Pennsylvania
Department of
Environmental Protection

MEMO

FROM Brian Wetzel BW
Air Quality Permitting

TO William R. Weaver WRW 3/19/26
Regional Manager, Air Quality

THRU Vincent Pascucci, M.E., P.E. VP
Environmental Engineering Manager, Air Quality Permitting

DATE March 19, 2026

RE Plan Approval No. 22-05062A
Constellation Energy Generation, LLC / Crane Clean Energy Center
Londonderry Township, Dauphin County

Introduction/Facility Description

A Plan Approval (PA) Application was received on 10/30/25 for Constellation Energy Generation (Constellation) in Londonderry Township, Dauphin County. Constellation is proposing the reactivation of certain IC engines, oil-fired boilers and cooling towers that are auxiliary to the nuclear power generating facility, previously operated as Exelon Generation Company LLC/Three Mile Island Nuclear Station (Exelon).

Project Description

The facility (Exelon) was shutdown in 2019 due to economic reasons. As part of the reactivation of the facility, the following existing auxiliary equipment will be brought online:

Source ID	Source Description	Rating	Installed
FSP1	Fire Pump Fuel Oil	295 hP	1974
FSP3	Fire Pump Diesel	295 hP	1974
FX1A	Cummins Emergency Diesel Generator 1	755 hP	2015
FX1B	Cummins Emergency Diesel Generator 2	755 hP	2015
Y1A	Emergency Diesel Generator 1A	4,320 hP	1974
Y1B	Emergency Diesel Generator 1B	4,320 hP	1974
Y2	Security Unit Power Generator	214 hP	1974
Y4	Station Blackout Fuel Oil Generator	4,169 hP	1974
B1A	Auxiliary Fuel Oil-fired Boiler A	156.65 mmBtu/hr	1970
B1B	Auxiliary Fuel Oil-fired Boiler B	156.65 mmBtu/hr	1970
C1A	Cooling Tower A	215,000 gal/min	
C1B	Cooling Tower B	215,000 gal/min	

The auxiliary boilers are manufactured by Babcock & Wilcox and are rated at 156.65 mmBtu/hr, each. The boilers are solely fired on No. 2 fuel oil. Cooling Tower A is a counter-current flow cooling tower. As part of this project, Cooling Tower B will be modified to match the process dimensions and flowrates of Cooling Tower A. Cooling Tower B was previously operated as a cross-current flow cooling tower.

To maintain synthetic minor source status, the applicant has proposed the following limits:

1) Each engine will be limited to operating 250 hours per year, including both emergency & non-emergency use.

2) Each boiler will be limited to 1,500 hr/yr during the initial 12 months for plant startup and commissioning activities and then 100 hr/yr, thereafter.

In addition to the sources above, the facility will also operate the following insignificant equipment/tanks, not subject to plan approval requirements, to support facility operations:

Source ID	Source Description
EG-P-1A, EG-P-1B, EG-P-11B	Three small diesel powered air compressors for starting large station emergency generators (3 kW (4 hP) Onan DJB engines, installed 1974)
N/A	Turbine Plant: vents and condenser off-gas
LO-T-1	Turbine oil vapor extractor, and 15,000 gal turbine lubricating oil storage tank
N/A	Storage tanks for water, and various water/waste water treatment chemical storage tanks of capacity range from less than 1,000 to 25,000 gallons.
N/A	Portable Circulating Water Flume Screen Washing Pump.
N/A	Portable and temporary equipment used to support plant operations and maintenance (e.g., welding machine, light stanchions, pumps, power generators).
N/A	Other operations and support equipment (e.g., closed-loop low VOC parts washer, fire suppression CO2 and halon systems, facility air conditioning, industrial gas use, on-site fire training).
FX-P-3A, FX-P-3B	Portable 150 HP Emergency Diesel Fire Pumps
C1, C2	Industrial Mechanical Draft Cooling Towers (2 units).
FX-P-4	Three Portable Diesel Engine Driven 5-HP Trash Pumps (3 units).
FX-Y-3	Portable 350 kW Diesel Emergency Generator
FX-Y-7	Portable Yanmar 5.5 kW Diesel Powered Emergency Generator (Y7; 3 units).
EG-Y-8	Portable South Office Emergency Generator
N/A	60 kW Propane Fired Emergency Generator (mfg/install date: 2024)

