



**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	CPV Towantic, LLC
Address	50 Braintree Hill Office Park, Suite 300 Braintree, MA 02184
Equipment Location	16 Woodruff Hill Road, Oxford, CT
Equipment Description	General Electric 7HA.01 Gas Turbine with DLN combustors, Duct Burners and Heat Recovery Steam Generator (Unit 1)
Collateral Conditions	Part VII of this permit contains collateral conditions with other NSR permits affecting the Greenhouse Gas requirements and the certified NOx emissions reduction offsets for the entire facility.
Town-Permit Numbers	144-0023
Premises Number	14
Stack Number	7
Modification Issue Date	September 15, 2025
Prior Permit Issue Date	November 30, 2015 November 13, 2017 June 24, 2019 March 12, 2024
Expiration Date	None

for 
 Katherine S. Dykes
 Commissioner

September 15, 2025
 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

CPV Towantic, LLC operates a power generation facility consisting of two (2) General Electric 7HA.01 combustion turbines with DLN combustors with a combined nominal gross electrical output of 805 MW in Oxford, CT. The turbines are multi-fuel fired combined cycle units, each with a separate heat recovery steam generator (HRSG) that includes natural gas supplementary firing (duct burners) to power a single steam turbine generator. Oil firing for the turbines is limited to ultra-low sulfur distillate (ULSD) No. 2 fuel oil during periods of natural gas curtailment or as allowed in Part II of this permit. Pollution control equipment includes selective catalytic reduction (SCR), oxidation catalyst, and water injection (ULSD firing only) to control NO_x, and CO emissions. The turbine, duct burner and HRSG are designated as Unit 1 for this permit.

B. Equipment Design Specifications

1. Turbine

The design gross heat input to the turbine is 2,544 MMBtu/hr while firing natural gas, or natural gas/hydrogen blend, and 2,511 MMBtu/hr while firing ULSD oil. These heat inputs are based on an ambient temperature of 59°F and result in firing rates of 2,435,742 scf of natural gas (HHV 996 Btu/scf) and 17,326 gallons of ULSD (HHV 138,000 Btu/gal) per hour. Heat input will vary by approximately $\pm 5\%$ over the typical range of temperatures expected, with higher heat input occurring at lower ambient temperatures.

2. Duct Burner

The design gross heat input to the duct burner is 228 MMBtu/hr while firing natural gas. The heat input is based on an assumed HHV of 996 Btu/scf and results in a firing rate of 228,916 scfh.

C. Stack Parameters

1. Minimum Stack Height (ft): 150 (above base elevation)
2. Minimum Exhaust Gas Flow Rate at minimum operating load, turbine only (acfm): 663,327 (gas); 860,408 (ULSD)
3. Minimum Stack Exit Temperature at 100% load (°F): 169
4. Minimum Distance from Stack to Property Line (ft): 188

D. Definitions

1. "Normal Operation" shall be defined as all periods of operation firing natural gas, natural gas/hydrogen blend, and ULSD in the combustion turbine. Natural gas/hydrogen blend shall only be considered part of normal operation after completion of the reporting and testing requirements in Parts IV.C.4 and V.D of this permit.

2. "Steady-state" operation shall be defined as all periods of operation other than transient operation with emission levels that are within steady state limits. "Load" shall be defined as the net electrical output of the turbine.
3. "Transient" operation shall be all modes of operation of the combustion turbine other than Steady State operation and shakedown periods, but includes startup, shutdown, fuel switching, run back, and equipment cleaning.
4. "Fuel Switching" shall be defined as the initiation of secondary fuel use (i.e. on natural gas, or natural gas/hydrogen blend, and bringing in ULSD or vice versa) as indicated by the fuels' independent flow meters and performed at the load designed by the original equipment manufacturer (OEM) which is calculated by the combustion turbine control system at given ambient conditions.
5. "Run Back" events shall be defined as occurrences where the turbine load is dropped below the minimum steady state operating load to prevent mechanical failure of the unit or supporting equipment.
6. "Load" shall be defined as the net electrical output of the turbine.
7. "Shakedown period" shall be defined as turbine operations including, but not limited to, immediately following a rotor replacement, the first firing of the turbine, proof of interlocks, steam blowing, chemical cleaning and initial turbine roll. The shakedown period following a rotor replacement shall not extend beyond the date Unit 1 returns to ISO-NE dispatch availability.

