

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: WRB Refining LLC - Wood River Refinery County: Madison
Street Address: 900 South Central Ave. Site No. (IEPA): 1191150002
City: Roxana, IL 62084 Site No. (USEPA): ILD 080 012 305

2.0 OWNER INFORMATION

Name: Not Applicable

Mailing Address: _____

Contact Name: _____

Contact Title: _____

Phone No.: _____

3.0 OPERATOR INFORMATION

Equilon Enterprises LLC d/b/a Shell Oil Products US

17 Junction Drive, PMB #399

Glen Carbon, IL 62034

Kevin Dyer

Principal Program Manager

618-288-7237

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

RFI Phase I Workplan/Report
 RFI Phase II Workplan/Report
 CMP Report; Phase _____
 Other (describe):
Response to IEPA Comments-June 16, 2011 Letter
Date of Submittal 9/1/11 via email
9/15/11 with certification
IEPA Permit Log No. B-43R
Date of Last IEPA Letter on Project 8/31/11
Log No. of Last IEPA Letter on Project B-43R-CA-21
Does this submittal include groundwater information: Yes No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

Response to IEPA Comments-June 16, 2011 Letter-Shell Oil Products US-Roxana, IL. ;Supplemental Information to the Meeting on August 1, 2011-Scope of Work for Additional Soil Investigation, Roxana Public Works Yard.

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

Cover letter, RCRA Corrective Action Certification and Response to IEPA Comments-June 16, 2011 Letter-Shell Oil Products US-Roxana, IL. ;Supplemental Information to the Meeting on August 1, 2011-Scope of Work for Additional Soil Investigation, Roxana Public Works Yard.
(Dated September 1, 2011).

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.

IEPA RCRA Corrective Action Certification

For: Equilon Enterprises LLC d/b/a Shell Oil Products US

Date of Submission: 9/15/11

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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.

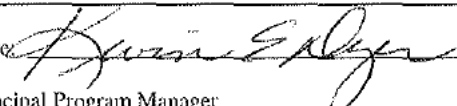
A person is a duly authorized representative only if:

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: 

9/12/11
(Date)

Title: Principal 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.

Professional's Signature: _____

Date:

Professional's Name: _____

Professional's Seal:

Professional's Address: _____

Professional's Phone No.: _____

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 _____

Signature of Laboratory
Responsible Officer

Date

Mailing Address of Laboratory _____

Name and Title of Laboratory Responsible Officer



September 1, 2011

Mr. Stephen Nightingale, P.E.
Illinois Environmental Protection Agency
Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62794

**Subject: Response to Agency Comments Provided in June 16, 2011 Letter
Equilon Enterprises
Roxana, Illinois
1191150002 -- Madison County
ILD080012305
Log Nos. B-43R-CA-1; CA-3; CA-5; CA-6; CA-7; CA-8; CA-10; CA-11;
and PS11-032**

Dear Mr. Nightingale:

URS Corporation (URS), on behalf of Shell Oil Products US (SOPUS), is submitting the enclosed responses to the comments the agency provided in the letter to Shell dated June 16, 2011.

If you have any questions concerning this request, please contact Kevin Dyer, SOPUS Principal Program Manager at (618) 288-7237 or Kevin.dyer@shell.com or me at (314) 743-4108 or bob.billman@urs.com.

Sincerely,

Robert B. Billman
Senior Project Manager

Enclosures

cc: Kevin Dyer, SOPUS
Amy Boley, IEPA Springfield

Response to IEPA Comments – June 16, 2011 Letter

Shell Oil Products US Roxana, Illinois

The following presents the Agency's comments from the June 16, 2011 letter (in italics) followed by SOPUS' responses.

1. *The Groundwater Corrective Action Program is not adequate, in its current state, to protect human health and the environment along the majority of the west fence line of the North Property of the WRR and within the Village of Roxana. The fence line improvements to the system include: (1) installation of a skimmer system at existing wells along the west fence line to remove LNAPL; and (2) repairs to pumping well W-76 and installation of a new pumping well W -86 to shift the emphasis to strengthening the cone of depression at the interior of the North Property. The Illinois EPA can approve these proposals with the following conditions and modifications:*

- a. *The facility is required to remove product to the maximum extent practicable. If the facility determines the skimming pumps are no longer effective, yet product remains, then another form of product removal must be proposed to the Illinois EPA for review and approval, prior to removing a skimmer pump.*

Shell Response

Shell disagrees with the statement that human health and environment are not being protected. The Groundwater Corrective Action Program that consists of the groundwater depression system and the product recovery (total fluids) system, coupled with the Village's prohibition on installation of drinking water wells in the Village, is protective of human health and the environment.

