Protection Agency (EPA) signed a final rule titled Federal “Good Neighbor Plan” for the 2015 Ozone National Ambient Air Quality Standards” (NAAQS). This final rule contains first-time requirements to limit emissions of nitrogen oxides (NO<sub>x</sub>) during ozone season from nine types of non-electric generating units (non-EGUs) in the 20 states, including Pennsylvania. This rule is effective on August 4, 2023, with a compliance deadline of May 1, 2026.

This rule applies to the Covanta waste combustors as each of the combustor capacity is rated greater than 250 tons waste per day. The applicable NO<sub>x</sub> emissions of this rule are 110 ppmvd as 24-hour average and 105 ppmvd as 30-day average. Compliance with the RACT III NO<sub>x</sub> emission standard assures compliance with the NO<sub>x</sub> emission limits of this rule as the RACT III NO<sub>x</sub> standard is as stringent as this rule’s NO<sub>x</sub> emission limits.

### **Public Notification and Public Participation**

The intent to issue notice was published in the Pennsylvania Bulletin on April 15, 2023 (Volume 53, Number 15), and Delaware County Daily Times, Daily & Sunday Times on April 9, 10, 11, and 12, 2023, as required by 25 Pa. Code § 127.44(a). A public hearing was held on May 17, 2023. Day 1 of the 30-day public comment period is the date of publication in the Pennsylvania Bulletin. The public comment period closes on May 27, 2023.

### **Recommendation**

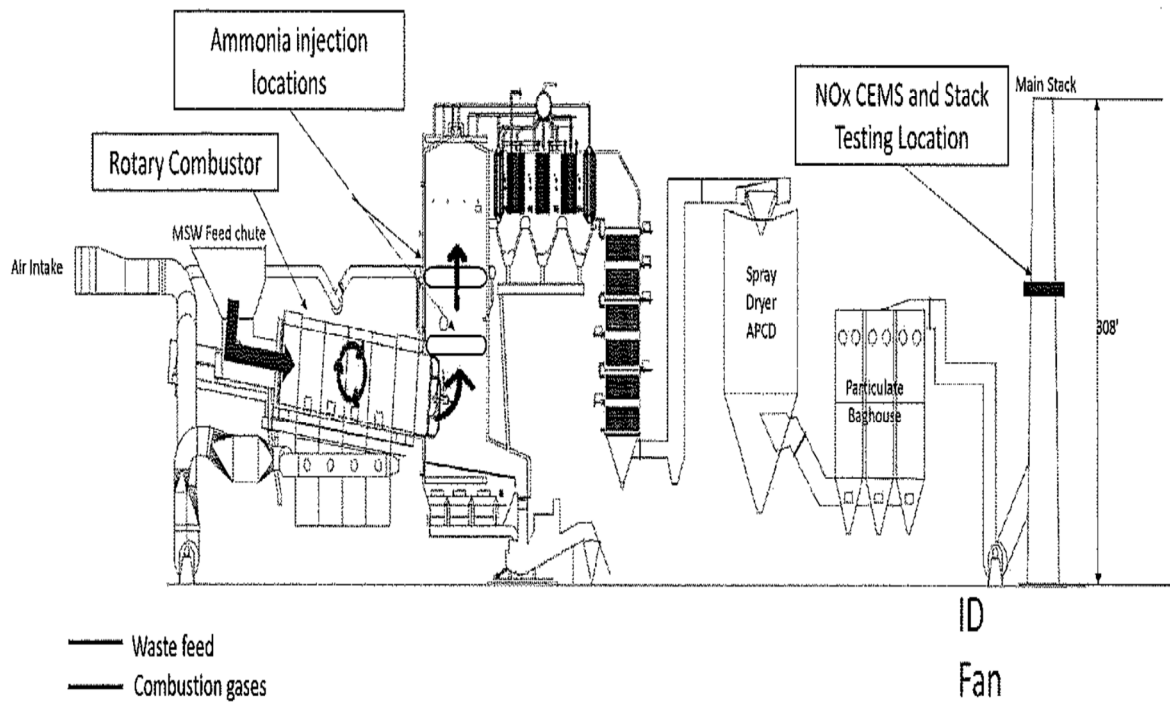
I recommend Plan Approval No. 23-0004B be issued to Covanta Delaware Valley, LP. - Delaware Valley Resource Recovery Facility for the installation of SNCR control devices on each of the combustors to control Nitrogen Oxides (NO<sub>x</sub>) emissions.

## **Appendix A – Facility Process Side View**

# Covanta Delaware Valley Combustor Side View



## • SNCR Injection



## Appendix B – Covanta Responses to DEP Comments

**From:** Bradford, Kimberly <KBradford@covanta.com>  
**Sent:** Friday, March 17, 2023 3:31 PM  
**To:** Tulloch-Reid, Janine <jtullochre@pa.gov>  
**Cc:** Rebarchak, James <jrebarchak@pa.gov>; Beach, James <jamesbeach@pa.gov>; Guo, Jing <jguo@pa.gov>; Go, Geoffrey <ggo@pa.gov>; Drew, George <GDrew@covanta.com>; Jozwik, Alexandra <ajozwik@covanta.com>; Walsh, Joseph <JWalsh@covanta.com>  
**Subject:** [External] RE: RACT III

***ATTENTION:** This email message is from an external sender. Do not open links or attachments from unknown senders. To report suspicious email, use the [Report Phishing button in Outlook](#).*

Good Afternoon Janine:

Our responses to your information request are in *blue [italicized text]* below. If you have any additional questions or concerns, we would definitely agree to have additional conversations with the Department to discuss further.

Sincerely,

**Kimberly J. Bradford**  
PA Environmental Manager



Covanta Plymouth Renewable Energy, LLC.  
1155 Conshohocken Road  
Conshohocken, PA 19428  
Cell: 610-291-3890  
Email: [kbradford@covanta.com](mailto:kbradford@covanta.com)  
Website: [covanta.com](http://covanta.com)

**Our mission is to ensure no waste is ever wasted.**



**From:** Tulloch-Reid, Janine <[jtullochre@pa.gov](mailto:jtullochre@pa.gov)>  
**Sent:** Friday, March 3, 2023 12:24 PM  
**To:** Bradford, Kimberly <[KBradford@covanta.com](mailto:KBradford@covanta.com)>; Walsh, Joseph <[JWalsh@covanta.com](mailto:JWalsh@covanta.com)>  
**Cc:** jrebarchak <[jrebarchak@pa.gov](mailto:jrebarchak@pa.gov)>; Beach, James <[jamesbeach@pa.gov](mailto:jamesbeach@pa.gov)>; Guo, Jing <[jguo@pa.gov](mailto:jguo@pa.gov)>; Go, Geoffrey <[ggo@pa.gov](mailto:ggo@pa.gov)>; Drew, George <[GDrew@covanta.com](mailto:GDrew@covanta.com)>; Jozwik, Alexandra <[ajozwik@covanta.com](mailto:ajozwik@covanta.com)>  
**Subject:** RACT III

Good afternoon everyone:

As per conversation today,

As a moderate nonattainment area, Pennsylvania is required to attain the 2015 ozone NAAQS as expeditiously as practicable, but no later than 6 years after the initial designation as nonattainment (83 FR 10376). The initial nonattainment designation occurred on August 3, 2018 (83 FR 25776) meaning Pennsylvania is required to attain the 2015 ozone NAAQS no later than August 3, 2024. Attaining the 2015 ozone NAAQS includes the complete implementation of RACT which means all RACT measures, including the installation and operation of all RACT control devices, must occur before August 3, 2024.

For EPA to sign the RACT III, the application, the petition, the permit and the memo will be reviewed. EPA has expressed that any compliance date beyond August 3, 2024 will not be approved as that is not in compliance with the Federal standards. Therefore, DEP suggests that the petition be revised with the alternate compliance date of August 3, 2024. Then, approximately 3-6 months prior to August 3, 2024 notify DEP of the status of the construction/compliance.

DEP will not approve the beginning of construction before issuance so our timeline for Plan Approval Review/Issuance will be accelerated - technical review of the plan approval starting on February 27<sup>th</sup>. A draft of the plan approval may be ready in 4-6 weeks and PA bulletin should follow soon on April 15, 22, or 29<sup>th</sup>. So, after comment period, if there's no significant comments, the plan approval should get issued by the end of June.

After cursory review of the application and meeting with the City of Chester, the following information is needed for proper justification:

- Cost analysis of the current proposed control device verses other alternate control devices and the order of feasibility, pursuant to 25 Pa. Code 127.12(a)(2) “contain information that is requested by the Department and is necessary to perform a thorough evaluation of the air contamination aspects of the source.”

*“Pursuant to 25 Pa Code 129.97(f), municipal waste combustors (MWCs) are subject to a daily NOx emission limit of 180 ppmvd @ 7% oxygen. This limit, known as ‘presumptive RACT’, was based on the Department’s detailed cost and technology review completed during the RACT III rule development process. The analysis to support that review is presented in the Department’s Technical Support Document (TSD) for the RACT III rule proposal (“The Department used a top-down approach in determining presumptive NOX and/or VOC RACT emissions limits for various source categories. This included searching and identifying the reasonably available controls, methodology, technique, technology or other means for reducing NOX or VOC emissions, while factoring technical and economic feasibility considerations into the analysis”). The TSD evaluated both Selective Catalytic Reduction (SCR) and Selective Noncatalytic Reduction (SNCR) NOx control technologies for MWCs when setting the RACT III NOx emission limit. The requirements for submittal and evaluation of RACT III notifications are outlined in 25 Pa Code 129 Sections 96 through 100 which Covanta has met with its timely RACT III submittal. As such, additional technical and/or cost analyses are not required by the RACT III rule. ”*

- Comparison between using ammonia verses using urea to reduce NOX

*“For purposes of SNCR control technology applications, both aqueous ammonia and urea are viable reagents for the control of NOx [note that Covanta has not proposed the use of anhydrous ammonia given it’s health and safety risks]. Covanta has selected aqueous ammonia (19% solution) as the preferred reagent to meet the presumptive NOx limit for MWCs based on extensive operational experience. Field testing conducted by Covanta at the Delaware Valley facility involved the use of aqueous ammonia. Use of urea would require repeating that testing program to ensure its effectiveness in achieving the RACT III NOx emission limit on a continuous basis. If successful, modification of the SNCR system design and operational specifications would be needed. Procurement of urea system components after such testing (including a new storage tank, piping and ancillary components) would further extend the project schedule due to persistent supply chain challenges.”*

- Response plan for any spills during delivery/transfer of NH3 to the tank on Covanta’s property.

*“As part of the required minor modification to our PADEP Solid Waste permit for this project, Covanta will be submitting for review a revised Preparedness, Prevention, and Contingency (PPC) Plan that will address spill response. In addition, the facility will develop a Standard Operating Procedure (SOP) for the aqueous ammonia unloading process. ”*



Please respond no later than March 17, 2024.

Sincerely,

**Janine Tulloch-Reid** | Environmental Engineer Manager  
Department of Environmental Protection | Southeast Region Office  
2 East Main Street | Norristown, PA 19401  
Phone: 484.250.5920 | Fax: 484.250.5921  
[www.dep.pa.gov](http://www.dep.pa.gov)