PART II. OPERATIONAL CONDITIONS and REQUIREMENTS

A. Equipment

1. Turbine
 - a. Allowable Fuel Types: Natural Gas; Ultra-Low Sulfur Distillate (ULSD); Natural Gas/Hydrogen Blend.
 - b. Maximum Heat Input over any Consecutive 12 Month Period: 2.12×10^7 MMBtu (natural gas and natural gas/hydrogen blend); 1.72×10^6 MMBtu (ULSD)
 - c. Maximum Distillate Fuel Oil Sulfur Content (% by weight, dry basis): 0.0015
 - d. Natural gas shall be the primary fuel combusted in this unit.
 - e. Firing of ULSD is allowed only in the following scenarios:
 - i. ISO-NE declares an Energy Emergency as defined in ISO New England's Operating Procedure No. 21 and requests the firing of ULSD.
 - ii. The natural gas supply is curtailed by an entity through which gas supply and/or transportation is contracted.
 - iii. There exists a physical blockage or breakage in the natural gas pipeline.
 - iv. During required performance testing.
 - v. During routine maintenance and readiness testing.
 - vi. In order to maintain an appropriate turnover of the on-site fuel inventory, to prevent wastage of oil, the owner/operator can fire ULSD when the last delivery of oil was more than six months ago.
 - f. Firing of Natural Gas/Hydrogen Blend shall be allowed anytime that natural gas is fired with the following limitations:
 - i. Natural Gas/Hydrogen Blend firing shall be limited to no more than 5% hydrogen, by volume.

- ii. The Permittee shall not fire any natural gas/hydrogen blends that would require a permanent physical change to the combustion turbine to accommodate firing natural gas/hydrogen blend greater than five percent without prior approval by the Department.
 - iii. The Permittee shall comply with the notification and reporting requirements of Parts IV.C.2 through 4 of this permit until stack testing required by Part V.E of this permit is completed and approved by the Department.
 - g. The Permittee shall not operate the duct burner while firing ULSD in the turbine.
- 2. Duct Burner
 - a. Allowable Fuel: Natural Gas
 - b. Maximum Heat Input over any Consecutive 12 Month Period: 9.69×10^5 MMBtu
- B. The Permittee shall operate this equipment, including the SCR, oxidation catalyst, and water injection in a manner to comply with the emissions limits in Part III.A of this permit.
- C. The Permittee shall operate and maintain this equipment, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including transient operation.
- D. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- E. The Permittee shall minimize emissions during periods of transient operation by the following work practices and time constraints:
 - 1. Start the ammonia injection as soon as minimum catalyst temperature is reached;
 - 2. The oxidation catalyst shall not be bypassed during startup or shutdown; and
 - 3. Emissions during these periods shall be counted towards the annual emission limits stated herein.
- F. No period of transient operation shall exceed 60 consecutive minutes.
- G. The Permittee shall not operate the auxiliary boiler, Permit No. 144-0025, simultaneously with the combustion turbines for more than 500 hours in any calendar year.
- H. The Permittee shall not exceed a maximum allowable heat rate at full operating load while firing natural gas, or a natural gas/hydrogen blend without duct firing, of 7,220 Btu/kW-hr (HHV, net plant), on a 12-month rolling average for the Units 1 and 2 combined.
- I. The Permittee shall immediately institute shutdown of the turbine in the event where emissions are in excess of a limit in Part III of this permit that cannot be corrected within three hours of when the emissions exceedance was identified.
- J. The Permittee shall not exceed 500 Transient events per calendar year for this unit.

PART III. ALLOWABLE EMISSION LIMITS

A. Steady State

Except during a shakedown period, the Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time during steady state operation.