Tank ID	#2 fuel oil storage tanks
FO-T-2	200,000 gal fuel tank for Auxiliary Boilers (B1A/B) and Emergency Diesel Generators (Y1A/B).
FO-T-1	50,000 gal fuel tank for Auxiliary Boilers (B1A/B) and Emergency Diesel Generators (Y1A/B).
DF-T-1	35,000 gal UST for Emergency Diesel Generator fuel (Y1A/B).
DF-T-4	100 gal day tank for diesel engine
DF-T-4	275 gal day tank for diesel engine
DF-T-8	25,000 gal fuel tank for Station Blackout Diesel Generator (Y4).
FO-T-3&4	350 gal fuel tank for Circulating Water Fire Pump (FSP1).
DF-T-2 A/B	550 gal fuel day tanks for Emergency Diesel Generators (Y1A/B).
DF-T-13	500 gal fuel day tank for diesel engine.
FX-T-2	5,000 gal diesel storage tank
FX-T-3	120 gal diesel storage tank
FX-T-4	200 gal diesel storage tank on FLEX truck

Potential emissions from the equipment are estimated to be:

Pollutant	Project PTE [1] (tpy)	Project PTE [2] (tpy)
CO	19.89	12.05
NOx	82.40	44.33
$PM/PM_{10}/PM_{2.5}$ (total)	19.84	16.77
SOx	0.59	0.29
VOC	1.86	1.59
Single HAP (benzene)	0.01	0.01
Multiple HAPs	0.03	0.03

1. **PTE emissions are based on the boilers operating 1,500 hr/each for the first 12 months.**
2. **PTE emissions are based on the boilers operating 100 hr/yr, each, thereafter.**

Potential emissions are based on the following:

1) Boilers:
    a. CO, NOx, SOx, PM, VOC & HAP emission factors from US EPA AP-42, Section 1.3 Fuel Oil Combustion.
    b. A fuel sulfur content of 15 ppm (0.0015% by weight)
    c. Operating up to 1,500 hours for the first year to support operations necessary to restart the facility and then operating each boiler 100 hours per year, thereafter.
2) Engines > 600 hP:
    a. CO, NOx, SOx, PM, VOC & HAP emission factors from US EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines.
    b. For engines FX1A & FX1B, Tier 2 emission limits for NOx, CO, PM, & VOC.
    c. A fuel sulfur content of 15 ppm (0.0015% by weight)
    d. Operating each engine for 250 hours per year, including both emergency & non-emergency use.
3) Engines < 600 hP:
    a. CO, NOx, SOx, PM, VOC & HAP emission factors from US EPA AP-42, Section 3.3 Gasoline and Diesel Industrial Engines.
    b. A fuel sulfur content of 15 ppm (0.0015% by weight)
    c. Operating each engine for 250 hours per year, including both emergency & non-emergency use.
4) Cooling Towers:
    a. $PM/PM_{10}/PM_{2.5}$ emissions based on the New Mexico Environmental Department's Technical Memorandum for cooling towers, a flow rate of 215,000 gpm for each tower, a vendor guaranteed drift rate of 0.001%, and a Total Dissolved Solids (TDS) content of 1,600 mg/L (the highest measured value from past TDS sampling at the facility from 2013 through 2019).

Applicable Requirements

The facility is not located in an air basin. The facility is not a major stationary source for Prevention of Significant Deterioration (PSD) & Nonattainment New Source Review (NNSR). The project is not subject to PSD or NNSR since the emissions increase due to the project is not major in itself.

The emergency engines are subject to 25 Pa Code §§123.13 & 123.21 for particulate matter and sulfur dioxide from processes. Source IDs FSP1, FSP3, Y1A, Y1B, Y2 & Y4 are subject to 40 CFR 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Source IDs FX1A & FX1B are subject to 40 CFR 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and 40 CFR 63, Subpart ZZZZ. However, compliance with Subpart IIII fulfills the requirements of Subpart ZZZZ. The engines are subject to the Tier 2 standards under Subpart IIII and diesel fuel is subject to a maximum sulfur content limit of 15 ppm. The engines are not subject to the smoke standards 40 CFR 1039.105 as referenced by 40 CFR 60.4202(a)(2) since they are constant-speed engines (see §1039.105(a)(2)).

