

Illinois Environmental Protection Agency Bureau of Land 1021 North Grand Avenue East Box 19276 Springfield, IL 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:WRB Refining LP - Wood River RefinerySiteFacility Address:900 S. Central Ave; Roxana, IL 62048Fed

Site ID #: <u>1191150002</u> Fed ID #: <u>ILD 080 012 305</u>

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
  - <u>Groundwater</u>
  - Quarterly Indicate one: 1 2 3 4
  - Semi-Annual
    - Annual
    - \_\_\_\_ Biennial

Leachate Quarterly – Indicate one: 1 2 3 4 Semi-Annual Annual Biennial

- Groundwater Data (without LPC-160 Forms)
  Quarterly Indicate one: 1 2 3 4
  - \_ Annual \_\_\_\_ Semi-Annual \_\_\_\_ Biennial
- X Well Construction Information
  - X Well Construction Forms, Boring Logs and/or Abandonment Forms
  - X Well Survey Data (e.g., Stick-up Elevation Data)
- \_\_\_\_ Notice of Statistically Significant Evidence of Groundwater Contamination (35 III. Adm. Code 724.198)
- \_\_\_\_ Notice of Exceedence of Groundwater Concentration Limit (35 III. Adm. Code 724.199(h))
- \_\_\_\_ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 III. Adm. Code 724.199(i))
- \_\_\_\_ Gas Monitoring Reports
- \_\_\_\_ Other (identify) \_\_\_\_\_

1/98	1/98 WATER WELL SEALING FORM	
TYPE	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761 RETURN LOCAL	VALL COPIES TO IDPH OR HEALTH DEPARTMENT
OF THEFE	This form shall be submitted to this Department or the local health department not more than 30 da or monitoring well is scaled. Such wells are to be sealed not more than 30 days after they are about calling requirements in the Water Well Construction Code.	ve after a water well, boring loned in accordance with the
1.		
2.	2. Well Location: 900 S. CENTRAL AVE. ROXANA Address - Lot Number City	MADISON
	General Description: Township 5 (N)(S) Range (E)(W)	Section_34
	SE Quarter of the SE Quarter of the AE Quarter	r LAT: <u>N38° 50' 35.5"</u>
3.	3. Year Drilled <u>2008</u>	CONG: W90° 4' 39.2"
4.		11
5.		
6.	6. Total Depth <u>68</u> Diameter(inches)	
7.	7. Formation clear of obstruction Ves No	
8.	·	
	Filled with <u>GRANIMAR</u> <u>BENTONEFE</u> from <u>58</u> to <u>Q</u> (cement or other materials)	_ft.
	Kind of plug BENTONITE CHEPS from A to O	fŧ.
	Filled withtoto	ft.
	Kind of plugfromfo	ft.
	Filled with fromto	ft.
	Kind of plugtot_to_tto_to_	_ft.
9.	9. CASING RECORD: Upper 2 feet of casing removed VesNo	
10.	10. Date well was sealed: Month NOV. Day 30 Year 3011.	
11.	<u>AARLEY ROBERTS</u> ROBERTS OP 00686 Name OP 00686	aling.
	1107 S. MUBGRRY ST. MILLSTADT Address City	<u>LL (SSR</u> 60) State/Zip

This State Agency is requesting disclosure of information that is necessary to accomplish the steautory purpose as outlined under Public Act 85-9863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center. P.O. SPRT3030244 5M 6/98 IL 482-0531

REDA 306 # 112177

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1/98	WATER WELL SEALING FORM
	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761 RETURN ALL COPIES TO IDPH OR LOCAL HEALTH DEPARTMENT
TYPE	OR PRESS FIRMLY
or mor	rm shall be submitted to this Department or the local health department not more than 30 days after a water well, buring itoring well is scaled. Such wells are to be sealed not more than 30 days after they are abandoned in accordance with the requirements in the Wafer Well Construction Code.
1.	Ownership (Name of Controlling Party) SHELL ORL PROBLETS 4.S.
2.	Well Location: 900 S. CENTRAL AVE. ROXANA MAINTSON Address - Lot Number City County
	General Description: Township 5 (N)(S) Range 9 (E)(W) Section 34
	SE Quarter of the SE Quarter of the NE Quarter LAT: N38° 50' 35.8", LONG: W90° 4' 36.9"
3.	Year Drilled <u>2008</u>
4.	Drilling Permit Number (and date, if known)
5.	Type of Well: Bored Drilled Other $M_{ONITORING} \Rightarrow \# MW$ -Q
6.	Total Depth 68' Diameter(inches) //
7.	Formation clear of obstruction Yes No
8.	DETAILS OF PLUGGING
	Filled with <u>GRANIWAR</u> <u>BENTOMIFE</u> from <u>63</u> to <u>c</u> ft. (cement or other materials)
	Kind of plug BENTONITE CHEPS from S to O ft.
	Filled with from toft.
	Kind of plugfromft.
	Filled with from toft.
	Kind of plugfromtoft.
9.	CASING RECORD: Upper 2 feet of casing removed Yes No
10.	Date well was sealed: Month NoV. Day 30 Year 30/1.
11.	Licensed water well driller or other person approved by the Department performing well sealing. <u>AARLEY RESETS / ENV. DRILLING</u> 092-006865 Name Complete License Number
	1107 S. MULIBERRY ST. MELLESTADT IL GARGO Address City State/Zip

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as autimed under Public Act 85-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center. 11, 482-9631 P.O. #PRT3030244 5M 6/98

REDI 306#112177

1/98	WATER WELL SEALING FORM
L	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH
	SPRINGFIELD, ILLINOIS 62761 LOCAL HEALTH DEPARTMENT
туре	OR PRESS FIRMLY
OF MIN	irm shall be submitted to this Department or the local health department not more than 30 days after a water well, boring inturing well is scaled. Such wells are to be scaled not more than 30 days after they are abandoned in accordance with the requirements in the Water Well Construction Code.
I.	Ownership (Name of Controlling Party) SHELL Ozc PROBLETS 4.5.
2.	Well Location: <u>900 S. CENTRAL AVE. ROXANA MADISON</u> Address - Lot Number City County
	General Description: Township 5 (N)(S) Range 9 (E)(W) Section 34
	SE Quarter of the SE Quarter of the NE Quarter (AT: 138° 50' 32.4"
3.	Year Drilled <u>2008</u>
4.	Drilling Permit Number (and date, if known)
5.	Type of Well: Bored Drilled Other MONIFORENCE > #MW-3
6.	Total Depth Uiameter(inches) / ''
7.	Formation clear of obstruction Ves No
8.	DETAILS OF PLUGGING
	Filled with <u>GRANWAR</u> <u>BENTONTEE</u> from <u>46 to</u> ft. (cement or other materials)
	Kind of plug BENTONETE CHEEPS from S to O ft.
	Filled with from toft.
	Kind of plugfi.
	Filled with from ft.
	Kind of plugft.
9.	ALL- CASING RECORD: Upper 2 feet of casing removed YesNo
10.	Date well was sealed: Month NOV. Day 30 Year 2011.
11.	Licensed water well driller or other person approved by the Department performing well sealing. <u>ARLEY RESERTS</u> Name <u>Name</u> <u>N</u>
	1107 S. MULBERRY ST. Machestadt Il (2000) Address City State/Zip

