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October 2, 2015

Mr. Stephen F. Nightingale, PE
Manager, Permit Section
Illinois Environmental Protection Agency
Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62794

Subject: **New Groundwater Monitoring Well Installation (P-114 replacement)**
1191150002 – Madison County
Equilon Enterprises LLC d/b/a Shell Oil Products US
Roxana, Illinois
Log No. B-43R-M-23

Dear Mr. Nightingale:

AECOM, on behalf of Shell Oil Products US (SOPUS), is submitting the boring log, well construction diagram and monitoring well development form for a replacement groundwater well, designated P-114R, installed on the West Property of the Wood River Refinery in Roxana, Illinois. This information satisfies Condition IV(d)(6) of the IEPA Hazardous Waste Management RCRA Post-Closure Permit (Permit), most recently modified July 29, 2015.

If you have any questions or require further information, please contact Bob Billman at bob.billman@aecom.com or (314) 743-4108.

Sincerely,
AECOM, on behalf of Shell Oil Products US

Wendy Pennington, P.E.
Project Engineer

Robert B. Billman
Senior Project Manager

Attachments: RCRA Facility Groundwater, Leachate and Gas Reporting Form
P-114R Boring Log
P-114R Well Completion Report
P-114R Well Development Form

Cc: Kevin Dyer, SOPUS
Eric Petersen, Phillips 66
Project File
Repository (Roxana Village Hall, Website, Roxana Public Library)

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

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

Facility Address: 900 South Central Avenue; Roxana, Illinois 62084

Site ID #: 1191150002 Fed ID #: ILD 080 012 305

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

☐ LPC-160 Forms

Groundwater	Leachate
____ Quarterly - Enter: 1, 2, 3, or 4	____ Quarterly - Enter: 1, 2, 3, or 4
☐ Semi-Annual	☐ Semi-Annual
☐ Annual	☐ Annual
☐ Biennial	☐ Biennial

☐ Groundwater Data (without LPC-160 Forms)

____ Quarterly - Enter: 1, 2, 3, or 4 ☐ Annual ☐ Semi-Annual ☐ Biennial

☑ Well Construction Information

- ☑ Well Construction Forms, Boring Logs and/or Abandonment Forms
- ☑ Well Survey Data (e.g., Stick-up Elevation Data)

☐ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

☐ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

☐ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

☐ Gas Monitoring Reports

☐ Other (identify)

_____

_____

LOG OF BORING AND WELL CONSTRUCTION DETAIL

P-114R

Starting Date: 9/14/15
Completion Date: 9/15/15
Casing Elevation: 429.26
Ground Elevation: 429.58

Quadrangle
Sec:34
T:5N
R:9W
UTM (or State Plane) Coord
N: (X):791384.5
E: (Y):2321181.1

Depth In feet	Well Construction	Inches Driven	Inches Recovered	PID/FID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
		12	12	4.9				Brown, silt and clay mixed with coarse gravel and sand, dry (FILL)	Air knifed to 10 feet below ground surface to clean for utilities and other underground obstructions.
		12	12	69.0					
		12	12	9.2			FILL	Black, silt and clay with fine - coarse gravel and sand, wet (FILL)	
		12	12	70.8					
		12	12	350					
5		12	12	586			CL	Soft, moist, dark gray, medium plastic, CLAY (CL), trace fine black sand	
		12	12	489.3				Medium stiff, dark gray and brown, high plastic, CLAY (CH), with silt	
		12	12	380			CH		
		12	12	392					
		12	12	167.1					
10		36	36	67.5				Stiff, gray, medium plastic, Silty CLAY (CL), trace brown and orange mottles	
				11.4			CL	Becomes soft	
		60	60	8.8				Loose, dry to moist, light brown and orange, fine to medium grained, poorly graded SAND (SP), trace black	
15				5.5					
				9.0				1" medium stiff, moist, gray, low plastic, silt and clay seam	
20		60	48	3.3			SP	2" medium stiff, moist, gray, low plastic, silt and clay seam Trace coarse sand and fine gravel	
				22.2				Becomes moist, coarse sand and fine gravel grades out Becomes dry to moist	

Completion Depth: **34.0 Ft bgs**
Project No.: **60400249**
Project Name: **WRR - Monitoring Well Installation**
Drilling Contractor: **Roberts Enviromental Drilling, Inc.**
Driller Name: **Pat Seymour**
Drilling Method: **Geoprobe (direct push)**
Drill Rig Type: **8040 DT**
Logged by: **Brian Smith, Sam Fisher**
County: **Madison**
Site ID No.: **1191150002**
Federal ID No.: **ILD080012305**

Water Depth: 25.5 ft., After ATD hrs.
Water Depth: _____ ft., After _____ hrs.
▽ Water level at time of drilling
▼ Water level after drilling
ATD - At time of drilling
NE - None Encountered
NA - Not Applicable

AECOM

USC based on field visual observations

Air Knife/Hand Auger
Splitspoon Sampler
HSA- No Soil Sample
Geoprobe
Concrete
Cement/Bentonite Grout
Bentonite Seal
Filter Sand
Screen

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P-114R

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Completion Date: 9/15/15
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Ground Elevation: 429.58

