



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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RECEIVED

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

WRB Refining LLC Wood River Refinery
Attn: Mr. David Dunn
900 South Central Avenue
P.O. Box 76
Roxana, Illinois 62084

Re: 1191150002 -- Madison County
Equilon
ILD080012305
Log No. B-43R-CA-2
RCRA Permit
Permit CA

Dear Mr. Dyer and Mr. Dunn:

This is in response to a September 20, 2010 submittal made on your behalf by Robert B. Billman, URS regarding an investigation being conducted along the west property line of the North property of the WRB Refining, LLC Wood River Refinery in Roxana, Illinois and the area immediately west of the refinery's North Property. A drawing showing the general location of this area is attached to this letter.

The Equilon Enterprises 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, LLC Wood River Refinery in Roxana, Illinois; the Illinois EPA Identification Number for the refinery itself and its operations is 1190905013. Equilon Enterprises, d/b/a/ Shell Oil Products US, 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 a RCRA permit (Log No. B-43 and associated modifications); Equilon and its corporate predecessors actually owned and operated the refinery until 2000.

On May 12, 2009, Illinois EPA approved a plan for conducting an investigation in the area mentioned above which includes: (1) the area around a groundwater monitoring well referred to as "P-60" (which is a part of the groundwater monitoring/remediation system associated with the RCRA permit for the Equilon facility); and (2) the area in the vicinity of the 1986 benzene release from an underground pipe near the intersection of Illinois Route 111 and Rand Avenue. A report documenting the results of this investigation effort was approved by Illinois EPA on August 5, 2010. Among other things, Illinois EPA required that a workplan be submitted to investigate for the possible migration of contaminated vapors into several homes within the area of concern.

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Collinsville • 2009 Mall Street, Collinsville, IL 62234 • (618) 346-5120

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Mr. Billman's September 20, 2010 submittal included a document entitled "Workplan, Vapor Intrusion Investigation," Roxana, Illinois. This workplan was submitted in response to Illinois EPA's August 5, 2010 letter and is hereby approved as a modification to the RCRA corrective action program for the Equilon facility subject to the following conditions and modifications:

1. As indicated in Illinois EPA's August 5, 2010 letter, soil vapor samples must be collected/analyzed on a quarterly basis at Vapor Monitoring Points (VMP) 1 through 19. Fifteen of the points have multiple sampling points, only four (VMP-3, VMP-17, VMP-18 and VMP-19) have one sampling point.
2. The potential for vapor intrusion must be evaluated at the following residences and/or buildings within the area identified in Attachment A (if access to a residence listed below is not granted by the owner of the property, then the alternate residences which must be evaluated are also listed below):

Initial Residence Selection	Backup Residence(s)	Secondary Backup	VMP Associated with Residence
█ East Second Street	█ East Second Street	█ East First Street	1
█ East Second Street	█ East Second Street		1 and 2
█ East Third Street	█ East Third Street	█ East Second Street	2
█ East Third Street, Apt. █	█ East Third Street, Apt. █	█ East Third Street	3
█ East Fourth Street	█ East Fourth Street		3
█ East Fourth Street	█ East Fourth Street	█ East Fourth St.	4
█ East Fifth Street	█ East Fifth Street		4
█ East Fifth Street	█ East Fifth Street		5
█ East Sixth Street	█ East Sixth Street		5
█ East Sixth Street	█ East Sixth Street		6
█ East Seventh St.	█ East Seventh St	█ East Seventh St.	6
█ East Eighth Street	█ East Seventh Street		11
█ East Eighth Street	█ East Seventh Street		11
█ East Eighth Street	█ East Eighth Street	█ East Seventh St.	11
All Roxana Public Works Buildings near VMP 11 and 13			11 and 13

3. If the evaluations conducted in accordance with this letter indicate that vapor intrusion is a problem at any residence/building, then appropriate action subject to Illinois EPA review and approval, must be taken to mitigate the problem. In addition, the boundaries

of the area being evaluated must be expanded to address residences/buildings adjacent to the structure where vapor intrusion was found to be a problem.

