ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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PAT QUINN, GOVERNOR JOHN J. KIM, INTERIM DIRECTOR

217/524-3300

September 13, 2012

CERTIFIED MAIL
7009 3410 0002 3749 6526
7009 3410 0002 3749 6533

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. Mike Bechtol
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-12 and 14
Received: June 13, 2011; July 20, 2011; September 28, 2011; May 31, 2012
RCRA Permit
Permit CA

Dear Mr. Dyer and Mr. Bechtol:

This is in response to several submittals made on your behalf by URS Corporation regarding investigation/remediation efforts being conducted by Equilon Enterprises (d/b/a Shell Oil Products US) in accordance with a RCRA permit issued to the above-referenced facility to address 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, this area 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 in the short term

by: (1) continuing to monitor 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 since May 2011 to remove a localized area of contaminated soil vapors near the corner of 4th Street and Chaffer Street.

In a November 15, 2010 letter, Illinois EPA approved Shell's conceptual plan to design and install a larger scale system to remediate the contaminated soil vapors present near the eastern and southern boundaries of the area of concern. On March 16, 2011, Illinois EPA approved a plan for conducting a pilot test for a soil vapor extraction (SVE) system; the results of this test would be used to design a full-scale SVE system.

Based upon Illinois EPA's March 16, 2011 letter and other letters Illinois EPA has issued regarding this project, Mr. Billman made the following submittals to Illinois EPA for review:

1. A June 10, 2011 submittal from Robert B. Billman, URS Corporation which included a document entitled "Conceptual/Final Design Report." This document contained detailed plans and specification for the construction of a soil vapor extraction system (SVE) to be installed: (1) along the western property boundary of the WRR Refinery between Second and Eighth Streets; and (2) within the Roxana Public works property located just south of Eighth Street.

2. A July 19, 2011 submittal from Mr. Billman which included a document entitled "Soil Vapor Extraction Pilot Test Report" (received July 20, 2011). This document contained the results of the pilot SVE test approved by Illinois EPA on March 16, 2011.

3. A September 23, 2011 submittal from Mr. Billman which contained revisions to the proposed full-scale SVE system as identified in the above-referenced Conceptual/Final Design Report.

4. A May 30, 2012 submittal from Mr. Dave Palmer and Mr. Robert E. Mooshegian of URS Corporation which included a document entitled "SVE System Construction Completion Report."

The above submittals are hereby approved subject to the following conditions and modifications:

1. This letter approves the design and partial construction of a 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 or will be in place to monitor the effectiveness of the SVE system. A drawing showing the location of the existing and/or yet to be installed SVE wells and VMPs is attached.

2. Due to access issues, SVE wells 21 thru 24, 26 and 27 have not been connected to the overall SVE system. Once access to the area where these wells are located is received, Equilon must take action to connect these wells to the overall system and begin extracting vapors from them.

   a. These efforts shall be carried out in accordance with the procedures used during the construction and initial operation of the remainder of the SVE system.

   b. An addendum to the May 30, 2012 "SVE System Construction Completion Report" documenting the results of these efforts must be submitted to Illinois EPA within ninety days after full-scale operation of this portion of the SVE system commences.

3. Operation of the subject SVE system must be carried out in accordance with the plans being approved herein and this letter.

4. 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:

Well	Screened Interval	Well	Screened Interval	Well	Screened Interval
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

5. The SVE wells identified above are connected to or will 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:

Header	SVE Wells Attached to Header	Description of Wells
Blue Line	3, 4, 10, 11, 12, 25	Wells 3, 4 and 25 are along 4th 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 5th and 6th 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.

6. 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.

7. 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.

    b. Appropriate meters and other equipment must be available at the site to collect the data specified in Condition 11 below.

c. The system must be appropriately monitored to ensure it is properly operating.

8. 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.

9. Vapor monitoring points have been installed at locations VMP-1 thru VMP-46, as shown in the attached map. 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 for some time. VMP 33 through VMP-46 have only recently been installed and must be sampled as appropriate starting with the third quarter sampling event for 2012.

