

# STATEMENT OF BASIS for VINELAND MUNICIPAL ELEC UTIL HOWARD M. DOWN

## TITLE V OPERATING PERMIT RENEWAL AND PERMIT MODIFICATION

Program Interest (PI): 75507 / Permit Activity Number: BOP190002

### I. FACILITY INFORMATION

Vineland Municipal Electric Utility (VMEU) Howard M. Down is located at 211 N. West Ave Vineland, NJ 08360 in Cumberland County and consists of a facility that generates 64 megawatts of electric power. The facility is owned and operated by the City of Vineland.

The facility is classified as a major facility based on its potential to emit 26.6 tons per year of oxides of nitrogen to the atmosphere.

This permit allows individual hazardous air pollutants to be emitted at a rate not to exceed: 2712 pounds per year of Acetaldehyde, 280 pounds per year of Acetophenone, 15.4 pounds per year of Acenaphthene, 368 pounds per year of Acrolein, 4 pounds per year of Arsenic, 2090 pounds tons per year of Benzene, 4.26 pounds per year of Benzo(b)fluoranthene, 0.53 pounds per year of Benzo(A) Pyrene, 53.4 pounds per year of Biphenyl, 1.06 pounds per year of Beryllium, 2.36 pounds per year of Butadiene (1,3-), 39.4 pounds per year of Cadmium, 1172 pounds per year of Chromium Compounds, 9.08 pounds per year of Chromium (Hexavalent), 9.34 pounds per year of Cobalt, 0.00422 pounds per year of Dioxins/Furans (TEQ), 308 pounds per year of Ethylbenzene, 4034 pounds per year of Formaldehyde, 2.48 pound per year of Fluorene, 2030 pounds per year of Hexane (n-), 0.72 pounds per year of Indeno(1,2,3-cd)pyrene, 15.6 pounds per year of Lead, 1660 pounds per year of Manganese, 28.6 pounds per year of Methylnaphthalene (2-), 44.6 pounds per year of Mercury, 340 pounds per year of Nickel, 100.6 pounds per year of Naphthalene, 16.48 pounds per year of Phenanthrene, 204 pounds per year of Polycyclic organic matter, 424 pounds per year of Propylene Oxide, 3.24 pounds per year of Pyrene, 324 pounds per year of Styrene and 2720 pounds per year of Toluene.

### 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: a 64 MW simple cycle turbine unit fueled by natural gas (primary) or number two fuel oil (backup), a bottom ash storage silo, a fly ash storage silo, one 675,000 gallon ultra-low sulfur diesel storage tank, one 20,000 gallon number six fuel oil storage tank, one 20,000 gallon number two fuel oil storage tank, and an emergency generator rated at 2.3 million BTU per hour.

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 Modification with Renewal and includes the following changes:

The primary purpose of the significant modification application is to correct the maximum operating conditions for Down Unit 11. These conditions had been mistakenly underestimated

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during the original preconstruction permitting. This application requests that the maximum heat input for the turbine be increased, in line with the original performance guarantees for the turbine. The original air permit application for VMEU H.M. Down Station Unit 11 was prepared using operating information provided by the turbine manufacturer, Rolls-Royce. What was not realized at the time was that the operating information provided by Rolls-Royce represented typical conditions, and not necessarily the highest achievable heat input conditions which would potentially maximize hourly emissions. The initial permit for the source included the highest of the typical heat input conditions as permit limits: 590 MMBtu/hr for gas operation, and 568 MMBtu/hr for oil operation.

In the initial operating permit for an identical Rolls-Royce (now Siemens) turbine at VMEU Clayville Station in 2018, the maximum heat input disparity described above was corrected, and the issued permit had a maximum gas heat input limit of 628 MMBtu/hr, based on the turbine heat rate guaranteed by the manufacturer. VMEU proposes that the same limit be applied to VMEU Unit 11 for gas-firing, along with a parallel increase to the oil-fired limit. Some emission limits also need to be increased with the heat input change, primarily NO<sub>x</sub>, CO and VOC.

This renewal will also change the allowable emission limits as listed in the following table:

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	12.18	27.84	29.98	3.68	26.87	26.9	26.86	0.004	6.68	313,223
Proposed Permit	12.79	29.6	32.75	3.92	26.87	26.9	26.86	0.004	9.50	313,223
Change (+ / -)	+0.61	+1.76	+2.77	+0.24	0	0	0	0	+2.82	0

VOC Volatile Organic Compounds

NO<sub>x</sub> Nitrogen Oxides

CO Carbon Monoxide

SO<sub>2</sub> Sulfur Dioxide

TSP Total Suspended Particulates

PM<sub>10</sub> Particulates under 10 microns

PM<sub>2.5</sub> Particulates under 2.5 microns

Pb Lead

HAPs Hazardous Air Pollutants

CO<sub>2e</sub> Carbon Dioxide equivalent

\* Other Any other air contaminant regulated under the Federal Clean Air Act. This permit does not contain any air pollutants under this category.

#### IV. CASE-BY-CASE DETERMINATIONS

No case-by-case determinations were required for this permit action.

#### V. EMISSION OFFSET REQUIREMENTS

This permit action is not subject to Emission Offset requirements.

#### VI. 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.

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In this case, monitoring of fuel use is required for Combustion Turbine Unit 11 for the purposes of compliance with the VOC, TSP, SO<sub>2</sub>, PM-10, PM-2.5, and HAPs emission limits, and monitoring of fuel delivery record is a surrogate for VOC emissions from the storage tanks.

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.

### VII. 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 subject to Federal regulations listed below.

NSPS Subpart A: General Provisions,  
NSPS Subpart KKKK: Standards of Performance for Stationary Combustion Turbines,  
40 CFR Part 72: Acid Rain Permit,  
40 CFR 97: Cross State Air Pollution Rule.

The Greenhouse Gas (GHG) emissions from this facility are 313,223 TPY CO<sub>2</sub>e and there is no GHG emissions increase. This renewal and modification is not subject to PSD rules at 40 CFR 52.21.

### VIII. 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.

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

This operating permit 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.

### IX. 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
BOP230001	Minor Modification	This Minor Modification application is being filed to add the requirements of N.J.A.C. 7:27F-2, Carbon Dioxide Emission Reduction from Electric Generating Units.	1/4/2024
BOP190003	Minor Modification	New Jersey will be rejoining the RGGI CO2 emission trading program on January 1, 2020. According to N.J.A.C. 7:27C, the NJDEP CO2 Budget Trading Rule, sources required to participate in this program must apply to modify existing permits to include relevant applicable requirements in permit compliance plans by January 1, 2020. This application for minor modification of the VMEU Down Station operating permit is for the addition of the CO2 Budget Rule applicable requirements relevant to the Down Unit 11 Combustion Turbine.	3/10/2020

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**