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 83-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

REDI 500 # 112177

1/98	WATER WELL SEALING FORM
1211067424	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761 RETURN ALL COPIES TO IDPH OR LOCAL HEALTH DEPARTMENT
	OR PRESS FIRMLY
OF MOR	rm shall be admitted to this Department or the local health department not more than 30 days after a water well, boring itoring well is scaled. Such wells are to be scaled not more than 30 days after they are abandoned in accordance with the requirements in the Water Well Construction Code.
1.	Ownership (Name of Controlling Party) SHELL OIL PRODUCTS 4.5.
2.	Well Location: 900 S. CENTRAL AVE. ROXANA MADISON Address - Lot Number City County
	General Description: Township 5 (N)(S) Range (E)(W) Section 34/
	SE Quarter of the SE Quarter of the NE Quarter LAT: N38° 50' 30.4"
3.	Year Drilled 2008
4,	Drilling Permit Number (and date, if known)
5.	Type of Well: Bored Drilled Other $MONIFORING \implies \#MW-4$
6.	Total Depth58 /Diameter(inches)///
7.	Formation clear of obstruction Ves No
8.	DETAILS OF PLUGGING
	Filled with <u>GTRANULAR</u> <u>BENTOMETE</u> from <u>S8</u> to <u>f</u> t. (cement or other materials)
	Kind of plug BEANONITE CHEPS from S to O ft.
	Filled with toft.
	Kind of plugfromtoft.
	Filled with from ft.
	Kind of plugfromft.
9.	ALL. CASING RECORD: Upper 2-feet of casing removed YesNo
10.	Date well was sealed: Month NOV. Day 30 Year 3011.
11.	Licensed water well driller or other person approved by the Department performing well scaling. <u>AARLEY</u> RECRTS / ENV. DRILLENG 092 - 006865 Name Complete License Number
	1107 S. MULBERRY ST. MILLISTADT IL CORDIDO Address City State/Zip

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This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0363. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center. 11.482-0531 P.O. #PRT3030244 5M 6/98

REDI 300#112177

1/98	WATER WELL SEALING FORM
	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761 RETURN ALL COPIES TO IDPH OR LOCAL HEALTH DEPARTMENT
	OR PRESS FIRMLY
or mor	rm shall be submitted to this Department or the local health department not more than 30 days after a water well, boring itering well is scaled. Such wells are to be scaled not more than 30 days after they are abandoned in accordance with the requirements in the Water Well Construction Code.
1.	Ownership (Name of Controlling Party) SHELL DEL PROPUETES U.S.
2.	Well Location: 900 S. CENTRAL AVE. ROXANA MADISON Address - Lot Number City County
	General Description: Township 5 (N)(S) Range (E)(W) Section 34
	SE Quarter of the SE Quarter of the $NE$ Quarter $LAT: N.38^{\circ} .50'.30.5''$
3.	Year Drilled $3008$ 20 NG: $W90^{\circ} 4' 40.9''$
4.	Drilling Permit Number (and date, if known)
s.	Type of Well: Bored Drilled Other MONIFORING 3 # MW-5
6.	Total Depth 471 Diameter (inches) /"
7.	Formation clear of obstruction Ves No
8.	DETAILS OF PLUGGING
	Filled with <u>GRANULAR BENTONTE</u> from <u>47</u> to <u>S</u> ft. (cement or other materials)
	Kind of plug BENTONITE CHEPS from Sto Off.
	Filled with from ft.
	Kind of plugft.
	Filled with from toft.
	Kind of plugfromtoft.
9.	CASING RECORD: Upper 2 feet of casing removed Yes No
10.	Date well was sealed: Month NOV. Day 30 Year 3011.
11.	Licensed water well driller or other person approved by the Department performing well sealing.          AARLEY       POBERTS         AARLEY       REATS         Name       Complete License Number
	1107 S. MULIBERRY ST. MELCETADT IL 6000 Address City State/Zip

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0853: Disc of this information is mandatory. This form has been approved by the Forms Management Center. KL 482-0531 P.O. #PRT3030244 5M 6/98

REDI 506# 112177

1/98	WATER WELL SEALING FORM
	ILLINOIS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ENVIRONMENTAL HEALTH 525 WEST JEFFERSON STREET SPRINGFIELD, ILLINOIS 62761 RETURN ALL COPIES TO IDPH OR LOCAL HEALTH DEPARTMENT
	OR PRESS FIRMLY
or mon	ran shall be submitted to this Department or the local bealth department not more than 30 days after a water well, boring itoring well is scaled. Such wells are to be sealed not more than 30 days after they are abandoned in accordance with the requirements in the Water Well Construction Code.
1.	Ownership (Name of Controlling Party) SHELL OZL PRODUCTS 4.5.
2.	Well Location: 900 S. CENTRAL AVE. ROXANA MADISON Address - Lot Number City County
	General Description: Township 5 (N)(S) Range (E)(W) Section 34
	NE Quarter of the NE Quarter of the SE Quarter LAT: N38° 50' 57"
3.	Vear Drilled V90° 4' 38.8"
4.	Drilling Permit Number (and date, if known)
5.	Type of Well: Bored Drilled Other NONITORING > # M(W-6A
6.	Total Depth 50' Diameter(inches) ///
7.	Formation clear of obstruction Yes No
8.	DETAILS OF PLUGGING
	Filled with <u>GRANULAR BEAMONTRE</u> from <u>50</u> to <u>c</u> ft. (cement or other materials)
	Kind of plug BENTONDIE CHEPS from Sto Oft.
	Filled with from toft.
	Kind of plugfromtoft.
	Filled with from to ft.
	Kind of plugfromfoft.
9.	ALL. CASING RECORD: Upper 2-feet of casing removedYesNo
10.	Date well was scaled: Month Nov. Day 30 Year Soll.
11.	Licensed water well driller or other person approved by the Department performing well sealing. <u>AARLEY RECRTS</u> / ENV. DRLAMG 092 - 006865 Name Complete License Number 1107 S. MULBERRY ST. MELLISTADT IL 62260
	Address City State/Zip

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center. P.O. \$PKT3030244 5M 6/98 IL 482-0631