Quadrangle
Sec:34
T:5N
R:9W
UTM (or State Plane) Coord
N: (X):791384.5
E: (Y):2321181.1

Depth In feet	Well Construction	Inches Driven	Inches Recovered	PID/FID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
30		60	60	8.3 9.8			SP	Loose, wet, light brown and orange, fine to medium grained, poorly graded SAND (SP), trace black ▽	
		60	60	8.8 9.6 8.2					
35								Bottom of boring at 34' bgs	
40									
45									

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USC based on field visual observations

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Splitspoon Sampler
HSA- No Soil Sample
Geoprobe
Concrete
Cement/Bentonite Grout
Bentonite Seal
Filter Sand
Screen

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150002 County: Madison

Site Name: Equilon Enterprises LLC d/b/a Shell Oil Products US (Wood River Refinery) Well #: P-114R

State Plane Coordinate: X 791384.53 Y 2321181.07 (or) Latitude: ° ' " Longitude: ° ' " Borehole #: P-114R

Surveyed by: Juneau Associates, Inc. P.C. - Robert Brown, PLS IL Registration #: 35-3298

Drilling Contractor: Roberts Environmental Drilling Inc. Driller: Pat Seymour

Consulting Firm: AECOM Geologist: Brian Smith

Drilling Method: Geoprobe (direct push) Drilling Fluid (Type): N/A

Logged By: Brian Smith Date Started: 9/14/15 Date Finished: 9/15/15

Report Form Completed By: Wendy Pennington Date: 9/28/15

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Cement/Bentonite Grout

Installation Method: Side discharge tremie

Setting Time: 1445 (9/15/15)

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Gravity Feed

Setting Time: 1325 (9/15/15)

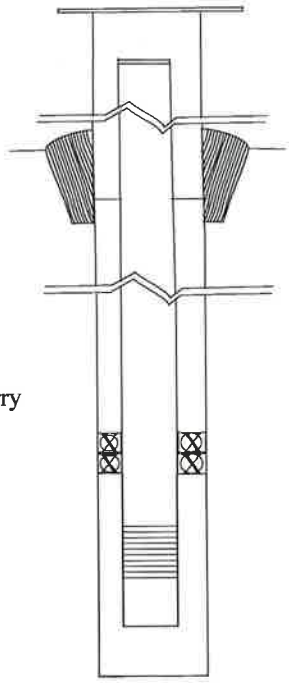
Type of Sand Pack: ANSI / NSF Quartz Sand

Grain Size: 61 grade (Sieve Size)

Installation Method: Gravity Feed

Type of Backfill Material: N/A (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
429.57	-0.01	Top of Protective Casing
429.26	0.32	Top of Riser Pipe
429.58	0	Ground Surface
428.58	1.00	Top of Annular Sealant
403.24	26.34	Static Water Level (After Completion)
410.25	19.33	Top of Seal
408.25	21.33	Top of Sand Pack
406.25	23.33	Top of Screen
396.25	33.33	Bottom of Screen
395.95	33.63	Bottom of Well
395.58	34.00	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	4
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	1
Riser Pipe Length (feet)	23.01
Bottom of Screen to End Cap (feet)	0.30
Screen Length (1st slot to last slot) (feet)	10
Total Length of Casing (feet)	1
Screen Slot Size **	0.010 in

**Hand-Slotted Well Screens are Unacceptable

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: P-114 Reinstallation PROJECT NUMBER: 60400249.21563721.02009
DATE: 9/18/15
WEATHER: Partly cloudy
FIELD PERSONNEL: D. Haxel / C. Williams
MONITORING WELL ID: P-114R

INITIAL DATA

Well Diameter: 2 in.
Total Depth of Well: 33.28 ft btoc
Depth to Water: 26.02 ft btoc
Height of Water Column: 7.26 ft
(0.163 gallons/ft for 2 inch well, 1.468 gallons/ft for 6-inch well)

Gallons/Lin.Ft: 0.163
Vol. Of Water Column: 1.183 gallons
Min. Purge Volume: 6.00 gallons (5 volumes)
Depth to Top of Screen: 23.01 ft btoc

Water Added during Drilling/Installation: 0 gallons
Total Water to be Removed: 7.00 gallons (5 volumes + 1x added)
Ambient PID/FID Reading: 7.3 ppm
Wellbore PID/FID Reading: 63.3 ppm

PURGE DATA

Purge Method: Hurricane Pump

Stabilized: +/- 0.2 +/- 1 °C +/- 10 % visually sediment free

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)

PARAMETERS NOT COLLECTED PER SOP

Start Time: 1050 Purge Stop Time: 1128 Elapsed Time: 38 minutes Total Volume Purged: 70 gallons
Average Purge Rate (gallons/min): ~~1 gallon~~ 1 gallon / 2 min Well Volumes Purged: ~~0.2~~ Water Quality Meter ID: N/A Calibrated on: N/A

SAMPLING DATA

Sampling Method:

Sample Date: N/A Sample Time: N/A Analysis: N/A

COMMENTS:

DTB = 33.28 ft btoc prior to development Is the purgewater visually sediment free? YES ☒ NO ☐
DTB = 33.31 ft btoc after development
soft bottom - DTW 25.93