



Connecticut Department of

**ENERGY &
ENVIRONMENTAL
PROTECTION**

**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	Sprague Operating Resources LLC
Address	185 International Drive, Portsmouth, NH 03801
Equipment Location	250 Eagles Nest Road, Bridgeport, CT 06670
Equipment Description	Fuel Loading Rack
Town-Permit Numbers	015-0733
Premises Number	17
Stack Number	2
Modification Issue Date	January 29, 2023
Prior Permit Issue Date(s)	October 22, 2003 (Initial permit) March 23, 2007 (Minor Modification) February 24, 2010 (Minor Modification) May 19, 2010 (Revision) August 18, 2014 (minor Modification)
Expiration Date	None

for

Katherine S. Dykes
Commissioner

January 29, 2023

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

Sprague Operating Resources LLC (Sprague) owns and operates a bulk fuel distribution terminal in Bridgeport, Connecticut. Sprague has numerous pieces of equipment such as: storage tanks for fuel oil, gasoline, and gasoline additives, a marine terminal used for shipping and receiving the petroleum products (with the exception of gasoline which is received only), and a fuel truck loading rack equipped with a vapor recovery unit (VRU) to minimize emissions from loading delivery trucks.

The loading rack is equipped with a VRU for controlling volatile organic compound (VOC) emissions and related volatile organic hazardous air pollutant (HAP) emissions from the truck loading process. The loading rack has six loading lanes with different types of loading arms. Table 1 below lists the specific loading arms used at each lane.

Table 1: Loading Rack Configuration

Lane No.	No. of gasoline bottom loading arms	No. of distillate and biodiesel bottom loading arms	No. of distillate and biodiesel top loading arms	Total Number of loading arms
1	3	1	0	4
2	3	1	0	4
3	3	1	2	6
4	3	3	2	6
5	0	5	2	6
6	0	4	2	6

All bottom loading arms are configured for vapor recovery. This is accomplished by the direct connection of a vapor return line to the truck being loaded. As the fuel product is loaded into each truck through a connection at the bottom of the tanker’s compartments, the displaced vapors containing VOC are forced out the top of the compartment through the vapor vent line to the VRU system. The top loading distillate and biodiesel arms are equipped with submerged fill type nozzles to minimize emission from loading.

The VRU system is equipped with a carbon adsorption system for recovering volatile compounds and returning them to storage. The carbon adsorption system is a dual bed system, where one bed serves to clean the incoming vapors while the second bed is being regenerated.

Whenever the VRU is offline for maintenance, repairs, or improvements, a portable/temporary vapor combustor unit (VCU) will be brought onsite and operated for thermal destruction of vapors from the tank truck loading rack.

PART II. OPERATIONAL CONDITIONS

Notwithstanding the description provided in Part I, above, the Permittee of the subject source shall comply with the following operating requirements.

A. Operating Parameter Limitations

1. Equipment: Fuel Loading Rack
 - a. Types of Fuel Used: Gasoline, Distillate Oil and Biodiesel
 - b. Bottom-Loading Maximum Annual Throughput¹: 641 MM gal/yr
 - c. Top-Loading Oil Maximum Annual Throughput²: 153.3 MM gal/yr
 - d. VRU Maximum Daily Throughput: 2.1 MM gal/day
 - e. Allowable Fugitive VOC emission rate: 13 mg/L of gasoline loaded

2. Control: VRU
 - a. Make and Model: John Zink Carbon Adsorption Unit S3 AAW-4-100-80-8 (or equivalent)
 - b. Capture & Removal Efficiency of Adsorber: Not applicable. CEM data shall be used to demonstrate continuous compliance with the 7 mg/L of gasoline loaded limitation. [See Part IV Continuous Emissions Monitoring Requirements and Associated Emission Limits of this permit].
 - c. Allowable VOC emission rate: 7 mg/L of gasoline loaded

3. Temporary Back-up Control: Portable Vapor Combustor Unit (VCU)
 - a. Make and Model: John Zink Thermal Afterburner VCU/ Backup Rental VCU: Jordan Technologies
 - b. Maximum Gross Heat Input: 42.2 MMBTU/hr (estimated)
 - c. Maximum Fuel Firing Rate(s): 0.008 MMcf/hr, 34.56 MMcf/yr (estimated)
 - d. Fuel Type(s): Natural Gas/Propane
 - e. Minimum Combustion Temperature: 200 °F (15-minute average)
 - f. Allowable VOC emission rate: 7 mg/L of gasoline loaded

B. Stack Parameters

	Stack Parameter	VRU	VCU
1.	Minimum Stack Height	20 ft.	18 ft. John Zink/ 13 ft. Jordan Tech
2.	Minimum Exhaust Gas Flow Rate	0-1384 acfm	15,000 acfm
3.	Stack Exit Temperature	40 – 120 °F	200 - 1,300 °F
4.	Minimum Distance from Stack to Property Line	275 ft.	275 ft.

