

# STATEMENT OF BASIS for VINELAND MUNICIPAL ELECTRIC UTILITY WEST STATION

## TITLE V OPERATING PERMIT RENEWAL AND PERMIT MODIFICATION

Program Interest (PI): 75482 / Permit Activity Number: BOP180001

### I. FACILITY INFORMATION

Vineland Municipal Electric Utility (VMEU) – West Station is located at Lubin Lane and New Peach St. Vineland City, Cumberland County, NJ 08360 and is a power generation plant. 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 38.2 tons per year (TPY) of volatile organic compounds (VOCs), 239 TPY of nitrogen oxides, 235 TPY of carbon monoxide, and 197 TPY of particulate matters 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 permit allows individual hazardous air pollutant to be emitted at a rate to not exceed: 0.170 TPY of Acetaldehyde, 0.101 TPY of Acetophenone, 0.132 TPY of Acrolein, 0.15 TPY of Arsenic, 0.4.65 TPY of Benzene, 0.014 TPY of Beryllium, 0.032 TPY of 1-3, Butadiene, 0.03 TPY of Cadmium, 0.05 TPY of Cobalt, 1.91 E-4 TPY of Chromium, 0.458 TPY of Ethylbenzene, 2.0 TPY of Formaldehyde, 23.7 TPY of Hydrochloric Acid, 0.8 TPY of Hydrogen fluoride, 0.62 TPY of lead, 0.58 TPY of Manganese, 0.006 TPY of Mercury, 0.404 TPY of Naphthalene, 1.9 TPY of Nickel, 0.61 TPY of Poly organic matter, 0.63 TPY of Phosphorus, and 0.6 TPY of Selenium.

### 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:

1. One simple cycle combustion turbine with a maximum heat input rate of 450 million British thermal units per hour (MMBTU/hr) higher heating value (HHV), firing ultra-low sulfur distillate oil (ULSD). The turbine is equipped with Selective Catalytic Reduction system (SCR) and water injection.
2. One 635 horse power starter reciprocating internal combustion engine with a heat input rate of 4.9 million MMBTU/hr(HHV), firing distillate oil; and equipped with catalytic convertor.
3. One fuel oil storage tank.

Consistent with N.J.A.C. 7:27-22.30(d) 1, 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 during the past five-year term of the initial operating permit or the most recent renewal thereof.

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.

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This is a Permit Renewal with Permit Modification and includes the following changes:

1. Move the Startup, Shutdown requirements from combustion turbine at U1 OS Summary to separate Startup, Shutdown scenarios.
2. Moved the control devices (SCR and water injection) requirements from U1 OS Summary to separate control device scenarios.
3. Inclusion of HAPs at emission units U1 that are above the new lower revised reporting thresholds in N.J.A.C. 7:27-17. These HAPs are Acetaldehyde, Acetophenone, Acrolein, Benzene, Butadiene (1,3-), Ethylbenzene, Naphthalene and Propylene Oxide.
4. Combine Stack testing requirement #2 and #3 at U1 OS Summary into one requirement. Also update this stack testing requirement as per the "Testing and Monitoring Requirements for Existing Stationary Combustion Turbines" approved for simple cycle combustion turbines with capacity factor  $\leq 10$  percent.
5. Update GR1 to include all requirements for NOx Averaging Plan that are at U1 OS Summary and U2 OS Summary.
6. Update of N.J.A.C. 7:27-19 applicable and monitoring requirements at U1 OS Summary and U2 OS Summary 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.
7. Clarification that Formaldehyde emissions are included in the VOC emission limit for U1 and U2
8. Remove once initially stack testing requirement for starter engine at U2 OS Summary as the facility has complied with this requirement.
9. Inclusion of methane and nitrous oxide emissions to U1 and U7 as they are above the 0.05 pound per hour N.J.A.C 7:27 – 8 reporting thresholds.
10. Addition of Ammonia tpy to U1 OS Summary, as it was inadvertently omitted.
11. This Renewal also contains a Minor Modification Application, BOP190001, submitted by the facility to include Regional Greenhouse Gas Initiative requirements for their combustion turbines to the permit pursuant to N.J.A.C. 7:27C.

There are no proposed changes to air contaminants. The HAPs (total) increases from 31.69 tons per year to 31.89 tons per year because of inclusion of the new HAPs that are above the new lower revised reporting thresholds in N.J.A.C. 7:27-17.

#### **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 Turbine:

For combustion turbine U1, the facility monitors the fuel use as the surrogate for the long-term (TPY) emissions limits for VOC, NOx, CO, SO<sub>2</sub>, TSP, PM-10, PM-2.5 and HAPs. Surrogate monitoring for the short-term (lb/hr) emission limits is fuel oil sulfur content for SO<sub>2</sub>.

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### Stationary reciprocating engine:

For starter engine U2, the facility monitors the fuel use as the surrogate for the long-term (TPY) emission limits for VOC, NOx, CO, TSP, PM-10, and PM-2.5. Surrogate monitoring for the short-term (lb/hr) emission limits are combustion process adjustment and periodic monitoring for NOx and CO, and fuel oil sulfur content for SO2.

### Distillate oil storage tank:

For distillate oil storage tank U3, the facility monitors the total throughput in million gallons per year (MMgal/yr), as surrogates for the long-term (TPY) emission limits for VOC.

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.

- 40CFR 97                      Cross-State Air Pollution Rule (CSAPR)

The Greenhouse Gas (GHG) emissions from this facility are 326,028 TPY CO2e and there is no GHG emissions increase. This renewal and modification are 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.

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.

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### **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

<b>Permit Activity Number</b>	<b>Type of Revisions</b>	<b>Description of Revision</b>	<b>Final Action Date</b>
BOP160001	Minor Modification	This modification was to establish a minimum ammonia injection rate for the SCR controlling the West Station combustion turbine (U1) at 8.26 gallons of ammonia per 1000 gallons of oil burned.	08/10/16
BOP160005	Administrative Amendment	This modification was to extend the stack of the turbine starter engine (U2) to 30 feet, with a vertical exhaust.	10/17/16
BOP160001	Significant Modification	This modification was to test particulate emissions from the starter engine with the existing catalyst (CD2) in place, and with the increased stack height to confirm the particulate emissions will meet the proposed 0.6 lb/hr. This particulate limit was reduced from the permitted limit of 2.9 lb/hr	5/5/17

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**