



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

**BUREAU OF AIR MANAGEMENT
NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE**

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

Owner/Operator	PSEG Power Connecticut LLC
Address	Bridgeport Harbor Station 1 Atlantic Street, Bridgeport, CT 06604-5513
Equipment Location	Bridgeport Harbor Station 1 Atlantic Street, Bridgeport, CT 06604-5513
Equipment Description	Combustion Engineering Co. Steam Generator No. 3 with an In-Line Heater and Dense Pack Turbine
Town-Permit Numbers	015-0089
Premises Number	045
Stack Number	03
Prior Permit Issue Dates	May 10, 1985 (Original) February 7, 2007 (Minor Modification) September 11, 2014 (Minor Modification)
Minor Modification Issue Date	February 28, 2018
Expiration Date	None

/s/Anne Gobin for
Robert J. Klee
Commissioner

February 28, 2018
Date

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

Steam Generator Unit No. 3 is a tangentially fired low sulfur coal-fired boiler equipped with an in-line heater (No. 2 fuel oil fired) that removes excess moisture from coal prior to combustion. No. 2 fuel oil is also used for unit startups and flame stabilization.

The generator is equipped with: a low nitrogen oxides (NO_x) concentric firing system for NO_x control, Research Cottrell electrostatic precipitator (ESP) for particulate matter (PM) control, a dry sorbent injection system that adds hydrated lime to the exhaust gases prior to a fabric filter baghouse to control acid gas emissions (e.g. hydrogen chloride (HCl)) and an activated carbon injection system with fabric filter baghouse for mercury (Hg) control.

The generator is subject to:

Section 22a-174-199 of the Connecticut General Statutes (CGS)-Mercury Emission Standards {State Enforceable Only}

40 Code of Federal Regulations (CFR) Part 63 Subpart UUUUU-National Emission Standards for Hazardous Air Pollutants (HAP): Coal and Oil-Fired Electric Utility Steam Generating Units

B. Equipment Design Specifications

1. Fuel Types: Sub-Bituminous and Bituminous Coal (primary) and No. 2 Fuel Oil (supplemental)
2. Maximum Fuel Firing Rates: 230 tons/hr coal @ 400MW net electrical output, daily average and 27,517 gal/hr for No. 2 Fuel Oil
3. Maximum Gross Heat Input (MMBtu/hr): 4,100

C. Control Equipment Design Specifications

1. Electrostatic Precipitator (ESP)
 - a. Number of Fields: 16; five in the direction of flow
 - b. Minimum Gas Flow Rate at Maximum Rated Capacity (acfm): 1,175,000
 - c. Design Removal Efficiency (%): 98
2. Fabric Filter
 - a. Make and Model: Custom
 - b. Air/Cloth Ratio: 4:1
 - c. Bag Material: Polyphenylene Sulfide or Equivalent Material
 - d. Cleaning Method: Pulse Jet
 - e. Pressure Drop (in H₂O): 6
 - f. Minimum Gas Flow Rate at Maximum Rated Capacity (scfm): 845,000 @ 68°F
 - g. Design Outlet Grain Loading (gr/dscf): 0.015

- h. Design Removal Efficiency, Coal Firing for Mercury, in Conjunction with Carbon Injection (%): 90
 - 3. Activated Carbon Injection System
 - a. Make and Model: Custom
 - b. Design Removal Efficiency, Coal Firing for Mercury, in Conjunction with Fabric Filter (%): 90
 - 4. Dry Sorbent Injection System
 - a. Make and Model: Custom
 - b. Design Removal Efficiency, Coal Firing for HCl, in Conjunction with Fabric Filter (%): 82

D. Stack Parameters

- 1. Minimum Stack Height (ft): 498
- 2. Minimum Exhaust Gas Flow Rate Operating at Maximum Rated Capacity (acfm): 1,175,000
- 3. Minimum Stack Exit Temperature Operating at Maximum Load (°F): 260
- 4. Minimum Distance from Stack to Property Line (ft): 467

PART II. OPERATIONAL CONDITIONS

A. Fuel Type

- 1. Sub-Bituminous and Bituminous Coal
 - a. Maximum Fuel Consumption over any Consecutive 12 Month Period (tons): 2,014,800
 - b. Maximum Fuel Sulfur Content; percent by weight, dry basis (%): 1.0
 - c. Maximum Fuel Firing Rate: 230 tons/hr coal @ 400 MW net electrical output, daily average
- 2. No. 2 Fuel Oil
 - a. Maximum Fuel Consumption over any Consecutive 12 Month Period (gal): 241,048,920
 - b. Maximum Fuel Sulfur Content; percent by weight, dry basis (%): 0.3
 - c. Maximum Fuel Firing Rate (gal/hr): 27,517

B. Control Equipment

- 1. ESP Minimum Efficiency for Operations without the Fabric Filter (%): 98
- 2. Fabric Filter and Activated Carbon Injection System (Applicable to Coal Firing Only)
- 3. Fabric Filter and Dry Sorbent Injection System (Applicable to Coal Firing Only)
- 4. Low NO_x Concentric Firing System

PART III. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time as determined in accordance with the applicable averaging periods defined in the permit or as specified in an approved stack test protocol, except during periods of startup, shutdown and/or malfunction. Averaging times for NO_x shall include startup, shutdown and malfunction.