REDI 500#112177

1/98	WATER WELL SEA	LING FORM		
	ILLINOIS DEPARTMENT O DIVISION OF ENVIRONM 525 WEST JEFFERS SPRINGFIELD, ILLI	IENTAL HEALTH	RETURN ALL	. COPIES TO IDPH OR LTH DEPARTMENT
ТҮРЕ	E OR PRESS FIRMLY			
or mor	form shall be submitted to this Department or the local health o unitoring well is scaled. Such wells are to be scaled not more th g requirements in the Water Well Construction Code.	department not mo nan 30 days after U	re than 30 days ult icy are abandoned	er u water well, boring in accordance with the
1.	Ownership (Name of Controlling Party)	Dzec 7	, Roewars,	La car
2.	Well Location: 900 S. CENTRAL AVE. Address - Lot Number	<u> </u>	A A Count	1255 SOA)
	General Description: Township <u></u> (N)(S) R	ange (E)	<b>(W)</b>	Section 35
	$\underline{\mathcal{M}}$ Quarter of the $\underline{\mathcal{M}}$ Quarter of the $\underline{\mathcal{M}}$	of the $\mathcal{N}\mathcal{W}$		
3.	Year Drilled <u>PRIOR TO</u> 1980		L	ONG: W90° 4' 34.2"
4.	Drilling Permit Number (and date, if known)	·······		
5,	Type of Well: Bored Drilled Other	MONITORI	NG >> T	1 CUELL AT INTERSETTION
6.	Total Depth 70 Diameter(inche	s) <u> </u>		OF FIRST ST. + CHOFFED &= N
7.	Formation clear of obstructionYesNo			Since CK SI.
8.	DETAILS OF PLUGGING			
	Filled with <u>BENTOMETE</u> CHEPS f (cement or other materials)	rom <u>70</u> t	0 <u></u> ft.	
	Kind of plug_ <u>BENTONITE</u> _CHZf	romt	<u>، ک</u> ۴.	
	Filled withf	romt	0ft.	
	Kind of plugfi	romte	)ft.	
	Filled withf	romt	oft.	
		romto	)ft.	
9.	ALL CASING RECORD: Upper 2 feet of casing removed	Yes	No	
10.	Date well was sealed: Month DEC Day	5 Year	<u>D//</u> .	
11.	Licensed water well driller or other person approved by the R ROBERTS CHARLEY ROBERTS / CNV. DRICCENE Name	09-2 · 004 mplete License Nu	-86-5 mber	
	<u>1107 S. Mar BERRY St.</u> Address <u>Ci</u>	<u>Maccest AP7</u> ty	State/2	<u>622</u> 60 Lip
This State of this inf	the Agency is requesting disclosure of information that is necessary to accompliation is mundatory. This form has been approved by the Forms Manage	zneat Center.	e as outlined under Pul XF3030244 5M 6/98	lic Act 85-9863. Disclosure 11. 482-9631

IL 482-0631

(REDE 50B # 112 181)



Project:	West Fenceline - Roxana / Wood Riv	er Refinery		Well ID:	MW-1 (replacement)
Project Location:	Roxana, Illinois	Date Started:	11/18/2011		
Well Location:	Alley between 6th and 7th Streets	Date Completed:	11/18/2011	Boring ID:	B-1
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1105	Northing:	792527.4
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2321986
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	443.12
Geologist:	R. Hart	Completion Zone:			
NOTE: This replace	ement well is located 2.75 feet east of	the original well loc	ation, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft)
			Ground Elevation:		443.1
			Depth of Riser Below Ground:	0.47	
			Elevation of Top of Riser Pipe:	0.47	442.6
			ID/Type of Surface Casing:	8" Flush Mount	
			Type of Surface Seal:	Concrete	
Davia a Dia			Bottom of Surface Seal:	2.00	441.1
Boring Dia	in		Groundwater (after completion):	37.57	405.5
			Type of Riser Pipe:	Schedule 40 PVC	
			Riser Diameter:	2.00	in
			Type of Backfill:	Cement/Bentonite	Grout
			Top of Seal:	45.45	397.6
			Type of Seal:	Bentonite Chips	
			Top of Filter Pack	48.45	394.6
			Top of Screen	50.45	392.6
			Type of Filter Pack:	ANSI/NSF Quartz	Sand
			Type of Screen:	Schedule 40 PVC	
			Screen Diameter		in
			Screen Slot Size:	0.010	in
			Bottom of Screen:	60.45	382.6
			Bottom of Blank Casing:	60.78	382.3
			Backfill/Seal Below Well:	60.78	382.3
			Type of Backfill/Seal Below Well:		cave in) and placed SF Quartz Sand

PROJECT NAME DATE: WEATHER: FIELD PERSONI MONITORING W	- <u>28-11</u> ( VEL:(	Clouchy	PUS D. Matting	<u></u>		ECT NUMBER:	21562593	3		
Total Depth of Wel Depth to Water: Height of Water Co	3710	ft btoc ft ns/ft for 6-Inch well)	Vol. Min.	ons/Lin.Ft: <u>0,163</u> Of Water Column: Purge Volume: h to Top of Screen:	3,5 17 49.0	gallons (5 vo	Jallons Water to be lumes) Ambient Pli	Removed: 65 D/FID Reading: 0	13 ga gallons (5x a  _ O	llons dded) ppm ppm
Purge Volume (gals) /07 /40 /8/	Time 0940 1000 1029	Depth to Water (ft)	Color	Odor	pH 8.10 6.89 6.75	Тетр (°С) 15,7 15,4 16,0	Cond. (µmhos/cm) 701 802 785	Turbidity (NTUs) 4.44 6.55 6.3	DO (mg/l) 	ORP (mv)
Start Time: Average Purge Rate SAMPLING DAT Sampling Method:		Purge 5 Well 1	e Stop Time: Volumes Purged:	0;29 33	Elapsed 1	lime: <u>み</u> : 00 ality Meter ID: <u>bon</u> 名	hr m/hamotte	Total Volume P Calibrated on:_	urged: 185 11-28-1	galloi
Sample Date: <u>N/A</u> COMMENTS: <u>DTB = ら</u> 9.00 <u>DTB = 60.3</u>	ft btoc prior to d ft btoc after devi	evelopment elopment	Sampi	le Time: <u>N/A</u>			Analysis:_N//	۹		

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Project:	West Fenceline - Roxana / Woo	d River Refinery		Well ID:	MW-2 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/31/2011	• • •	( )
Well Location:	Alley between 6th and 7th Stre		10/31/2011	Boring ID:	B-2
Drilling Contractor:	Roberts Environmental Drilling,		1150	Northing:	792538.6
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2322246
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	444.29
Geologist:			Her((1.20 HB)	Elevation Batam.	-111.20
		Completion Zone:	ell location, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft)
			Ground Elevation:		444.29
			Depth of Riser Below Ground:	0.52	
			Elevation of Top of Riser Pipe:	0.52	443.77
			ID/Type of Surface Casing:	12" Flush Mount	
			Type of Surface Seal:	Concrete	
			Bottom of Surface Seal:	2.00	442.29
Boring Dia	in T		Groundwater (after completion):	38.83	405.46
			Type of Riser Pipe:	Schedule 40 PVC	
			Riser Diameter:	2.00	in
			Type of Backfill:	Cement/Bentonite	Grout
			Top of Seal:	46.84	397.45
			Type of Seal:	Bentonite Chips	
			Top of Filter Pack	49.84	394.45
			Top of Screen	51.84	392.45
			Type of Filter Pack:	ANSI/NSF Quartz	Sand
			Type of Screen:	Schedule 40 PVC	
			Screen Diameter	2.00	in
			Screen Slot Size:	0.010	in
			Bottom of Screen:	61.84	382.45
			Bottom of Blank Casing:	62.17	382.12
	· · · · · · · · · · · · · · · · · · ·		Bottom of Blank Casing: Backfill/Seal Below Well:	62.17	382.12 382.12
			·	62.17 Native soil (	