At the August 1, 2011 meeting between SOPUS and IEPA, we discussed product recovery and recoverability using the concepts advanced by the Interstate Technology and Regulatory Council (ITRC) and currently being developed into standards by the American Society for Testing and Materials (ASTM). We agreed however, to "table" the application of this guidance for now. Until such time, SOPUS, with the cooperation of ConocoPhillips as appropriate, will continue current product recovery efforts where observed throughout the refinery and in the village of Roxana (i.e., offsite).

- b. *The Illinois EPA can approve using transmissivity to help determine whether skimmer pumps are an appropriate method for product removal. However, the operation of these pumps cannot be based strictly on predetermined transmissivity values if product continues to be removed and a better alternative is not available.*

Shell Response

As stated above, we agreed to "table" this discussion for now.

- c. *The emphasis for strengthening the cone of depression at the interior of the North Property does not alleviate the requirement to address groundwater contamination within the Village of Roxana, as required by 35 Ill. Adm. Code 724.201(c), and Condition I.d below.*

Shell Response

The comment is acknowledged. This regulation requires an owner/operator to "...implement corrective action measures beyond the facility property boundary, where necessary to adequately protect human health and the environment,..." As such, SOPUS maintains that groundwater systems in place as stated above are protective of human health and the environment. Further decisions concerning additional groundwater remediation may be proposed if necessary in recognition of risk evaluation principles, e.g., exposure pathways, receptors, etc. Finally, as you are aware, additional steps are being taken to address vapor issues in Roxana.

- d. *The facility must also propose a system for removal of groundwater within the upper portion of the main aquifer, where the most significant groundwater contamination exists along the west fence line of the North Property of the WRR and in the vicinity of the Roxana Public Works Yard. Therefore, the facility must combine the skimmer system and groundwater removal from the shallow portion of the uppermost aquifer into a dual phase extraction system. The system must focus on removal of contaminants and enhance the current efforts to maintain an inward hydraulic gradient.*
 - i. *Information submitted to date is not adequate to satisfy Condition 15 of the August 5, 2010 Illinois EPA letter (Log Nos. B-43-CA-16 and CA-18). Therefore, the proposal for the dual phase extraction system must be developed in accordance with Condition 15 and the guidance in Attachment C of the August 5, 2010 Illinois EPA letter, "Required Contents of a Conceptual Design Report", to address contamination along the west fence line and the groundwater contamination in the vicinity of the Roxana Public Works Yard.*
 - ii. *Existing Water Production Wells at the WRR are screened deep within the aquifer, while the contaminant plume remains much closer to the water table. Therefore, the addition of a shallow pumping system is appropriate.*
 - iii. *This proposal must be submitted within sixty (60) days for Illinois EPA review and approval.*

Shell Response

The comment is acknowledged. In our August 1, 2011 meeting with the agency, we provided information that a system similar to that contemplated in the comment already exists at the facility. Recovery well Nos. R-71 and R-77 through R-81 are located near the west fenceline of the refinery (**Figure 1**). These wells are screened from a depth of approximately 40 to 80 feet below ground surface (bgs). For perspective, over the past eight months, groundwater levels have been in the range of 406 to 409 feet MSL, or approximately 2 to 7 feet above the tops of the well screens. The pumps in these wells are Grundfos Redi-Flo4™ Model 5E8 stainless steel submersible pumps, powered by 60 Hz motors. These are "total fluid pumps", and consequently pump the liquid (i.e., water or LNAPL) in which they are submerged. These pumps operate continuously, with an individual flow rate of approximately 10 gallons per minute (gpm). In the event LNAPL is not present, the pumps remove groundwater near the top of the aquifer. The LNAPL and/or groundwater that is pumped from these wells is sent directly to tank F-67 for phase separation (if present) and then to treatment at the WWTP. The attached **Figure 2** provides a rough graphical presentation of the well construction for these water production wells and their corresponding oil recovery wells. As shown, the recovery well screens are below the current 2011 average groundwater elevation, as a result minimizing the well/pump's potential for LNAPL removal. However, they are removing groundwater at near the top of the aquifer.

- e. *Regarding the facility's interpretation of cross-section B-B' within the subject submittal dated March 4, 2011, the Illinois EPA concurs that the gradient was inward in January and February 20 11; however, the LNAPL plume was not controlled even with an inward gradient, which reinforces the need for modification to the program as required by Condition I.d above.*

Shell Response

We respectfully disagree with the assertion that the LNAPL plume was not controlled in January and February 2011. Absent a significant LNAPL source, such as a recent release event, it is highly unlikely that any LNAPL beneath the refinery would migrate hydraulically upgradient. Based on weekly gauging events conducted between January 31 and the end of June (most recent data compiled), monitoring wells along the west fenceline did not display LNAPL thicknesses greater than 0.01 feet¹.

- f. *The new pumping well and associated details for W -86 must be submitted as a Class I" modification request for incorporation into Condition IV.D.2 of the Permit, and in accordance with Condition IV.K.2 of the Permit within ninety (90) days of installation of the well. The wells must be installed in accordance with Condition IV.D of the RCRA Permit.*

Shell Response

The comment is acknowledged. ConocoPhillips (COP) began operating well W-86 on July 18, 2011. The information on the well installation and construction will be submitted separately, as a Class 1* modification, by October 16, 2011 (i.e., within 90 days after installation).

2. *The loss of groundwater control demonstrates that reinstating the minimum pumping rate of 3,000 gpm is necessary at the Water Production Wells listed in Condition IV.D.2 of the Permit, and a request to incorporate this language into the Permit must be submitted as a Class I * modification request in accordance with Condition IV.K.2 within forty-five (45) days of this letter.*

Shell Response

The comment is acknowledged. URS Corporation, on behalf of SOPUS, submitted the Class 1 modification on July 29, 2011. As indicated in the modification and as discussed in our August 1st meeting, the subject of a minimum pumping rate may be revisited after completion of the planned groundwater modeling effort (plan submitted to IEPA on August 24, 2011, in response to Violation Notice L-2011-01126).

3. *The facility has not provided Contingency Procedures for the Operation and Maintenance Plan associated with the oil recovery systems, as required by Condition 16 and Attachment D of the August 5, 2010 Illinois EPA letter (Log No. B-43-CA-16 and 18). The facility remains subject to these requirements and must propose a Contingency Procedures for the Operation and Maintenance Plan associated with the oil recovery systems, for Illinois EPA review and approval within sixty (60) days, which includes a minimum of:*

- a. *Contingency Procedures. This portion of this plan will describe the following:*
 - i. *System breakdown and operational problems, which may occur.*
 - ii. *A contingency plan to continue to remove free product when seasonal fluctuations increases or decrease the water table. If the current system cannot accommodate seasonal fluctuations, then additional work must be proposed.*

¹ Based on wells P-55, -56, -57, -58, -60-11, T-6 and T-12. Note that groundwater levels were above the tops of the well screens in many of these wells.

- iii. *Alternative procedures that are to be implemented in the event that the free product recovery system suffers complete failure. A gauging event must be conducted following any system breakdown.*

Shell Response

The comment is acknowledged. The oil recovery system ('System'), whose primary components include the oil recovery wells, Tank F-67 and the NESHAPS Header, have certain contingency procedures associated with them, as described herein. Certain operational issues may occur, which necessitate the following preventative steps and/or maintenance.

Shell has requested that all skimmer pumps be in operation, except when down for cleaning or other maintenance work (such as failure of the submersible pump), with none kept in standby. Any piping leaks which occur on the collection lines or headers will require isolation of a section of the System until the line can be repaired, either by clamping or replacement.

Shell has requested that COP operations make weekly adjustments, as needed, based upon visual samples of total pumped fluids from the skimmer wells. Adjustments will be made using the existing winch and cable to set the suction point at the proper level in the well. Heat tracing and insulation on the collection lines and headers is to be inspected prior to the onset of cold weather to make sure they are fully functional, and a maintenance work ticket is to be entered in the event that repairs or additional winterization are required.

Tank F-67 receives the combined flow of water and free oil from the oil skimming pumps continuously; however water and oil separate in the tank and each is batched out as necessary based on tank levels. The water in the tank automatically pumps when the water hits a set level, and the pump trips off when this level is pumped down. The accumulation of water in this tank typically dictates the priority for maintenance of failed components (primarily instrumentation and transfer pumps).

The NESHAP header is the conveyance line for the water from tank F-67 to the Wastewater Treatment Plant. If this line and associated pumps are out of service, the effect is to shut down the tank and the entire System. As such, the target uptime for this portion of the System is 100%. Functional electrical heat tracing and insulation is required, and any deficiencies are to be repaired with a high priority.

If the System breaks down, including any oil recovery well in the system being broken down and unusable, on the third day, COP has been asked to notify Shell. If the entire system will be shut down for more than eight (8) hours, COP has been asked, during business hours, to notify Shell within 2 hours of becoming aware of such shutdown. Shell will then notify the Illinois EPA via telephone followed by a paper report, documenting the event and actions required to repair the system.

With respect to removing free product during seasonal fluctuations of the water table, the pumps are suspended on a winch, and are manually adjusted such that product recovery can occur when product levels are within the screened portion of the wells. The well screens are at least 40 feet long. As described in the response to condition 1(d), when water levels are above the top of the screens and product recovery is not possible, the pumps continue operating, removing groundwater containing dissolved phase organic concentrations for treatment.

The scenario of a "complete failure" of the recovery system would most likely involve a failure of a component of tank F-67, the NESHAPs discharge line such that it would necessitate shutdown of tank F-67, or failure of the line which feeds tank F-67. These components of the system have a planned uptime of 100%, and as such any repairs are assigned the highest priority.

- b. *The Illinois EPA must be notified via telephone (Amy Boley; 217/502-3027 and Gina Search; 618/346-5157), followed by a paper report, documenting the event and actions required to repair the system, and any impacts to the corrective action program associated with:*
 - i. *System breakdowns, including any oil recovery well in the system being down for more than three (3) days. If the facility cannot adequately repair the current system, then additional work must be proposed.*
 - ii. *Notification is required if the entire system will be shut down for more than eight (8) hours.*
 - iii. *The facility must implement alternative procedures to prevent off-site migration of product in the event that the oil recovery system suffers complete failure.*

Shell Response

The comment is acknowledged. In the event of system problems as identified in comment 3(b)(i and ii), ConocoPhillips will contact SOPUS, and SOPUS (or a designated representative) will contact IEPA. Wells that are down for routine maintenance do not trigger notification. Shut down of the oil recovery system itself or components of that system will not cause/allow LNAPL off-site migration. The LNAPL that is present has mostly likely achieved a steady state condition and as such will not be prone to migrate. Human health and the environment are protected by not only the depth of the groundwater, but also by the Village ordinance against drinking water wells and operation of the groundwater depression system that provides a groundwater gradient toward the Refinery.

4. *The Interim Groundwater Monitoring Program for the Village of Roxana, Illinois, requires modification to the groundwater monitoring well network to better define the contaminants in groundwater and potential free product within the investigation area. The modified network will be defined as follows:*

- a. *The uppermost aquifer will be monitored with the following wells: MW -1 through MW-13, P-55, P-68, T-12, P-74, P-59, P-56, T-6, P-93 A through D, P- 58, P-66, MW-6A through 6D, P-114, GWP-23, and GWP-24. If any of these wells are chosen as extraction locations in conjunction with Condition 1 above, the facility must demonstrate that adequate monitoring locations remain or propose additional monitoring locations for Illinois EPA review and approval.*

Shell Response

The comment is acknowledged, and these additional wells will be incorporated into the Interim program beginning with the 4th quarter 2011 monitoring event (scheduled for October 2011). We propose to substitute well P-57 for well T-6. The T-series wells are older and larger diameter than the P-series wells, and as a result take longer to purge and sample. Where possible, P series wells are more preferable for sampling.

Some of these wells, i.e., P-55, P-56, P-59, P-93A-D, P-114 and T-12 are already part of the refinery semiannual monitoring program (sampled in the 2nd and 4th quarters). These wells will be purged and sampled using the procedures currently used for the Roxana Interim Monitoring Program. Data from the 2nd and 4th quarter events will be used for both programs.

- b. *Monitoring wells must be installed at GWP-23 and GWP-24, and incorporated into the monitoring network, as required by Condition 4.a above. The wells must be installed in accordance with Condition IV.D of the Permit*

Shell Response

The comment is acknowledged, and we understand the purpose of these wells is to monitor conditions along the southern boundary of the dissolved phase plume. When the above profiling was performed, the results were below screening criteria in samples from GWP-23 but above screening criteria in samples from GWP-24. GWP-23 is located close to the western property boundary of Main Property. GWP-24 is located east of GWP-23, i.e., further inside the refinery. Therefore, we propose to install a monitoring well as requested near GWP-23, but not near GWP-24 due to the concentrations present there.

- c. *The perched groundwater investigation is incomplete. In addition, regardless of the extensiveness of a perched zone, perched areas of groundwater contamination must be addressed. The following wells must be incorporated into the monitoring network to monitor perched groundwater:*
 - i. *Monitoring locations P-60-12S, P-60-13S, ROST-7-PZ, ROST-5-PZ, ROST-10-PZ, and ROST-21-PZ. If any of these locations must be reinstalled to accommodate sampling equipment, the facility must do so in accordance with Condition IV.D of the Permit.*
 - ii. *The facility must include ROST-5-PZ and ROST-10-PZ within the program for at least one year before the determination is made that these wells are dry.*
 - iii. *The "step-out" location from ROST-21-PZ, identified as GP-13, is too far from ROST-21-PZ to be considered adequate for monitoring the extent of a potential perched zone. Based on the distances of other "step-out" investigation locations completed during prior phases of the investigation area, a new "step-out" piezometer must be installed at the approximate mid-point of the block on Fifth Street in Roxana, Illinois, generally aligned with MW-1, ROST-7-PZ, and ROST-3-PZ.*
 - iv. *Detailed reporting for the perched zone must be included within all quarterly reporting described in Condition 4 below. In addition, within the next quarterly report, the facility must provide a minimum of: (1) cross sections that incorporate the perched monitoring locations; and (2) isopach maps for the less permeable silts and clays within the area, to be based on a review of the ROST/CPT data collected to date and any other available boring logs. The data used to create these maps must at least encompass the area from S. Central Avenue (including P-54) to the west, First Street to the north, the refinery's west property data points the south, and as far west as P-61 into the North Property interior. These maps must include any available information that depicts less permeable units, regardless of the depth or thickness. Of particular concern is the possible zone that may extend from the P-60 area west into the Village of Roxana, as product has been detected in the at the ROST-4-PZ area.*

Shell Response

The comments are acknowledged, and they were discussed during our August 1, 2011 meeting. SOPUS maintains that the current remedial strategy will address risks posed by any impact present in perched water. Information currently available indicates that zones of perched water are limited in quantity (e.g., water is not always present in a well). If present, the potential concern would be via the vapor intrusion pathway. This is the pathway being addressed by the full scale SVE system, and ongoing monitoring will provide information to confirm this is the case or will provide information which suggests that modifications may be needed. For these reasons, we do not propose the additional monitoring being requested in the comments.

5. *At a minimum, the following additional information must be included within all groundwater reporting submitted to the Illinois EPA for the WRR and the Interim Groundwater Monitoring Program for the Village of Roxana.*
 - a. *The facility must depict both the dissolved and free product plumes. Isoconcentration maps must be created, as well as spider diagrams depicting site wide contamination. .*
 - b. *Reduce the groundwater and product contour interval to 0.50 ft contours to better demonstrate an inward gradient and define the free product plume, respectively. The groundwater elevations and product measurements must be depicted at each well used to create the maps. Any measured product must be depicted on product maps.*
 - c. *Geologic cross-sections must be constructed which depict: (1) the dissolved contamination; (2) screened intervals of the monitoring wells, production wells, and oil recovery wells; and (3) groundwater and product elevations, within each cross-section.*
 - d. *Utilize nested well sets across the site to evaluate the individual zones via discussions and maps in order to better delineate the zone or zones where the vertical and horizontal extent of free product and dissolved contamination exists.*

Shell Response

The comment is acknowledged, and the above information will be included beginning with the 3rd quarter report.

6. *The Illinois EPA has determined that the six (6) proposed investigative wells for free product delineation and potential product removal activities in the ROST-PZ-4 area are approved, with the following conditions and modifications listed in conditions 6 through 14 below. Conditions 5 through 14 were e-mailed to SOPUS on March 25, 2011, to continue field investigative efforts and implement product removal in a timely manner.*

Shell Response

Comments 6 through 12 are acknowledged, as they apply to the investigations relative to piezometer ROST-4-PZ.

7. *Based on the constituents previously detected in groundwater, all wells must be analyzed for volatile organic carbons (VOCs) and semivolatile organic carbons (SVOCs) if product is not encountered in a well. Groundwater analysis must be in accordance with the applicable methods found in IEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Third Edition, Final Update III (December 1996), or the most current SW-846 Method.*

8. *The following procedures must be utilized in the collection of all soil samples:*

- a. *Collection of all soil samples must be carried out in accordance with ASTM or SW -846 procedures. Acceptable ASTM procedures include:*
 - (1) *Method D 4700-91 (Method for Soil Sampling from the Vadose Zone);*
 - (2) *Method D 6001-96 (Guide for Direct-Push Sampling for Geoenvironmental Investigations); and*
 - (3) *Method 6169-97 (Guide for Selection of Soil and Rock Sampling Devices Used with Drill Rigs for Environmental Investigations).*
- b. *Soil samples collected for VOCs analysis require specialized sampling and handling procedures as specified in Method 5035 of SW-846.*

- c. *All soil encountered during the sampling effort must be field classified in accordance with ASTM D-2488 and evaluated for odors and staining/discoloration.*
 - d. *Vertical locations where samples are collected must be biased, as appropriate, to stained/discolored areas or areas where contamination is suspected to be present (such as the highest field screening results).*
 - e. *Soil which is encountered in an area where VOC contamination is a concern must be field-screened for VOCs. However, the actual samples collected for analysis at the laboratory must not be field-screened.*
9. *Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts.*
10. *All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with Test Methods for Evaluating Solid Wastes (SW-846), Third Edition and Finalized Updates.*
11. *A report documenting the results of the required sampling/analysis results must be submitted for Illinois EPA review and approval within ninety (90) days of the date of this letter, which includes:*
- a. *identification of the reason for the sampling/analysis effort and the goals of the effort;*
 - b. *a summary in tabular form of all analytical data, including all quality assurance/quality control data;*
 - c. *a scaled drawing showing the horizontal location from which all soil samples were collected;*
 - d. *identification of the depth and vertical interval from which each sample was collected;*
 - e. *a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;*
 - f. *identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical interferences;*
 - g. *copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality control data;*
 - h. *logs of all the borings made; these logs must document all field observations made while drilling each boring, including: (1) soil type and field-observed properties; (2) field-screening results for VOCs; (3) staining/discoloration; and (4) presence/type of any odors.*
 - i. *a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and*
 - j. *a discussion of the data, as it related to the overall goal of the sampling/analysis effort.*
 - k. *a description of activities conducted for removal of product. Product removal activities must be conducted to remove product to the maximum extent possible. Therefore, the report must also propose ongoing removal activities if necessary.*
 - l. *include a minimum of two (2) scaled geologic cross-sections normal to each other, and depict the depth to water, product thickness encountered, and screened interval of wells.*
 - m. *a delineation of the extent of the free phase plume based on the new data must be provided. If the new data points indicate that free product may extend beyond the six (6) investigative wells approved in this letter, further delineation must be proposed.*

- n. *submit boring logs, construction diagrams and datasheets from installation and development of new wells. All pertinent information must also be submitted to the appropriate State agencies.*

12. *Weekly gauging in the ROST-PZ-4 area must continue until product removal activities have been deemed completed by the Illinois EPA.*

13. *The facility must continue to pursue access for additional groundwater investigation beyond well GP-5 to further delineate the dissolved plume, as required by Condition 6.a(3) of the August 5, 2010 Illinois EPA letter (Log Nos. B-43-CA-J6 and CA-18.)*

Shell Response

The comment is acknowledged. SOPUS is working with the property owner, BP, to negotiate the terms for access.

14. *RCRA corrective action activities carried out at the facility including offsite activities as necessary must meet the requirements of: (1) 35 Ill. Admin. Code 724.201; (2) the facility's Permit; and (3) Illinois EPA letters regarding such activities.*

Shell Response

The comment is acknowledged.

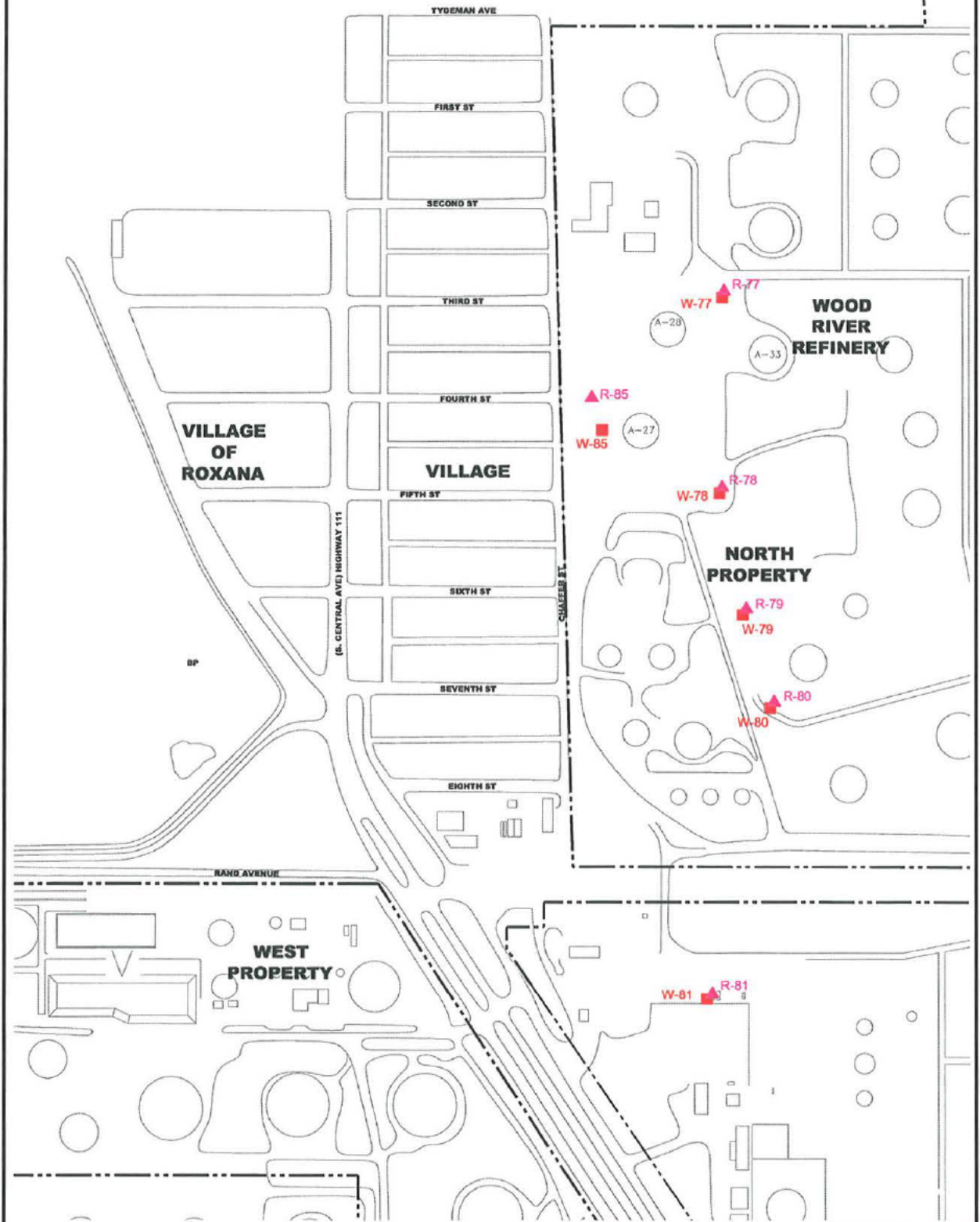
15. *The Illinois EPA determined that the document entitled, "Groundwater Monitoring Report - 4th Quarter 2010, Roxana, Illinois", dated April 14, 2011 and received by the Illinois EPA April 15, 2011, is inadequate in regards to reporting discussions with the facility. The report has not fully incorporated the inadequacies discussed during the February 15 and March 3, 2011 conference calls. Therefore, the document must be resubmitted in accordance with Condition 5 above.*