1 Includes gasoline, distillate fuel oil, fuel additives such as ethanol and biodiesel

2 Distillate fuel oil and biodiesel

PART II. OPERATIONAL CONDITIONS, continued

C. Operating and Maintenance Requirements – Vapor Collection System

1. The loading rack shall be equipped with a VRU or its equivalent, properly installed, in good working order, and in operation, and shall be used to control emissions from bottom-loading of gasoline and the bottom-loading of distillate and biodiesel into tank trucks that transported gasoline in the prior load. [RCSA §§22a-174-20(b)(2) & 22a-174-20(b)(4)]:
 - a. The vapors discharged from the delivery vehicle during loading are processed by a VRU; and
 - b. The amount of VOC released to the ambient air is less than 7 milligrams per liter of liquid loaded over a six-hour period. To determine compliance with this requirement the reference methods and test procedures found in 40 CFR §60.503(a) and 40 CFR §60.503(c), respectively shall be used.
2. The loading rack shall be equipped with a vapor collection arm/hose for bottom-loading that has a vapor collection adaptor, pneumatic, hydraulic, or other mechanical means to force a vapor-tight seal between the adaptor and the hatch/vapor return connection. A means shall be provided to prevent liquid organic compounds drainage from the loading device when it is removed from the hatch/vapor return connection of any cargo tank or to accomplish complete drainage before such removal. When loading is effected through means other than hatches, all loading and vapor lines shall be equipped with fittings which make vapor-tight connections and which close automatically when disconnected. [RCSA §§22a-174-20(b)(3) & 22a-174-20(b)(4)]

D. Operating and Maintenance Requirements – Temporary/Portable VCU

1. During periods when the VRU is offline, all vapors shall be routed to the VCU for destruction.
2. The Permittee shall continuously monitor for the presence of the pilot flame to assure that the emissions limit is met.
3. The Permittee shall continuously record the temperature of the VCU flame zone, or as near to the flame as practical to demonstrate ongoing compliance with the minimum combustion temperature requirement.
4. The Permittee shall either monitor for the presence of flame or monitor the temperature of the VCU to ensure that temperatures are above 200 °F (15-minute average) and below the maximum specified by the manufacturer to avoid overheating the unit and causing equipment damage.
5. The Permittee shall conduct an emissions test to verify compliance with the 7 mg/L emissions limitation for VOC and establish a minimum operating temperature with appropriate averaging time within 30 days of beginning operation of the temporary VCU. The test report will be prepared and submitted within 30 days in accordance with the CT DEEP Emissions Test Guidelines. The Permittee shall not be required to conduct an emissions test if the temporary VCU is onsite for a period of less than 30 days.

PART II. OPERATIONAL CONDITIONS, continued

6. The Permittee shall conduct bi-monthly inspections and preventative maintenance checks of the VCU by a qualified service contractor to verify and maintain proper operation.
7. The Permittee shall not operate the temporary VCU more than 180 days per 12-month rolling period.
8. The Permittee shall notify the commissioner in writing at least 3 days prior to operating the temporary VCU. Such notification shall provide the following information:
 - a. Date the VCU will begin to operate;
 - b. Estimated duration that the VCU will be onsite;
 - c. Brief description of why the VCU is necessary; and
 - d. Notifications shall be directed to: Compliance Analysis & Coordination Unit; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.
9. The Permittee shall notify the commissioner in writing within 7 days of removing the VCU from the site.

PART III. ALLOWABLE EMISSION LIMITS

A. Criteria Pollutants

The Permittee shall not exceed the emissions limits stated herein at any time.

1. Fuel Loading Rack, Bottom-Loading VOC Emissions

Emission Type	mg/L VOC gasoline loaded	lb/hr	TPY
Fugitive ^a	13.0	7.94	34.77
Equipment Leak ^b	---	0.28	1.24
VRU ^d	7.0	5.11	18.72

2. Fuel Loading Rack, Bottom-Loading POC Emissions (VCU operation up to 180 days)

Allowable Emissions	Limits	lb/hr	TPY
VOC ^{d/f}	7.0 mg/L	5.11	11.04
PM/PM ₁₀ /PM _{2.5} ^e	0.10 lb/MMBtu	0.06	0.13
NO _x ^f	4.0 mg/L	2.92	6.31
CO ^f	10.0 mg/L	7.30	15.77
SO _x ^e	0.6 lb/MMCF	0.005	0.010
Pb ^e	5 x 10 ⁻⁴ lb/MMCF	3.9 x 10 ⁻⁶	8.5x10 ⁻⁶

3. Fuel Loading Rack, Top-Loading VOC Emissions

Emission Type	lb/hr	TPY
Loading ^c	0.28	1.23

PART III. ALLOWABLE EMISSION LIMITS, continued

TOTAL ALLOWABLE EMISSIONS

Pollutant	TPY
VOC	55.96
PM/PM ₁₀ /PM _{2.5}	0.13
NO _x	6.31
CO	15.77
SO _x	0.01
Pb	8.5x10 ⁻⁶

