

STATEMENT OF BASIS for BERGEN GENERATING STATION

TITLE V OPERATING PERMIT RENEWAL

Program Interest (PI): 02488 / Permit Activity Number: BOP190002

I. FACILITY INFORMATION

Bergen Generating Station is an electric power generating station located at 10 Victoria Terrace, Ridgefield, New Jersey 07657, Bergen County. Bergen Generating Station is owned by Parkway Generation Operating LLC and operated by Consolidated Asset Management Services (CAMS) LLC.

The Facility is classified as a major facility based on its potential to emit (PTE) of 386 tons per year (tons/yr) of Carbon Monoxide (CO), 1,231 tons/yr of Nitrogen Oxides (NO_x), 143 tons/yr of Volatile Organic Compounds (VOC), 32 tons/yr of Sulfur Dioxide (SO₂), 191 tons/yr of Total Suspended Particulates (TSP), 254 tons/yr of Particulate Matter Less Than 10 microns (PM₁₀), 254 tons/yr of Particulate Matter Less Than 2.5 microns (PM_{2.5}), 215 tons/yr of Ammonia and 3,359,188 tons per year of Greenhouse Gases as carbon dioxide equivalent (CO_{2e}) to the atmosphere.

It is also classified as a major hazardous air pollutant (HAP) facility. A major HAP emitting facility is designated as major when the allowed emissions exceed 10 tons per year of any individual hazardous air pollutant or 25 tons per year of any combination of individual hazardous air pollutants that may be emitted simultaneously.

This draft permit allows any individual HAP to be emitted at a rate to not exceed: 2,260 lb/yr of Acetaldehyde, 362 pounds per year (lb/yr) of Acrolein; 42 lb/yr of Arsenic; 85.2 lb/yr of 1,3-Butadiene; 892 lb/yr of Benzene; 1.2 lb/yr of Beryllium; 18.2 lb/yr of Cadmium; 0.0026 lb/yr of 7,12-Dimethylbenz(a)anthracene; 1,820 lb/yr of Ethylbenzene; 41,400 lb/yr of Formaldehyde; 83.4 lb/yr of Lead; 840 lb/yr of Manganese; 28.8 lb/yr of Mercury; 278 lb/yr of Polycyclic Aromatic Hydrocarbons (PAH); 278 lb/yr of Polycyclic Organic Matter (POM); 1,642 lb/yr of Propylene Oxide; 0.0142 lb/yr of Total Dioxin and Furans; 7,360 lb/yr of Toluene; 2,900 lb/yr of Hexane; 6.88 lb/yr of 1-Methylnaphthalene, and 11 lb/yr of 2-Methylnaphthalene.

VOC emissions are being corrected to include formaldehyde emissions previously not accounted for. This emission increase is meant to capture emissions already present and no new actual emissions are being generated. As a result, the Department is not revisiting the applicability of State of The Art (N.J.A.C. 7:27-22.35) and Federal New Source Review (40 CFR 52.21-PSD and N.J.A.C. 7:27-18).

II. AREA ATTAINMENT CLASSIFICATION

The Federal Clean Air Act (CAA) sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are particulate matter, ground-level ozone, carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead. The US Environmental Protection Agency (USEPA) also classifies areas as "attainment" or "nonattainment" for each criteria pollutant, based on the magnitude of an area's problem. Nonattainment classifications are used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. Currently, the entire State of New Jersey is designated as nonattainment for the 8-hour ozone NAAQS. New Jersey is designated attainment for all other pollutants. For nonattainment classification refer to <https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information>.

III. BACKGROUND AND HISTORY

The equipment that emits air contaminants from this facility include:

- Four identical Siemens V84.2 natural gas and ultra-low sulfur distillate oil (ULSD) fired combined-cycle combustion turbines (CCCT). Each CCCT has a maximum heat input of 1,514.8 million British thermal units per hour (MMBTU/hr) based on a Higher Heating Value (HHV) equipped with water injection and dry low NO_x for NO_x control.
- Two identical GE 7FA natural gas and ULSD fired CCCTs with maximum heat inputs of 2,450 MMBTU/hr (HHV) Each CCCT has selective catalytic reduction system (SCR) for NO_x emissions control and oxidation catalyst for CO and VOC emissions control.
- One natural gas direct-fired Pump Floor Heater with a maximum heat input of 1 MMBTU/hr (HHV).

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- Two natural gas direct-fired Turbine Bay Heaters, each with maximum heat inputs of 3 MMBTU/hr (HHV).
- Three mechanical draft cooling towers, and
- Three (3) natural gas indirect-fired Fuel Gas Heaters. Two (2) of the heaters have maximum heat inputs of 6.7 MMBtu/hr (HHV), and one heater has a maximum heat input of 5.3 MMBTU/hr (HHV).