A. Criteria Pollutants

1. Sub-Bituminous and Bituminous Coal

Pollutant	40 CFR §63.9991(a)(1), 40 CFR Part 63 Subpart UUUUU, Table 2, Item No. 1.a	lb/MMBtu	Note
TSP	0.03 lb/MMBtu or 0.3 lb/MWh (gross)	0.06	
SO _x		1.1	
Prior to 6/1/18			
*NO _x		0.38	Maximum 24-hr Daily Average [RCSA §22a-174-22(e)]
*NO _x		0.15	Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22(e)(3)] See Part III.A.5 of this permit
Phase 1: 6/1/18 - 5/31/23			
*NO _x		0.28	Maximum 24-hr Daily Average [RCSA §22a-174-22e(d)(2)(A)]
*NO _x		0.15	Ozone Season: May 1 st - September 30 th Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22e(d)(2)(B)]
Phase 2: On and After 6/1/23			
*NO _x		0.12	Maximum 24-hr Daily Average [RCSA §22a-174-22e(d)(2)(C)]
*NO _x		0.15	Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22e(d)(2)(D)]

2. No. 2 Fuel Oil

Pollutant	lb/MMBtu	Note
TSP	0.02	
SO _x		See Part III.A.4 of this permit
Prior to 6/1/18		
*NO _x	0.20	Maximum 24-hr Daily Average [RCSA §22a-174-22(e)]
*NO _x	0.15	Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22(e)(3)]

Phase 1: 6/1/18 - 5/31/23		
*NO _x	0.20	Maximum 24-hr Daily Average [RCSA §22a-174-22e(d)(2)(A)]
*NO _x	0.10	Ozone Season: May 1 st – September 30 th [RCSA §22a-174-22e(d)(2)(B)]
*NO _x	0.15	Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22e(d)(2)(B)]
Phase 2: On and After 6/1/23		
*NO _x	0.10	Maximum 24-hr Daily Average [RCSA §22a-174-22e(d)(2)(C)]
*NO _x	0.15	Non Ozone Season: October 1 st – April 30 th [RCSA §22a-174-22e(d)(2)(D)]

**When firing dual fuels (i.e. start-ups, flame stabilization and in-line heater), the Permittee shall not cause or allow emissions of NO_x from such emission unit in excess of the following: [RCSA §22a-174-22(f)(2)(A) & (B) (prior to 6/1/18) and RCSA §22a-174-22e(d)(10)(A) & (B)(on and after 6/1/18)]*

- A. For fuel burning equipment that simultaneously fires two or more fuels, an emission limitation calculated by:
 - i. Multiplying the heat input of each fuel combusted by the emission s limitation in RCSA §22a-174-22(f)(2)(prior to 6/1/18) and RCSA §22a-174-22e(d)(10) (on or after 6/1/18) for the particular emission unit and fuel used,
 - ii. Summing those products, and
 - iii. Dividing the sum by the total heat input; or
 - B. For fuel burning equipment that is capable of interchangeably firing two or more fuels, the emissions limitation in RCSA §22a-174-22(f)(2)(prior to 6/1/18) and RCSA §22a-174-22e(d)(10)(on and after 6/1/18) for the particular equipment and fuel used.
3. Demonstration of compliance with the above emissions limits shall be met by calculating the emissions rates using emissions factors from the following sources:
 - a. Sub-Bituminous and Bituminous Coal
 - i. TSP: Stack test results or latest version of AP-42
 - ii. SO_x: CEMS Data
 - iii. NO_x: CEMS Data
 - b. No. 2 Fuel Oil
 - i. TSP: AP-42, Fifth Edition, Volume 1, Table 1.3-1, May, 2010
 - ii. SO_x: CEMS Data
 - iii. NO_x: CEMS Data
 4. The Permittee shall: [RCSA §22a-174-19a(e)]
 - a. Combust liquid fuel that possesses a fuel sulfur limit equal to or less than 0.3% sulfur, by weight, dry basis);
 - b. Meet an average emission rate of equal to or less than 0.33 lb SO₂/MMBtu for each calendar quarter; or
 - c. Meet an average emissions rate of equal to or less than 0.3 lb SO₂/MMBtu calculated for each calendar quarter, if the Permittee averages the emissions from two or more emissions units at the premises.

5. Prior to 6/1/18, in order to comply with the applicable NO_x limits in this Part, the Permittee shall: [RCSA §22a-174-22(d)(2)]
 - a. Comply with the emission limitation in RCSA §22a-174-22(e)); or
 - b. Use NO_x DERCs, pursuant to RCSA §22a-174-22(j), to achieve all or a portion of the NO_x emission reductions required by the emission limitation in RCSA §22a-174-22(e)(3).
6. On or after 6/1/18, in order to comply with the applicable NO_x limits in this Part, the Permittee shall be comply with RCSA §22a-174-22e.

B. Non-Criteria Pollutants (Applicable to Coal Firing Only)

1. Mercury Emissions Limits

Pollutant	40 CFR §63.9991(a)(1), 40 CFR Part 63 Subpart UUUUU, Table 2, Item No. 1.c	lb/hr	lb/Calendar Year
Mercury (Hg)	1.2 lb/TBtu or 0.013 lb/GWh (gross)	0.0025	21.76*

* The Hg emissions limit is based on 8,760 hours per year of firing coal and a maximum heat input of 4,100 MMBtu/hr. Such limit shall include emissions during periods of startup, shutdown and malfunction.