1. Turbine Operating on Natural Gas or Natural Gas/Hydrogen Blend, without Duct Firing

Pollutant	lb/hr	ppmvd @ 15% O ₂	lb/MMBtu
PM	9.73		6.5E-3
PM _{10/2.5}	9.73		6.5E-3
SO ₂	4.49		1.5E-3
NO _x	19.4	2.0	
VOC	3.37	1.0	
CO	5.31	0.9	
Lead	1.3E-03		
H ₂ SO ₄	2.11		
Ammonia		2.0	

2. Turbine Operating on Natural Gas or Natural Gas/Hydrogen Blend, with Duct Firing

Pollutant	lb/hr	ppmvd @ 15% O ₂	lb/MMBtu
PM	15.1		8.1E-3
PM _{10/2.5}	15.1		8.1E-3
SO ₂	4.8		1.5E-3
NO _x	20.7	2.0	
VOC	5.09	2.0	
CO	10.7	1.7	
Lead	1.3E-03		
H ₂ SO ₄	2.2		
Ammonia		2.0	

3. Turbine Operating on ULSD

Pollutant	lb/hr	ppmvd @ 15% O ₂	lb/MMBtu
PM	42.6		3.19E-2
PM _{10/2.5}	42.6		3.19E-2
SO ₂	4.92		1.53E-3
NO _x	52.0	5.0	
VOC	6.2	2.0	
CO	12.7	2.0	
Lead	3.7E-02		
H ₂ SO ₄	2.31		
Ammonia		5.0	

B. Transient Emissions

1. Except during a shakedown period, the Permittee shall not cause or allow this equipment to exceed these limits during transient operation.

	Transient Operation	
	Natural Gas or Natural Gas/Hydrogen Blend	ULSD
NO _x (lb/hr)	93	104
VOC (lb/hr)	60	90
CO (lb/hr)	242	231

2. Ammonia (NH₃) emissions shall not exceed 5 ppmvd @ 15% O₂ (all fuels) during transient operation.

C. Total Allowable Annual Emission Limits (per unit)

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

1. Pollutants

Pollutant	tons per 12 consecutive months
PM	76.7
PM _{10/2.5}	76.7
SO ₂	19.7
NO _x	94.7
VOC	24.5
CO	64.5
Pb	1.9E-02
H ₂ SO ₄	9.1
NH ₃	35

D. Greenhouse Gas Emissions

1. The Permittee shall not exceed a combined annual CO_{2e} emissions limit of 2,675,185 tons/yr for **this unit** in combination with the units operating under permit numbers 144-0024, 144-0025, 144-0026, and 144-0027. Compliance with this limitation shall be determined on a consecutive 12-month rolling basis. The Permittee shall make and keep monthly records of CO_{2e} emissions with the following methodologies:
 - a. CO₂ emissions from the combustion turbines, operating under permit numbers 144-0023 and 144-0024, shall be determined by the methodology found in 40 CFR Part 75, Appendix G, Equation G-4. Any co-firing of hydrogen, resulting in a reduction of CO₂ emissions, may be credited towards the annual CO₂ emissions limitation above.
 - b. CO₂ emissions from the boiler and two diesel engines, operating under permit numbers 144-0025, 144-0026, and 144-0027, shall be determined using the default emissions factors found in 40 CFR Part 98, Subpart C, Table C-1.
 - c. Methane (CH₄) and nitrous oxide (N₂O) for all combustion sources shall be determined using the default emissions factors found in 40 CFR Part 98, Subpart C, Table C-2.

- d. Estimated fugitive emissions of sulfur hexafluoride (SF₆) from the electrical circuit breakers shall be determined using mass balance.
- e. Estimated fugitive emissions of CH₄ from the natural gas pipeline and associated components shall be determined using default emissions factors found in 40 CFR Part 98, Subpart W, Table W-7.