Table 1 - Operating Permit Revision History (located at the end of this document) provides a summary of all the changes that have been incorporated into the operating permit through seven-day notice changes, administrative amendments, minor modifications, or significant modifications since the approval of the initial operating permit or the most recent renewal thereof. Please refer to the attached explanation sheet for the structure and configuration of conditions of approval, included in the Facility Specific Requirements section of this permit.

Health Risk Assessment was conducted as part of the review of this permit application and health risk was determined to be negligible consistent with NJDEP Technical Manual 1003.

This is a Permit Renewal and includes the following changes:

1. Facility wide requirements (FC) section of the compliance plan updated.
2. Section B, General Provisions and Authority of the Permit Text updated.
3. Federal Requirements Summary were added to emission units U15.
4. The renewal stack testing requirement for emission units U1 was changed to conduct renewal stack testing 5 years from the date of approval of the last stack test. Monitoring and recordkeeping requirements were revised accordingly.
5. Sulfur dioxide (SO₂) emissions were reduced from 118 tons/year to 32 tons/yr due to removal of the references to use low sulfur distillate oil as the facility no longer uses this oil and instead uses ultra-low sulfur distillate (ULSD) only. Short term SO₂ emissions were revised correspondingly.
6. Inclusion of HAPs above the new lower revised reporting thresholds in N.J.A.C. 7:27-17. These were 7,12-Dimethylbenz(a)anthracene, Acetaldehyde, Beryllium, Ethyl benzene, Naphthalene, Nickel, and Propylene Oxide. Two new groups GR105 and GR107 were created to include total HAPs for Unit1 turbines and Unit2 turbines respectively.
7. Change the names of U1 operating scenarios OS9-12 from Peak load/Power Augmentation (PAG) Mode to Diffusion PAG Mode and make this change throughout the permit.
8. For GR16, Reference # 2, Unit 2 turbines the calendar year heat input limit was deleted because it was the same as the 365-day rolling limit.
9. The startup, shutdown, fuel transfer, mechanical safety testing, or mode transfer requirements for the turbines were removed from OS Summary and added to newly created operating scenarios.
10. For GR101, Ref. #14, shakedown requirement was removed as it is no longer applicable.
11. U1 OS Summary, Ref. #68 related to PSEG Consent Decree was removed. The Consent Decree was officially terminated by Court Order on May 29, 2018.
12. The monitoring requirements for U1, operating scenarios OS5-8 were replaced from stack testing to CEMs for NO_x and CO, because these operating scenarios are emergency only and rarely, if ever, utilized by the station. In addition, the combustion turbines are equipped with NO_x and CO CEMs. Also, the Monitoring, Recordkeeping, and Submittal/Action requirements were revised accordingly, to reflect the use of CEMs for compliance.
13. A requirement to define Fuel transfer period <= 45 mins was added to U1, OS29-32. Fuel transfer is redefined as that period during which the fuel is switched from natural gas to fuel oil and vice versa. Duration of fuel transfer period shall not exceed 45 minutes.
14. The requirements for Dry Low Nox were transferred from OS Summary for U1 combustion turbines to their individual control devices, CD2, CD4, CD6 and CD8.
15. The requirements for water Injection were transferred from OS Summary for U1 combustion turbines to their individual control devices, CD1, CD3, CD5 and CD7.

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16. The requirements for oxidation catalysts were transferred from OS Summary for U1 combustion turbines to their individual control devices, CD14 and CD18.
17. The requirements for Selective Catalytic Reduction Systems (SCRs) for U1 combustion turbines were transferred from U1 OS Summary to their individual control devices, CD13, and CD17.
18. Methane, nitrous oxide and sulfuric acid emissions that were above the 0.05 pound per hour N.J.A.C. 7:27-8 reporting thresholds were added to all applicable emission units.
19. The outdated N.J.A.C. 7:27-19 RACT requirements that are no longer applicable were removed.
20. CEMs Summary Monitoring Requirements were updated to require recertification if continued use of existing CEMs is required.
21. N.J.A.C. 7:27-19 monitoring requirements were updated to clarify that in addition to using CEMs, combustion adjustment can be performed by periodic emission monitoring OR if not using a certified CEMS, monitoring shall be performed in accordance with the specific procedures for combustion adjustment monitoring specified in NJDEP Technical Manual 1005.
22. The heaters at U15 are subject to Subpart DDDDD of the NESHAPS regulations. The applicable 40 CFR 63 requirements were added.
23. Cooling Towers requirements were removed from U1 OS Summary Ref. #27, 28, & 30, and moved to the following respective emission units U7, U8 and U14.
24. Acid Rain Permit was renewed.