2. The Permittee shall: [CGS §22a-174-199(b)(1) {State Enforceable Only}]
 - a. Meet an emissions rate of equal to or less than 0.6 pounds of Hg per TBtu, or
 - b. Meet a Hg emissions rate equal to a 90% reduction of Hg from the measured inlet conditions for the unit, whichever emissions rate is more readily achievable by the unit.
3. Hydrogen Chloride Limits

Pollutant	40 CFR §63.9991(a)(1), 40 CFR Part 63 Subpart UUUUU, Table 2, Item No. 1.b
Hydrogen Chloride (HCl)	0.002 lb/MMBtu or 0.02 lb/MWh (gross)

C. Hazardous Air Pollutants

This equipment shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA §22a-174-29. {State Only Requirement}

D. Opacity

1. The Permittee shall not exceed the following visible emission limits: [RCSA §§22a-174-18(b)(2)(A) & (B)]
 - a. 20% opacity during any six minute block average; or
 - b. 40% opacity during any one minute block average.

- E. The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring

- 1. Continuous Emissions Monitoring (CEM)
 - a. The Permittee shall comply with the CEM requirements as set forth in RCSA §22a-174-4. CEM shall be required for the following pollutant/operational parameters and enforced on the following basis:

Pollutant/Operational Parameter	Averaging Times	Emission Limit
Opacity	6 minute block	20%
Opacity	1 minute block	40%
SO _x	Calendar Quarter	See Part III.A of this permit
NO _x	24 hour daily (i.e. Midnight to Midnight)	See Part III.A of this permit
Mercury	See Part IV.A.1.h of this permit	See Part I.V.A.1.h of this permit

- b. Prior to 6/1/18, the averaging time for the emission limitation with the use of the CEMs for NO_x shall be: [RCSA §§22a-174-22(k)(4)(A) & (B)]
 - i. for the period from October 1 to April 30, inclusive, including all periods of operation, including startup, shutdown, and malfunction; and
 - ii. for other periods, 24 hours, measured from midnight at the beginning of any day to midnight of the end of that day and shall include all periods of operation, including startup, shutdown, and malfunction.
 - c. On and after 6/1/18, the Permittee shall calculate an emission unit’s non-ozone season emission rate as the sum of the emission unit’s NO_x emissions during the period from October 1 through April 30, inclusive, divided by the sum of the emission unit’s heat input during the period of October 1 through April 30, inclusive. [RCSA §22a-174-22e(d)(19)]
 - d. On and after 6/1/18, the Permittee shall calculate an emission unit’s ozone season emission rate as the sum of the emission unit’s NO_x emissions during the period from May 1 through September 30, inclusive, divided by the sum of the emission unit’s heat input during the period from May 1 through September 30 inclusive. [RCSA §22a-174-22e(d)(20)]
 - e. On and after 6/1/18, the Permittee shall collect quality assured CEM data for all emission unit operating conditions. Data collection shall include periods of startup or shutdown, monitoring system malfunctions, out-of-control periods, while conducting maintenance or repairs, and periods of required monitoring system quality assurance or quality control activities, such as calibration checks and required zero and span adjustments. [RCSA §22a-174-22e(m)(2)]
 - f. On and after 6/1/18, emissions data used to determine compliance with the applicable emissions limitations of RCSA §22a-174-22e(d) shall not include data collected during the following periods: [RCSA §22a-174-22e(m)(3)]
 - i. When the monitoring system is out-of-control as specified in the facility-specific monitoring plan;
 - ii. While conducting required monitoring system quality assurance or quality control activities, including calibration checks and required zero and span adjustments;
 - iii. While conducting maintenance or repairs of the monitoring system to prevent or correct a malfunction; or
 - iv. When the emission unit is not operating.

- g. On and after 6/1/18, compliance with the seasonal limits of RCSA §22a-174-22e(d) shall be determined using emissions and operating data for the entire five-month period for an ozone season emissions limitation or for the entire seven-month period for a non-ozone season emissions limitation, except for the 2018 or 2023 ozone season, compliance shall be determined based on data collected June 1 through September 30. [RCSA §22a-174-22e(m)(5)]
 - h. If the commissioner determines that CEM for mercury in flue gases are commercially available and can perform in accordance with National Institute of Technology Standards, or other methodology approved by the EPA, the Permittee shall properly install and operate such CEM and shall not be required to conduct stack testing. [CGS §22a-199(b)(3)(C) {State Enforceable Only}]
 - i. The Permittee shall use data recorded by the CEMs and any other records and reports to determine compliance with opacity, SO_x, NO_x emissions, and if applicable, mercury.
2. The Permittee shall calculate and record the monthly and consecutive 12 month Hg emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
 3. The Permittee shall monitor monthly and annual fuel consumption.
 4. The Permittee shall monitor the maximum daily average heat input rate by recording the net electrical output.
 5. The Permittee shall perform inspections of the control devices as recommended by the manufacturer.
 6. The Permittee shall operate the coal and ash handling, storage and processing in accordance with the dust control plan on site.