DIAGRAM IS NOT TO SCALE

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PROJECT NAME: DATE: WEATHER: FIELD PERSONN MONITORING WE	11-3-11 Clear, E EL: L. M	58°	Developm 1. mitterner	· · · · · · · · · · · · · · · · · · ·	PROJEC	T NUMBER:	21562593			
Total Depth of Well: Depth to Water: Height of Water Col	38.31	ft btoc ft is/ft for 6-inch well)	Vol. O Min. P	s/Lin.Ft: <u>O. [(6]</u> i Water Column: urge Volume: to Top of Screen:	3 3,54 17.7 49.9	gallons (5 vo	alions Water to be l umes) Ambient PID	/FID Reading:	/ち gallo gallons (5x add の.ひ	
Purge Volume		Depth to	T			Temp	Cond.	Turbidity	DO	ORP
(gals)	Time	Water (ft)	Color	Odor	pН	(°C)	(µmhos/cm)	(NTUs)	(mg/i)	(mv)
117	0915	/	cloudy	Ø	6.70	17.3	970	6.82		
162	0940		cloudy	ø	6.74	17.2	970	4.38	-	
225	1015		semi-clear	đ	10.72	7.2	958	2.63		
240	1023		clear	Ø	6.72	173	969	3.81	-	
Start Time: Average Purge Rate	 ⊘& / ⊖ • (galions/min):	Pu 	ge Stop Time: Il Volumes Purged:	1240	Elapsed Ti Water Qua	ime: 4:0	28 Kton/La.MoH	Total Volume I	Purged: 470	galloi
SAMPLING DAT Sampling Method:	A	<u> </u>		· · · · · · · · · · · · · · · · · · ·						
Sample Date: N/A			Sampi	e Time: <u>N/A</u>			Analysis: Ni	A		
COMMENTS: DTB = 60	ft btoc prior to c ft btoc after dev	development velopment								
	· · · · · · · · · · · · · · · · · · ·									······································

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Project:	West Fenceline - Roxana / Wood Riv	er Refinery		Well ID:	MW-3 (replacement)
Project Location:			10/28/2011		
Well Location:			10/28/2011	Boring ID:	B-3
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1300	Northing:	792215.9
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2321691
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	430.50
eologist: R. Hart		Completion Zone:			
			ocation, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft)
			Ground Elevation:		430.5
			Depth of Riser Below Ground:	0.42	
			Elevation of Top of Riser Pipe:	0.42	430.0
			ID/Type of Surface Casing:	12" Flush Mount	
			Type of Surface Seal:	Concrete	
Boring Dia	umotor		Bottom of Surface Seal:	2.00	428.5
-	in		Groundwater (after completion):	23.76	406.
			Type of Riser Pipe:	Schedule 40 PVC	
			Riser Diameter:	2.00	in
			Type of Backfill:	Cement/Bentonite	Grout
			Top of Seal:	30.09	400.4
			Type of Seal:	Bentonite Chips	
			Top of Filter Pack	33.09	397.4
			Top of Screen	35.09	395.4
			Type of Filter Pack:	ANSI/NSF Quartz	Sand
			Type of Screen:	Schedule 40 PVC	
			Screen Diameter		in
			Screen Slot Size:	0.010	in
			Bottom of Screen:	45.09	385.4
			Bottom of Blank Casing:	45.42	385.0
			Backfill/Seal Below Well:	45.42	385.0
				Native soil (	cave in) and placed
			Type of Backfill/Seal Below Well:		SF Quartz Sand

•

DATE:	Rox/WR		Sevelopmen	elopment PROJECT NUMBER:				21562593				
WEATHER: FIELD PERSONN MONITORING WE	EL: L'Ma	<u>)reezy, 56°</u> rquez, M. U-3	Mittermeyer				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				
INITIAL DATA	s	····	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · ·							
Well Diameter: Total Depth of Well Depth to Water: Height of Water Col	35-3+ 23	<u>.34</u> ft btoc <u>6</u> ft	Vol. Min.	ons/Lin.Ft: <u>0.163</u> Of Water Column: Purge Volume: th to Top of Screen:	3.37 16.8 33.67	galions (5 vo	gallons Water to be I dumes} Ambient PID	/FID Reading:	ノら gallo gallons (5x add つ. む			
PURGE DATA Purge Method:	Monsoon	Pump										
Purgė Volume (gals)	Time	Depth to Water (ft)	Color	Odor	рН	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)		
<del>7</del> 6	0915		brownish	none	692	16.5	929	14.5	-			
1102	0935 1000			- H	6.93	(7.3	905	9.37		<u>~</u>		
229	135	<u>├──</u>	Cloudy	и и	6.93 6.90	17.0	901 905	7.34	-			
258	, 1150	~	l Cloudy	4	6.70	17.3	896	<u>5.66</u> 8.54	-			
315	1220	-	clear	<u> </u>	6.86	(8.8	892	<u>8.04</u> <del>7.7</del> 9	-	-		
353	1240	-	clear	<u>u</u>	6.84	17.9	889	8,28				
		· · · · · · · · · · · · · · · · · · ·										
Start Time: Average Purge Rate	0835		irge Stop Time: ell Volumes Purged:	1245	Elapsed Water O	Time: <u> </u>		Total Volume Calibrated on:		Ogallor		
SAMPLING DAT Sampling Method:			· · · · · · · · · · · · · · · · · · ·									
Sample Date: N/A			Samp	ple Time: <u>N/A</u>			Analysis: <u>N/</u>	۹		<u>-</u> -		
COMMENTS: DTB = 44	ft btoc prior to								· · · · · · · · · · · · · · · · · · ·			
DTB = 45.00	ft btoc after de	velopment	<u>.</u>	······································								
								· · · · · · · · · · · · · · · · · · ·				
								······	· · · · · · · · · · · · · · · · · · ·	·····		
									· · · · · · · · · · · · · · · · · · ·			

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Project:	West Fenceline - Roxana / Wood Riv	er Refinery	Ι	Well ID:	MW-4 (replacement)
Project Location:	Roxana, Illinois	Date Started:	12/12/2011	ļ	
Well Location:	Alley between 7th and 8th Streets	Date Completed:	12/12/2011	Boring ID:	B-4
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1340	Northing:	792229.9
Driller:	E. Wetzel	Type of Rig:	CME 750	Easting:	2321993
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	441.56
Geologist:	R. Hart	Completion Zone:			
IOTE: This replace	ement well is located 3.67 feet west of	the original well lo	cation, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft)
			Ground Elevation:		441.5
			Depth of Riser Below Ground:	0.42	
			Elevation of Top of Riser Pipe:	0.42	441.1
			ID/Type of Surface Casing	: 8" Flush Mount	
			Type of Surface Seal	Concrete	
Poring Dia	motor		Bottom of Surface Seal:	2.00	439.5
Boring Dia	in		Groundwater (after completion):	35.81	405.
			Type of Riser Pipe	: Schedule 40 PVC	
			Riser Diameter	2.00	in
			Type of Backfill	: Cement/Bentonite	Grout
			Top of Seal:	41.48	400.0
			Type of Seal	Bentonite Chips	
			Top of Filter Pack	44.48	397.0
			Top of Screen	46.48	395.0
			Type of Filter Pack	ANSI/NSF Quartz	Sand
			Type of Screen	: Schedule 40 PVC	
			Screen Diameter		in
			Screen Slot Size	. 0.010	in
			Bottom of Screen:	56.48	385.0
			Bottom of Blank Casing:	56.81	384.7
			Backfill/Seal Below Well:	56.81	384.7
			Type of Backfill/Seal Below Well	Native soil ( ANSI/N	cave in) and placed SF Quartz Sand
	i i				

DATE: 12 WEATHER: 1 FIELD PERSON MONITORING W INITIAL DATA Well Diameter: Total Depth of We Depth to Water: Height of Water Co	ID:     In.       II:     50, 10       II:     50, 10       II:     50, 30       II:     50, 30	<u>) בן</u> 	Hnow Gali Vol. Min	ons/Lin.Ft: Of Water Column: . Purge Volume: th to Top of Screen:_	80.163 - 3,47 50 - 4017.		olumes) Amblent Pl	ed during Drilling: Removed:i O D/FID Reading: D/FID Reading:	18 gallons (5x ad O. O O. O	lons ided) ppm ppm
Purge Method:	Monsoon Pr	Guna		Stabilized	+/- 0.2	+/- 1 °C	+/- 10 %	visually sediment free		
Purge Volume	-	Depth to	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
(gals) 90	Time 1400	Water (ft)	Clear	nere	7, 77-			12,4		
100	44H81428	<del></del>		Vision	7.98	18.3	588 69 <del>7</del>	9,62	<b>~</b>	
Start Time: Average Purge Ra SAMPLING DA Sampling Method: Sample Date:	,		ell Volumes Purged:_	5: 3 53: 3	Elapse Water (	d Time: <u>2.16</u> Quality Meter ID: <u>Oc</u>	HK tion hamothe Analysis:	Total Volume Calibrated or	Purged: 185 1: 12-14-11	gal
COMMENTS: DTB = 56.1 DTB = 56.3	O ft btoc prior to c 9 ft btoc after dev									
	5-55,5 - 18 gallens velopment/Sampling Da	ata Sheet	5611	) 35,39 DTWX	0,163 XS	- : 10le	Sallung			

.



Project:	West Fenceline - Roxana / Wood Riv	er Refinery		Well ID:	MW-5 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/27/2011	<u> </u>	
Vell Location:	SE Corner of 8th Street & Hwy 111	Date Completed:	10/27/2011	Boring ID:	B-5
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1115	Northing:	792020.1
riller:	P. Seymour	Type of Rig:	CME 55	Easting:	2321805
onsulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	430.16
Geologist:	R. Hart	Completion Zone:			
OTE: This replace	ement well is located 4.50 feet south c	of the original well lo	ocation, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft
			Ground Elevation:		430.
			Depth of Riser Below Ground:	0.36	
			Elevation of Top of Riser Pipe:	0.36	429.
			ID/Type of Surface Casing	: 12" Flush Mount	
			Type of Surface Seal	Concrete	
Boring Dia	meter		Bottom of Surface Seal:	2.00	428.
· ·	in		Groundwater (after completion):	23.28	406.
			Type of Riser Pipe	: Schedule 40 PVC	
			Riser Diameter	2.00	in
			Type of Backfill	: Cement/Bentonite	Grout
			Top of Seal:	29.33	400.
			Type of Seal	Bentonite Chips	
			Top of Filter Pack	32.33	397.
			Top of Screen	34.33	395.
			Type of Filter Pack	ANSI/NSF Quartz	Sand
			Type of Screen	Schedule 40 PVC	
			Screen Diameter	r 2.00	in
			Screen Slot Size	. 0.010	in
			Bottom of Screen:	44.33	385
			Bottom of Blank Casing:	44.66	385.
			Backfill/Seal Below Well:	44.66 Native soil (	385. cave in) and placed
			Type of Backfill/Seal Below Well	ANSI/NS	SF Quartz Sand

PROJECT NAME	: 120-w,	22 WE	u deve	LODMENT	PRO.IFC	T NUMBER:	sonus			
DATE: /	<u> -7-11  </u>	11-9-11				- nonsen,		·····		
WEATHER:	cloupy,	RATNY,	cas 48		CLEAR	2, COLD, C	WINDY 48	20		
FIELD PERSONN MONITORING WE			IEZ, JA	ran JACI	Kin	,				
		N-5							·····	
INITIAL DATA										
PURGE DATA	: 21,92 ft bt 27,97 lumn: 28,09 2 inch well, 1.468 gallon:	ft btoc ft s/ft for 6-inch well)	Vol. C Min. F	ns/Lin.Ft: <u>0,163</u> If Water Column: Purge Volume: to Top of Screen:	<del>3. 76204</del> 3, <del>20 18:8</del> 36.0033.	7.1 gallons (5 vol	allons Water to be umes} Ambient PID	d during Drilling: Removed: <u>80</u> //FID Reading: //FID Reading:	<i>i (c</i> gallo gallons (5x add 0, 0 0, 0	ns  ed) _ppm _ppm
Purge Method:	Monscon	Rump								
Purge Volume	Г Т	Depth to	1		······································	······	1			
(gals)	Time	Water (ft)	Color	Odor	pH	Temp	Cond.	Turbidity	DO	ORP
53	14:50	22-92	COUNY	wong	6.82	(°C) 18,5	(µmhos/cm)	(NTUs)	(mg/l)	(mv)
	15:30	22.912	CLOUDY	- NONCE	6.31		761	2/.8	~	
203	16:30	27.96	CIGAL	11	6.96	<u> </u>	752	24.5		
	16:50	27.98	CLAR	14	6.81	18.3	733	7.42		
DATE -	(1 - 9 - 11)						164	<u></u>		
	14:30	22.93	CLOUDY	11	684	16.8	731	11.8		
TOTAL	15:00		CLEAN		6.84	17.2	733	8.92		
520	15:30		CLEAR		6.85	17.2	715	5.42		
Start Time: 13 Average Purge Rate	3:25 - 11/7/11 (gallons/min): 103	Heres Pur	ge Stop Time: <u>/6 :</u> I Volumes Purged: <u>/</u>	55 / 15 3.2 Horr 138-3	/// <u>30</u> Elapsed Ti Water Qua	me: <u>3:30</u> H ity Meter ID: <u>Oci</u> K	Ha. / 7/5/11 Ha. / 2.H tos / hamothe	23. Total Volume I Calibrated on:	Purged: <u>520</u> //-7-//	galloı
SAMPLING DAT Sampling Method:	A									
Sample Date: N/A	·····		Sampl	e Time: <u>N/A</u>			Analysis: <u>N/</u>	4		
COMMENTS: DTB = 44 DTB = 44.30	ft bloc prior to d ft bloc after dev									
						·····			······································	·····
			· · · · · · · · · · · · · · · · · · ·			·····			·····	······
										<u></u>



