



# Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

## ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

### 1.0 Facility Identification

Name Equilon Enterprises LLC d/b/a/ Shell County Madison  
 Street Address 900 South Central Ave Site No. (IEPA) 1191150002  
 City Roxana Site No. (USEPA) ILD080 012 305

### 2.0 Owner Information

Name Not Applicable  
 Mail Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State \_\_\_\_\_ Zip Code \_\_\_\_\_  
 Contact Name \_\_\_\_\_  
 Contact Title \_\_\_\_\_  
 Phone \_\_\_\_\_

### 3.0 Operator Information

Name Equilon Enterprises LLC d/b/a/ Shell  
 Mail Address 128 East Center Street  
 City Nazareth  
 State PA Zip Code 18064  
 Contact Name Leroy Bealer  
 Contact Title Senior Program Manager  
 Phone 484-632-7955

### 4.0 Type of Submission (check applicable item and provide requested information, as applicable)

- RFI Phase I Workplan/Report IEPA Permit Log No. B-43R  
 RFI Phase II Workplan/Report Date of Last IEPA Letter on Project January 26, 2024  
 CMP Report; Log No. of Last IEPA Letter on Project B-43R-CA-113, CA-114, CA-115  
 Other (describe): Does this submittal include groundwater information:  Yes  No

Roxana Former Public Works Yard Steam Enhanced Extraction - Response to IEPA letter dated 1/26/2024

Date of Submittal 2/23/2024

### 5.0 Description of Submittal: (briefly describe what is being submitted and its purpose)

Roxana Former Public Works Yard Steam Enhanced Extraction - Response to IEPA letter dated 1/26/2024

### 6.0 Documents Submitted (identify all documents in submittal, including cover letter; give dates of all documents)

Response letter and RCRA Corrective Action Certification dated 2/23/2024. Electronic copies of submittal  
also sent directly to Amy Butler, Visal Poornaka, Takako Halteman, and Ali Al-Janabi of IEPA.

For: FPWYSEE - Response to 1/26/2024 IEPA Letter

Date of Submission: February 23, 2024

**7.0 Certification Statement**

(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below). The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**7.1 Owner/Operator Certification**

(Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Operator Signature: \_\_\_\_\_ Date: 2/22/2024  
 Title: Senior Program Manager

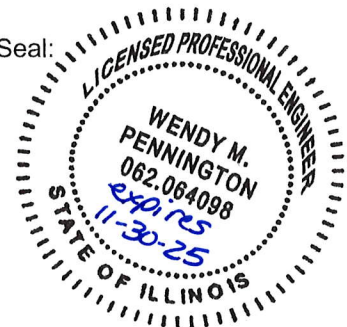
**7.2 Professional Certification (if necessary)**

Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44 (h))

Professional's Signature: Wendy Pennington Date: 2-22-2024  
 Professional's Name Wendy Pennington  
 Address 100 N. Broadway, 20<sup>th</sup> Floor  
 City St. Louis  
 State MO Zip Code 63102  
 Phone 314-429-0100

Professional's Seal:



For: FPWYSEE - Response to 1/26/2024 IEPA Letter  
Date of Submission: February 23, 2024

**7.3 Laboratory Certification (if necessary)**

The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory Not Applicable

Date: \_\_\_\_\_

\_\_\_\_\_  
Signature of Laboratory Responsible Officer

Mailing Address of Laboratory

Address \_\_\_\_\_

City \_\_\_\_\_

\_\_\_\_\_  
Name and Title of Laboratory Responsible Officer

State \_\_\_\_\_ Zip Code \_\_\_\_\_

February 23, 2024

Ms. Jacqueline M. Cooperider, PE  
Manager, Permit Section  
Illinois Environmental Protection Agency  
Division of Land Pollution Control  
Bureau of Land  
1021 North Grand Avenue East  
Springfield, Illinois 62702