B. Record Keeping

1. The Permittee shall make and keep records of monthly and annual fuel consumption. The Permittee shall make these calculations within 30 days of the end of the previous month or year, respectively.
2. The Permittee shall make and keep records of the fuel certification for each delivery of No. 2 fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by this equipment that includes the applicable sulfur content of the fuel as a condition of each shipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier, type of fuel delivered, the percentage of sulfur in such fuel, by weight, dry basis, and the method used to determine the sulfur content of such fuel.
3. The Permittee shall make and keep records of annual TSP emissions. The annual TSP emissions shall be calculated using emissions factors obtained from stack testing or from the latest version of AP-42 and the fuel usage for the calendar year. The Permittee shall make these calculations within 60 days of the end of the previous calendar year.

4. The Permittee shall make and keep records of monthly and annual operating hours. The Permittee shall make these records within 30 days of the end of the previous month or year, respectively.
5. The Permittee shall make and keep records of the daily average net electrical output.
6. Prior to 6/1/18, the Permittee shall make and keep the following:
 - a. Monthly and annual records (e.g. fuel use, CEM and operating hours) to determine whether the NO_x emission from such premises in any calendar year are in excess of 25 tons for premises located in a severe nonattainment area for ozone.
[RCSA §22a-174-22(l)(1)(C)]
 - b. Records of all tune-ups, repairs, replacement of parts and other maintenance.
[RCSA §22a-174-22(l)(1)(D)]
 - c. Copies of all documents submitted to the commissioner pursuant to RCSA §22a-174-22.
[RCSA §22a-174-22(l)(1)(E)]
 - d. All charts, electronically stored data, and printed records produced by NO_x CEM.
[RCSA §22a-174-22(l)(1)(F)]
 - e. Procedures for calculating NO_x emission rates. [RCSA §22a-174-22(l)(1)(G)]
 - f. Records of all performance evaluations, calibration checks and adjustments on NO_x CEM, a record of maintenance procedures, and all data necessary to complete quarterly reports required under RCSA §22a-174-22(l)(4). [RCSA §22a-174-22(l)(1)(I)]
7. On and after 5/1/18, the Permittee shall make and keep the following records:
 - a. The date and work performed for repairs, replacement of parts and other maintenance;
[RCSA §22a-174-22e(i)(2)(B)]
 - b. For an emission unit that has or is required to have a CEM system for NO_x:
[RCSA §22a-174-22e(i)(2)(D)]
 - i. Records of all performance evaluations, calibration checks and adjustments on such monitor,
 - ii. A record of maintenance performed,
 - iii. All data necessary to complete the quarterly reports required under RCSA §22a-174-22e(k)(3), and
 - iv. Charts, electronically stored data, and printed records produced by such CEM as needed to demonstrate compliance with the requirements of RCSA §22a-174-22e.
 - c. For each tune-up, conducted pursuant to RCSA §22a-174-22e(i):
[RCSA §22a-174-22e(i)(2)(E)]
 - i. The date on which the emission unit is tuned-up; the name title and affiliation of the person performing the tune-up, and a description of work performed, and
 - ii. The procedures used to inspect and perform adjustments;
 - d. Copies of all documents submitted to the commissioner pursuant to RCSA §22a-174-22e; and [RCSA §22a-174-22e(i)(2)(F)]
 - e. Any other records or reports required by an order or permit issued by the commissioner pursuant to RCSA §22a-174-22e. [RCSA §22a-174-22e(i)(2)(G)]
8. The Permittee shall maintain on-site and submit, if requested by the Administrator, an annual report containing the following information: [40 CFR §§63.10021 (e)(8)(i)-(iii)]
 - a. The concentrations of CO and NO_x in the effluent stream in ppm by volume, and oxygen in volume percent, measured before and after an adjustment of the unit's combustions systems;
 - b. A description of any corrective actions taken as a part of the combustion adjustment; and

- c. The type(s) and amount(s) of fuel used over the 12 calendar months prior to an adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period.
9. The Permittee shall keep the following records:
 - a. A copy of each notification and report submitted to comply with 40 CFR Part 63 Subpart UUUUU, including all documentation supporting any Initial Notification or notification of Compliance Status or semiannual compliance report submitted, according to the requirements in 40 CFR §63.10(b)(2)(xiv). [40 CFR §63.10032(a)(1)]
 - b. Records of performance stack tests, fuel analyses, or other compliance demonstrations and performance evaluations, as required in 40 CFR §63.10(b)(2)(viii). [40 CFR §63.10032(a)(2)]
 - c. Records required in 40 CFR Part 63 Subpart UUUUU, Table 7 including records of all monitoring data to show continuous compliance with each applicable emission limit and operating limit. [40 CFR §63.10032(c)]
 - d. Records of monthly fuel use by each unit, including the type(s) of fuel and amount(s) used. [40 CFR §63.10032(d)(1)]
 - e. For a unit that qualifies as an LEE (Low Emitting EGU (Electric Utility Steam Generating Units) under 40 CFR §63.10005(h), keep annual records that document that emissions in the previous stack test(s) continue to qualify for the unit for LEE status for an applicable pollutant, and document that there was no change in source operations including fuel composition and operation or air pollution control equipment that would cause emissions of the pollutant to increase within the past year. [40 CFR §63.10032(d)(3)]
 - f. Records of the occurrence and duration of each startup or shutdown. [40 CFR §63.10032(f)(1)]
 - g. Records of the occurrence and duration of each malfunction of an operation (i.e., process equipment) or the air pollution control and monitoring equipment. [40 CFR §63.10032(g)]
 - h. Records of actions taken during periods of malfunction to minimize emission in accordance with 40 CFR §63.10000(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. [40 CFR §63.10032(h)]
 - i. Records of the type(s) and amount(s) of fuel used during each startup and shutdown. [40 CFR §63.10032(i)]
10. The Permittee's records shall be in a form suitable and readily available for expeditious review, according to 40 CFR §63.10(b)(1). [40 CFR §63.10033(a)]
11. The Permittee shall keep each record on site for at least two years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR §63.10(b)(1). The Permittee can keep the records off site for the remaining three years. [40 CFR §63.10033(c)]
12. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request. [RCSA §22a-174-22e(i)(1) and 40 CFR §63.10033(b)]

