

# STATEMENT OF BASIS for LINDEN GENERATING STATION

## TITLE V OPERATING PERMIT RENEWAL

Program Interest (PI): 41810 / Permit Activity Number: BOP190002

### I. FACILITY INFORMATION

Linden Generating Station is located at 4001 S Wood Ave, Grasselli Area, Linden, New Jersey 07036-6591. It is an electric generating station 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 330 tons per year of Carbon Monoxide (CO), 634 tons per year of Nitrogen Oxides (NOx), 115 tons per year of Volatile Organic Compounds (VOC), 330 tons per year of Total Suspended Particulates (TSP), 571 tons per year of Particulate Matter less than 10 microns (PM10), 571 tons per year of Particulate Matter less than 2.5 microns (PM2.5), 467 tons per year of Ammonia, and 167 tons per year of Methane 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 HAP or 25 tons per year of any combination of individual HAPs that may be emitted simultaneously.

This permit allows any individual HAP to be emitted at a rate to not exceed: 124 pounds per year of 1,3-butadiene; 10.8 pounds per year of 1-Methylnaphthalene; 16 pounds per year of 2-Methylnaphthalene; 3,100 pounds per year of acetaldehyde, 500 pounds per year of acrolein; 72 pounds per year of arsenic; 1180 pounds per year of benzene; 46 pounds per year of cadmium; 56,800 pounds per year of formaldehyde; 126 pounds per year of lead; 5,200 pounds per year of manganese; 50 pounds per year of mercury; 27,800 pounds per year of n-Hexane; 420 pounds per year of polycyclic aromatic hydrocarbons; 420 pounds per year of polycyclic organic matter; 9,000 pounds per year of toluene and 0.024 pounds per year of dioxin & furans.

### 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 (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), 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 (4) combined cycle combustion turbine units at emission unit U43 with total output of approximately 1,186 (Megawatts) MW, each equipped with Selective Catalytic Reduction System (SCR), Dry Low NO<sub>x</sub> combustors and water injection to control NO<sub>x</sub> emissions, and oxidation catalyst to control CO emissions. The fuel used by these turbines is natural gas and ultralow sulfur distillate oil (ULSD) with a sulfur content of 0.0015% sulfur by weight.
- Four (4) simple cycle combustion turbines at emission unit U4 with total output of approximately 420 MW, each equipped with Dry Low NO<sub>x</sub> combustors and water injection to control NO<sub>x</sub> emissions, firing natural gas and ULSD.
- Two (2) portable rental air compressor engines, 1000 KW each.
- One (1) emergency diesel fire pump with a heat input rate of 2.1 MMBTU/hr (HHV) firing low sulfur distillate oil.
- Two (2) cooling towers.
- Four (4) natural gas fired make up air heaters, each 5.33 MMBtu/hr(HHV).
- One (1) 3.9 MMBtu/hr (HHV) diesel emergency generator; and

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- One (1) 19.32 MMBtu/hr (HHV) emergency diesel generator firing ULSD.

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.

A Facility-Wide 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 was updated.
2. Section B, General Provisions and Authority of the Permit Text was updated.
3. The renewal stack testing requirement for emission units U4 and U43 was changed to conduct renewal stack testing 5 years from the date of the last stack test. The corresponding monitoring and recordkeeping requirements were revised accordingly.
4. The emissions from insignificant combustion sources were reduced, to reflect the current inventory of these insignificant sources at the facility.
5. Sulfur dioxide and sulfuric acid emissions were reduced due to removal of the references to use low sulfur distillate oil as the facility no longer uses this oil and instead uses ULSD only.
6. The outdated N.J.A.C. 7:27-19 RACT requirements that are no longer applicable were removed.
7. HAPs above the new lower revised reporting thresholds in N.J.A.C. 7:27-17 were included.
8. The requirements for Dry Low Nox Combustors were transferred from OS Summary for U4 combustion turbines to their individual control devices, CD6, CD8, CD11 and CD13.
9. The requirements for Water Injection were transferred from OS Summary for U4 combustion turbines to their individual control devices, CD7, CD9, CD12 and CD14.
10. Methane and nitrous oxide emissions that were above the 0.05 pound per hour reporting thresholds at N.J.A.C 7:27-8 were added to all emissions.
11. It was clarified that Formaldehyde emissions are already included in the VOC emission limits.
12. Continuous emission monitoring system (CEMS), Summary Requirements were updated by adding language which states that Emission Measurement Section (EMS) approval is required prior to modifying any of the units.
13. 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.
14. The stack testing requirement for VOC emissions from the turbine was removed as per the Department's "Testing and Monitoring Requirements for Existing Stationary Turbines" for natural gas. The facility has complied with this requirement.
15. Acid Rain Permit pursuant to 40 CFR 72 will be renewed.
16. MACT ZZZZ requirements were added to U40, the Emergency generator.