E. Hazardous Air Pollutants (HAP)

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 Section 22a-174-29. [STATE ONLY REQUIREMENT]

F. Opacity

1. This equipment shall not exceed 10% opacity during any six minute block average as measured by 40 CFR Part 60, Appendix A, Reference Method 9 during operations on natural gas.
2. This equipment shall not exceed 10% opacity during any six minute block average as measured by the CEM unit required in accordance with Part IV.A of this permit.
3. Notwithstanding Part III.F.2. above, this equipment shall not be subject to the visible emissions standard of Part III.F.2 for measurements of opacity using opacity CEM equipment during a period of startup or shutdown; commissioner-approved stack testing; or intentional sootblowing, fuel switching; or sudden load changing done in accordance with good engineering practices provided that:
 - a. the owner or operator is required by permit, order or regulation to install, operate and maintain opacity CEM equipment at such stationary source, and the owner or operator is in compliance with such permit, order or regulation with regard to such opacity CEM equipment. If a stationary source is not subject to a permit, order or regulation requiring operation and maintenance of opacity CEM equipment, an owner or operator may certify on a form acceptable to the Commissioner that:
 - i. the owner or operator of such stationary source has installed opacity CEM equipment that meets the applicable criteria of 40 CFR Part 60, Appendices B and F, and
 - ii. the owner or operator operates and maintains such installed opacity CEM equipment in compliance with the requirements of 40 CFR Part 60, Appendices B and F;
 - b. the period of exception from the visible emissions standards of this permit does not exceed one-half of one percent (0.5%) of the total operating hours of such stationary source during any calendar quarter; and
 - c. the owner or operator of the stationary source does not cause or allow visible emissions in excess of sixty percent (60%) opacity during any six-minute block average of the period of exception from the visible emissions standards of Parts III.F.2. of this permit.

G. Demonstration of compliance with the above emission limits may be met by calculating emissions based on emission factors from the following sources:

- PM/PM10/PM2.5, H₂SO₄: Stack test data
- VOC: Stack test data or vendor correlation data
- SO₂: Sulfur content in fuel
- NO_x & CO (steady state): CEM data
- NO_x, VOC, & CO (transient): Manufacturer's recommended uncontrolled emission factors
- Opacity: ULSD firing: COMS; Gas Firing: Latest 40 CFR Part 60, Appendix A, Reference Method 9 determination

- HAP: AP-42, Fifth Edition, Volume I Chapter 3.1, April 2000 except for those HAP with required stack test found in Part V of this permit.

- H. The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during a shakedown period. Emissions during a shakedown period shall be counted towards the annual emission limits stated herein.
- I. 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. The Permittee shall comply with the CEM requirements as set forth in RCSA Section 22a-174-4a, RCSA §22a-174-22e, 40 CFR Part 60 Subpart KKKK and 40 CFR Parts 72-78, as applicable. Continuous Emissions Monitoring (CEM) is required for the following pollutants and enforced on the following basis:

Pollutant	Averaging Times	Emission Limit (ppmvd @15% O₂)
Opacity (ULSD only)	six minute block	See Part III.F
NO _x	1 hour block	See Part III.A
CO	1 hour block	See Part III.A
NH ₃	1 hour block	See Part III.A

2. The Permittee shall continuously monitor the following parameters:

Operational Parameter	Averaging Times
O ₂	1 hour block
Fuel Flow	1 hour block
Net Electrical Output	Continuous

3. At least 90 days prior to any performance specification testing required pursuant to RCSA §22a-174-4a(d), the Permittee shall submit a CEM monitoring plan to the Commissioner in accordance with RCSA §22a-174-4a(e).
4. The Permittee shall use fuel flow meters, certified in accordance with 40 CFR Part 75 Appendix D to measure and record the flow rate of fuels to the turbine and duct burner.
5. The Permittee shall monitor all hours of operation while firing ULSD.
6. The Permittee shall perform inspections and maintenance of the SCR and oxidation catalysts as recommended by the manufacturer.
7. Prior to operation, the Permittee shall develop a written plan for the operation, inspection, maintenance, preventive and corrective measures for minimizing GHG emissions (CH₄ emissions from the natural gas pipeline components and SF₆ emissions from the insulated electrical equipment). At a minimum the plan shall provide for:
- Implementation daily auditory/visual/olfactory inspections of the natural gas piping components supplying natural gas to the combustion turbine/duct burner;
 - An installed leak detection system to include audible alarms to identify SF₆ leakage from the circuit breakers;

- c. Inspection for SF₆ emissions from the insulated electrical equipment on at least a monthly basis.
8. The Permittee shall continuously monitor the following during any natural gas/hydrogen blend firing:
 - a. Fuel flow rate for both natural gas and hydrogen;
 - b. Heat Input to the turbine;
 - c. CO and NO_x emissions; and
 - d. Gross Electrical Output (MW).