C. Reporting

1. Prior to 6/1/18, the Permittee shall submit to the commissioner written quarterly reports of excess emissions and NO_x CEM malfunctions. Such reports shall be submitted to the commissioner on or before January 30, April 30, July 30, and October 30 and shall include data for the three calendar month period ending the month before the due date of the report. For each period of excess emissions, such report shall include the date and time of commencement and completion of such period, the magnitude and suspected cause of the excess emission and all actions taken to correct the excess emissions. For each malfunction of the CEM system, such report shall include the date and time of when the malfunction commenced and ended, and all actions taken to correct the malfunction. [RCSA §22a-174-22(l)(4)]
2. On and after 6/1/18, the Permittee shall submit to the commissioner, on forms provided by the commissioner, written quarterly reports of excess emissions and CEM system malfunctions. Such reports shall be submitted to the commissioner on or before January 30, April 30, July 30 and October 30 of each year and shall include: [RCSA §§22a-174-22e(k)(3)(A)-(G)]
 - a. All daily block average data, in a format acceptable to the commissioner, for the three calendar month period ending the month before the due date of the report;
 - b. The date and time of commencement and completion of each period of excess emissions;
 - c. The magnitude and suspected cause of the excess emissions;
 - d. Actions taken to correct the excess emission;
 - e. The date and time when each malfunction of the CEM system commenced and ended;
 - f. Actions taken to correct each malfunction; and
 - g. If not excess emissions or CEM system malfunctions occur during a quarter, the Permittee shall indicate that no excess emissions or malfunctions occurred during the quarter.
3. On and after 6/1/18, the Permittee shall notify the commissioner in writing at least 30 days prior to conducting any performance or quality assurance testing of any CEM for NO_x. Any such testing shall be conducted in accordance with a testing protocol approved by the commissioner. Any CEM for NO_x shall be installed, calibrated and operated in accordance with the performance and quality assurance specifications contained in RCSA §22a-174-4 and 40 CFR Part 60 Subpart A, Appendix B and Appendix F, or, for affected units 40 CFR Part 75. [RCSA §22a-174-22e(m)(4)]
4. For coal firing, if the Permittee uses a Hg CEM:
 - a. When reporting compliance with the Hg emissions rate in this permit, as applicable, the Permittee shall use an average of the Hg CEM data recorded during the most recent calendar quarter. [CGS §22a-199(b)(3)(C) {State Enforceable Only}]
 - b. For each calendar quarter, report to the commissioner the results of any stack test or average of the Hg CEM data, as applicable, used to demonstrate compliance with the provisions of CGS §22a-199(b). Such reports shall be submitted on such forms as may be prescribed by the commissioner. [CGS §22a-199(b)(4) {State Enforceable Only}]
5. The Permittee shall report the dates of the initial and subsequent tune-ups in hard copy, as specified in 40 CFR §63.10031(f)(5), through June 30, 2018. On or after July 1, 2018, report the date of all tune-ups electronically, in accordance with 40 CFR §63.10031(f). The tune-up report date is the date when tune-up requirements in 40 CFR §63.10021(e)(6) and (7) are completed. [40 CFR §63.10021(e)(9)]