There are no proposed increases to air contaminants from the facility. The HAPs (total) emissions increased from 2.44 tons per year to 2.82 tons per year because of the inclusion of the new HAPs that are above the new lower revised reporting thresholds in N.J.A.C. 7:27-17.

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The changes made during this permitting action result in allowable annual emissions changes as follows:

Allowable Emission Limits	Facility's Potential Emissions (tons per year)*									
	VOC (total)	NO <sub>x</sub>	CO	SO <sub>2</sub>	TSP (total)	PM <sub>10</sub> (total)	PM <sub>2.5</sub> (total)	Pb	HAPs (total)	CO <sub>2e</sub> (total)
Current Permit	182	726	1208	43	336	577	577	0	52.5	4633182
Proposed Permit	111	638	331	37.5	329	570	570	0.063	53.1	4633182
Change (+ / -)	-71	-89	-877	-15.5	-7.0	-7.0	-7.0	+0.063	+0.6	0

VOC	Volatile Organic Compounds	PM <sub>10</sub>	Particulates under 10 microns
NO <sub>x</sub>	Nitrogen Oxides	PM <sub>2.5</sub>	Particulates under 2.5 microns
CO	Carbon Monoxide	Pb	Lead
SO <sub>2</sub>	Sulfur Dioxide	HAPs	Hazardous Air Pollutants
TSP	Total Suspended Particulates	CO <sub>2e</sub>	Carbon Dioxide equivalent
* Other	Any other air contaminant regulated under the Federal Clean Air Act.		

This modification will add the existing 167 tons per year of Methane emissions, and 17.7 tons per year of Nitrous Oxide emissions to the permit as they are above the 0.05 pound per hour reporting thresholds at N.J.A.C 7:27-8. These are not new emissions as facility was already emitting these but were not required to be included in the operating permit.

#### 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:

- 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
- 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 U4 and U43, 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, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> 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 SO<sub>2</sub>. The facility monitors fuel use as surrogate for long-term (TPY) emission of Greenhouse gases as CO<sub>2e</sub>.

##### Emergency Generators

For emergency generators at U40, and fire pump at U8, the facility monitors hours of operation as the surrogate for the long-term (TPY) and short-term (lb/hr) emission limits for VOC, NO<sub>x</sub>, and CO. Surrogate monitoring for the short-term (lb/hr) emission limits for SO<sub>2</sub> is fuel oil sulfur content.

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### Hot Water Heaters

For hot water heaters at U45 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<sub>x</sub>, CO, and HAPs. All other air contaminant emissions are below N.J.A.C. 7:27-22 reporting thresholds.

### Portable Air Compressors

For compressors at U50, the facility monitors hours of operation as the surrogate for the long-term (TPY) and short-term (lb/hr) emission limits for NO<sub>x</sub>, CO, SO<sub>2</sub>, TSP, PM<sub>10</sub> and PM<sub>2.5</sub>. Surrogate monitoring for the short-term (lb/hr) emission limits for SO<sub>2</sub> is fuel oil sulfur content.

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
- NSPS Subpart IIII: New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engine
- NESHAP Subpart ZZZZ national Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 CFR 72 Acid Rain Program
- 40CFR 97 Cross-State Air Pollution Rule (CSAPR)

The Greenhouse Gas (GHG) emissions from this facility are 4,633,182 TPY CO<sub>2</sub>e 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**

The 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.

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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.

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

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 Linden Generating Station hence the asset manager was changed to Alpha Generation.	9/19/2024
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 3, GR103.	10/17/2023
BOP220001	Administrative Amendment	This Title V Administrative Amendment was to change the Responsible Official to Mr. Sean Wessel.	8/18/2022
BOP210001	Administrative Amendment	PSEG Fossil LLC (PSEG Fossil) submitted this application for a Title V administrative amendment to change the ownership of Linden Generating Station from PSEG Power LLC, the corporate parent of PSEG Fossil, to Parkway Generation, LLC on August 12, 2021. The Administrative Amendment was also to remove the following equipment owned and operated by Public Service Electric and Gas Company (PSE&G) from the Title V permit. This Administrative Amendment includes the following: 1) Updated FC requirements based on the current NJDEP rules, policies, and procedures. 2) Replaced 'PSEG Fossil' with 'permittee' throughout the compliance plan. 3) Removed U101 (E101, PT101). 4) 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) in the permit.	12/30/19
BOP190001	Administrative Amendment	This Title V administrative amendment was to change the Power Plant Manager at the PSEG Fossil Linden Generating Station ("Linden"). Mr. Ryan Paley is the new Power Plant Manager, replacing Mr. Martin Hayes. The Power Plant Manager meets the definition of "Responsible Official" in N.J.A.C. 7:27-1.4.	3/25/19

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**