**Former Public Works Yard Steam Enhanced Extraction – Response to 1/26/2024 IEPA Letter  
Roxana, Illinois  
1191150002 – Madison County  
Equilon Enterprises LLC d/b/a Shell Oil Products US  
Log No. B-43R-CA-113, CA-114, CA-115**

Dear Ms. Cooperider:

AECOM Technical Services, Inc. (AECOM), on behalf of Equilon Enterprises LLC d/b/a Shell Oil Products US (Shell), is submitting this response to the Illinois Environmental Protection Agency's (IEPA) letter dated January 26, 2024. The January 26, 2024, letter was in response to the three Former Public Works Yard (FPWY) Steam Enhanced Extraction (SEE) System submittals listed below:

1. *Former Public Works Yard Steam Enhanced Extraction – Response to 5/5/2023 Illinois EPA Letter* dated August 3, 2023
2. *Former Public Works Yard Steam Enhanced Extraction – Additional information to Final Design Report and Construction Work Plan (Area C)* dated September 22, 2023
3. *Additional Information to the FPWY SEE FDRCWP – SEE System Startup Plan* dated November 29, 2023

The three submittals listed above were approved by the IEPA with certain conditions and modifications. Each condition from the IEPA's January 26, 2024, letter is provided below in *italics*, followed by the corresponding Shell response in regular **blue font**. Conditions from the January 26, 2024, letter are reprinted in full.

A copy of this submittal is being sent separately directly to Visal Poornaka, Amy Butler, Takako Halteman, and Ali Al-Janabi with the IEPA.

**IEPA Condition 1**

*SOPUS must prevent the mobilization of chloroform to the residential homes while the SEE system is operational regardless of the source. Once the SEE system is operational, any exceedances in the indoor air inhalation exposure route for chloroform or any other VOCs based on residential settings defined in Title 35 Illinois Administrative Code (35 IAC) Part 742 at any steam vapor monitoring points (SVPs), adjustments to the system must be made.*



## Shell Response

The condition is acknowledged.

### **IEPA Condition 2**

*The Illinois EPA acknowledges that the high concentration of chloroform detected at Soil Vapor Monitoring Point-14 (SVP-14) is potentially not associated with the contamination being addressed at the PWY or the Village. Thus, the facility is not subject to address this elevated concentration of chloroform detected at SVP-14 at this time, provided there is no significant increase in chloroform concentration from the results provided in subject submittal. If there is an increase or decrease in chloroform concentrations, SOPUS must follow Condition 3 of this letter.*

## Shell Response

The condition is acknowledged.

### **IEPA Condition 3**

*Chloroform as a contaminant cannot be excluded at this time; therefore, the steam extraction vapor monitoring plan must be modified as specified below. Adjustments to the SEE system must be made, if there is a chloroform exceedance in any of the SVPs except SVE-14. The system may still need to be adjusted, if there is an increase or decrease in chloroform at SVP-14 as mentioned in Conditions 2 and 3.c of this letter. SOPUS must add an additional SVP directly north of SVP-14 to monitor the chloroform exceedance or drop, if detected.*

*In addition to milestone samples, stainless steel canister TO-15 samples may be triggered according to the following logic:*