The boilers (IDs B1A & B1B) are subject to 25 Pa Code §§123.11 & 123.22 for particulate matter and sulfur dioxide from combustion units. Furthermore, the boilers are subject to 40 CFR 63, Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. The boilers are not subject to 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units since they were installed prior to 6/9/89.

The facility's multiple diesel storage tanks are not subject to 25 Pa. Code §§ 129.56 & 129.57 because diesel has a vapor pressure less than 1.5 psia. Nor are the tanks subject to 40 CFR 60, Subparts K, Ka, Kb, or Kc since the tanks are less than the respective applicable capacities and/or vapor pressure thresholds.

Although exempt from plan approval requirements, the three 3 kW (4 hP) diesel fired air compressors and 60 kW propane-fired emergency generator are subject to 40 CFR 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines & 40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, respectively. The engines and applicable federal requirements will be incorporated into the facility's operating permit as sources at a later date. Furthermore, the closed-loop low VOC parts washer is not subject to 25 Pa Code §§129.63 or 129.63a as the unit does not use a VOC containing solvent. The facility uses Cuda 1993 The Original.

Best Available Technology (BAT)

Constellation ceased facility operations in 2019; however, the facility did not submit to DEP a maintenance plan in accordance with 25 Pa Code §127.11a(a)(1) within 1 year of the deactivation of the sources. Therefore, the facility's equipment will be treated as new sources and subject to best available technology (BAT) review (25 Pa Code §127.12(a)(5)). Constellation's Top-Down Best Available Technology (BAT) Analyses are discussed below.

Source IDs C1A & C1B, Cooling Tower A & B

Particulate Matter (PM)

Constellation is proposing the use of drift eliminators with a drift rate of 0.001% as BAT for controlling particulate matter. A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for cooling towers identified the use of drift eliminators with a drift rate limit of 0.002% to minimize PM. DEP concurs that the use of drift eliminators with a drift rate limit of 0.001% is BAT for PM.

Source IDs B1A & B1B, Auxiliary Boilers A & B

Nitrogen Oxides (NOx)

The facility supplied a Top-Down Best Available Technology (BAT) Analysis to determine the effectiveness of add-on controls or other techniques to reduce NOx emissions from the boilers. Those control techniques include:

1) Selective catalytic reduction (SCR)
2) Selective non-catalytic reduction (SNCR)
3) Low-NOx burners
4) Good combustion practices (GCP)

The use of SNCR was determined to be technically infeasible since the exhaust temperature of the boilers is too low (650°F). The normal operating temperature range for SNCR is 1,600 to 2,100 °F (EPA-452/F-03-031, Air Pollution Control Technology Fact Sheet, SNCR). The other control technologies have been determined to be technically feasible and were evaluated further; however per the applicant, the use of SCR and low-NOx burners were determined to not be cost effective (over $229,000/ton NOx & $370,000/ton NOx, respectively). However, DEP notes that the applicant did not account for the allowance to operate the boilers for up to 1,500 hours for the first year of operation. Doing so results in a cost of about $90,000/ton NOx for SCR and $155,000/ton NOx for the low-NOx burner which is still not cost effective.

A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for No.2 fuel fired boilers between 100 and 250 mmBtu/hr did not identify any add-on control devices for controlling NOx emissions.

As such, Constellation has proposed the use of good combustion practices as BAT. DEP concurs that the use of good combustion practices satisfies BAT for NOx.

Sulfur Oxides (SOx), Carbon Monoxide (CO), Particulate Matter (PM), Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAPs)

Constellation has proposed the use of low sulfur fuels and good combustion practices to minimize SOx, CO, PM, VOC & HAPs emissions from the boilers. A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for No.2 fuel fired boilers between 100 and 250 mmBtu/hr did not identify any add-on control devices for controlling SOx, CO, PM, VOC & HAPs. DEP concurs that the use of low sulfur fuels and good combustion practices satisfies BAT for SOx, CO, PM, VOC & HAPs. In accordance with 25 Pa Code §123.22, fuel oil will be limited to a sulfur content of 15 ppm (0.0015% by weight).