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

- a. Gasoline fugitive emission rate from Gasoline Distribution Industry (Stage I) - Background Information for Promulgated Standards, Appendix A, EPA-453/R-94-002b
- b. Gasoline equipment emission rates from U.S. EPA Protocol for Equipment Leak Emission Estimates, Publication No. EPA-453/R-95-017, Table 2-3, Marketing Terminal Average Emission Factors
- c. Distillate and biodiesel loading and VRU emission rate from AP-42 5th Edition, Table 5.2-5, assume all distillate fuel and biodiesel is jet kerosene.
- d. Gasoline VRU BACT emissions limit verified using CEM data and CEM performance test data.
- e. Emissions factors from AP-42, 5th Edition, Chapter 1.4 for Natural Gas Combustion for VCU
- f. Vendor data for VCU

Compliance with the VOC emissions limit shall be demonstrated by monitoring daily and monthly fuel distribution totals for gasoline, distillate and biodiesel fuels such that the throughputs set forth in Part II.A.1 of this permit are not exceeded. The Permittee shall calculate the annual fuel throughput each calendar month by adding the current calendar month's fuel distribution to those of the previous 11 months.

The above statement shall not preclude the commissioner from requiring other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

B. Hazardous Air Pollutants (HAPs)

Chemical compounds, e.g., coatings, solvents, etc., used by this source now or in the future, either for production or on a trial basis, which contain hazardous air pollutants (HAPs) that are regulated under RCSA §22a-174-29 are allowed provided that:

1. The Permittee demonstrates that the HAPs actual stack concentration (ASC) does not exceed the maximum allowable stack concentration (MASC) using the equation in RCSA §22a-174-29(c). The Permittee shall be allowed to use the adjustment factor in RCSA §22a-174-29(i).
2. The Permittee keeps records of all compounds used, MSDSs or the manufacturer's technical data sheets.

PART IV. CONTINUOUS EMISSION MONITORING REQUIREMENTS AND ASSOCIATED EMISSION LIMITS

CEM shall be required for the following pollutant/operational parameters; and enforced on the following basis:

<u>Pollutant/Operational Parameter</u>	<u>Averaging Times</u>	<u>Emission Limit</u>	<u>Units</u>
<input checked="" type="checkbox"/> VOC	six hour average	7	mg/L
<input type="checkbox"/> Opacity	six minute block		
<input type="checkbox"/> CO ₂	1 hour block		
<input type="checkbox"/> O ₂	1 hour block		
<input type="checkbox"/> Temperature	continuous	N/A	
<input type="checkbox"/> Pressure Drop	continuous	N/A	

PART V. CONTROL EQUIPMENT

The Permittee shall comply with the procedures for malfunction of control equipment as specified in RCSCA section 22a-174-7.

The following specifications need not be verified on a continuous basis, however, if requested by the Bureau, demonstration of compliance shall be shown:

- Carbon Adsorber
 Make and Model: John Zink Carbon Adsorption Unit
 Capture & Removal Efficiency: Not Applicable – Compliance is continuously demonstrated with CEM data
 Flow Rate: 0 - 1,384 acfm
 Pressure Drop: 0 - 10 inches H₂O

- Other: VCU – Temporary/Portable

PART VI. STACK EMISSION TEST REQUIREMENTS

Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEEP website.

- VOC

The Permittee shall conduct Department approved emissions testing at least once every consecutive 60 months (five year) period to determine compliance with the VOC emissions limit of 7 mg/L of gasoline loaded.

Additionally, the Permittee shall conduct an emissions test to verify compliance with the 7 mg/L emissions limitation for VOC and establish a minimum operating temperature for the thermal afterburner with appropriate averaging time within 30 days of beginning operation of the temporary VCU. The test report will be prepared and submitted within 30 days in accordance with the CT DEEP Emissions Test Guidelines.

PART VII. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

- A.** The Permittee shall keep records of daily and monthly fuel distribution totals for gasoline, biodiesel and distillate fuels. The Permittee shall calculate the annual fuel throughput each calendar month by adding the current calendar month's fuel distribution to those of the previous 11 months.
- B.** The Permittee shall verify compliance is met when the VCU is activated by setting the hourly fuel firing rate and monitoring the daily and monthly fuel consumption rates and minimum combustion temperature set forth in Part II of this permit such that the portable/temporary VCU operating parameters are not exceeded.
- C.** The Permittee shall maintain records of each day the VCU is operated. The Permittee shall calculate total days of operation by adding the current calendar's month of total days of operation to those of the previous 11 months.
- D.** The Permittee shall calculate emissions in lb/hour and tpy using the emissions factors set forth in Part III of this permit.
- E.** The Permittee shall keep all records as required by 40 CFR Part 60, Subparts A, Kb and XX and 40 CFR Part 63, Subparts A and R.
- F.** The Permittee shall keep all records for at least five years except if specified otherwise.

PART VIII. SPECIAL 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 this premises 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 §§ 22a-69-1 through 22a-69-7.4.
- C.** The Permittee shall not cause or permit the emission of any substance or combination of substances which creates or contributes to an odor that constitutes a nuisance beyond the property boundary of the premises in accordance with the provisions of RCSA §22a-174-23.
- D.** The Permittee shall comply with all applicable sections of the following New Source Performance Standards at all times:

40 CFR Part 60, Subparts A and XX.
- E.** The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times:

40 CFR Part 63, Subparts A and R.
- F. 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 VIII.F.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 IX. 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 of 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; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.