The HAPs (total) increases from 28.7 tons per year to 30.8 tons per year because of inclusion of the HAPs that are now above the new lower revised reporting thresholds in N.J.A.C. 7:27-17. The facility was not required to include these in the permit previously.

IV. BASIS FOR MONITORING AND RECORDKEEPING REQUIREMENTS

The facility's operating permit includes monitoring, recordkeeping and reporting requirements that are sufficient to demonstrate the facility's continued compliance with the applicable requirements consistent with the following:

1. Provisions to implement the testing and monitoring requirements of N.J.A.C. 7:27-22.18, the recordkeeping and reporting requirements of N.J.A.C. 7:27-22.19, and all emissions monitoring and analysis procedures or compliance assurance methods required under the applicable requirements, including any procedures and methods promulgated pursuant to 40 CFR 64; and
2. Where the applicable requirement does not require direct periodic monitoring of emissions, the Department requires periodic monitoring of surrogate parameters sufficient to yield reliable data from the relevant time period that are representative of the facility's compliance with the permit.

Combustion Turbines

For combustion turbines at U1, the facility monitors heat input, and fuel use as surrogates for the short term (lb/hr) and long-term (TPY) emission limits for VOC, TSP, PM₁₀, PM_{2.5}, SO₂ and HAPs, when combusting natural gas, and for HAPs when combusting ULSD. The facility monitors fuel sulfur content of ULSD as surrogate for the short term and long-term (TPY) emission limits of SO₂.

The facility monitors fuel use as surrogate for long-term (TPY) emission of Greenhouse gases as CO₂e.

Indirect Fired Space Heaters

For space heaters at U3, U4 and U5 the facility monitors natural gas usage in terms of yearly heat input as the surrogate for the long-term (TPY), and for short-term (lb/hr) emission limits NO_x, CO, and HAPs. All other air contaminant emissions are below N.J.A.C. 7:27-8 reporting thresholds.

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Direct Fired Heaters

For space heater at U15 the facility monitors natural gas usage in terms of yearly heat input as the surrogate for the long-term (TPY), and for short-term (lb/hr) emission limits NO_x, CO, and HAPs. All other air contaminant emissions are below N.J.A.C. 7:27-8 reporting thresholds

3. In some cases, direct periodic monitoring of emissions and/or surrogate parameters is not required due to one or more of the following:
- Equipment size and capacity limitations,
 - Subject equipment being permitted at the maximum rated capacity,
 - There is no specific state or Federal standard that applies to this piece of equipment,
 - Not a pollutant of concern for this piece of equipment,
 - Agreements with EPA on the frequency of testing and monitoring for combustion sources.

V. APPLICABLE STATE AND FEDERAL RULES

The facility is subject to New Jersey Air Pollution Control Regulations, codified in N.J.A.C. 7:27-1 through 34, as applicable. A complete text of these regulations is available at:

<http://www.nj.gov/dep/aqm/rules27.html>

The facility is also subject to Federal regulations listed below.

- NSPS Subpart A: New Source Performance Standards - General Provisions
- NSPS Subpart Dc: New Source Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units
- NSPS Subpart GG: Standards of Performance for Stationary Gas Turbines
- NSPS Subpart KKKK: New Source Performance Standards for Stationary Gas Turbines
- NESHAP A National Emission Standards for Hazardous Air Pollutants – General Provisions
- NESHAP DDDDD: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
- 40 CFR 72 Acid Rain Program
- 40CFR 97 Cross-State Air Pollution Rule (CSAPR)

The Greenhouse Gas (GHG) emissions from this facility are 3,371,366 TPY CO₂e and there is no GHG emissions increase. This renewal is not subject to PSD rules at 40 CFR 52.21.

VI. FACILITY'S COMPLIANCE STATUS

Responsible Official at the facility has certified that the facility currently meets all applicable requirements of the Federal Clean Air Act and the New Jersey Air Pollution Control Act. Based on this certification, the Department's evaluation of the information included in the facility's application, and a review of the facility's compliance status, the Department has concluded that this air pollution control operating permit should be approved.

The facility has submitted a timely and complete application to renew their operating permit and an application shield is in effect.

This operating permit also includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17. A permit shield provides that compliance with the relevant conditions of the operating permit shall be deemed compliance with the specific applicable requirements that are in effect on the date of issuance of the draft operating permit, and which form the basis for the conditions in the operating permit.

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Also, prior to the expiration of the five-year period, the facility will be required to apply for a renewal of this operating permit, at which time the Department will evaluate the facility and issue a public notice with its findings.

VII. EXEMPT ACTIVITIES

The facility's operating permit does not include exempt activities such as office and interior maintenance activities, maintenance shop activities, food preparation facilities, cafeterias and dining rooms, etc. A complete list of exempt activities, as allowed by the Operating Permit rule, can be found at N.J.A.C. 7:27-22.1.