Source IDs FX1A & FX1B, Cummins Emergency Diesel Generators 1 & 2

Nitrogen Oxides (NOx)

The facility supplied a Top-Down Best Available Technology (BAT) Analysis to determine the effectiveness of add-on controls or other techniques to reduce NOx emissions from the highest rated and emitting engines. Those control techniques include:

1) Selective catalytic reduction (SCR)
2) Retarding Injection Timing
3) Retarding Ignition Timing
4) Good combustion practices (GCP)

Although a feasible option for compression engines, retarding the injection timing of the fuel to lower the formation of thermal NOx in this case is not feasible as it will impact the performance of the older engines. Retarding the ignition timing is specific to spark ignition engines and is not technically feasible for compression engines. Although technically feasible, the use of SCR was determined to be not cost effective at over $14,000/ton NOx removed.

A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for large (>500 hP) combustion emergency engines did not identify any add-on control devices for diesel fired emergency engines. The RBLC did indicate the use of good combustion practices for minimizing NOx emissions.

As such, Constellation has proposed the use of good combustion practices as BAT. DEP concurs that the use of good combustion practices satisfies BAT for NOx. Although Constellation did not supply individual cost analyses for the other smaller emergency engines (214, 380, 755 & 4,150 hP), DEP concluded that the engines would have higher NOx cost effectivenesses due to the fact that the amount of controlled NOx emissions were lower than those used for the two engines analyzed, and the fact that EPA's cost equation for SCR results in lower NOx cost effectiveness as engine size increases.

Carbon Monoxide (CO)

The facility supplied a Top-Down Best Available Technology (BAT) Analysis to determine the effectiveness of add-on controls or other techniques to reduce CO emissions from the highest rated and emitting engines. Those control techniques include:

1) Oxidation catalyst
2) Good combustion practices (GCP)

Although technically feasible, retrofitting the engine with an oxidation catalyst was determined to be not cost effective at over $10,000/ton CO removed.

A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for large (>500 hP) combustion emergency engines did not identify any add-on control devices for diesel fired emergency engines. The RBLC did indicate the use of good combustion practices for minimizing CO emissions.

Consequently, Constellation has proposed the use of good combustion practices as BAT. DEP concurs that the use of good combustion practices satisfies BAT for CO. Although Constellation did not supply individual cost analyses for the other smaller emergency engines (214, 380, 755 & 4,150 hP), DEP concluded that the engines would have higher CO cost effectivenesses due to the fact that the amount of controlled CO emissions were lower than those used for the two engines analyzed, and the fact that the cost equation used by the applicant results in lower CO cost effectiveness as engine size increases.

Sulfur Oxides (SOx), Particulate Matter (PM) & Volatile Organic Compounds (VOC)

Constellation has proposed the use of low sulfur fuels & good combustion practices to minimize SOx, PM & VOC emissions from the engines. A review of the U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database for large (>500 hP) and small (<500 hP) combustion emergency engines did not identify any add-on control devices for controlling SOx, PM & VOC. The RBLC did indicate the use of ultra-low sulfur diesel (ULSD) and good combustion practices for minimizing emissions. DEP concurs that the use of ULSD and good combustion practices satisfies BAT for SOx, PM & VOC. Diesel used in the engines will be limited to a sulfur content of 15 ppm (0.0015% by weight).

Notifications

Londonderry Township and Dauphin County received municipal notification on 11/11/25 & 11/12/25, respectively. The plan approval fee payment of $10,000 was received on 11/19/25. The application was deemed “administratively complete” on 11/20/25. A compliance review form was included with the application. No confidential information is asserted in the application.

A technical deficiency email was sent on 1/7/26. Cory Hoffman, Sr Environmental Specialist at Constellation, submitted responses via a 2/5/26 email. Due to remaining/new questions resulting from Constellation’s 2/5/26 response, a phone call with Cory Hoffman occurred on 2/25/26 to discuss the items. A follow-up email was sent to Mr. Hoffman on 3/6/26 summarizing the conversation. Kieran Dempsey of Trinity Consultants provided responses to the items raised during the call via a 3/12/26 email. Mr. Dempsey subsequently provided an updated cost analysis for the diesel oxidation catalyst via a 3/17/26 email.

This Plan Approval Application is not subject to the DEP’s Land Use Policy since the project will occur on an existing permitted area. Although the project is located within an Environmental Justice Area, the project is not subject to the enhanced public participation process since it is not a trigger project i.e. project is not a new major source of HAPs or is subject to PSD or NNSR.

I recommend Plan Approval No. 22-05062A be distributed for comment.

Cc: OnBase