



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217)782-2829

PAT QUINN, GOVERNOR

LISA BONNETT, DIRECTOR

**RECEIVED**

**JUL 2 2013**

217/524-3300

July 22, 2013

CERTIFIED MAIL

7012 0470 0001 2997 4885

7012 0470 0001 2997 4892

Shell Oil Products US  
Attn: Mr. Kevin Dyer  
17 Junction Drive  
PMB #399  
Glen Carbon, Illinois 62034

WRB Refining LP Wood River Refinery  
Attn: Mr. Jay Churchill  
900 South Central Avenue  
P.O. Box 76  
Roxana, Illinois 62084

Re: 1191150002 -- Madison County  
Equilon Enterprises (d/b/a Shell Oil Products US)  
ILD080012305  
Log No. B-43R-CA-51  
Received: February 15, 2013  
RCRA Permit  
Permit CA

Dear Mr. Dyer and Mr. Churchill:

This is in response to the SVE System Construction Completion Report Addendum submitted February 13, 2013 on your behalf by URS Corporation. This submittal addressed certain aspects of remedial efforts being conducted by Equilon Enterprises (d/b/a Shell Oil Products US) in accordance with a RCRA permit issued for the above-referenced facility. The submittal addresses certain aspects of the work being done in response to contamination present along/near the west property line of the North property of the WRB Refining LP Wood River Refinery in Roxana, Illinois. In general, the area of concern for this remediation effort is bounded by First Street to the north, the Village of Roxana's Public Works property to the south (located just south of Eighth Street), Chaffer Street to the east and Central Avenue (Highway 111) to the west. A drawing showing the general location of this area is attached to this letter.

The Equilon Enterprises LLC facility which is the subject of this letter has been assigned Illinois EPA Identification Number 1191150002 and has a RCRA permit. This facility is physically located at the WRB Refining LP Wood River Refinery in Roxana, Illinois; the Illinois EPA Identification Number for the refinery itself and its operations is 1190905013. Equilon Enterprises is the operator for Site Number 1191150002 as it has contractual responsibilities to carry out certain remedial activities at the refinery, including those required by the RCRA permit issued to Equilon (Log No. B-43R and associated modifications); Equilon and its corporate predecessors actually owned and operated the refinery until 2000.

Among other things, contaminated soil vapors have been encountered near the southern and eastern boundaries of the above-described area within the Village of Roxana. These vapors have

the potential for migrating into the homes present with this area and adversely impacting the indoor air quality in these areas. Shell has been addressing this contamination by: (1) monitoring the quality of the soil vapors within the area of concern; (2) assessing the quality of the air within and below several homes in the area; and (3) operating a small soil vapor extraction system from May 2011 to January 2012 to remove a localized area of contaminated soil vapors near the corner of 4<sup>th</sup> Street and Chaffer Street; and (4) operating a larger scale soil vapor extraction system extending from Second Street to Eight Street since January 2012.

The February 13, 2013 submittal contained documentation that SVE wells 21 thru 24, 26 and 27 located within the Village of Roxana Public Works Yard had been connected to the installed system. Illinois EPA's letter of September 13, 2012 approved the construction of the soil vapor extraction system which consists of 28 wells and extends from Second Street to Eighth Streets along the refinery side of Chaffer Street. This letter also set forth procedures for operating the system and monitoring its effectiveness.

Illinois EPA has completed its review of the February 13, 2013 submittal and hereby approves it subject to the following conditions and modifications:

1. The installed SVE system which consists of thirty-four vapor extraction wells (referred to as SVE-3 through SVE-36), associated piping, two condensate tanks, a blower and a thermal oxidizer. In addition, many vapor monitoring points (VMPs) are in place to monitor the effectiveness of the SVE system.
2. Operation of the subject SVE system must be carried out in accordance with the plans being approved herein and this letter.
3. The approximate screened interval (based upon the depth below ground surface) from which soil gas will be removed from each SVE well is as follows:

<b>Well</b>	<b>Screened Interval</b>	<b>Well</b>	<b>Screened Interval</b>	<b>Well</b>	<b>Screened Interval</b>
SVE-3	5-10	SVE-14	10-20	SVE-25	10-25
SVE-4	5-10	SVE-15	10-20	SVE-26	25-35
SVE-5	10-20	SVE-16	10-20	SVE-27	25-35
SVE-6	10-20	SVE-17	10-20	SVE-28	41-51
SVE-7	10-20	SVE-18	8-18	SVE-29	21-31
SVE-8	9-19	SVE-19	11-21	SVE-30	25-35
SVE-9	10-20	SVE-20	25-35	SVE-31	25-35
SVE-10	10-20	SVE-21	25-35	SVE-32	25-35
SVE-11	10-20	SVE-22	25-35	SVE-33	25-35
SVE-12	10-20	SVE-23	25-35	SVE-34	25-45
SVE-13	10-20	SVE-24	25-35	SVE-35	31-41
				SVE-36	10-20

