

Appendix A1

Point Source Inventory Development Overview

(District of Columbia & Virginia)

Base Year 2017 Emissions Inventory

**(Washington, DC-MD-VA 2015 Ozone
NAAQS Nonattainment Area)**

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment

MEMORANDUM

TO: Sunil Kumar
Principal Environmental Engineer

FROM: Joseph Jakuta
Environmental Protection Specialist, Monitoring and Assessment Branch, AQD

DATE: November 20, 2019

SUBJECT: Base Year 2017 Ozone Season Day Point Source Inventory for the District of Columbia

The Department of Energy and Environment (DOEE) is transmitting the base year inventory for use in compiling emissions inventories for DC-MD-VA nonattainment area to fulfill requirements under the 2015 Ozone NAAQS.

The file being transmitted contains two work sheets. The first worksheet contains data for each point, unit, stack and process submitted to the United States Environmental Protection Agency as part of the 2017 National Emissions Inventory (NEI) process. The second worksheet is a summary for each of the 32 facilities in the District's point source inventory. Oxides of Nitrogen (NO_x), Volatile Organic Compound (VOC), and Carbon Monoxide (CO) data are provided in tons.

Ozone Season Day (OSD) emissions are calculated by summing emissions from June, July, and August and dividing those emissions by the total number of days in those three months, except for two facilities (George Washington University and United States Government Publishing Office) where monthly emissions were not available so annual emissions were divided by 365.

Emissions data was originally obtained from fuel and emissions factor data provided by each source as part of the Title V program, excepting two facilities (the Bureau of Engraving and Printing and United States Government Publishing Office) where emissions data were provided.

Please contact Mr. Joseph Jakuta at 202-535-2988 for any additional information about this document.

Virginia Point Source Overview

Virginia maintains a detailed database for point source information called the *Comprehensive Environmental Database System (CEDS)*. Activity and emissions data contained in CEDS for each facility originates from a number of sources: emissions tests, annual emissions inventory reports, emission statements, Title V reports, compliance reports, as well as other document. Most of these documents must be certified as true and complete to the best of certifying officials' knowledge. Virginia Department of Environmental Quality (VDEQ) staff thoroughly review data prior to entering the information into the database. Information quality is therefore considered to be high. VDEQ staff upload this information to the federal Emissions Inventory System (EIS) for facilities required under 40 CFR 51 Subpart A "Air Emissions Reporting Rule" (AERR) to be included in the 2017 National Emissions Inventory (NEI).

For this 2017 Base Year Inventory, Virginia included 2017 emissions data for all point sources that report under the AERR for the NEI with the exception of data for airports. The marine, air, and rail (MAR) inventory sector includes comprehensive emissions data for Virginia's airports. Therefore, any information in the 2017 NEI point source inventory for this category is omitted to avoid double counting of emissions.

For most Virginia point sources, annual emissions estimates in tons per year (tpy) are coupled with operating information using generally accepted federal methodologies to estimate ozone season tons per day (OSTD) emissions. However, for those units that report to the Clean Air Markets Division (CAMD) under 40 CFR Part 75 "Continuous Emission Monitoring," Virginia obtained measured daily emissions of NO_x for each such unit located in the Northern Virginia portion of the Metropolitan Washington D.C. marginal nonattainment area. These facilities are Dominion Possum Point Power Station and Panda Stonewall Power Station. For the units with continuous emissions data at these facilities, the emissions for each ozone season (May 1 through September 30) operating day where gross load for the unit during that day is greater than zero are averaged together to determine the NO_x OSTD value. To determine the CO and VOC OSTD emissions for each unit reporting to CAMD under 40 CFR Part 75, Virginia multiplied the ratio of NO_x OSTD to NO_x annual emissions by the annual CO and VOC emissions.

All data used to create the Northern Virginia 2017 Base Year inventory are included in the spreadsheet entitled, "2017 NOVA OSTD EMISSIONS FROM MAJOR FACILITIES 07-18-2017.xlsx."

Covanta Fairfax

Covanta Fairfax Incorporated (Registration Number 71920 and EIS Number 6743611) is a large municipal solid waste combustion and energy recovery facility located in Fairfax County, Virginia. The facility maintains four 750 ton per day waste combustion units that power two generators capable of generating 80 MW each. Air emissions from each combustor are controlled by good combustion practices; selective non-catalytic reduction for NO_x control; a combination of spray dryer and fabric filter baghouse for SO₂, acid gas, particulate, and HAP control; and activated carbon injection for mercury control. These units typically operate nearly

year-round and are one of the largest emitters of NO_x in the Metropolitan Washington, D.C. area. Table 1 provides the annual emissions from this facility for 2015 through 2018.

Table 1: 2015-2018 Annual Emissions from Covanta Fairfax Incorporated

Pollutant	2015	2016	2017	2018
CO	21.11 tpy	59.14 tpy	8.68 tpy	85.75 tpy
NO _x	1,647.88 tpy	1,523.52 tpy	174.22 tpy	1,821.84 tpy
PM _{2.5}	0.13 tpy	1.80 tpy	0.28 tpy	2.81 tpy
SO ₂	121.62 tpy	47.21 tpy	14.77 tpy	185.35 tpy
VOC	6.06 tpy	4.99 tpy	0.55 tpy	6.12 tpy
Pb	0.04 tpy	0.11 tpy	<0.01 tpy	0.02 tpy
NH ₃	not reported	13.63 tpy	0.82 tpy	7.13 tpy

As shown in Table 1, emissions are much lower in 2017 than in other years, particularly for NO_x. These 2017 emissions reflect an atypical operating schedule for 2017, where the facility was not operating for much of the year. This atypical operating schedule resulted from a fire at the facility on February 2, 2017¹, necessitating that part of the operation be shut down and rebuilt². The facility returned Units #1 and #2 to service on December 30, 2017 and returned Units #3 and Units #4 to service on January 2, 2018. The facility combusted no waste during the 2017 ozone season, and therefore emissions from the facility during the 2017 ozone season are zero.

Typical emissions from this facility are more accurately represented by the average of the 2016 and 2018 emissions data rather than the 2017 actual emissions data. Table 2 shows the average of 2016 and 2018 emissions for this facility.

Table 2: 2017 Typical Emissions from Covanta Fairfax Incorporated

Pollutant	2016	2018	2016-2018 Average 2017 Typical Emissions
CO	59.14 tpy	85.75 tpy	72.44 tpy
NO _x	1,523.52 tpy	1,821.84 tpy	1,672.68 tpy
PM _{2.5}	1.80 tpy	2.81 tpy	2.31 tpy
SO ₂	47.21 tpy	185.35 tpy	116.28 tpy
VOC	4.99 tpy	6.12 tpy	5.56 tpy
Pb	0.11 tpy	0.02 tpy	0.07 tpy
NH ₃	13.63 tpy	7.13 tpy	10.38 tpy

Typical ozone season NO_x and VOC emissions are represented by the average of reported ozone season emissions from 2016 and 2018. Table 3 shows these values as well as the average of these data.

¹ <https://www.nbcwashington.com/news/local/Firefighters-Respond-Blaze-Trash-Disposal-Center--412635913.html>

² <https://www.wastedive.com/news/after-the-fire-revamping-one-of-covantas-biggest-facilities-after-it-went/521241/>

Table 3: 2017 Typical Ozone Season Emissions from Covanta Fairfax Incorporated

Pollutant	2016	2018	2016-2018 Average 2017 Typical Emissions
NO _x	4.77 tons/day	5.54 tons/day	5.16 tons/day
VOC	0.02 tons/day	0.02 tons/day	0.02 tons/day

This facility does not report ozone season CO emissions. However, ozone season tons/day values may be derived from federal guidance based on reported operating schedules. Table 4 shows these values for 2016 and 2018, so that the average of these data may be used as a 2017 typical CO ozone season inventory.

Table 4: 2017 Calculated Typical Ozone Season CO Emissions from Covanta Fairfax, Incorporated

2016 CO emissions	2018 CO emissions	2016-2018 Average 2017 Typical Emissions
0.19 tons/day	0.29 tons/day	0.24 tons/day

The facility is subject to RACT for the 2008 and 2015 ozone NAAQS. For the 2008 ozone NAAQS, DEQ issued the facility a permit dated February 8, 2019, that requires the installation of LNTM technology to reduce NO_x emissions by approximately 50%. The February 8, 2019, permit requires the installation, startup, and optimization of the additional NO_x control on the following schedule:

- First combustor, by end of 4th quarter, 2019.
- Second combustor, by end of 2nd quarter 2020.
- Third combustor, by end of 2nd quarter 2021, and
- Fourth combustor, by end of 2nd quarter 2022.

When controls are installed and optimized on the four combustors, these additional controls should result in approximately 2.5 tons/day of NO_x emission reductions from typical 2017 ozone NO_x emissions, as calculated in Table 3.

Maryland Point Source Inventory Development Overview

Please refer to Chapter 2 (Point Sources) of the Appendix B1b titled “Point, Quasi-Point, Nonpoint and Marine/Air/Rail Inventory Development Overview (Maryland)” for details of the point source emissions inventory development methodology.

Maryland’s point source emissions inventory is provided in Appendix B2b.