Shell Response

We respectfully disagree with the assertion that the "Groundwater Monitoring Report - 4th Quarter 2010, Roxana, Illinois", dated April 14, 2011 was inadequate. As discussed in the response to Comment 5 above, the additional requested information will be included in the 3rd quarter 2011 report. We propose to "hold" on any changes to the 4th quarter 2010 report until such time as the Agency has reviewed this additional information that will be included in the 3rd quarter 2011 report, and made a determination that this is needed.

LEGEND

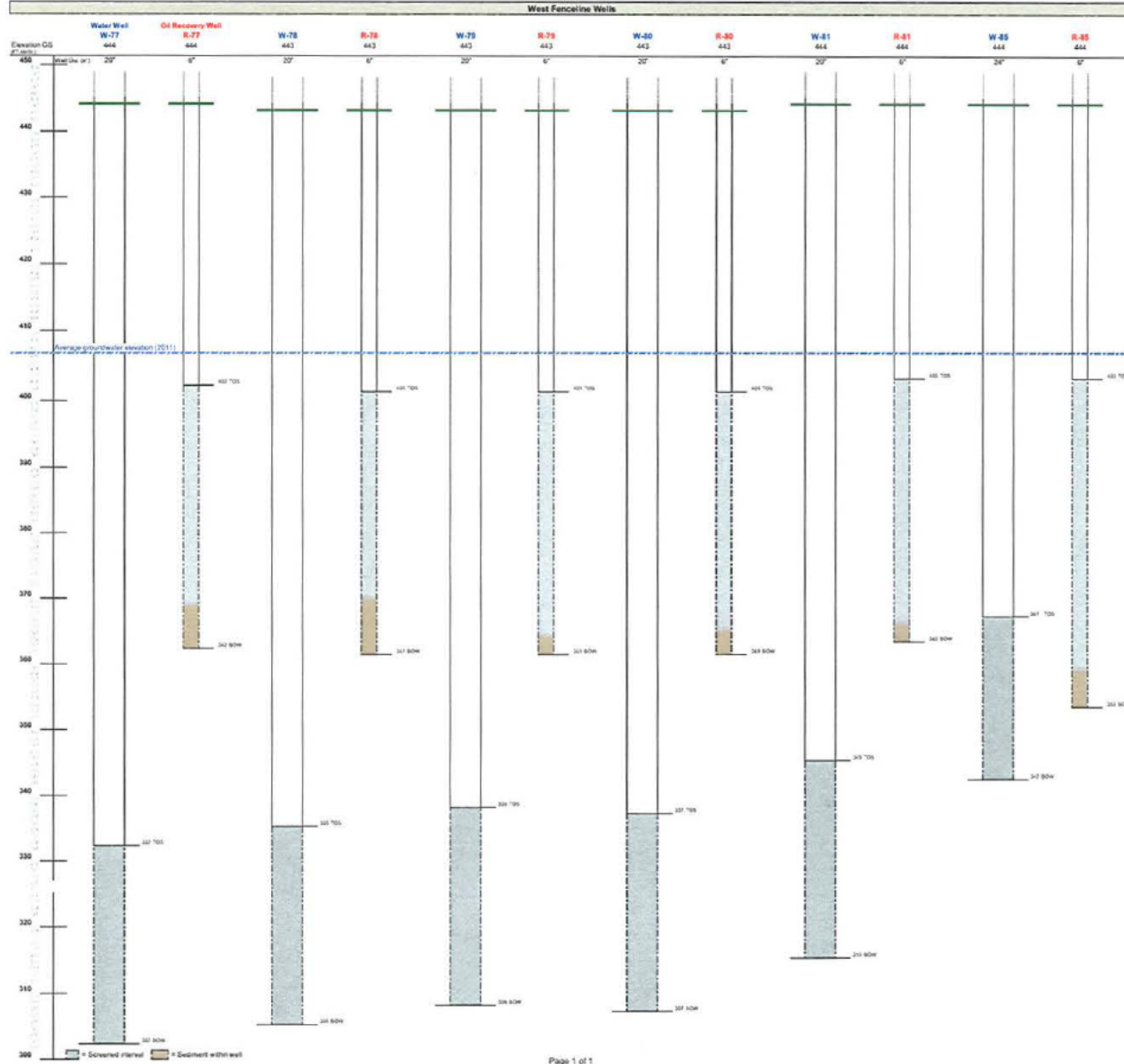
- ▲ REFINERY WATER PRODUCTION WELLS
- REFINERY OIL RECOVERY WELLS
- - - - - PROPERTY LINE



SHELL OIL PRODUCTS US AT THE WRB REFINING LP WOOD RIVER REFINERY ROXANA, ILLINOIS		PROJECT NO. 21562593
URS		
DRN. BY: djd September 2011 DSGN. BY: dp CHKD. BY: dp	WRR Facility Map with West Fence Line, Groundwater Production Wells and Recovery Wells	FIG. NO. 1

Wood River Refinery West Fenceline Well Construction

Figure 2



Supplemental Information to the Meeting on August 1, 2011
Scope of Work for Additional Soil Investigation
Roxana Public Works Yard

In our August 1, 2011 meeting, we discussed conducting additional investigation at the Public Works yard to determine if there is source material below the groundwater table which is continuing to source benzene in groundwater. This information would be helpful to determine whether additional remedial measures are warranted.

The former benzene line trended east-west in the railroad right-of-way just south of the Public Works yard. As such, we propose to advance soil borings via geoprobe at approximately 100 foot intervals from Route 111 to the eastern edge of the Public Works yard (**Figure 1**). These locations are on the north side of the former benzene line. This results in five borings. The borings will extend to a depth consistent with the lower known range of groundwater levels in this area, estimated to be approximately 45 feet. Soils will be continuously sampled and logged at each location.

Recovered soil samples will be screened via visual observation and headspace screening using an organic vapor meter. Up to three samples will be collected from each soil boring for analysis -one at the top of the sand unit, one in the middle, and one at or near the bottom of the boring. The sample interval showing the highest apparent impact (if any) within each of these zones will be submitted to the laboratory for analysis. The samples submitted to the laboratory will be analyzed for volatile organic compounds (VOCs) using EPA Method 8260B. The borings will be backfilled with bentonite grout upon completion. Excess soil and decontamination fluids will be managed in a similar manner as done with the other work in Roxana. The results of this work will be compiled into a brief report including recommendations for next steps if any.



1986 APPROXIMATE
BENZENE RELEASE SITE

WOOD RIVER
REFINERY

EIGHTH ST

ROXANA
PUBLIC
WORKS
YARD

ROUTE 111

LEGEND



PROPOSED BORING LOCATION



UNDERGROUND BENZENE LINE

NOTES:

1. BORING LOCATIONS ARE APPROXIMATE PENDING ACCESS AND OBSTRUCTIONS.
2. BENZENE LINE LOCATION IS APPROXIMATE BASED ON HISTORICAL MAPS.



SCALE FEET

SHELL OIL PRODUCTS US ROXANA, ILLINOIS		PROJECT NO. 21562593
URS		
DRN. BY:djd August 2011 DSGN. BY:b3 CHKD. BY:b3	Proposed Boring Locations	FIG. NO. 1