10. In addition to the above, four nested vapor monitoring points must be installed (screened at 5' below ground surface as well as 10', 20, and 30, below ground surface), pending approved access by the Village of Roxana, at the following locations such that they may start being sampled within ninety days of receiving approved access:

a. VMP-47 located near the corner of Chaffer and the alley between First and Second Streets;

b. VMP-48 located approximately 50' west of VMP-2;

c. VMP-49 located approximately 50' west of VMP-3;

d. VMP-50 located approximately 50' west of VMP-4;

e. VMP-51 located approximately 50' west of VMP-5;

f. VMP-52 located approximately 50' west of VMP-6;

g. VMP-53 located approximately 50' west of VMP-8;

h. VMP-54 located approximately 200' north of SVE-23 in the alley between Seventh and Eighth Streets;

i. VMP-55 located approximately 100' west-northwest of SVE-24

11. 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, air flow and 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))

    a. The amount of methane present in each VMP well

12. 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;

    b. VMP-29 thru VMP-32;

    c. VMP-41 thru VMP-45;

    d. VMP-47 thru VMP-55.

13. 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 11 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 12 above and an evaluation of these result.

14. The quarterly reports required by Condition 13 above must be prepared and submitted to the Illinois EPA in accordance with the following table:

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

15. As full-scale operation of the partially completed SVE system began on approximately April 1, 2012, the first quarterly report required by Condition 15 above should be submitted by October 1, 2012 for the time period April 1, 2012 to June 30, 2012. In developing this first report, it is understood that all the information required by this letter may not have been compiled.

16. 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.

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 James K. Moore, P.E. at 217/524-3295.

