



DRAFT

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).

Operator	Ameresco Select, Inc.
Operator Address	P.O. Box 2367, Middletown, CT 06457
Owner	Connecticut Airport Authority
Owner Address	334 Ella Grasso Turnpike, Suite 160, Windsor Locks CT 06096
Equipment Location	128 - 142 Schoephoester Road, Windsor Locks, CT 06096
Equipment Description	Waukesha Model VHP-L7044GSI S5 4-stroke Rich Burn Reciprocating Engine with Miratech Model IQ2S-34-16 three-way Catalyst Device
Town-Permit Numbers	213-0119
Premises Number	009
Stack Number	8
Permit Issue Date	
Expiration Date	None

Emma Cimino
Deputy Commissioner

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.

DRAFT

PART I. DESIGN SPECIFICATIONS

A. General Description

Ameresco Select, Inc. (Ameresco) operates a combined heat and power (CHP) plant at the Bradley Energy Center (BEC) located in Windsor Locks. Thermal energy is captured from the engine jacket cooling water and exhaust gases of the engines for use in HVAC systems throughout Bradley International Airport (BIA).

The equipment consists of a Waukesha Model VHP-L7044GSI S5 4-stroke rich burn reciprocating engine with a three-way catalyst device. The engine is subject to 40 CFR Part 60 Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

Ameresco operates this equipment under contract with the Connecticut Airport Authority.

B. Equipment Design Specifications

1. Fuel Type: Natural Gas
2. Maximum Fuel Firing Rate (MCF/hr): 14.526
3. Maximum Gross Heat Input (MMBtu/hr): 15.04

C. Control Equipment Design Specifications

1. Non-Selective Catalytic Reduction (NSCR) 3-Way Catalyst
 - a. Make and Model: Miratech Model IQ2S-34-16
 - b. Design Removal Efficiency: NOx: 97.7%; CO: 91%; VOC: 33.3%

D. Stack Parameters

1. Minimum Stack Height (ft): 49.3
2. Minimum Exhaust Gas Flow Rate (acfm): 3,837
3. Minimum Stack Exit Temperature (°F): 310
4. Minimum Distance from Stack to Nearest Property Line (ft): 232

PART II. OPERATIONAL CONDITIONS

A. Equipment

1. Maximum Fuel Consumption over any Consecutive 12 Month Period (MMBtu): 127.251
2. The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

DRAFT

PART III. ALLOWABLE EMISSION LIMITS

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

A. Short Term Emission Limits

These short term emission limits do not apply during periods of startup and shutdown, unless otherwise noted.

1. Criteria Pollutants

Pollutant	lb/hr	g/bhp-hr	lb/MMBtu
PM/ PM ₁₀ /PM _{2.5}	0.29	-	0.019
SO ₂	8.30 E-03	-	5.52 E-04
NO _x	1.26	0.3	0.084
VOC	0.84	0.2	0.056
CO	3.77	0.9	0.251

2. Non-Criteria Pollutants

Pollutant	lb/hr	MASC ($\mu\text{g}/\text{m}^3$)
Formaldehyde	9.75 E-03	4,850
Acrolein	3.84 E-04	2,020

B. Startup and Shutdown Emission Limits

1. NO_x startup and shutdown limit: 54.45 lb/hr
2. CO startup and shutdown limit: 41.89 lb/hr
3. The Permittee shall minimize emissions during periods of startup and shutdown by the following work practices and time constraints:
 - a. The NSCR catalyst shall not be bypassed during startup or shutdown;
 - b. The duration of startup shall not exceed 30 minutes;
 - c. The duration of shutdown shall not exceed 30 minutes.
 - d. The combined durations of startup and shutdown shall not exceed 500 hours per year for each engine operating under Permit Nos. 213-0104, 213-0118 and 213-0119.
4. Emissions during these periods shall be counted towards the annual emission limits stated herein.

C. Annual Emission Limits

Pollutant	Tons per 12 Consecutive Months
PM/ PM ₁₀ /PM _{2.5}	1.28
SO ₂	0.036
NO _x	5.50
VOC	3.67
CO	16.51

D. Hazardous Air Pollutants

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]

E. Opacity

Opacity resulting from operation of this engine shall not exceed 10% during any six-minute block average or 40% reduced to a one-minute block average; as measured by 40 CFR Part 60, Appendix A, Reference Method 9.

F. Demonstration of compliance with the above emission limits may be met by calculating the emission rates using emission factors from the following sources:

- PM, PM₁₀, PM_{2.5}, SO₂: AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Table 3.2-3 (8/2000)
- NO_x, VOC, CO: Manufacturer’s Guarantee; Miratech Proposal No. SDM-22-006409 (10/2022)
- Acrolein, Formaldehyde: Stack test data from existing rich-burn Units 2 and 3 located at Ameresco Bradley Energy Center

The Permittee is not required to demonstrate compliance with the short-term emission limits stated herein during the initial shakedown period. Emissions during the initial shakedown period shall be counted towards the annual emission limits stated herein. The shakedown period shall not extend beyond the required date for the initial performance tests.

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 continuously monitor fuel consumption using a non-resettable totalizing fuel meter.
2. The Permittee shall perform inspections of the NSCR Catalyst as recommended by the manufacturer.