Project:	West Fenceline - Roxana / Wood Riv	er Refinery	1	Well ID:	MW-6A (replacement
Project Location:	Roxana, Illinois	Date Started:	10/27/2011		
Vell Location:	SE of Rand Avenue & Hwy 111	Date Completed:	10/28/2011	Boring ID:	B-6
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1620	Northing:	791609.3
vriller:	P. Seymour	Type of Rig:	CME 55	Easting:	2322073
onsulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	432.89
Geologist:	R. Hart	Completion Zone:			
OTE: This replace	ement well is located 2.67 feet west of	the original well loo	cation, therefore new hole not logged.	Depths (ft bgs)	Elevations (ft
	<u> </u>		Ground Elevation:		432.
			Depth of Riser Below Ground:	0.75	
			Elevation of Top of Riser Pipe:	0.75	432.
			ID/Type of Surface Casing	: 12" Flush Mount	
			Type of Surface Seal	Concrete	
			Bottom of Surface Seal:	2.00	430.
Boring Dia	in 🔻		Groundwater (after completion):	28.75	404
			Type of Riser Pipe	: Schedule 40 PVC	
				2.00	
			Type of Backfill	Cement/Bentonite	Grout
			Top of Seal:	30.58	402.
			Type of Seal	Bentonite Chips	
			Top of Filter Pack	33.58	399.
			Top of Screen	35.58	397.
			Type of Filter Pack	ANSI/NSF Quartz	Sand
			Type of Screen	Schedule 40 PVC	
			Screen Diameter	2.00	in
			Screen Slot Size	0.010	in
			Bottom of Screen:	45.58	387.
			Bottom of Blank Casing:	45.91	386.
			Backfill/Seal Below Well:	45.91	386 cave in) and placed
			Type of Backfill/Seal Below Well		SF Quartz Sand

PROJECT NAME: DATE: WEATHER: FIELD PERSONN MONITORING WE	11/1/11 Sunny EL: L. Ma	and 11/2/1 605	Developn ' 'ansker	vent	PROJE	CT NUMBER:	215625	93		
INITIAL DATA										
Well Diameter: Total Depth of Well Depth to Water: Height of Water Coi (0.163 gallons/ft for 2	: <u>43</u> ftb 28	ft btoc ft	Vol. ( Min. I	ns/Lin.Ft: <u>0.163</u> Df Water Column: Purge Volume: h to Top of Screen:	2.45 12,25 32.67	galions (5 vo	gallons Water to be lumes) Ambient PID	/FID Reading:	15 gail gailons (5x ad  	
PURGE DATA Purge Method:	monsoon	r pump								
Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	РЯ	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	D.O (mg/i)	ORP (mv)
70	1632	t		1	680	18.9	1253	25.1	-	<u></u>
89 96	1645				677	19.1	1227	14.1	-	-
- 76	1660				6.77	19.1	1227	10.71	-	
<u>l</u>	2/11									
	/013				<u>la.79</u>	17.7	1215	15.5		
	+030				6.79	18.4	1198	9.89	-	
	1200				6.77	18.9	1185	3.01		
	1207			<b>I</b>	0. 77	10:1	1.85	3.01		
						1				
Average Purge Rate	e (gallons/min):	3/1150 Purg 75 Well 1.4	ge Stop Time:// Volumes Purged:	650/1040/12 36.7 87	230 Elapsed 8 Water Q	Time:/:0 uality Meter ID: <u></u> _		Total Volume Calibrated on:		25 205 gallon and 11/2/11
SAMPLING DAT Sampling Method:	ΓA									
Sample Date: N/A			Samp	ie Time: N/A	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	Analysis: N/	Α		
COMMENTS: DTB = 43 DTB = 45.10	ft btoc prior to ft btoc after de									
	· · · · · · · · · · · · · · · · · · ·			······································					· · · · · · · · · · · · · · · · · · ·	



#### Monitoring Well Installation Details Stick Up Monitoring Well Construction Diagram

During					<b>T</b> 4 (11.11)
Project:	West Fenceline - Roxana / Wood Riv		10/05/0011	Well ID:	T-1 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/25/2011		
Vell Location:	WRR - North Property	Date Completed:	10/26/2011	Boring ID:	T-1
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1040	Northing:	792417.6
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2322309
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	442.31
Geologist:	R. Hart	Completion Zone:			
NOTE: This replace	ement well is located 4.42 feet northwe	est of the original w	rell location, therefore new hole not logged.	Depths (ft bgs) (ATD)	Elevations (ft)
			Elevation of Top of Riser Pipe:		445.4
	🗖		Height of Riser Above Ground:	<u>3.09</u> ft	ags
			Ground Elevation:	0	442.3
			ID/Type of Surface Casing:	4" square steel	
			Type of Surface Seal:	Concrete	
Boring Dia	meter		Bottom of Surface Seal:	2.00	440.3
	in		Groundwater (after completion):	39.01	403.
			Type of Riser Pipe:	Schedule 40 PVC	
			Riser Diameter:	2_ir	ı
			Type of Backfill:	Cement/Bentonite	Grout
			Top of Seal:	38.91	403
			Type of Seal:	Bentonite Chips	
			Top of Filter Pack	41.91	400.
			Top of Screen	43.91	398.4
			Type of Filter Pack:	ANSI/NSF Quartz	Sand
			Type of Screen:	Schedule 40 PVC	
			Screen Diameter	2 ir	ı
			Screen Slot Size:	0.010 ir	1
			Bottom of Screen:	53.91	388.
			Bottom of Blank Casing:	54.24	388.
			Backfill/Seal Below Well:	54.24	388.(
			Type of Backfill/Seal Below Well:	Native soil (ca ANSI/NSI	ave in) and placed - Quartz Sand
	1				

DIAGRAM IS NOT TO SCALE ATD = At time of drilling

,	GROUNDWATER DEV	ELOPMENT/SA	MPLING DATA SH	FET			
PROJECT NAME: / WRA Well de DATE: /////// WEATHER: /////// FIELD PERSONNEL: M.M. Mansker, L.M. MONITORING WELL ID: T-	Nelopment, sampling 40 Magace	-	ECT NUMBER:	215629	93		
INITIAL DATA		والمتحد والمحمد المراجعة المحمد					<u> </u>
Well Diameter:in. $54.3$ Total Depth of Well:38, $67.5$ ft btoc Depth to Water:38, $67.5$ ft btoc Height of Water Column:15. $6.5$ ft (0.163 gallons/ft for 2 inch well, 1.468 gallons/ft for 6-inch well) PURGE DATA	Gallons/Lin.Ft: <u>0.163</u> Vol. Of Water Column: Min. Purge Volume: Depth to Top of Screen:	2.5 12.7 44	gallons (5 volu	lions Water to be mes) Ambient Pli	ed during Drilling: Removed: 75 D/FID Reading: D/FID Reading:	15 gallons 5 gallons (5x added) 0.0 pp 0.0 pp	) pm
Purge Method:							
Purge Volume (gals)Depth to Time Water (ft) $7 \leq gq/$ $0 q q s$ $170 qq$ $10 q s$ $170 qq$ $13 3 1$ $110 qq$ $13 5 3$ $300 qs$ $1413$	/ Color Odor Proundy	рН 7.19 7.19 7.19 7.09 7.09 7.08	Temp (°C) /6.3 /6.5 /6.9 /1.9 /7.9 /7.9 /7.9 /7.9	Cond. (µmhos/cm) 960 913 947 958 958 953 945	Turbidity (NTUs) 48.4 2.3.6 6.4.2 9.08 8.28 8.28 8.78	DO (mg/l)	
				Ì		1	

Elapsed Time: 578 mm Water Quality Meter ID: Oakten / Lamotte

ORP

(mv)

gallor

300

dila

Total Volume Purged:\_ Calibrated on:\_\_\_\_\_

Sampling Method:
Sample Date: <u>N/A</u>

SAMPLING DATA

Start Time: 0035 Average Purge Rate (gallons/min):\_

0.6

Sample Date. NA	Sample Time: <u>N/A</u>	Analysis: N/A
COMMENTS:		
COMMENTS: DTB = 54.3 ft btoc prior to development		
DTB = 57.33 ft btoc after development	***************************************	

13

120

Purge Stop Time:\_\_\_\_\_ Well Volumes Purged:\_

	_					1			
									LOG OF BORING MW-14
÷									Starting Quadrangle
Depth In feet			ed		۲				Date:         10/24/11         Sec:         N/A           Completion         T:         N/A           Date:         10/24/11         R:         N/A
th In		en	es over	Blow Counts	ıdd)	pler	lod	S	Date: 10/24/11 UTM (or State Dlane) Coord
Dep	20	Driven	Inches Recovered	CBO	PID (ppm)	Sampler Graphic	Symbol	nscs	Casing Elevation: 434.44         OT M (0) State F later (Coold Not Coold N
	+							ASPHALT	DESCRIPTION         NOTES           6" Asphalt         Boring advanced to a depth of 10' via air
					10.4		$\langle \rangle \rangle \rangle$	ASPHALI	Clay, sand, and <1" gravel (FILL)
					10.4		$\langle \rangle \rangle$		Large, clean gravel up to 1.5"
	-				9.4		$\langle \rangle \rangle$	FILL	
					4.6		$\langle \rangle \rangle$		
									Medium dense, moist, gray, Clayey SILT (ML)
-					3.7			ML	
5	_				6.7			SC	Medium stiff, moist, gray, medium plastic, moist,
					2.3				CLAY, with fine grained Sand.
					2.5				Moist, brown, fine grained, poorly graded, Silty SAND (SM)
	+				2.3				
	+				2.6				
					2.0				
10-									
10				1					
	-	24	18	3 3 5	1.1				
				5					
				3 4 5	~ ·				
	1	24	21	4 5 5	2.1				
	+								
15		24	18	3 5 6	3.8				
				6 7	2.0			SM	Becomes dark gray
	+			8					Becomes brown
		24	20	8 9 9	6.5				
				9					
	T		_	2 6					
	+	24	20	7	4.0				
20				10					
		2.4	~	2 7 8	<u>.</u>				
		24	22	$\begin{pmatrix} 8\\8\\8 \end{pmatrix}$	3.1				
	+								
		24	22	5 9	6.4				
				14 13					
	+			6					
Com	 nlei	tion I	)enth	-	44.0	Ft bgs			Water Depth: <u>27.5</u> ft., After <u>ATD</u> hrs.
Proie	ct ]	No.:	•		215625	593		on D	Water Darth 0, 40
Proje Drilli	ct l ng	Name Cont	e:	r:	a inter Robert	<u>nn Gro</u> s Envir	<u>onmen</u> t	er Prograr al Drilling,	
Drille	er N	Name	:			P. Se	ymour		$ \underbrace{\Psi}  \text{Water level after drilling} \\ \text{ATD}  \text{At time of drilling} \\ \text{Sampler} $
						Hollow CME	Stem A 55	vuger	NE - None Encountered
Logg	ed	by: .			R	. Hart			NA - Not Applicable Sonic Solic Splitspoon Sampler
							50002		URS USC based on field visual observations
Feder							0800123	05	USC based on field visual observations

URS (ENVIRON) LOG (EPA FORMAT) 21562593.00014 (ROXANA SVE INSTALL).GPJ URSSTLEV.GDT 1/10/12

									MW-14
÷									Starting Quadrangle
Depth In feet			ğ		Ê				Date:         10/24/11         Sec:         N/A           Completion         T:         N/A           Date:         10/24/11         R:         N/A
<u>_</u>		s c	Inches Recovered	ts	PID (ppm)	Sampler Graphic	0		Completion 1: N/A Date: 10/24/11 UTM (cr State Plane) Courd
pt	.  .	Inches Driven	ŝ	Blow Counts	5	abb	Symbol	nscs	Casing Elevation: 434.44 UTM (or State Plane) Coord
Ľ	-	ΞЪ	드입	ĒŬ	E	Sa	Sy	S)	E: (Y):2322340.00
	+	24	21	6	6.3				DESCRIPTION NOTES
		27	21	8	0.5				SAME: Poorly graded, moist, brown, fine grained, Silty SAND (SM)
	$\left  \right $			8					
				4					
	Η	24	20	11	12.4				77
				15 10					Becomes wet
		24	22	$\begin{array}{c c} 2 \\ 10 \end{array}$	(7				
		24	22	10	6.7				
30				12					
50	11			2					
	Ц	24	12	2 3 8	5.4				
				8 13					
	$\mid$			1.3					
				1					
	Н	24	21	10 12	7.1				
				$12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\$					
	$\vdash$								
				5					
35	5	24	22	5 12	10.2				Dense, wet, dark gray to black, fine to medium
				24					grained, SAND (SP), with Silt
	$ \uparrow$			4					
		24	24	4 5 15 29	4.2				
	$\square$	∠4	24	15	4.∠				Becomes brown
				29 7 10 30 32	7.4				
			24						
	Н	24							
								SP	
40	┝┼┤								
				2					
	Η	24	24	2 5 15	13.8				Becomes fine grained, silty
				31					
	$ \uparrow$			-					
		24	22	3	56				
	$\square$	24	22	5 23	5.6				Becomes medium grained
				31					
									Bottom of boring at 44ft bgs
45	;⊢∣								
	Н								
	Н								
	Η								
	Η								
Con	nple	etion I	Depth	epth: 44.0 Ft bgs					Water Depth: <u>27.5</u> ft., After <u>ATD</u> hrs.
Proi	ect	ect No.: 21562593 ect Name: Roxana Interim Groundwater Program							Water Depthy 0 40
								ter Program	$\nabla$ Water level at time of drilling $\Box$ Geoprobe
	Drilling Contractor: Roberts Environmental Drilling, In								Air Knife/Hand Auger ATD At time of drilling Air Knife/Hand Auger Sampler
Driller Name: P. Seymour Drilling Method: Hollow Stem Auger									ATD - At time of diffing
Drilling Method: Hollow Stem Auger Drill Rig Type: CME 55								-****	NE - None Encountered
Logged by: R. Hart									NA - Not Applicable Sonic
County: Madison									Splitspoon Sampler
Site ID No.:1191150002						11911	50002		<b>URS</b> USC based on field visual observations
Federal ID No.:         ILD080012305							800123	305	USC based on field visual observations

URS (ENVIRON) LOG (EPA FORMAT) 21562593.00014 (ROXANA SVE INSTALL).GPJ URSSTLEV.GDT 1/10/12



Project:	West Fenceline - Roxana / Wood Riv	ver Refinery		Well ID:	MW-14
Project Location:	Roxana, Illinois	Date Started:	10/24/2011		
Well Location:	WRR Main Property - New Rack Are	a Date Completed:	10/25/2011	Boring ID:	MW-14
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	1610	Northing:	791393.4
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2322340
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	434.96
Geologist:	R. Hart	Completion Zone:			
				Depths (ft bgs)	Elevations (ft)
			Ground Elevation:		434.96
			Depth of Riser Below Ground:	0.52	
			Elevation of Top of Riser Pipe:	0.52	434.44
			ID/Type of Surface Casing:	12" Flush Mount	
			Type of Surface Seal:	Concrete	
Boring Dia	meter		Bottom of Surface Seal:	2.00	432.96
-	in		Groundwater (after completion):	NG	NA
			Type of Riser Pipe:	Schedule 40 PVC	
			Riser Diameter:	2.00 in	
			Type of Backfill:	Cement/Bentonite Gro	put
			Top of Seal:	29.19	405.77
			Type of Seal:	Bentonite Chips	
			Top of Filter Pack	32.19	402.7
			Top of Screen	34.19	400.7
			Type of Filter Pack:	ANSI/NSF Quartz Sar	nd
			Type of Screen:	Schedule 40 PVC	
			Screen Diameter		
			Screen Slot Size:		
			Bottom of Screen:	44.19	390.7
			Bottom of Blank Casing:	44.19	390.7
			Backfill/Seal Below Well:	44.52	390.44
			Type of Backfill/Seal Below Well:	Native soil (cave ANSI/NSF Q	
	<u></u>		Bottom of Boring:	44.52	390.44

NITAL DATA         Well Dismeter:       2. In	PROJECT NAME: DATE: WEATHER: FIELD PERSONNE MONITORING WE	<u>++++++</u> 10/ <u>Sunny</u> , =L: <u>L</u> ·M	RR Well 1 31/11 60°s arguez, M. 1 2-14	· · · · · · · · · · · · · · · · · · ·		PROJE	CT NUMBER:	215621	593		
Well Diameter:       2. in       Gallons/Lin.Pt; Q. (LQ3       water to be Removed:       1.6       gallons         Total Depth of Well:	INITIAL DATA										·····
Purge Method:	Well Diameter: Total Depth of Well: Depth to Water: Height of Water Colu	<u></u>	ft_btoc ft	Vol. ( Min. 1	Of Water Column: Purge Volume:	<u>na</u>	gallons (5 vo	gallons Water to be lumes) Ambient PID	Removed: 7:	3gallons (5x adde	id) ppm
(gals)       Time       Water (ft)       Color       Odor       pH       (°C)       (unhos/cm)       (NTUs)       (mgil)         1715       1		<u>mon 500</u>	n pump								
1745       1 <th></th> <th></th> <th></th> <th>Color</th> <th>Odor</th> <th>pH</th> <th>, <b>,</b></th> <th></th> <th></th> <th></th> <th>ORP (mv)</th>				Color	Odor	pH	, <b>,</b>				ORP (mv)
Average Purge Rate (gallons/min):       1.5       Well Volumes Purged:       na       Water Quality Meter ID:       Oakton/Lawnoffe       Calibrated on:       10/31/11         SAMPLING DATA Sampling Method:       Sample Date:       N/A       Analysis:       N/A         COMMENTS:       DTB =       Y4       ft btoc prior to development       DTB =       ft btoc after development						6.68 6.71	18.9			1	
Average Purge Rate (gallons/min):       1.5       Well Volumes Purged:       na       Water Quality Meter ID:       Oakton/Lawnoffe       Calibrated on:       10/31/11         SAMPLING DATA Sampling Method:       Sample Date:       N/A       Analysis:       N/A         COMMENTS:       DTB =       Y       ft bloc prior to development       DTB =       ft bloc after development			<u></u>		· · · · · · · · · · · · · · · · · · ·						
Average Purge Rate (gallons/min):       1.5       Well Volumes Purged:       na       Water Quality Meter ID:       Oakton/Lawnoffe       Calibrated on:       10/31/11         SAMPLING DATA Sampling Method:       Sample Date:       N/A       Analysis:       N/A         COMMENTS:       DTB =       Y       ft bloc prior to development       DTB =       ft bloc after development		·····		· · · · · · · · · · · · · · · · · · ·							
Sampling Method:         Sample Date: N/A       Sample Time: N/A         COMMENTS:         DTB = 44 ft bloc prior to development         DTB = 44 ft bloc after development	Start Time: Average Purge Rate	030/1315/ (gallons/min):	<u>1525</u> Purg 1.5 Well	e Stop Time:/ 20 Volumes Purged:		5 Elapsed Water Qi			Total Volume I	Purged: 490	galloı
COMMENTS:         DTB =       Y          ft btoc prior to development         DTB =       Y          ft btoc after development		A		<u></u>			<u></u>				
DTB =     Y      ft btoc prior to development       DTB =     Image: A ft btoc after development											
* water level meter was unavailable during development activities.	DTB = 44								<u> </u>		·····
	* Wate	r level v	neter wa:	s unave	zilable d	luring de	velopmen	t activitie	25		
									·····		

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