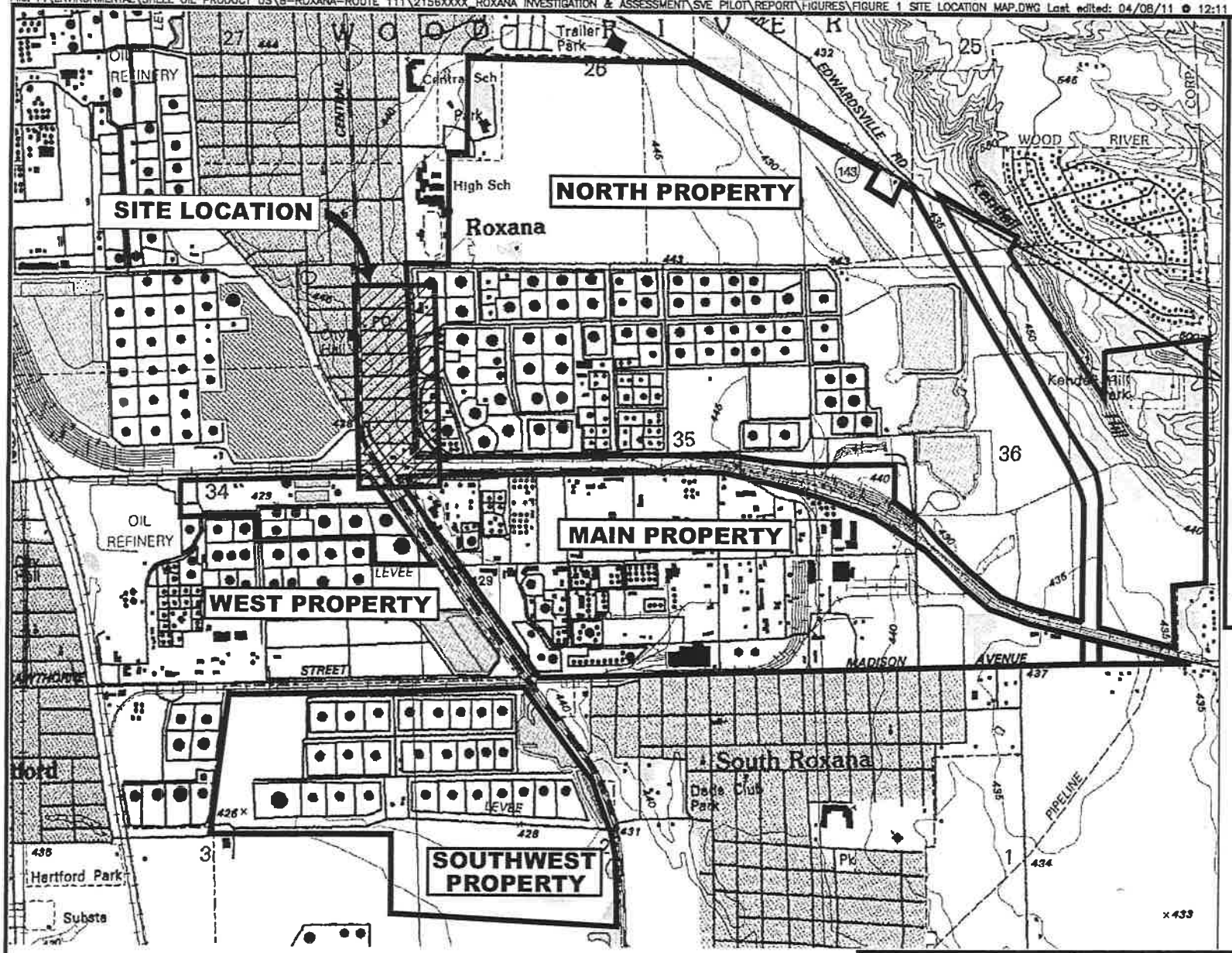
Sincerely,

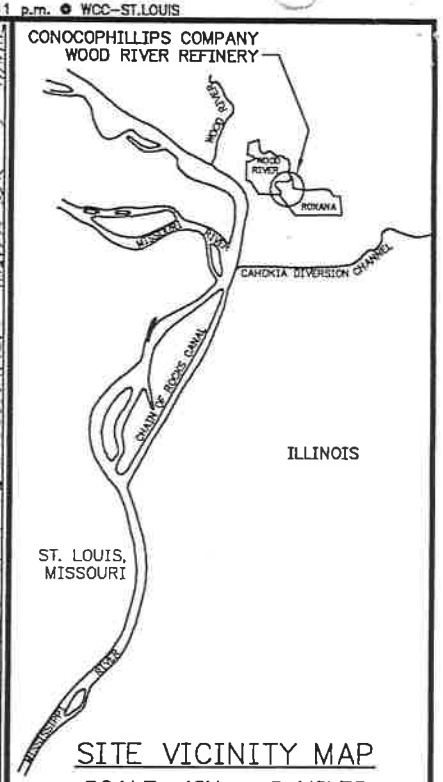
Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:JKM:1191150002-RCRA-B-43R-CA-12
JKM

Attachments: Site Location Map
Location of SVE Wells
Summary of VMP Wells 1-46

File: P:\ENVIRONMENTAL\SHELL OIL PRODUCT US\B-ROXANA-ROUTE 111\2156XXXX_ROXANA INVESTIGATION & ASSESSMENT\SVE PILOT\REPORT\FIGURES\FIGURE 1 SITE LOCATION MAP.DWG Last edited: 04/08/11 @ 12:11 p.m. @ WCC-ST.LOUIS





SITE VICINITY MAP
SCALE: 1IN = 8 MILES

LEGEND

- WOOD RIVER REFINERY PROPERTY BOUNDARY
- INVESTIGATION AREA

CONTOUR INTERVAL = 5 FT

Ø 2000

SCALE FEET

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SOURCE:
MAP TAKEN FROM ELECTRONIC USGS DIGITAL RASTER GRAPHIC 7.5 MINUTE TOPOGRAPHIC MAP OF WOOD RIVER, ILL-MO REVISED 1994.

SHELL OIL PRODUCTS US ROXANA, ILLINOIS		PROJECT NO. 21562593
URS		
DRN. BY: djd 4/8/11 DSGN. BY: djd CHKD. BY: rh	Site Location Map	FIG. NO. 1

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).

	Depth to Top of Screen for Each Nested VMP				
Location ID Number	**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	