4. The SVE wells identified above are connected to be to one of six header lines which are in turn connected to the blower which creates the vacuum necessary to extract contaminated vapors from the subsurface. For ease in the field, each header line has been assigned a certain color. A summary of the wells associated with each header line and the general location of each set of wells is as follows:

<b>Header</b>	<b>SVE Wells Attached to Header</b>	<b>Description of Wells</b>
Blue Line	3, 4, 10, 11, 12, 25	Wells 3, 4 and 25 are along 4 <sup>th</sup> Street; Wells 10-12 are along Chaffer Street
Green Line	13, 14, 15, 16, 17, 18, 19, 36	Southernmost wells along Chaffer Street
Brown Line	34 and 35	Deep wells between 5 <sup>th</sup> and 6 <sup>th</sup> Streets
Red Line	5, 6, 7, 8, 9	Far northern wells along Chaffer Street
Purple Line	28, 29, 30, 31, 32, 33	Deeper Wells North of Fifth Street
Teal Line	20, 21, 22, 23, 24, 26, 27	Well 20 is within the refinery, but near the Roxana Public Works area. The other wells are within the public works area.

5. The SVE system identified in Condition 1 above must be expanded, if necessary, if the proposed system does not appear to be adequately removing the contaminated soil vapors from the subsurface within the study area. Such a determination will be based on many factors, such as system performance and potential risks posed by soil vapors.
6. Appropriate information and data must be collected to ensure the system identified in Condition 1 above is properly operating. Documentation of the results of all observations made and data collected in this evaluation must be recorded in the operating record for the system. Documentation of observed deficiencies in the operation of the systems must also be placed in this record, as well as documentation of the tasks carried out to correct these deficiencies. One of the important items that must be documented is when a thermal treatment unit, blower or individual SVE well is not in operation.
- a. Operation, maintenance and monitoring of the system must be carried out in accordance with: (1) the manufacturing specifications and recommendations; (2) the permit issued by Illinois EPA's Bureau of Air permit for the system; and (3) this letter.

Appropriate meters and other equipment must be available at the site to collect the data specified in Condition 9 below.

- b. The system must be appropriately monitored to ensure it is properly operating.
7. Illinois EPA, Bureau of Land, Permit Section and Collinsville Field Office must be notified via e-mail any time the full-scale SVE system is down for more than seventy-two continuous hours.
8. Vapor monitoring points have been installed at locations VMP-1 thru VMP-55. Multiple monitoring points are installed at most of these locations; an attachment to this letter identifies the vertical intervals where soil vapor samples can be collected at each location. VMP-1 thru VMP-32 have been installed and sampled for some time. VMP 33 through VMP-46 were installed such that they could be sampled, as appropriate, starting with the third quarter sampling event for 2012. VMP-47 through VMP-55 were installed such that they could be sampled, as appropriate starting with the first quarter sample event for 2013.
9. The following must be carried out on a monthly basis to monitor the general operational effectiveness of the SVE system:
  - a. At each SVE well, the vacuum within well and the depth to any water present in the well must be measured.
  - b. At each VMP well, the initial vacuum within the well must be measured as well as the vacuum in the well after the well has been allowed to stabilize.
  - c. The general chemical composition of the vapor with each SVE and VMP well must be determined using the following instruments:
    - (1) A photoionization detector;
    - (2) A flame ionization detector;
    - (3) A gas meter that can detect oxygen and carbon dioxide; this meter must also be able to report the relative amount of any ignitable vapors in the well (typically referred as determining the amount of vapor relative to the lower explosive limit ( % LEL))
  - d. The amount of methane present in each VMP well
10. On a quarterly basis, soil vapor samples must be collected for analysis from all nested wells at the following vapor monitoring point locations:
  - a. VMP-1 thru VMP-25;