B. Record Keeping

1. For the turbine, the Permittee shall keep records of monthly and consecutive 12 month fuel consumption (for each fuel). The consecutive 12 month fuel consumption shall be determined by adding (for each fuel) the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
2. For the duct burner, the Permittee shall keep records of monthly and consecutive 12 month natural gas consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.
3. The Permittee shall keep records of the monthly and consecutive 12 month heat input to the turbine for natural gas, natural gas/hydrogen blend, and ULSD firing. The records shall include sample calculations.
4. The Permittee shall keep records of all hours of operation while firing ULSD.
5. The Permittee shall keep records of the monthly and consecutive 12 month heat input to the duct burner. The records shall include sample calculations.
6. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from a bulk petroleum provider or a copy of the current contract with the fuel supplier supplying the fuel used by the 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.
7. The Permittee shall calculate and record the monthly and consecutive 12 month PM, PM₁₀, PM_{2.5}, SO₂, NO_x, VOC, CO, H₂SO₄, NH₃, and CO_{2e} emissions in units of tons for all fuels combusted. 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.

Emissions during transient operation shall be included in the monthly and consecutive 12 month calculations.

8. The Permittee shall keep records of the latest turbine vendor VOC correlation data.

9. The Permittee shall keep records of the occurrence and duration of all transient operations of the unit; any malfunction of the air pollution control equipment that causes an exceedance of any emission limitation found in Part III of this permit; or any periods during which a continuous monitoring system or monitoring device is inoperative.

Such records shall contain the following information:

- a. type of event and percent load;
 - b. equipment affected;
 - c. date of event;
 - d. duration of event (minutes);
 - e. fuel being used during event; and
 - f. total emissions emitted (lb) during the event.
10. The Permittee shall keep records of each delivery of aqueous ammonia/urea. The records shall include:
 - a. the date of delivery;
 - b. the name of the supplier;
 - c. the quantity of aqueous ammonia delivered; and
 - d. the percentage of ammonia in solution, by weight.
 11. The Permittee shall keep records of the inspection and maintenance of the SCR and oxidation catalysts. The records shall include:
 - a. the name of the person conducting the inspection/maintenance;
 - b. the date of the inspection/maintenance;
 - c. the results or actions taken; and
 - d. the date the catalyst is replaced.
 12. The Permittee shall keep records of all repairs/replacement of parts and other maintenance activities for the equipment.
 13. The Permittee shall keep records of the electrical output of the plant (net) and the heat rate for the turbines while firing natural gas (HHV, net plant) without duct firing, on a 12-month rolling average for the plant.
 14. The Permittee shall keep records of the inspection, maintenance, preventive and corrective measures for minimizing GHG emissions from the natural gas pipeline components and the insulated electrical equipment. The records shall include:
 - a. the name of the person conducting the inspection/maintenance;
 - b. the date of the inspection/maintenance;
 - c. the results or actions taken;
 - d. the leak detection methods used; and
 - e. the amount of SF₆ added (if any) to the electrical equipment
 15. The Permittee shall keep monthly records of the audible alarms from the SF₆ leak detection system and inspections for the insulated electrical equipment. The records shall include:
 - a. the name of the person conducting the inspection/maintenance;
 - b. the date of the inspection/maintenance;
 - c. the results or actions taken.
 16. The Permittee shall make and keep records of each hour of co-firing of this unit with the auxiliary boiler for each month and consecutive 12 months.

17. The Permittee shall make and keep records of all occurrences of firing ULSD in the turbine. At a minimum these records shall contain the following information:
 - a. the duration of ULSD firing;
 - b. the reason for ULSD firing; and
 - c. the heat input to the turbine.
18. The Permittee shall keep a certified copy of this permit on the premises at all times, and shall make this copy available upon request of the Commissioner for the duration of this permit. This copy shall also be available for public inspection during regular business hours.
19. The Permittee shall keep records of the manufacturer written recommendations for operation and maintenance of the equipment found in this permit.
20. The Permittee shall keep records of the firing natural gas/hydrogen blend to include the following:
 - a. date of firing;
 - b. percent of hydrogen in blend when fired;
 - c. duration in hours of blend firing; and
 - d. heat input to the turbine during blend firing.
21. The Permittee shall keep records of all shakedown periods. At a minimum these records shall contain the following:
 - a. the date;
 - b. the type of event;
 - c. the duration; and
 - d. date Unit 1 returns to ISO-NE dispatch availability.
22. The Permittee shall keep records of the emissions of this turbine and duct burner during a shakedown period. For pollutants not monitored by CEM, emissions during shakedown shall be calculated using good engineering judgment and the best data and methodology available for estimating such emissions. Emissions during shakedown shall be counted towards the annual emission limitation in Part III.C of this permit.
23. 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.

C. Reporting

1. The Permittee shall notify the commissioner in writing of all exceedances of an emissions limitation, and shall identify the cause or likely cause of such exceedance, all corrective actions and preventive measures taken with respect thereto, and the dates of such actions and measures as follows:
 - a. For any hazardous air pollutant, no later than 24 hours after such exceedance was identified; and
 - b. For any other regulated air pollutant, no later than ten days after such exceedance commenced.
2. The Permittee shall submit a notification of natural gas/hydrogen blend firing at least 10 days prior to each test event. The notification should include:
 - a. The expected dates of natural gas/hydrogen blend test firing; and
 - b. The expected percent of hydrogen in the blend.

The notification shall be submitted to:

Director of Engineering
Bureau of Air Management
Department of Energy and Environmental Protection
79 Elm Street, 5th Floor
Hartford, CT 06106-5127

This notification is not required for natural gas/hydrogen blend firing that has been determined to be normal operation specified in Part IV.C.4 of this permit.

3. Within 30 days of each event in Part IV.C.2 of this permit, the Permittee shall submit a report of all natural gas/hydrogen blend firing data to include, but not limited to the following:
 - a. All data collected during such firing needed to show continuous compliance with all requirements of this permit;
 - b. CEM data for NO_x and CO emissions;
 - c. Fuel flow data;
 - d. Combined natural gas/hydrogen heat input to the combustion turbine; and
 - e. Gross Electrical Load (MW).

This report is not required for natural gas/hydrogen blend firing that has been determined to be normal operation as specified in Part IV.C.4 of this permit.

4. The Permittee shall notify the commissioner in writing if it is requesting that natural gas/hydrogen blending be considered normal operation for this equipment. The Permittee must conduct stack testing in accordance with Part V.E of this modified permit (Application Number 202412249), and such testing be approved by the Department, before the natural gas/hydrogen blending would be considered normal operation for this equipment.
5. The Permittee shall notify the commissioner, in writing, of:
 - a. the date a shakedown begins; and
 - b. the date Unit 1 returns to ISO-NE dispatch availability after a rotor replacement.

Such written notification shall be submitted no later than 30 days after the subject event or issuance of this modified permit (SIMS No. 202504424), whichever is later.

PART V. STACK EMISSION TEST REQUIREMENTS

- A. Stack emission testing shall be performed in accordance with the RCSA 22a-174-5 and the [Emission Test Guidelines](#) available on the DEEP website.
- B. Recurring stack emission testing is required for the following pollutants:

- PM/PM_{10/2.5}
- VOC
- Opacity, 40 CFR Part 60, Appendix A, Reference Method 9 (gas firing)
- Other (HAPs): Sulfuric Acid, Formaldehyde, arsenic

1. For the purposes of determining maximum heat input of the turbine during performance testing, the following equations may be used:

$$MHI_T = Q_1 - [(T - T_1)/(T_2 - T_1)] \times (Q_1 - Q_2)$$

Where,

MHI_T = Turbine maximum heat input (MMBtu/hr) at ambient temperature ($^{\circ}F$)

T = Ambient Temperature

T_1 = Temperature Value from Table 1 that is below the ambient temperature

T_2 = Temperature Value from Table 1 that is above the ambient temperature

Q_1 = Heat Input at corresponding T_1

Q_2 = Heat Input at corresponding T_2

Table 1

Natural Gas Firing		ULSD Firing	
Temperature (T) $^{\circ}F$	Heat Input (Q)	Temperature (T) $^{\circ}F$	Heat Input (Q)
-14.2	2649	-14.2	2652
20	2672	20	2613
50	2590	50	2559
59	2544	59	2511
90	2416	90	2390
100	2409	100	2331

2. The Permittee shall perform one set of tests on this turbine when firing natural gas with and without duct firing, and one set of tests with the turbine firing ULSD.

C. Recurrent stack testing of all pollutants listed in Part V.B of this permit shall be performed within five years from the date of the previous stack test. Testing shall be as described in Part V.B of this permit with the following exceptions:

1. Stack testing may not be required for pollutants requiring CEM.
2. Stack testing for ULSD shall be performed every five years from the date of the last test or before 700 hours of ULSD firing, whichever is longer.

D. Natural Gas/Hydrogen Blend Stack Testing

If the Permittee submitted the notification in Part IV.C.4 of this permit, the Permittee shall conduct initial testing of natural gas/hydrogen blend in the turbine without duct firing at the allowable natural gas/hydrogen blend found in Part II.A.1.f.i of this permit within 180 days of the date of the notification in accordance with the stack emission testing requirements found in Parts V.A, V.C.1, and V.H of this permit, for the following pollutants:

- | | | | |
|---|---|--|---|
| <input checked="" type="checkbox"/> PM/PM _{10/2.5} | <input checked="" type="checkbox"/> NO _x | <input checked="" type="checkbox"/> CO | <input checked="" type="checkbox"/> VOC |
| <input checked="" type="checkbox"/> Sulfuric acid | <input checked="" type="checkbox"/> Formaldehyde | | <input checked="" type="checkbox"/> Ammonia |

- E.** Fuel oil analysis of the arsenic in the distillate oil may be substituted for stack testing while firing distillate oil. Arsenic testing is not required for natural gas firing.
- F.** The commissioner retains the right to require stack testing of any pollutant at any time to demonstrate compliance.
- G.** Stack Emission test results shall be reported as follows: all pollutants in units of lb/hr; NO_x, CO, VOC, formaldehyde, and ammonia in units of ppmvd at 15% O₂.

PART VI. SPECIAL REQUIREMENTS

A. The Permittee shall possess, at least, 235 tons of external emissions reductions to offset the quantity of NO_x emitted from the sources covered under following Permit Numbers. to comply with RCSA 22a-174-3a(l):

- 144-0023 [General Electric 7HA.01 combustion turbine/duct Burner]
- 144-0024 [General Electric 7HA.01 combustion turbine/duct burner]
- 144-0025 [92.4 MMBtu/hr natural gas fired auxiliary boiler]
- 144-0026 [1,500 kW ULSD fired emergency generator]
- 144-0027 [350 bhp ULSD fired emergency fire pump]

Such a quantity is sufficient to offset the emissions from the sources listed above at a ratio of 1.2 to 1 tons of reduction for every ton of NO_x emissions allowed under the permits listed. Specifically, the reductions are real, quantifiable, surplus, permanent, and enforceable as defined in RCSA 22a-174-3a(l)(5). The Permittee shall maintain sole ownership and possession of these emissions reductions for the duration of this permit and any subsequent changes to the permit.