6. The Permittee shall submit a Notification of Intent to conduct a performance test at least 30 days before the performance test is scheduled to begin. [40 CFR §63.10030(d)]
7. The Permittee shall submit to the commissioner and the Administrator each subsequent compliance report which shall cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each subsequent compliance report shall be postmarked or submitted electronically no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period. [40 CFR §§63.10031(b)(3) and (4)]
8. The Permittee may submit the subsequent compliance reports according to the dates the permitting authority has established instead of according to the dates in 40 CFR §§63.10031(b)(1) through (4). [40 CFR §63.10031(b)(5)]
9. The compliance report shall contain the following information:
 - a. The information required by the summary report located in 40 CFR §63.10(e)(3)(vi). [40 CFR §63.10031(c)(1)]
 - b. The total fuel use by each affected source subject to an emission limit, for each calendar month within the semiannual reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination from EPA or the Permittee's basis for concluding that the fuel is not a waste, and the total fuel usage amount with units of measure. [40 CFR §63.10031(c)(2)]
 - c. Include the date of the most recent tune-up for each unit. The date of the tune-up is the date the tune-up provisions specified in 40 CFR §§63.10021(e)(6) and (7) were completed. [40 CFR §63.10031(c)(4)]
 - d. The Permittee shall report emergency bypass information annually from units with LEE status. [40 CFR §63.10031(c)(6)]
 - e. A summary of the results of the annual performance tests and documentation of any operating limits that were reestablished during the test, if applicable. If conducting stack tests once every three years to maintain LEE status, consistent with 40 CFR §63.10006(b), the date of each stack test conducted during the previous three years, a comparison of emission level achieved in each stack test conducted during the previous three years to the 50 percent emission limit threshold required in 40 CFR §63.10005(h)(1)(i), and a statement as to whether there have been any operational changes since the last stack test that could increase emissions. [40 CFR §63.10031(c)(7)]
 - f. A certification. [40 CFR §63.10031(c)(8)]
 - g. If the Permittee has a deviation from any emission limit, work practice standard, or operating limit, the Permittee shall also submit a brief description of the deviation, the cause of the deviation. [40 CFR §63.10031(c)(9)]
10. The Permittee shall report all deviations as defined in 40 CFR Part 63 Subpart UUUUU in the semiannual monitoring report required by 40 CFR §70.6(a)(3)(iii)(A) or 40 CFR §71.6(a)(3)(iii)(A). [40 CFR §63.10031(e)]
11. Within 60 days after the date of conducting each performance test, the Permittee shall submit the performance test reports required by 40 CFR Part 63 Subpart UUUUU to EPA's WebFIRE database by using the Compliance and Emission Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data shall be submitted in the file format generated through use of EPA's Electronic Reporting Tool (ERT)(see <http://www.epa.gov/ttn/chief/ert/index.html>). The Permittee shall also submit

these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority in the format specified by the delegated authority.[40 CFR §63.10031(f)]

PART V. STACK EMISSION TEST REQUIREMENTS

Stack emission testing shall be performed in accordance with the [Emission Test Guidelines](#) available on the DEEP website.

Stack testing shall be required for the following pollutant(s):

PM PM₁₀ PM_{2.5} SO₂ NO_x CO
 VOC Opacity Other (HAPs): Hg and HCl

A. Particulate Matter (PM) (For coal firing)

1. Recurrent stack testing for PM shall be:
 - a. For a qualifying LEE for PM emissions limits, performance test emissions results less than 50% of the applicable emission limit in 40 CFR Part 63 Subpart UUUUU, Table 2 for all required testing for three consecutive years.
[40 CFR §63.10005(h)(1)(i)]
 - b. The Permittee shall repeat the performance test once every three years for PM according to 40 CFR Part 63 Subpart UUUUU, Table 5 and 40 CFR §63.10007. Should subsequent emissions testing results show the unit does not meet the LEE eligibility requirements, LEE status is lost. If this should occur: [40 CFR §63.10006(b)(1)]
 - i. The Permittee shall conduct emission testing quarterly, except as otherwise provided in 40 CFR §63.10021(d)(1).
2. The Permittee may skip performance testing in those quarters during which less than 168 unit operating hours occur, except that a stack test shall be conducted at least once every calendar year. [40 CFR §63.10021(d)(1)]

B. Hydrogen Chloride (HCl) (For coal firing)

1. Recurrent stack testing for HCl shall be:
 - a. For a qualifying LEE for HCl emissions limits, performance test emissions results less than 50% of the applicable emission limit in 40 CFR Part 63 Subpart UUUUU, Table 2 for all required testing for three consecutive years.
[40 CFR §63.10005(h)(1)(i)]
 - b. The Permittee shall repeat the performance test once every three years for HCl according to 40 CFR Part 63 Subpart UUUUU, Table 5 and 40 CFR §63.10007. Should subsequent emissions testing results show the unit does not meet the LEE eligibility requirements, LEE status is lost. If this should occur: [40 CFR §63.10006(b)(1)]
 - i. The Permittee shall conduct emission testing quarterly, except as otherwise provided in 40 CFR §63.10021(d)(1).
2. Any stack test used to demonstrate compliance with the HCl limit shall be conducted in accordance with the EPA's Method 26 or 26A of 40 CFR Part 60 Appendix A-8 or Method 320 of 40 CFR Part 63, Appendix A.
[40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 2, Item No. 1.b]

3. The Permittee may skip performance testing in those quarters during which less than 168 unit operating hours occur, except that a stack test shall be conducted at least once every calendar year. [40 CFR §63.10021(d)(1)]