11. A report summarizing/documenting the results of all monitoring and remedial efforts associated with operation of this SVE system must be developed on a quarterly basis and submitted to Illinois EPA for review. This report must contain:
  - a. A discussion of the system's operation during the quarter, including deviations from the system's design parameters (such as problems maintain an adequate vacuum, down time due to equipment failure or other reasons);
  - b. A discussion of any maintenance carried out on the system during the quarter;
  - c. A summary/discussion/evaluation of the results of all monitoring efforts carried out during the quarter, especially those carried out monthly in accordance with Condition 9 above;
  - d. An estimate of the amount of hydrocarbon removed from the subsurface by the system during the quarter;
  - e. An evaluation of the subsurface vacuum maintained by the system during the quarter, supported as appropriate with data and calculations;
  - f. An overall evaluation of the system's operation during the quarter; and
  - g. Recommended changes, if any, which need to be made to improve the effectiveness or the operation of the system.
  - h. The results of the soil vapor monitoring program conducted in accordance with Condition 10 above and an evaluation of these result.
12. The quarterly reports required by Condition 11 above must be prepared and submitted to the Illinois EPA in accordance with the following table:

<u>Quarter of Calendar year</u>	<u>Report for the Months of</u>	<u>Report to the Illinois EPA by the following</u>
1st quarter	January-March	May 1st
2nd quarter	April-June	August 1st
3rd quarter	July-September	November 1st
4th quarter	October-December	February 1 <sup>st</sup>

13. RCRA corrective action activities carried out at the Equilon facility including off-site activities as necessary must meet the requirements of: (1) 35 Ill. Admin. Code 724.201; (2) the facility's RCRA permit; and (3) Illinois EPA letters regarding such activities.

Mr. Dyer and Mr. Churchill

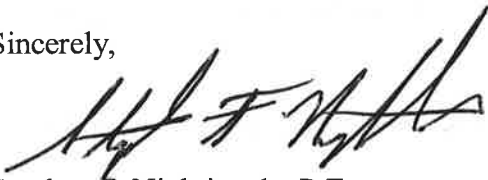
Log No. B-43R-CA-51

Page 6

Work required by this letter, your 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. This letter does not relieve anyone 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.

If you have any questions regarding this letter, please contact William T. Sinnott, II at 217/524-3310.

Sincerely,

A handwritten signature in black ink, appearing to read "S.F. Nightingale", written in a cursive style.

Stephen F. Nightingale, P.E.  
Manager, Permit Section  
Bureau of Land

SFN:WTS:1191150002-RCRA-B43RCA51-Approval  
JVM

Attachments: Site Location Map  
Summary of VMP Wells 1-55



**Equilon Remediation Project in Roxana, Illinois**  
**Approximate Depth to Top of Screen of the Various Vapor Monitoring Points**

Note: The reason there is no "Screen 1" for VMPs 33 through 46 is that these wells were installed to mainly monitor the performance of the SVE system. Thus, these locations are not so concerned about the shallow soil gas levels, but rather those in soil at least ten feet below the ground surface (the main zone from which soil gas is being extracted by the SVE system).

Location ID Number	Depth to Top of Screen for Each Nested VMP				
	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5
VMP-1	5	8.5	23.5	38.5	
VMP-2	5	8.5	22	42	
VMP-3	5	10	22	31.5	39
VMP-4	5	12	23.5	39	
VMP-5	5	12.5	31	40	
VMP-6	5	10	31.5	39	
VMP-7	5	13.5	29.5	38	
VMP-8	5	9.5	23.5		
VMP-9	5	11.5	25.5	38.5	
VMP-10	5	10	20	30	
VMP-11	5	8	29	38	
VMP-12	5	11.5	25	39	
VMP-13	5	10.5	21.5	29.5	
VMP-14	5	11.5	20	29	
VMP-15	5	21.5	25.5	29	
VMP-16	5	13.5	19	31	
VMP-17	5				
VMP-18	8.5				
VMP-19	5				
VMP-20	5	10	25		
VMP-21	5	10	25	33	
VMP-22	5	10	18	38	
VMP-23	5	10	25		
VMP-24	5	10	22	34	
VMP-25	5	21			
VMP-26	10	20	30	38	
VMP-27	10	20	30	38	
VMP-28	10	20	30	37	
VMP-29	10	18	26	40	
VMP-30	10	18	26	40	
VMP-31	5	10	20	30	
VMP-32	5	10	20	30	
VMP-33		10	20	30	
VMP-34		10	20	30	
VMP-35		10	20	30	
VMP-36		10	20	30	
VMP-37		10	20	30	
VMP-38		10	20	27	
VMP-39		10	20	30	
VMP-40		10	20	30	
VMP-41		10	20	26	
VMP-42		10	20	30	
VMP-43		10	20	30	
VMP-44		10	20	30	
VMP-45		10	20	30	
VMP-46		10	20	30	
VMP-47	5	10	20	30	
VMP-48	5	10	20	30	
VMP-49	5	10	20	30	
VMP-50	5	10	20	30	
VMP-51	5	10	20	30	
VMP-52	5	10	20	30	
VMP-53	5	10	20	30	
VMP-54	5	10	20	30	
VMP-55			20		