4. Illinois EPA and the Illinois Department of Public Health (IDPH) must be given the opportunity to actively participate in all aspects of the evaluations and any corrective measures made at each residence/building addressed in accordance with the provisions of this letter (starting with the initial contact required by Condition 5 below). The contact person for Illinois EPA is Chris Cahnovsky (telephone number 618/346-5120; e-mail address Chris.Cahnovsky@illinois.gov); the contact person for the IDPH is David Webb (telephone number 618/656-6680); e-mail address David.R.Webb@illinois.gov.
5. The first step which must be taken in carrying out the evaluations required by this letter above is visiting each residence in person to explain: the overall situation regarding the contamination beneath and around the village of Roxana; the reason why the sampling is necessary; the importance of participation; a general discussion of the sampling efforts which will take place; how the results will be shared; the types of materials which should be removed from the residence before the sampling, the need for an access agreement; the fact that an access agreement is there for the resident's and SOPUS's best interests.
 - a. During this initial visit, the residents must, at a minimum, be given: (1) a copy of the contact letter as provided in a September 23, 2010 e-mail from Mr. Billman; (2) a copy of this letter; (3) a copy of the workplan approved by this letter; and (4) other information, as appropriate, regarding the overall project.
 - b. Only after a reasonable number of attempts to contact a resident in person fail may SOPUS attempt to contact the resident in question by certified mail. In making the contact in this manner, the information identified in Condition 5.a above must be conveyed in the mailing.
6. In addition to the initial discussions required by Condition 5 above, the following must also be discussed at some time with the resident: sampling procedures; procedures for installing the sub-slab sampling ports; and any actions which will be taken in response to the results of the evaluation.
7. Once an access agreement has been obtained, a detailed walk-through assessment of the residence/building must be conducted using the form in Appendix B of the workplan. If the residence does not have a basement, then the "Walk-Through Inspection Worksheet" contained in Appendix B should depict the general layout of the first floor of the residence/ building in question.

8. At each residence/building to be evaluated:
 - a. The air within the first floor and basement/crawl space must be:
 - (1) Field screened using an FID, a PID and an LEL meter. In addition, the level of methane in the air must be determined;
 - (2) Sampled over a 24-hour period using a Summa Cannister and analyzed in accordance with Conditions 13 and 14 below.
 - b. Three sub-slab soil vapor sampling points must be installed so that they extend beneath the basement floor or other concrete floor associated with the residence/building; these points must be. Installation of these points must be carried out in accordance with procedures developed by USEPA and the ITRC. Samples from each point must:
 - (1) first be field screened using an FID, a PID and an LEL meter. In addition, the level of methane in the air must be determined.
 - (2) be collected over a 24-hour period using a Summa Cannister and analyzed in accordance with Conditions 13 and 14 below.
9. The indoor air within the first floor and basement/crawl space of a residence/building shall be field screened before any other field work required by Condition 8 above is conducted. If a reading of 1% LEL or greater is detected or if an FID reading of 200 ppm or greater is detected, then the resident/occupant must be offered alternative housing until these levels are mitigated in accordance with plans and procedures approved by Illinois EPA. Illinois EPA and IDPH must be immediately notified of such an occurrence and the scope of the evaluation effort must be expanded to neighboring properties.
10. If a given residence only has a crawl space, then the sampling/analysis effort required by Condition 8 must be expanded to also include the next backup residence identified in Condition 2 above.
11. If the field screening results conducted in a residence/buildings exceeds certain baseline criteria, then: (1) the summa canisters associated with the residence/building must be analyzed on an expedited basis; (2) the Illinois EPA and the Illinois Department of Public Health need to be notified within one hour after the results are obtained; and (3) an assessment must be conducted of the home to determine what mitigation measures should be taken at the residence/building. The "baseline" criteria which would initiate this acceleration of the overall process approved by this letter are:

- a. An indoor air FID reading from the first floor or basement/crawl space greater than 20 ppm; or
 - b. An indoor air LEL from the first floor or basement/crawl space greater than non-detect; or
 - c. Any subsurface gas FID reading greater than 500 ppm; or
 - d. Any subsurface gas LEL greater than 1%.
12. If a subslab FID result exceeds 550 ppm, then the boundaries of the area being evaluated must be expanded to address residences/buildings adjacent to the structure where vapor intrusion was found to be a potential problem.
13. The samples collected by summa canisters must be obtained over a 24-hour period and analyzed for the following petroleum hydrocarbons (the required detection limits which must be achieved during the analysis of the samples):

Compound	Laboratory Detection Limit for Indoor Air (in $\mu\text{g}/\text{m}^3$)	Laboratory Detection Limit for Sub-slab Air (in $\mu\text{g}/\text{m}^3$)
n-Hexane	350	3,500
Benzene	5	50
Toluene	150	1,500
Ethylbenzene	10	100
Total Xylenes; m-, p-xylene; o-xylene	100	1,000
Total Trimethylbenzenes; 1,2,4-Trimethylbenzene; 1,3,5-Trimethylbenzene	3	30
Total Petroleum Hydrocarbons (gas phase) (TPH-g)	100	1,000
n-Propylbenzene	500	5,000
Isopentane	50	500
n-Butane	50	500
Cyclohexane	50	500
2,2,4-Trimethylpentane	50	500
1,4-Dioxane	50	500
Methane (ASTM D-1946)	0.005 %	0.05 %

14. Collection and analysis of all required samples must be carried out in accordance with the procedures approved by Illinois EPA on May 12, 2009 and/or other procedures which have been established by USEPA or Illinois.
15. All summa canisters which complete their 24-hour sample collection period must be sent to the laboratory for analysis by the end of that work day.
16. As there are several persons involved with this evaluation, a daily report must be generated and distributed at the end of each day which summarizes the investigation work completed that day and the work to be carried out the next day. In addition, this report must contain a running summary of the evaluation/ investigation efforts completed to date. For each residence/building, this summary must include the following:
 - a. Date initial contact is scheduled
 - b. Date of initial contact
 - c. Indication of whether access agreement has been obtained
 - d. Date investigation work at location scheduled to begin
 - e. Actual date investigation work begins
 - f. Results of all field screening efforts
 - g. Date last subsurface gas monitoring port is installed
 - h. Date investigation work is completed;
 - i. Date last summa canister sent to the lab for analysis
 - j. Date last set of summa canister analytical results received from lab
 - k. Any additional comments which help to describe the status of the evaluation/investigation efforts being conducted at each home

These daily reports must be sent via e-mail to Chris Cahnovsky and David Webb at the e-mail addresses listed above as well as to Jim Moore of Illinois EPA at James.K.Moore@illinois.gov.

17. A report documenting the results of the evaluation conducted in accordance with Conditions 6 and 7 above at a building/residence must be submitted to Illinois EPA and the Illinois Department of Public Health with fourteen days after the summa canister analytical results are received from the laboratory. A separate report must be generated for each building/residence evaluated. Each report must contain:
 - a. A general introduction to the overall project and the purpose of the evaluation;
 - b. A general description of the efforts carried out in completing the evaluation;
 - c. A copy of the Walk-Through Assessment Form and a discussion of the information on the form;
 - d. A description of the procedures used to carry out the required indoor air field screening and a presentation/discussion of the results;
 - e. A description of the procedures used to carry out the required indoor air sampling/analysis effort and a presentation/discussion of the results;
 - f. A description of the procedures used to install the sub-slab sampling ports;
 - g. Information similar to that identified in Items 17.d and 18.e in regard to the sub-slab sampling/analysis effort.

18. Condition 2 of Illinois EPA's August 5, 2010 letter required a report documenting the results of additional investigation efforts regarding the distribution of contaminated soil vapors within/around the area of concern be submitted by December 31, 2010. However, additional soil vapor data has been gathered by SOPUS since the development of the report approved by Illinois EPA on August 5, 2010. Thus, a document which compiles all available and applicable information regarding soil vapors in the area of concern must be submitted to Illinois EPA by November 30, 2010. This document must also describe the additional work which will be carried out to fully characterize the horizontal and vertical extent of contaminated soil vapor beneath the area of concern. Among other things, this document should include:
 - a. An introduction to and an overall view of the project;
 - b. A presentation/discussion of the following characteristics of the area and what impacts they have individually and cumulatively on the distribution of contaminated vapors present in the subsurface soil gas: (1) the geology of the area in question; (2) the levels/extent of groundwater contamination in the area; and (3) the amount/extent of present beneath and/or near the area in question.

- c. A presentation/discussion of the potential sources of contaminated soil gas in the area of concern. One of the issues that should be incorporated into this presentation/discussion is the information required to be submitted in Condition 5 of Illinois EPA's August 5, 2010 letter.
- d. A description of the soil vapor monitoring system currently present in the area of concern;
- e. A discussion of the procedures used to collect the soil vapor samples;
- f. A summary of all available information; including a presentation of the third quarter monitoring data;
- g. A general discussion of the distribution of contaminated soil vapor beneath the area of concern and a description of any efforts which must be carried out to fully characterize the extent of the contaminated soil vapor beneath the facility.
- h. Drawings which identify the horizontal distribution of soil gas concentrations for each of the general vertical intervals where soil gas monitoring points have been installed
- i. A drawing which superimposes the geology along the cross-section shown in Figure 15 of the February 10, 2010 report on the vertical distribution of soil gas concentrations shown in the figure.

It must be noted that this document will provide an excellent foundation for designing the soil vapor extraction system proposed in the subject workplan.

- 19. Section 6 of the workplan indicates SOPUS is planning to install a soil vapor extraction system in this area to remove contaminated soil vapors from the subsurface. A workplan for conducting a pilot test (whose results will form the foundation for the final design of the system) for the SVE system must be submitted to Illinois EPA for review and approval by December 31, 2010. Once this workplan is approved, a conceptual design report for this system should be submitted to Illinois EPA for review and approval within sixty days after the pilot test workplan is approved. Lastly, a final design report for the system should be submitted to Illinois EPA within sixty days after the conceptual design report is approved.
 - a. Guidance on the development of these documents can be found in the Hazardous Waste Remediation page of Illinois EPA's internet site. Other applicable guidance from USEPA and Illinois EPA should also be used, as necessary, in the development of these documents.

- b. Establishing the horizontal and vertical boundaries of the contaminated soil gas to be addressed by the system is some of the most important information needed to design the system. These boundaries will need to be verified by soil gas data, groundwater data and data regarding the presence of free product in the subsurface.
20. The data screening levels contained in Section 5.2 of the workplan cannot be approved at this time for the following reasons:
- a. Illinois EPA has been developing remediation objectives for the indoor air inhalation exposure route; the procedures which Illinois EPA has been proposing should be used in the development of remediation objectives for this project.
 - b. 35 Ill. Admin. Code 742.900 requires that a formal risk assessment meeting the requirements of 35 Ill. Admin. Code 742.915 be conducted if remediation objectives based upon a target cancer risk of more than 1×10^{-6} . The proposed remediation objectives for carcinogens were based on a target can risk of 1×10^{-5} although no risk assessment was provided.
21. All actions taken to address vapor intrusion problems at any residence/building must be carried out in accordance with plans approved by Illinois EPA.
22. 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.
23. The documents previously submitted by SOPUS regarding this project as well as the requirements of Illinois EPA's previous letters regarding this project are incorporated herein by reference.

This letter constitutes Illinois EPA's final decision on the subject submittal. Within 35 days after the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

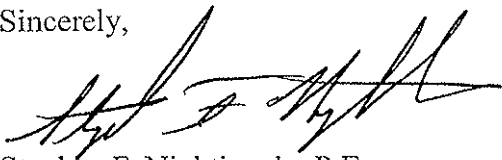
Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from

Mr. Kevin Dyer and Mr. David Dunn
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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:bjh\10792s.doc
JKM

Attachment: Site Layout Map

cc: Robert B. Billman, URS
David Webb, IDPH
Michelle Waters, ATSDR

