
From: Stakely, Jocelyn <Jocelyn.Stakely@Illinois.gov>
Sent: Wednesday, July 21, 2021 3:06 PM
To: Kirk, Dan T SOPUS-DRN/48 <dan.kirk@shell.com>; laura.faletto@aecom.com
Subject: Shell Oil Products US Draft Air Permit

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Good Afternoon,

Attached is a copy of the draft of the Construction Permit and Federally Enforceable State Operating Permit - Revised for Shell Oil Products US. Please reply to this email with any comments on the draft or a reply stating there are no comments. The comments on the permit draft is expected by August 18, 2021. If you have any questions, feel free to call or email.

Regards,

Jocelyn Stakely
Environmental Protection Engineer
Illinois Environmental Protection Agency
Bureau of Air, Permit Section
(217)782-7429 (direct)
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217/785-1705

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Shell Oil Products US
Attn: Dan Kirk
150 N. Dairy Ashford
Building A, 5th Floor
Houston, Texas 77079

Application No.: 12040025

I.D. No.: 119090AAO

Applicant's Designation:

Date Received: April 13, 2012

Subject: SVE System with RTO Control

Date Issued:

Expiration Date:

Location: WRB Refinery Near Intersection of Chaffer Street and 8th Street,
Roxana, Madison County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of a soil vapor extraction (SVE) system with regenerative thermal oxidizer (RTO) control pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This Federally Enforceable State Operating Permit (FESOP) is issued:
 - i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for Volatile Organic Material (VOM), 10 tons/year for any single Hazardous Air Pollutant (HAP) and 25 tons/year for any combination of such HAPs). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
 - ii. To establish federally enforceable production and operating limitations, which restrict the potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP) and 25 tons/year of any combination of such HAPs so that the source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Site Remediation, 40 CFR 63 Subpart GGGGG.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permit(s) for this location.
- 2a. The RTO associated with the SVE system is subject to 35 Ill. Adm. Code Part 212 Subpart B (Visible Emissions). Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into

the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.

- b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.
 - c. This source is subject to 35 Ill. Adm. Code Part 212 Subpart K (Fugitive Particulate Matter). Pursuant to 35 Ill. Adm. Code 212.301, no person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source.
3. The RTO associated with the SVE system is subject to 35 Ill. Adm. Code Part 214 Subpart K (Process Emission Sources). Pursuant to 35 Ill. Adm. Code 214.301, except as further provided by 35 Ill. Adm. Code Part 214, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- 4a. The SVE system is subject to 35 Ill. Adm. Code Part 219 Subpart G (Use of Organic Material). Pursuant to 35 Ill. Adm. Code 219.301, no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 219.302, 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code Part 219 Subpart G shall apply only to photochemically reactive material.
 - b. Pursuant to 35 Ill. Adm. Code 219.302(a), emissions of organic material in excess of those permitted by 35 Ill. Adm. Code 219.301 are allowable if such emissions are controlled by one of the following methods:

Flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water.
 - c. The SVE system is subject to 35 Ill. Adm. Code Part 219 Subpart TT (Other Emission Units). Pursuant to 35 Ill. Adm. Code 219.980(a), the requirements of 35 Ill. Adm. Code Part 219 Subpart TT shall apply to a source's VOM emission units, which are not included within any of the categories specified in 35 Ill. Adm. Code Part 219 Subparts B, E, F, H, Q, R, S, T, V, X, Y, Z, AA, BB, PP, QQ, or RR, or are not exempted from permitting requirements pursuant to 35 Ill. Adm. Code 201.146, if the source is subject to 35 Ill. Adm. Code Part 219 Subpart TT. A source

is subject to 35 Ill. Adm. Code Part 219 Subpart TT if it contains process emission units, not regulated by 35 Ill. Adm. Code Part 219 Subparts B, E, F (excluding 35 Ill. Adm. Code 219.204(1)), H (excluding 35 Ill. Adm. Code 219.405), Q, R, S, T, (excluding 35 Ill. Adm. Code 219.486 of this Part), V, X, Y, Z or BB, which as a group both:

- i. Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and
 - ii. Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable permit or a SIP revision.
- d. Pursuant to 35 Ill. Adm. Code 219.986(a), every owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 219 Subpart TT shall comply with the requirements of 35 Ill. Adm. Code 219.986(a), (b), (c), (d) or (e).