C. Mercury (Hg) (For coal firing)

1. Recurrent stack testing for Hg shall be:
 - a. Notwithstanding Part V.C.1.b through Part V.C.1.d, below, the Permittee shall conduct recurrent Hg testing as required in CGS §22a-199. If the Permittee achieves and maintains compliance with the Hg emissions rate requirement established in CGS §22a-199(b)(1) for a period of eight consecutive calendar quarters, the Permittee may reduce the frequency of such stack testing from once-per-calendar-quarter basis to a once-per-year basis. If such annual stack testing demonstrates a failure to comply with the mercury emissions rate in this permit, such stack testing shall resume on a once-per-calendar-quarter basis.
[CGS §22a-199(b)(3)(B) {State Enforceable Only}]
 - b. For a qualifying LEE for Hg emissions limits, the Permittee shall conduct a 30 day performance test using Method 30B in 40 CFR Part 63 Appendix A-8 at least once every 12 calendar months to demonstrate continued LEE status. [40 CFR §63.10000(c)(1)(ii), 40 CFR §63.10005(h)(3) and 40 CFR Part 63 Subpart UUUUU, Table 2, Item No. 1.c]
 - c. For a qualifying LEE for Hg, either average emissions less than 10 percent of the applicable Hg emissions limit in 40 CFR Part 63 Subpart UUUUU, Table 2 (expressed either in units of lb/TBtu or lb/GWh); or potential Hg mass emissions of 29.0 or fewer pounds per year and compliance with the applicable Hg emission limit in 40 CFR Part 63 Subpart UUUUU, Table 2 (expressed either in units of lb/TBtu or lb/GWh).
[40 CFR §§63.10005(h)(1)(ii)(A) & (B)]
 - d. The Permittee shall repeat the performance test once every year for Hg according to 40 CFR Part 63 Subpart UUUUU, Table 5 and 40 CFR §63.10007. Should subsequent emissions testing results show the unit does not meet the LEE eligibility requirements, LEE status is lost. If this should occur: [40 CFR §63.10006(b)(2)]
 - i. The Permittee shall install, certify, maintain, and operate a Hg CEMS or a sorbent trap monitoring system in accordance with 40 CFR Part 63 Subpart UUUUU, Appendix A, within six calendar months of losing LEE eligibility. Until the Hg CEMS or sorbent trap monitoring system is installed, certified and operating, the Permittee shall conduct Hg emissions testing quarterly, except as otherwise provided in 40 CFR §63.10021(d)(1). The Permittee shall have three calendar years of testing and CEMS or sorbent trap monitoring system data that satisfy the LEE emissions criteria to reestablish LEE status.

- D.** Stack test results shall be reported as follows: PM and HCl in units of lb/MMBtu (or lb/MWh gross), Hg in units of lb/hr and lb/TBtu (or lb/GWh gross)

PART VI. OPERATION AND MAINTENANCE REQUIREMENTS

- A.** The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- B.** The Permittee shall properly operate the control equipment at all times that this equipment is in operation and emitting air pollutants.
- C.** The Permittee shall implement a dust control plan concerning the handling, storage and processing of coal sufficient to cause compliance with RCSA §22a-174-18, Fugitive Dust, to be achieved at all

times. Such plan may include, but is not limited to, such dust control measures and techniques as the use of:

1. Enclosures;
2. Vacuum enclosure collection systems and filters;
3. Specialized loading procedures and transport techniques;
4. Spray devices and surface applications; or
5. Any other methods necessary to assure compliance.

- D.** On and after 6/1/18, the Permittee may conduct tune-ups according to the schedule and procedures of the applicable requirements of 40 CFR Part 60 or 40 CFR Part 63. If the period between tune-ups in the applicable requirements of 40 CFR Part 60 or 40 CFR Part 63 is greater than 60 months, a tune-up shall be conducted at least once every 60 months.
[RCSA §22a-174-22e(i)(2)]
- E.** The Permittee shall conduct a tune-up of the unit's burner and combustion controls at least each 36 months, or each 48 calendar months if neural network combustion optimization software is employed, as specified in 40 CFR §63.10021(e). If the unit is offline when a deadline to perform the tune-up passes, the Permittee shall perform the tune-up work practice requirements within 30 days after the restart of the affected unit. [40 CFR §63.9991(a)(1), 40 CFR §63.10000(e), 40 CFR §63.10021(e) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 1]
- F.** The Permittee shall conduct periodic performance tune-ups of their unit as follows:
[40 CFR §§63.10021(e)(1-7)]
1. As applicable, inspect the burner and combustion controls, and clean or replace any components of the burner or combustion controls as necessary upon initiation of the work practice program and at least once every required inspection period. Repair of a burner or combustion control component requiring special ordered parts may be scheduled as follows:
 - a. Burner or combustion control components parts needing replacement that affect the ability to optimize NO_x and CO shall be installed within three calendar months after the burner inspection,
 - b. Burner or combustion control components parts that do not affect the ability to optimize NO_x and CO may be installed on a schedule determined by the operator.
 2. As applicable, inspect the flame pattern and make any adjustments to the burner or combustion controls necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available, or in accordance with best combustion engineering practice for that burner type;
 3. As applicable, observe the damper operations as a function of mill and/or cyclone loadings, cyclone and other pulverizer coal feeder loadings, or other pulverizer and coal mill performance parameters, making adjustments and effecting repair to dampers, controls, mills, pulverizers, cyclones, and sensors;
 4. As applicable, evaluate windbox pressures and air proportions, making adjustments and effecting repair to dampers, acutators, controls, and sensors;

5. Inspect the system controlling the air-to fuel ratio and ensure that it is correctly calibrated and functioning properly. Such inspection may include calibrating excess O₂ probes and/or sensors, adjusting overfire air systems, charging software parameters, and calibrating associated actuators and dampers to ensure that the systems are operated as designed. Any component out of calibration, in or near failure, or in a state that is likely to negate combustion optimization efforts prior to the next tune-up, should be corrected or repaired as necessary;
 6. Optimize combustion to minimize generation of CO and NO_x. This optimization should be consistent with the manufacturer's specifications, if available, or best combustion engineering practice for the applicable burner type. NO_x optimization includes burner, overfire air controls, concentric firing system improvements, neural network or combustion efficiency software, control systems calibrations, adjusting combustion zone temperature profiles, and add-on controls such as SCR and SNCR; CO optimization includes burners, overfire air controls, concentric firing system improvements, neural network or neural network or combustion efficiency software, control systems calibrations, and adjusting combustion zone temperature profiles; and
 7. While operating at full load or the predominantly operated load, measure the concentration in the effluent stream of CO and NO_x in ppm, by volume, and oxygen in volume percent, before and after the tune-up adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). The Permittee may use portable CO, NO_x and O₂ monitors for this measurement. Units employing neural network optimization systems need only provide a single pre- and post tune-up value rather than continual values before and after each optimization adjustment made by the system.
- G.** The Permittee shall meet the following work practice requirements during periods of startup: [40 CFR §63.10000(a) and 40 CFR §63.10021(h)]
1. For startup of the unit, the Permittee shall use clean fuels as defined in 40 CFR §63.10042 for ignition. [40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 3.a(1)]
 2. Once the Permittee starts firing coal, the Permittee shall engage all of the applicable control technologies. [40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 3.a(1)]
 3. The Permittee shall comply with all applicable emissions limits at all times except for periods that meet the applicable definitions of startup and shutdown in 40 CFR Part 63 Subpart UUUUU. [40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 3.a(1)]
 4. The Permittee shall collect monitoring data during startup periods, as specified in 40 §§63.10020(a) and (e). The Permittee shall keep records during startup periods, as provided in 40 CFR §63.10032 and 40 CFR §63.10021(h). The Permittee shall provide reports concerning activities and startup periods, as specified in 40 CFR §63.10011(g), 40 CFR §63.10021(i) and 40 CFR §63.10031. [40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 3.d]

- H.** The Permittee shall meet the following work practice requirements during periods of shutdown:
[40 CFR §63.10000(a)]
1. The Permittee shall operate all CMS during shutdown. The Permittee shall also collect appropriate data, and shall calculate the pollutant emission rate for each hour of shutdown for those pollutants for which a CMS is used.
[40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 4]
 2. While firing coal, the Permittee shall vent emissions to the main stack(s) and operate all applicable control devices and continue to operate those control devices after the cessation of coal being fed into the unit and for as long as possible thereafter considering operational and safety concerns. In any case, the Permittee shall operate their controls when necessary to comply with other standards made applicable to the unit by a permit limit or a rule other than 40 CFR Part 63 Subpart UUUUU that require operation of the control devices.
[40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 4]
 3. If, in addition to the fuel used prior to initiation of shutdown, another fuel must be used to support the shutdown process, that additional fuel must be one or a combination of the clean fuels defined in 40 CFR §63.10042 and shall be used to the maximum extent possible, taking into account considerations such as not compromising boiler or control device integrity.
[40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 4]
 4. The Permittee shall comply with all the applicable emission limits at all times except during startup and shutdown periods at which time the Permittee shall meet this work practice. The Permittee shall collect monitoring data during shutdown periods, as specified in 40 CFR §63.10020(a). The Permittee shall keep records during shutdown periods, as provided in 40 CFR §63.10032 and 40 CFR §63.10021(h). Any fraction of an hour in which shutdown occurs constitutes a full hour or shutdown. The Permittee shall provide reports concerning activities and shutdown periods, as specified in 40 CFR §63.10011(g), 40 CFR §63.10021(i), and 40 CFR §63.10031.
[40 CFR §63.9991(a)(1) and 40 CFR Part 63 Subpart UUUUU, Table 3, Item No. 4]
 5. The Permittee shall determine the fuel whose combustion produces the least uncontrolled emissions, i.e., the cleanest fuel, either natural gas or distillate oil, that is available on site or accessible nearby for use during periods of startup or shutdown. The cleanest fuel, either natural gas or distillate oil, for use during periods of startup or shutdown determination may take safety considerations into account. [40 CFR §§63.10011(f)(1) & (2)]

PART VII. SPECIAL REQUIREMENTS

- A.** The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63 Subparts UUUUU and A

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

- B.** The Permittee shall comply with RCSA §§22a-174-22 and -22e in accordance with the submitted and approved compliance plan and any applicable Trading Agreements and Order.

- C. The commissioner shall have the right to make on-site, unscheduled inspection visits for the purpose of taking coal samples, examining and copying records, reports and other data, and determining whether the Permittee is operating Unit No. 3 in compliance with all applicable environmental requirements.
- D. The Permittee shall not cause or permit the emission of any substance or combination of substances which creates or contributes to an odor beyond the property boundary of the premises that constitutes a nuisance as set forth in RCSA §22a-174-23. [STATE ONLY REQUIREMENT]
- E. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA §§22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]

PART VIII. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- B. Any representative of DEEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.

- G.** Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H.** The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I.** Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.