Table 1 - Operating Permit Revision History
BERGEN GENERATING STATION PI 02488

Permit Activity Number	Type of Revision	Description of Revision	Final Action Date
BOP240001	Administrative Amendment	This Title V Administrative Amendment was to change asset manager and to update other facility contacts. Kindle Energy no longer manages the Bergen Generating Station hence the asset manager was changed to Alpha Generation.	9/20/2024
BOP230001	Minor Modification	This Title V Minor Modification application was to add N.J.A.C. 7:27F, Control and Prohibition of Carbon Dioxide Emissions, requirements for its combustion turbines to the permit at Group level, GR104.	10/21/2023
BOP210002	Administrative Amendment	PSEG Fossil LLC (PSEG Fossil) submitted this application for a Title V administrative amendment to change the ownership of Bergen Generating Station from PSEG Power LLC, the corporate parent of PSEG Fossil, to Parkway Generation, LLC on August 12, 2021, and also to remove the following equipment owned and operated by Public Service Electric and Gas Company (PSE&G) from the Title V permit. 1) Replaced 'PSEG Fossil' with 'permittee' throughout the compliance plan. 2) Removed three water bath heaters at U9(E12, PT12), U11(E16) and U12(E17, PT42). 3) Updated Facility Profile Information (Facility Contacts). In addition, this application will change in the name of PSEG Fossil LLC to Parkway Generation Operating LLC.	2/22/2022
BOP190003	Minor Modification	This Title V Minor Modification application was to incorporate relevant provisions of the New Jersey CO2 Budget Trading Program (N.J.A.C. 7:27C).	1/7/20
BOP190001	Administrative Amendment	This Title V administrative amendment application was to change the Power Plant Manager at the PSEG Fossil Bergen Generating Station ("Bergen"). Mr. Peter Van Den Houten is the new Power Plant Manager, replacing Mr. Ryan Paley. The Power Plant Manager meets the definition of "Responsible Official" in N.J.A.C. 7:27-1.4.	4/1/19
BOP160002	Significant Modification	This application for a Significant modification was to implement performance upgrades on the four (4) Siemens V84.2 combined-cycle combustion turbines that comprise Bergen Unit No. 1.	8/1/17
BOP160001	Administrative Amendment	This Title V administrative amendment application was to change the Power Plant Manager at the PSEG Fossil Bergen Generating Station ("Bergen"). Mr. Ryan Paley is the new Power Plant Manager, replacing Mr. David L Pantiliano. The Power Plant Manager meets the definition of "Responsible Official" in N.J.A.C. 7:27-1.4.	6/8/16
BOP150001	Administrative Amendment	This Title V administrative amendment application is to permanently retire and remove the FT4 combustion turbine under emission unit U2. The combustion turbine was placed into permanent retirement on May 1, 2015.	3/15/16

FACILITY NAME (FACILITY ID NUMBER)
BOP050001

Activity Number assigned
by the Department

New Jersey Department of Environmental Protection Facility Specific Requirements

Emission Unit Number
assigned by the Facility

Brief description of
emission unit

Emission Unit: U40 Sewage Sludge Incinerators
Operating Scenario: OS Summary

OR

OS2 Fluidized Bed Incinerator

OS Summary lists all rules and requirements that apply to an emission unit. An emission unit may contain one or more pieces of equipment and corresponding operating scenarios.

OSX denotes the operating scenario number and lists the rules and requirements that apply to a scenario. An operating scenario represents various ways (or scenarios) a piece of equipment is permitted to operate.

Item
Number

Description of applicable
requirement

Monitoring method to
ensure compliance

Recordkeeping to show
facility's compliance

Actions and submittals
required for the facility

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	The permittee shall conduct an annual performance test for each pollutant in Table 2 of 40CFR62 Subpart LLL between 11 and 13 calendar months after the previous performance test or within 60 days of a process change. [40 CFR 62.16000(a)]	Other: Conduct the performance test using the test methods, averaging methods and minimum sampling volumes or durations as specified in 40CFR62 Subpart LLL and according to the testing, monitoring and calibration requirements specified in 40 CFR 62.16015(a). [40 CFR 62.16000(a)].	Other: (1) Maintain records of the results of initial, annual and any subsequent performance tests conducted to determine compliance with the emission limits and standards and/or to establish operating limits, as applicable. [40 CFR 62.16025(e)].	Submit a report: Annually to the Administrator and to the Department. The permittee shall submit an annual compliance report as specified in 40 CFR 62. [40 CFR 62.16000(d)]

Rule citation for
applicable requirement

Rule citation for
monitoring requirement

Rule citation for
recordkeeping requirement

Rule citation for submittal/
action requirement

Explanation Sheet for Facility Specific Requirements