Emission capture and control equipment which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent from each emission unit.

5. This permit is issued based on the SVE system at this source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Site Remediation, 40 CFR 63 Subpart GGGGG because this source is not a major source of HAP as defined in 40 CFR 63.2. This is a result of the federally enforceable production and operating limitations, which were established in this permit to restrict the potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP), and 25 tons/year of any combination of such HAPs.
6. Pursuant to 35 Ill. Adm. Code 212.314, 35 Ill. Adm. Code 212.301 shall not apply and spraying pursuant to 35 Ill. Adm. Code 212.304 through 212.310 and 35 Ill. Adm. Code 212.312 shall not be required when the wind speed is greater than 40.2 km/hr (25 mph). Determination of wind speed for the purposes of 35 Ill. Adm. Code 212.314 shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site. In cases where the duration of operations subject to 35 Ill. Adm. Code 212.314 is less than one hour, wind speed may be averaged over the duration of the operations on the basis of on-site wind speed instrument measurements.
- 7a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- b. The RTO shall be in operation at all times when the associated SVE system is in operation and emitting air contaminants.

- c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic inspections and maintenance on the RTO associated with the SVE system such that the RTO is kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.
 - d. The RTO's combustion chamber shall be preheated to at least the manufacturer's recommended temperature but no less than the temperature at which compliance was demonstrated in the most recent compliance test, or 1,400°F in the absence of a compliance test. This temperature shall be maintained during operation.
 - e. The RTO shall only be operated with natural gas as the fuel. The use of any other fuel in the RTO may require that the Permittee first obtain a construction permit from the Illinois EPA and perform stack testing to verify compliance with all applicable requirements.
- 8a. Emissions from and operation of the SVE/RTO system not exceed the following limits:

i. VOM emissions:

<u>(lbs/Hour)</u>	Maximum VOM Emissions <u>(Tons/Month)</u>	<u>(Tons/Year)</u>
8.00	2.49	24.90

ii. HAP emissions:

<u>Single HAP Emissions (Tons/Month)</u>	<u>(Tons/Year)</u>	<u>Combined HAP Emissions (Tons/Month)</u>	<u>(Tons/Year)</u>
0.79	7.90	1.99	19.90

These limits are based on compliance with 35 Ill. Adm. Code 219.301, the maximum hours of operation, and emissions shall be calculated using the following equation:

$$\text{Emissions (tons)} = \left[\frac{\text{Total SVE/RTO System Exhaust Contaminant Concentration (ppmv)} \times \text{SVE/RTO System Exhaust Flowrate (scfm)} \times 100 \text{ lb/lb - Mole} \times 60 \text{ min/hour}}{10^6 \times 387 \text{ cu ft/lb - Mole}} \right] \times \frac{\text{Hours Operated}}{2000} \div \frac{\#}{\text{Ton}}$$

- b. Combustion emissions of the RTO shall not exceed the following limits:

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(lbs/mmBtu)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Carbon Monoxide (CO)	0.084	0.11	1.10
Nitrogen Oxides (NO _x)	0.10	0.13	1.31
Particulate Matter (PM)	0.0076	0.01	0.10
Sulfur Dioxide (SO ₂)	0.0006	0.01	0.01

These limits are based on maximum firing rate (3.0 mmBtu/hour), 8,760 hours/year of operation, and standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- c. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months.
- 9a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
- i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.
- b. Testing required by Conditions 10 and 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.

10. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
11. Pursuant to 35 Ill. Adm. Code 219.988(a), when in the opinion of the Illinois EPA it is necessary to conduct testing to demonstrate compliance with 35 Ill. Adm. Code 219.986, the owner or operator of a VOM emission unit subject to the requirements of 35 Ill. Adm. Code Part 219 Subpart TT shall, at his own expense, conduct such tests in accordance with the applicable test methods and procedures specified in 35 Ill. Adm. Code 219.105.
- 12a. Pursuant to 35 Ill. Adm. Code 219.105(d)(2)(A)(i), an owner or operator: That uses an afterburner or carbon adsorber to comply with any Section of 35 Ill. Adm. Code Part 219 must use Illinois EPA and USEPA approved continuous monitoring equipment which is installed, calibrated, maintained, and operated according to vendor specifications at all times the control device is in use except as provided in 35 Ill. Adm. Code 219.105(d)(3). The continuous monitoring equipment must monitor the following parameters:

For each afterburner which does not have a catalyst bed, the combustion chamber temperature of each afterburner.
- b. Pursuant to 35 Ill. Adm. Code 219.105(d)(2)(B), an owner or operator: Must install, calibrate, operate and maintain, in accordance with manufacturer's specifications, a continuous recorder on the temperature monitoring device, such as a strip chart, recorder or computer, having an accuracy of ± 1 percent of the temperature measured, expressed in degrees Celsius or $\pm 0.5^\circ$ C, whichever is greater.
13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to Section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA

and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

14. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 15a. Pursuant to 35 Ill. Adm. Code 219.991(a)(2), any owner or operator of a VOM emission unit which is subject to the requirements of 35 Ill. Adm. Code Part 219 Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall comply with the following:

On and after a date consistent with Section 219.106 of this Part, or on and after the initial start-up date, the owner or operator of a subject VOM source shall collect and record all of the following information each day and maintain the information at the source for a period of three years:

- i. Control device monitoring data.
 - ii. A log of operating time for the capture system, control device, monitoring equipment and the associated emission source.
 - iii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 16a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. Records addressing use of good operating practices for the RTO associated with the SVE system:
 - A. Records for periodic inspection of the RTO with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

- ii. Measured exhaust total VOM and HAP (single and combined) contaminant concentration (ppmv) in exhaust air flow samples exhausting the SVE/RTO system. These samples and measurements shall be taken at start-up once every month. The Permittee may measure exhaust total VOM and HAP contaminant concentration (ppmv) in exhaust air using an appropriately calibrated photo or flame ionization detector on a once/month basis.
 - iii. Exhaust air flow rate (dscfm) from the SVE/RTO system at start-up once every month;
 - iv. Hours of operation of the system (hours/month, hours/year);
 - v. Natural gas usage (mmscf/month, mmscf/year); and
 - vi. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM, and HAPs from the source with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this Condition 16(a) of permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer storage device) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
- 18a. Pursuant to 35 Ill. Adm. Code 219.991(a)(3), any owner or operator of a VOM emission unit which is subject to the requirements of 35 Ill. Adm. Code Part 219 Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall comply with the following:
- On and after a date consistent with 35 Ill. Adm. Code 219.106, the owner or operator of a subject VOM source shall notify the Illinois EPA in the following instances:
- i. Any record showing a violation of the requirements of 35 Ill. Adm. Code Part 219 Subpart PP, QQ, RR or TT shall be reported by sending a copy of such record to the Illinois EPA within 30 days following the occurrence of the violation.

- ii. At least 30 calendar days before changing the method of compliance with 35 Ill. Adm. Code Part 219 Subpart PP or TT from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of 35 Ill. Adm. Code 219.991(b)(1). Upon changing the method of compliance with of 35 Ill. Adm. Code Part 219 Subpart PP or TT from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of 35 Ill. Adm. Code 219.991(b).
- 19a. If there is an exceedance of or a deviation from the requirements of this permit as determined by the records required by this permit or otherwise, the Permittee shall submit a report to the Illinois EPA's Bureau of Air Compliance Section in Springfield, Illinois within thirty (30) days after the exceedance or deviation. The report shall identify the duration and the emissions impact of the exceedance or deviation, a copy of the relevant records and information to resolve the exceedance or deviation, and a description of the efforts to reduce emissions from, and the duration of exceedance or deviation, and to prevent future occurrences of any such exceedance or deviation.
- b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

It should be noted that the two (2) 629 gallon water storage tanks are exempt from permitting, pursuant to 35 Ill. Adm. Code 201.146(n).

If you have any questions on this permit, please contact Jocelyn Stakely at 217/785-1705.

William D. Marr
Manager, Permit Section
Bureau of Air

WDM:JRS:

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the SVE system operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, (e.g., 100 tons/year for VOM, 10 tons/year for any single HAP, and 25 tons/year for any combination of such HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						Single <u>HAP</u>	Combined <u>HAPs</u>
	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>			
SVE System with RTO	1.10	1.31	0.10	0.01	24.90	7.90	19.90	

JRS: