ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/524-3300

January 18, 2017

CERTIFIED MAIL
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7014 2120 0002 3289 7620

Shell Oil Products US
Attn: Kevin Dyer
17 Junction Drive
PMB #399
Glen Carbon, Illinois 62304

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

Re: 1191150002--Madison County
Equilon Enterprises d/b/a Shell Oil Products US
ILD 080 012 305
Log No. B-43R-CA-59, 60 and 69
RCRA Permit
Corrective Action

Dear Mr. Dyer and Mr. Petersen:

This is in response to three submittals made on behalf of Equilon Enterprises (doing business as Shell Oil Products US) by URS Corporation regarding certain aspects of the RCRA corrective action program being carried out at the Wood River Refinery located at 900 South Central Avenue in Roxana, Illinois. Equilon is obligated to implement the RCRA corrective action program at this facility and obtained a RCRA permit which, among other things, sets forth the RCRA corrective action program to be implemented at this facility.

The three submittals being responded to in this letter are as follows:

1. A March 18, 2013 submittal requesting an extension of the due date for submitting the report regarding the extent of groundwater contamination in the vicinity of Well T-7 at the subject facility as required by Illinois EPA's January 3, 2013 letter. Well T-7 is located in the northwestern portion of the Main Property of the Wood River Refinery.

2. An April 30, 2013 submittal regarding a groundwater profiling effort conducted at the facility. This submittal was made in response to Illinois EPA's January 3, 2013 Illinois EPA letter (Log No. B-43R-CA-39) which required that additional groundwater profiling wells be installed to the south, east, and west of well T-7 for delineating the extent of contamination in the vicinity of that well.

3. A September 12, 2013 submittal made in response to Illinois EPA's July 9, 2013 letter regarding the results of an investigation effort carried out at the Public Works Yard located at the southwest corner of the intersection of Chaffer and Eighth Streets in the Village of Roxana. The Public Works Yard is located just northwest of the northwestern corner of the Main Property of the Wood River Refinery.

Illinois EPA has completed its review of the submittals mentioned above and has the following comments:

1. Illinois EPA does not agree with the conclusions reached in the September 12, 2013 submittal that no further investigation is needed in the Public Works Yard to characterize the soil contamination present there.

   a. Comparing soil analytical results only to remediation objectives for the commercial/industrial or construction worker soil inhalation/ingestion exposure routes is not sufficient to adequately evaluate the soil contamination at this location—the migration to groundwater exposure route must also be considered.

   b. No information was provided to justify the southern boundary of the soil contamination as shown in Figure 1 of the submittal. For example, high levels of benzene were detected in the subsurface at GP-17, but no additional soil samples were collected south of that location. Similarly, high levels of benzene were detected in the subsurface at GP-18 but no additional samples were collected south of that location.

   c. A photoionization detector (PID) is only a screening tool which measures the qualitative amount of volatile organic compounds present in vapors and is not sufficient for determining the horizontal extent of soil contamination with the Public Works Yard.

   d. The detection of soil contamination thought to be related to kerosene along the southern boundary of the Public Works Yard indicates that the northern extent of this contamination must be determined and, if necessary, the western and eastern extent of the contamination.

   e. The first sentence in the last paragraph on Page 3 of this submittal states, "The yellow staining...caused by kerosene referenced above was not observed during any previous drilling work in the surrounding area." However, the document entitled, "WRMC North Property Benzene Study, Wood River Manufacturing Complex, Wood River, Illinois", dated January 1991, estimates the extent of product, including kerosene, extends to the western fenceline of the North and Main Properties. Thus, kerosene contamination must have detected by Shell in the area surrounding the Public Works Yard at some time.

   f. The 1991 document referenced in Item 1.c above indicates that a release of kerosene was known to have occurred within the refinery. This release likely came from the pipeline mentioned in the first full paragraph on Page 3 of the subject submittal.

   g. No information was provided to demonstrate that the soil vapor extraction system being operated by Shell Oil Products US is addressing the naphthalene contamination at the Public Works Yard. In addition, no information was provided demonstrating the groundwater remediation system being operated by Shell Oil Products US depression system is reducing the soil contamination discussed above.

Given all of the above, Shell Oil Products US must propose additional investigation efforts to fully characterize the soil contamination present within the Public Works Yard.

2. Based on a review of Submittals No. 1 and 2 above, the Illinois EPA cannot agree that step out locations beyond GWP-29 and GWP-32 are impractical due to limited access and obstructions. The extent of groundwater contamination exceeding 35 Ill. Adm. Code, Part 620, Class I Groundwater Quality Standards, requires further delineation. Step out locations beyond GWP-29 and GWP-32 must be proposed in the submittal required by Item 4 below.

3. SOPUS must combine the soil and groundwater investigation data from the Public Works Yard with the data collected to date for delineation beyond GWP-24, into one report. This information must be included in the submitted required by Item 4 below; this requirement is based on the following:

   a. The close proximity of investigations conducted at the Public Works Yard and profiling activities at and beyond GWP-24, plus the presence of benzene and naphthalene in both areas, indicates the plume(s) may be connected. Groundwater data also shows analytes besides benzene and naphthalene exceed the Class I GQSs.

   b. Submittal No. 2 identifies groundwater contamination and high PID readings within borings from profiling locations. It does not appear SOPUS followed their approved plan as the depths where soil samples were collected does not necessarily correlate to the highest PID readings in the borings. SOPUS must address this matter.

   c. The document entitled, "WRMC North Property Benzene Study, Wood River Manufacturing Complex,Wood River, Illinois", dated January 1991, estimates the extent of product, including kerosene, extending to the western fenceline of the North and Main Properties. Thus, the information in this document could be very valuable when combined with the current data available today to provide a more complete understanding of the subsurface.

   d. Investigation and monitoring efforts have been on-going in this area for at least thirty years and the information from these past efforts will be invaluable in fully understanding the current conditions within this area.

4. Within ninety days of the receipt of this letter, Shell Oil Products US must submit a document to Illinois EPA for review and approval which compiles all available information (including geology, hydrogeology, and soil/groundwater investigation results) regarding an area which includes the Public Works Yard and extends south and southwest onto the Main Property of the Wood River Refinery beyond Well T-7. In addition, this submittal must contain proposed investigation efforts required by Items 1 and 2 above. This submittal must be developed in general accordance with the Guidance for RCRA Closure Plans available on Illinois EPA's internet site and also takes into account the following:

a. The information provided regarding any soil investigation efforts conducted to date in this area should be developed in general accordance with the attached document entitled "Information Which Should be Provided in Soil Sampling/Analysis Reports Associated with RCRA Remediation Projects," dated January 2017.

b. In addition to providing information regarding each individual soil investigation effort conducted to date in the area of concern as requested in Item 4.a above, all of the results from the various soil investigation efforts must be combined and evaluated. Thus, Items 2, 4, 6, 7, 8, 15, 16, and 17 in the document referenced in Item 4.a above should be taken into consideration in providing this comprehensive evaluation of all soil sampling/analysis efforts conducted in the area of concern.

c. The plan to conducted additional soil sampling/analysis efforts in the area of concern should be developed in general accordance with the attached document entitled "Guidance on the Development of Soil Sampling/Analysis Plans at Facilities Carrying Out a RCRA Remediation Project," dated January 2017.

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 Act of 1989, the Professional Geologist Licensing Act and the Structural Engineering Act of 1989. This letter does not relieve anyone from compliance with these laws. All work that falls within the scope and definition of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation to the appropriate regulating authority.

Should you have any questions regarding groundwater related aspects of the corrective action being carried out at this facility, please contact Amy Boley at 217/558-4716. If you have questions regarding other aspects of corrective action, please contact William T. Sinnott, II at 217/524-3310.

Sincerely,

Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:WTS:1191150002:RCRA-B43R-CA59, 60 and 69

Attachments: Information Which Should be Provided in Soil Sampling/Analysis Reports Associated with RCRA Remediation Projects

Guidance on the Development of Soil Sampling/Analysis Plans at Facilities Carrying Out a RCRA Remediation Project

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Information Which Should be Provided in Soil Sampling/Analysis Reports Associated with RCRA Remediation Projects
January 2017

Soil sampling/analysis efforts are one of the key components of a RCRA remediation project (i.e., a RCRA closure project or a RCRA corrective action project). Thus, it is important that the results of these efforts be documented in the form of a well-organized and comprehensive report which describes and discusses: (1) the activities carried out during the effort; and (2) the results of the effort. The following isan overview of the information which Illinois EPA recommends should be provided in a soil sampling/analysis report associated with a RCRA remediation project:

1. The time period during which the investigation effort was conducted;

2. A general description of the facility and the area where the investigation effort was conducted. Of special concern are the following:

   a. A discussion of the activities carried out at the facility in general and in the area where the investigation took place;

   b. Facility location drawings, facility layout maps, maps showing the layout of the area where the investigation took place;

   c. Suspected or actual sources of contamination in both the facility in general and the area where the investigation is taking place;

   d. The geology and hydrogeology of the facility in general and the area where the investigation is taking place;

   e. A summary of the results of any previous investigation efforts conduct in or near the area of concern.

3. A discussion of the reason(s) and/or goal(s) of the sampling/analysis effort;

4. Scaled drawings showing the horizontal and vertical location where all soil samples were collected;

5. A discussion of the criteria used to identify which soil samples would be sent to an outside laboratory for analysis

6. Logs (as available) of all borings made during the investigation which document visual and other field observations made regarding the soils encountered at each boring;

7. Visual classification, as available, of each soil sample collected for analysis, as well as any other observations made in the field regarding the soils collected for off-site laboratory analysis;

8. A discussion of the results of any field screening efforts;

9. A discussion of the soil types encountered during the investigation, including scaled cross-sections;

10. A description of the procedures used for:

    a. Conducting the investigation in general, including a discussion of the observation and screening procedures to be carried out in the field:

    b. The collection of samples to be sent off-site for analysis;

    c. The preservation of the samples being sent off-site for analysis;

    d. The chain of custody procedures followed for the samples being sent off-site for analysis;

    e. The decontamination of the equipment used during the investigation effort.

11. A discussion of any problems which had to be addressed during the sampling/analysis effort.

12. A description of the procedures used to analyze the soil samples sent off-site, including:

    a. The analytical procedure used, including preparation of the sample for analysis;

    b. Any dilutions made to the original sample;

    c. Any interferences encountered during the analysis of each sample;

    d. The quantitation limits achieved.

13. A description of all quality control/quality assurance (QA/QC) efforts and analyses conducted, including the analysis of lab blanks, trip blanks and field blanks;

14. Final reports which present the results of the analyses conducted on soil samples at a laboratory.

15. A summary of all analytical data, including QA/QC results, in tabular form.

16. Identification of the Tier 1 and any approved Tier 2 soil remediation objectives associated with the chemicals of concern at the facility for the exposure routes of: soil ingestion, outdoor inhalation, indoor inhalation, and migration to groundwater.

17. A discussion/evaluation of the summarized data. This discussion should include a description of the amount of contamination (i.e., exceedances of the Tier 1 or approved remediation objectives identified in Item 16 above) present in the area, focusing on both the horizontal and vertical extent of contamination and the distribution of the contamination within the area.

18. Scaled drawings showing the horizontal/vertical extent of soil contamination in the area, and the distribution of the contaminant concentration within the area.

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Guidance on the Development of Soil Sampling/Analysis Plans at Facilities Carrying Out RCRA Remediation Projects
January 2017

Soil sampling/analysis efforts are a key component of a RCRA remediation project (i.e., a RCRA closure project or a RCRA corrective action project). Thus, it is important to develop a detailed plan describing the procedures which will be carried out during this effort. It is also important that this plan contain detailed background information about the project of interest, as this information will form the foundation for developing the plan itself.

Given the above, Illinois EPA recommends that plans to conduct a soil sampling/analysis investigation effort at a facility carrying out a RCRA remediation project contain the following:

1. General Project Overview General information regarding the facility regarding the facility where the investigation is to take place should be provided in the sampling plan, as well as general information regarding the portion of the facility where the investigation will be carried out. Of special concern are the following:

    a. A discussion of the activities carried out at the facility in general and in the area where the investigation is taking place;

    b. Facility location drawings, facility layout maps, maps showing the layout of the area where the investigation is taking place;

    c. Suspected or actual sources of contamination in both the facility in general and the area where the investigation is taking place;

    d. The geology and hydrogeology of the facility in general and the area where the investigation is taking place;

    e. A summary of the results of any previous investigation efforts conduct in or near the area of concern.

2. Goals and Objectives of Effort - A discussion of the goals and objectives of the soil sampling/analysis effort should be included in the plan. This will have an impact on the overall development and implementation of the proposed investigation efforts.

3. Parameters to be Analyzed for - A list of parameters to be analyzed for should be included in the plan. The proposed parameters should include those hazardous constituents which may be present in the soil, including degradation products.

4. Sample Collection Procedures - The procedures which will be used to collect the soil samples should be described in the sampling plan.

    a. Collection of all soil samples should be carried out in accordance with ASTM or SW-846 procedures.

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2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120
9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
412 SW Washington St., Suite D, Peoria, IL 61602 (309) 671-3022
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601

b. Soil samples collected for volatile organics analysis require specialized sampling and handling procedures as specified in Method 5035 of SW-846.

c. All soil encountered during the sampling effort should be field classified in accordance with ASTM D-2488. Provisions should be made in the plan to make this classification, except for samples collected specifically for VOC analysis.

d. Soil which is encountered in an area where VOC contamination is a concern should be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory should not be field-screened.

e. Horizontal/vertical locations where samples are collected should be biased, as appropriate, to stained/discolored areas or areas where contamination is suspected to be present (such as the highest field screening results).

f. The procedures which will be used to decontaminate the sampling equipment after each sample is collected should also be described. Decontamination procedures should be carried out in accordance with SW-846.

5. Sample Locations - A scaled plan view drawing should be provided in the plan showing the location where the samples will be collected. In addition, a discussion of the reasons why the various locations were selected should be provided.

6. Depths From Which Samples Are to be Collected - The depth from which soil samples are to be collected at each location should be provided in the plan, as well as a discussion of the reasons why the identified intervals were selected. It is understood that certain sample depths may be dependent on observations made in the field (such as soil type, visual contamination or other field screening results).

7. Sample Handling Procedures - The sampling plan should describe the procedures which will be used to store, preserve and transport the collected soil samples to the laboratory, including chain-of-custody procedures. These procedures should be carried out in accordance with the guidance in SW-846.

8. Analytical Procedures - The sampling/analysis plan should identify the procedures which will be used to prepare the samples for analysis and to analyze them. In general, such procedures should be carried out in accordance with those set forth in SW-846. The estimated quantitation limits to be achieved should also be identified. Again, these limits should meet the requirements set forth in SW-846.

9. Quality Assurance/Quality Control Procedures - The sampling plan should describe the procedures which will be followed to ensure that the quality of the results of the effort are acceptable, from the collection of the sample to the actual analysis of the sample. This includes the use of trip blanks, field blanks and laboratory blanks as well as the calibration and verification of the laboratory procedures and equipment utilized. These quality assurance/quality control procedures must meet the guidelines set forth in SW-846.