B. Record Keeping

1. The Permittee shall keep records of monthly and consecutive 12 month fuel 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.
2. The Permittee shall calculate and record the monthly and consecutive 12 month PM, PM₁₀, PM_{2.5}, SO₂, NO_x, VOC, and CO emissions in units of tons. 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 startup and shutdown shall be counted towards the annual emission limitation in Part III.C of this permit.

3. The Permittee shall keep records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of this equipment; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]

Such records shall contain the following information:

- a. type of event (startup, shutdown, or malfunction);
 - b. equipment affected;
 - c. date of event;
 - d. duration of event (minutes);
 - e. fuel being used during event; and
 - f. total NO_x and CO emissions emitted (lb) during the event.
4. The Permittee shall keep records of the inspection and maintenance of the engine and NSCR Catalyst. The records shall include:
 - a. the name of the person(s) doing the work;
 - b. the date;
 - c. the results or actions; and
 - d. the date the catalyst is replaced.
 5. The Permittee shall keep records required by 40 CFR §60.4245(a).
 6. The Permittee shall keep records in accordance with RCSA §22a-174-22f(g)(2).
 7. The Permittee shall keep records of the dates, times, and places of all emissions testing conducted, the persons performing the measurements, the testing methods used, the operating conditions at the time of testing and the results of such testing.
 8. 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

DRAFT

- 1. The Permittee shall notify the commissioner, in writing, of the following:
 - a. the date of commencement of construction as defined in RCSA Section 22a-174-1(27);
 - b. the date of initial startup of this equipment,
 - c. the date the equipment achieved maximum rated capacity if it is within 180 days of the date reported in Part IV.C.1.b of this permit.

Any required written notification(s) above shall be submitted to DEEP.CACU@ct.gov, DEEP.SEM@ct.gov and DEEP.BAM.AirPermits@ct.gov no later than 30 days after the subject event.

- 2. The Permittee shall notify the commissioner in writing of any malfunction of the engine, the NSCR Catalyst or the continuous monitoring system. The Permittee shall submit such notification within ten days of the malfunction. The notification shall include the following:
 - a. a description of the malfunction and a description of the circumstances surrounding the cause or likely cause of such malfunction; and
 - b. a description of all corrective actions and preventive measures taken and/or planned with respect to such malfunction and the dates of such actions and measures.
- 3. The Permittee shall submit a copy of each performance test conducted in accordance with §60.4244 within 60 days of completion. [40 CFR §60.4245(d)]
- 4. The Permittee shall comply with reporting requirements set forth in RCSA §22a-174-22f(h).

PART V. STACK EMISSION TEST REQUIREMENTS

Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEEP website at www.ct.gov/deep/stacktesting.

Initial stack testing shall be required for the following pollutant(s):

- PM
- PM₁₀
- PM_{2.5}
- SO₂
- NO_x
- CO
- VOC
- Opacity
- Other (HAPs): Acrolein, Formaldehyde

The Permittee shall conduct initial stack testing within 60 days of achieving the maximum production rate, but not later than 180 days after initial startup. The Permittee shall submit test results within 60 days after completion of testing.

For testing being conducted pursuant to 40 CFR Part 60, the test report shall be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]

Recurrent stack testing for NO_x, CO and VOC shall be conducted every 8,760 hours or three years, whichever comes first, in accordance with 40 CFR §60.4243(b)(2)(ii) and 40 CFR §60.4244.

Stack test results shall be reported as follows: NO_x, CO and VOC in units of lb/hr and lb/MMBtu; Acrolein and Formaldehyde in units of lb/hr and µg/m³.

PART VI. OPERATION AND MAINTENANCE REQUIREMENTS

- A.** The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- B.** The Permittee shall operate and maintain this equipment, any air pollution control equipment, and any monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown and malfunction.
- C.** The Permittee shall properly operate the NSCR Catalyst at all times that this equipment is in operation and emitting air pollutants.
- D.** The Permittee shall operate and maintain an air-to-fuel ratio controller in order to ensure proper operation of the equipment and control device to minimize emissions at all times.
[40 CFR §60.4243(g)]
- E.** The Permittee shall perform maintenance on the equipment in accordance with RCSA §22a-174-22f(f).

PART VII. SPECIAL REQUIREMENTS

- A.** The Permittee shall comply with all applicable sections of the following New Source Performance Standards at all times.

Title 40 CFR Part 60, Subpart: JJJJ and A

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

- B.** The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subpart A

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

- C.** Premises Emissions Summary

1. On January 1st of each calendar year, if the potential emissions of NO_x 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 VII.C.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

DRAFT

- D. In the event that a malfunction causing either an emission exceedance or a parameter monitored out of recommended range is not corrected within three hours, the Permittee shall immediately institute shutdown of the engine.
- E. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]
- F. The Permittee shall resubmit for review and approval a Best Available Control Technology (BACT) analysis if such construction or phased construction has not commenced within the 18 months following the commissioner's approval of the current BACT determination (i.e., the date of this permit) for such construction or phase of construction. [RCSA §22a-174-3a(j)(4)]
- G. The Permittee shall submit a permit revocation application for the existing Unit 3 (NSR Permit No. 213-0106) within 60 days of beginning construction on this equipment.

PART VIII. 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.

DRAFT