- a. *At primary row SVPs, if routine field screened Tedlar® bag petroleum hydrocarbon (PHC) results exceed baseline field screening results by 5% or greater (as measured using Flame Ionization Detector (FID)), a confirmation Tedlar® bag sample will be collected. An increase of 10 parts per million volume (ppmv) of PHC will be the minimum increase required to trigger a confirmation sample in the primary row.
  - i. *If PHC results of the SVP's primary row confirmation sample exceed baseline field screening results by 5% or greater (as measured using FID), a stainless-steel canister TO-15 sample(s) will be collected at the exceeding SVP. An increase of 10 ppmv PHC will be the minimum increase required to trigger a TO-15 sample in the primary row.**
- b. *At secondary row SVPs, if routine field screened Tedlar® bag PHC results exceed baseline field screening results by 5% or greater (as measured using FID), a confirmation Tedlar® bag sample will be collected. An increase of 1 ppmv PHC will be the minimum increase required to trigger a confirmation sample in the secondary row.
  - i. *If PHC results of the secondary row confirmation sample exceed baseline field screening results by 5% or greater (as measured using FID), a stainless-steel canister TO-15 sample(s) will be collected at that SVP. An increase of 1 ppmv PHC will be the minimum increase required to trigger a TO-15 sample in the secondary row.*
  - ii. *If an analytical sample is triggered in the secondary row of SVPs, the SEE system may be adjusted, and/or existing SVE wells may be utilized, to address the area of increased concentrations while the analytical results are pending. If analytical results do not exceed the soil vapor values in 35 IAC Part 742, Appendix B, Table H, the SEE/SVE system**

*adjustments may be discontinued. If analytical results exceed the soil vapor values in 35 IAC Part 742, the SEE/SVE system adjustments may continue and/or be further adjusted.*

- c. The current concentration of chloroform at SVP-14 does not need action as stated in Condition 2, provided the baseline values do not increase or decrease by 10% of the baseline values during operation of SEE system. If the concentration of chloroform exceeds or drops beyond the 10% threshold, SOPUS must follow same procedures required in this letter as well as notification process required in previous Illinois EPA letters dated August 22, 2022 (Log No. B-43R-CA-107) and May 5, 2023 (Log No. B-43R-CA-109).*
- d. Triggered TO-15 samples will be limited to one (1) per week per SVP.*
- e. Adjustments to the SEE system may be made based on results observed in secondary row SVPs, not the primary row.*
- f. TO-15 canister samples will still need to be collected from SVPs after steam injection ceases provided that there is an increase in COCs at the secondary SVPs. Tedlar® bag sample collection will continue in accordance with the above conditions.*

## **Shell Response**

The condition is acknowledged. The 10% increase/decrease threshold in Condition 3.c is smaller than the auditable accuracy of the of the TO-15 analytical method. According to Section 11.4.2 of the Compendium Method TO-15<sup>1</sup>, 30% is the performance criterion for audit accuracy. This means that the maximum allowable difference between a TO-15 gas chromatograph/mass spectrometer (GC/MS) actual concentration vs. measured concentration of a chemical is 30%, in order to pass an audit. The 10% threshold specified in Condition 3.c is smaller than this 30% allowable variation, and therefore is not practical.

The first paragraph of Condition 3 states that SOPUS must add an additional SVP directly north of SVP-14 if an increase or decrease of chloroform (of 10% or greater as compared to baseline concentrations, per Condition 3.c) is observed. SVP-14 is less than 70 feet away from the nearest SEE extraction well, X-BH2, and is within the radius of capture of the SEE system, as shown in Figure 8 and discussed in Section 5 of the Old Public Works Yard Steam Enhanced Extraction – Final Design Report & Construction Work Plan, dated 12/16/2022. It is anticipated that chloroform present at SVP-14 will be pulled southward by the vacuum influence of the SEE system; therefore an additional SVP north of SVP-14 is not necessary. SVP-07 is already present to the south of SVP-14 and may serve as an additional data point in monitoring potential movement of chloroform relative to SVP-14.

Shell proposes that the SVP sampling plan be modified with the following changes:

- Decreased chloroform concentrations at SVP-14 do not trigger any action.
- Increased chloroform concentrations greater than 30% of baseline at SVP-14 will be addressed by adjusting the SEE system, rather than by the installation of an additional SVP north of SVP-14.
- Remove requirement to add an additional SVP north of SVP-14.

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<sup>1</sup> USEPA Center for Environmental Research Information, Office of Research and Development. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition – Compendium Method TO-15. January 1999.