Such offsets have been obtained from the following sources:

- 106 tons from Consolidated Edison Company of New York: NY-NY-DEC-2-6301-00006-106
- 110 tons from Akeida Capital Management LLC: CT4NOX00-015-0045-7888-110
- 19 tons from Sikorsky Aircraft Corporation: CTNOX1011-178-0039-19

The Permittee may be required to obtain additional NO_x offsets and complete additional ambient air quality analysis to show that the NAAQS and PSD increments have not been violated, if observed steady state or transient emissions exceed a limit specified in Parts III.A, III.B or III.C of this permit.

B. Total annual VOC emissions from all VOC emitting sources located at the premises shall not exceed 49.9 tons/year.

Demonstration of compliance with the annual VOC premises wide limit shall be based on each consecutive 12 month time period and shall be determined by adding the current month's VOC premises wide emissions to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of the previous month.

Monthly premises wide VOC emissions shall be calculated using the following equations:

$$VOC_{premises} = \Sigma VOC_{turbines} + \Sigma VOC_{engines} + VOC_{aux\ boiler} + \Sigma VOC_{storage\ tanks} + \Sigma VOC_{add}$$

where,

$\Sigma VOC_{turbines}$ = The sum of VOC emissions from the two turbine trains covered by permits 144-0023 and 144-0024 determined by correlating the VOC emissions to the CO emissions using the results of a diagnostic stack test or vendor correlation data and tracked using the CO CEMS. VOC emissions from the turbine train shall be recorded on the CEMS data acquisition system.

$\Sigma VOC_{engines}$ = The sum of emissions from the emergency engines covered by permit numbers 144-0026 and 144-0027. VOC emissions shall be calculated using the following equation:

$$VOC\ (ton/month) = [X\ (VOC\ lbs/hr) * Y\ (hrs/month)] * 1\ ton/2000\ lbs$$

$VOC_{aux\ boiler}$ = The emissions from the auxiliary boiler covered by permit 144-0025. VOC emissions shall be calculated using the following equation:

$$VOC\ (ton/month) = [X\ (VOC\ lbs/hr) * Y\ (hrs/month)] * 1\ ton/2000\ lbs$$

- $\Sigma\text{VOC}_{\text{storage tanks}}$ = The emissions from any storage tanks located on the premises shall be determined using the latest version of the EPA TANKS model or other equivalent method.
- $\Sigma\text{VOC}_{\text{add}}$ = The VOC emissions from any additional VOC emitting equipment that is added to the premises after the issuance of this permit. The VOC emissions from such equipment shall be calculated using good engineering practices.

The Commissioner may require other methods for determining VOC emissions from these sources as allowed by state or federal statute, law or regulation.

- C. Upon completion of construction of the turbines and control equipment regulated under Permit No. 144-0023 and 144-0024, the Permittee shall prepare and submit a written standby plan in accordance with the RCSA §§22a-174-6(d)(2) through (d)(5).
- D. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

Title 40 CFR Part 60 Subparts KKKK and A

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

E. Premises Emissions Summary

1. On January 1st of each calendar year, if the potential emissions of NO_x and/or VOC from the premises are equal to or greater than 25 tons per year per pollutant, then for such pollutant(s), the Permittee shall:
 - a. Monitor NO_x and/or VOC emissions, as applicable, from the premises for such calendar year.
 - b. Calculate and record annual NO_x and/or VOC emissions, as applicable, from the premises for such calendar year, in units of tons. The Permittee shall make these calculations on or before February 1st of the following year with respect to the previous calendar year. Such records shall include a sample calculation(s).
 - c. If actual NO_x and/or VOC emissions, as applicable, from the premises are equal to or greater than 25 tons for such calendar year, the Permittee shall submit to the commissioner, on or before March 1st of the following year, an annual emissions summary with respect to the premises for the previous calendar year. Such summary shall be submitted on forms prescribed or provided by the commissioner.
2. A Permittee is exempt from Part VI.E.1 requirements of this permit if, on January 1st of the subject year, the premises was operating in accordance with any of the following:
 - a. A valid Title V permit issued pursuant to RCSA section 22a-174-33;
 - b. RCSA section 22a-174-33a; or
 - c. RCSA section 22a-174-33b.

PART VII. 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 the 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; Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.