## **IEPA Condition 4**

*The Illinois EPA approves the addition of the third treatment area, Area C which has been incorporated into the SEE system. Area C is subject to all applicable conditions that were included in previous Illinois EPA letters.*

### **Shell Response**

The condition is acknowledged.

## **IEPA Condition 5**

*The Illinois EPA acknowledges SOPUS's response to adding additional Multi Phase Extraction (MPE) wells. Due to the possibility of vaporized contaminants escaping toward residential areas prior to condensation, the ability to increase vacuum pressure of specific MPE wells and the availability of SVPs to monitor any potential migration of contaminants, additional MPE wells are not required at this time.*

### **Shell Response**

The condition is acknowledged.

## **IEPA Condition 6**

*The Illinois EPA acknowledges the concerns and risks brought forth by SOPUS in starting the SEE system in winter and hereby approves the request to delay the startup of the SEE system until Spring 2024.*

### **Shell Response**

The condition is acknowledged.

## **IEPA Condition 7**

*An updated Project Schedule must be submitted to the Illinois EPA thirty (30) days prior to the startup of the SEE system since startup of the SEE system is delayed under Condition 6 above.*

### **Shell Response**

The condition is acknowledged. An updated schedule for the FPWY SEE System is included below.

Project Phase	Approximate Duration	Anticipated Date(s)
System Startup Acceptance Testing	~ 2 weeks	March 18, 2024*
System Operation Startup	after acceptance testing	April 1, 2024
System Operation & Maintenance	~ 6 months**	April – September 2024
SEE System Construction Completion Report	~ 8 weeks after acceptance testing	June 2024
Vapor Extraction after Steam Injection is Stopped	~ 1 month	September – October 2024
System Decommissioning	~ 4-6 weeks	November – December 2024
System Operational Data Delivery to AECOM	~4-6 weeks after full system shutdown	January – February 2025

\* System acceptance testing and startup in Spring 2024 is weather dependent.

\*\* System shutdown is based on specific criteria and not a time limit.

## **IEPA Condition 8**

*SOPUS must obtain and maintain regulatory requirements in all obtained permits from the appropriate local, state, and/or federal agencies, as appropriate for the proposed activities.*

### **Shell Response**

The condition is acknowledged.

## **IEPA Condition 9**

*SOPUS must evaluate conditions following SEE treatment to determine whether additional remediation is needed for groundwater within the Village, including the evaluation of MW-4 and MW-25. This evaluation must be provided when reporting confirmation sampling and proposed next steps.*

### **Shell Response**

The condition is acknowledged.

## **IEPA Condition 10**

*Condition 14.b of the Illinois EPA's May 5, 2023, letter required in part, "If the results are higher than the Csat value for benzene (580 mg/kg) or TPH value (2,000 mg/kg), SOPUS must designate the area surrounding the sampling zone as the third treatment area..." Area C has been added based on data obtained; however, the step-out locations did not adequately define the extent of Soil Saturation Limits (Csat) exceedances for benzene south of GP-17 or the Diesel-Range Organics (DRO) and kerosene results at SB-107. The extent of contamination must be further defined beyond the southern extent of Area C, and those exceedances be remediated as this is a continuous source of contamination contributing to groundwater.*

- a. *A workplan must be submitted to the Illinois EPA for review and approval, either;
 
  - i. *Within 30 days of the date of this letter, if potential contamination can be addressed with the SEE system; or*
  - ii. *Within 180 days of the date of this letter, so remediation can be conducted in accordance with a future proposal.**



- b. The workplan required in Condition 10.a above must propose a minimum of four (4) borings to investigate the area to the southwest, south and southeast of the southern extent of Area C. The Illinois EPA is aware of a former kerosene release associated with Shell and a Buckeye release to the south. Any available data collected to date may be used to aid in delineation; however, the date of data collection will be considered, and the depths of sampling must include depths consistent with known exceedances. At a minimum, the following borings showed exceedances of concern and delineation beyond these areas is necessary.
- i. GP-17 as outlined in the May 5, 2023 Illinois EPA letter (Log No. B-43R-CA-109);
  - ii. SB-103 at 68 feet bgs has a benzene concentration of 1,030 mg/kg;
  - iii. SB-106 at 58 feet bgs has a benzene concentration of 1,580 mg/kg;
  - iv. SB-107 at 15 feet bgs has a DRO concentration of 5,040 mg/kg and a kerosene concentration of 1,240 mg/kg.

## Shell Response

The condition is acknowledged.

The depth of kerosene concentration at SB-107 given in Condition 10.b.iv is incorrect – the kerosene concentration of 1,240 mg/kg at SB-107 was observed at 39 feet below ground surface (bgs), not 15 ft, and is below the TPH Csat value of 2,000 mg/kg mentioned by IEPA in Condition 10 above.

The 1991 report listed below stated that a contaminant plume consisting primarily of kerosene/Jet A range fuel appeared to be in the western portion of the North Property traveling in an easterly direction towards the center of the cone of depression. This report discussed the possibility of a kerosene fuel leak near monitoring well T-4 (located near the center of the cone of depression).

Although some removal of kerosene and DRO may occur during SEE operation, the SEE system was not designed to address kerosene or DRO. A workplan will be developed for IEPA review and approval. This workplan will include a proposal for any necessary borings to further investigate the southern extent of Area C. This workplan will also include a discussion of a desktop evaluation of several reports, including but not limited to, those listed below.

- URS Corporation (now AECOM), Public Works Yard Soil Sampling Report, dated March 13, 2013. Submitted to IEPA.
- Engineering Science, Inc., *WRMC North Property Benzene Study*, dated January 1991. Submitted to Wood River Manufacturing Complex.
- IEPA, Response to Public Works Yard Soil Sampling Report, dated July 9, 2013. Submitted to Shell (Log No. B-43R-CA-57).
- URS Corporation (now AECOM), *Response to Public Works Yard Soil Sampling Agency Comments Provided in July 9, 2013 Letter*, dated September 12, 2013. Submitted to IEPA.
- IEPA, Response to URS Public Works Yard Soil Sampling Comments and to URS Corrective Action Requirements for Groundwater Comments, dated January 18, 2017. Submitted to Shell (Log Nos. B-43R-CA-59, CA-60, CA-69).
- AECOM, *Response to Agency Comments Provided in January 18, 2017 Letter and Comprehensive Soil and Groundwater Sampling and Analysis Report*, dated April 21, 2017. Submitted to IEPA.

This forthcoming workplan, or an extension request if necessary, will be submitted in accordance with the 180 days of the date of the IEPA letter (July 24, 2024) specified in IEPA Condition 10.a.ii above.

IEPA Conditions 11 through 15 are related to QA/QC procedures, overall corrective action efforts, proper management of wastes generated, RCRA corrective action activities in accordance with regulations/Permits/ correspondences, and compliance with OSHA and Emergency Response standards. Shell acknowledges these conditions.

If you have any questions please contact Buddy Bealer, Shell Senior Program Manager, at [leroy.bealer@shell.com](mailto:leroy.bealer@shell.com) (484-632-7956), or Wendy Pennington, AECOM Project Manager, at [wendy.pennington@aecom.com](mailto:wendy.pennington@aecom.com) (314-452-8929).

Sincerely,



Brett Howell, PG  
Geologist



Wendy Pennington, PE  
Project Manager



Samuel Fisher, CHMM  
Environmental Scientist

**Enclosures:** RCRA Corrective Action Certification Form

**cc:** Buddy Bealer, Shell  
Amy Butler, IEPA, Springfield  
Takako Halteman, IEPA, Springfield  
Visal Poornaka, IEPA, Springfield  
Ali Al-Janabi, IEPA, Collinsville  
Ryan Mohr, Fox Smith LLC  
Repositories – Roxana Public Library, website  
Project File