



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 Refinery Site ID #: 1191150002
Facility Address: 900 S. Central Ave; Roxana, IL 62048 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.

<input type="checkbox"/>	LPC-160 Forms		
<input type="checkbox"/>	<u>Groundwater</u>	<input type="checkbox"/>	<u>Leachate</u>
<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4	<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4
<input type="checkbox"/>	Semi-Annual	<input type="checkbox"/>	Semi-Annual
<input type="checkbox"/>	Annual	<input type="checkbox"/>	Annual
<input type="checkbox"/>	Biennial	<input type="checkbox"/>	Biennial

Groundwater Data (without LPC-160 Forms)

<input type="checkbox"/>	Quarterly – Indicate one: 1 2 3 4		
<input type="checkbox"/>	Annual	<input type="checkbox"/>	Semi-Annual
		<input type="checkbox"/>	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) _____

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

This form shall be submitted to this Department or the local health department not more than 30 days after a water well, boring or monitoring well is sealed. Such wells are to be sealed not more than 30 days after they are abandoned in accordance with the sealing requirements in the Water Well Construction Code.

1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.

2. Well Location: 900 S. CENTRAL AVE. ROKANA MADISON
Address - Lot Number City County

General Description: Township S (N)(S) Range 9 (E)(W) Section 34

SE Quarter of the SE Quarter of the NE Quarter LAT: N38° 50' 35.5"
LONG: W90° 4' 39.2"

3. Year Drilled 2008

4. Drilling Permit Number (and date, if known) _____

5. Type of Well: Bored _____ Drilled _____ Other MONITORING => # MW-1

6. Total Depth 58' Diameter (inches) 1"

7. Formation clear of obstruction Yes _____ No

8. DETAILS OF PLUGGING

Filled with GRANULAR BENTONITE from 58' to 2 ft.
(cement or other materials)

Kind of plug BENTONITE CHIPS from 2 to 0 ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

9. CASING RECORD: ALL ~~Upper 2 feet~~ of casing removed Yes _____ No

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.

CHARLEY ROBERTS / ROBERTS ENV. DRILLING 092-006865
Name Complete License Number

1107 S. MULBERRY ST. MILLSTADT 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.

REDE JOB # 112177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

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1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.

2. Well Location: 900 S. CENTRAL AVE. ROXANA MADISON
Address - Lot Number City County

General Description: Township S (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' 35.9"

3. Year Drilled 2008

4. Drilling Permit Number (and date, if known) _____

5. Type of Well: Bored _____ Drilled _____ Other MONITORING => # MW-2

6. Total Depth 63' Diameter(inches) 1"

7. Formation clear of obstruction Yes No

8. DETAILS OF PLUGGING

Filled with GRANULAR BENTONITE from 63 to 2 ft.
(cement or other materials)

Kind of plug BENTONITE CHIPS from 2 to 0 ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

9. CASING RECORD: ^{ALL} ~~Upper 2 feet of casing removed~~ Yes No

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.

CHARLEY ROBERTS / ENV. DRILLING ROBERTS 092-006865
Name Complete License Number

1107 S. MULBERRY ST. MELSTADT 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 85-0263. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

REDI JOB # 11Q177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
 DIVISION OF ENVIRONMENTAL HEALTH
 525 WEST JEFFERSON STREET
 SPRINGFIELD, ILLINOIS 62761

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1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.
2. Well Location: 900 S. CENTRAL AVE. ROXANA MADISON
 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' 33.4"
 LONG: W90° 4' 42.6"
3. Year Drilled 2008
4. Drilling Permit Number (and date, if known) _____
5. Type of Well: Bored _____ Drilled _____ Other MONITORING ⇒ #MW-3
6. Total Depth 46' Diameter(inches) 1"
7. Formation clear of obstruction Yes _____ No
8. DETAILS OF PLUGGING
 Filled with GRANULAR BENTONITE from 46 to 2 ft.
 (cement or other materials)
 Kind of plug BENTONITE CHIPS from 2 to 0 ft.
 Filled with _____ from _____ to _____ ft.
 Kind of plug _____ from _____ to _____ ft.
 Filled with _____ from _____ to _____ ft.
 Kind of plug _____ from _____ to _____ ft.
9. CASING RECORD: ^{All} ~~Upper 2 feet~~ of casing removed Yes _____ No
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.
CHARLEY ROBERTS / ROBERTS ENV. DRILLING 092-006865
 Name Complete License Number
1107 S. MULBERRY ST. MILLSTADT IL 62560
 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.

REDI JOB # 112177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
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1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.

2. Well Location: 900 S. CENTRAL AVE. ROXANA MADISON
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' 32.4"
LONG: W90° 4' 38.7"

3. Year Drilled 2008

4. Drilling Permit Number (and date, if known) _____

5. Type of Well: Bored _____ Drilled _____ Other MONITORING => # MW-4

6. Total Depth 58' Diameter (inches) 1"

7. Formation clear of obstruction Yes _____ No

8. DETAILS OF PLUGGING

Filled with GRANULAR BENTONITE from 58 to 2 ft.
(cement or other materials)

Kind of plug BENTONITE CHIPS from 2 to 0 ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

9. CASING RECORD: ^{ALL} Upper 2 feet of casing removed Yes _____ No

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.

CHARLEY ROBERTS / ROBERTS 092-006865
Name Complete License Number

1107 S. MULBERRY ST. MILLSTADT IL 62560
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 85-0363. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

REDE JOB # 112177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
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- Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.
- Well Location: 900 S. CENTRAL AVE. ROKANA MADISON
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' 30.5"
LONG: W90° 4' 40.9"
- Year Drilled 2008
- Drilling Permit Number (and date, if known) _____
- Type of Well: Bored _____ Drilled _____ Other MONITORING ⇒ # MW-5
- Total Depth 47' Diameter (inches) 1"
- Formation clear of obstruction Yes _____ No
- DETAILS OF PLUGGING
Filled with GRANULAR BENTONITE from 47 to 2 ft.
(cement or other materials)
Kind of plug BENTONITE CHIPS from 2 to 0 ft.
Filled with _____ from _____ to _____ ft.
Kind of plug _____ from _____ to _____ ft.
Filled with _____ from _____ to _____ ft.
Kind of plug _____ from _____ to _____ ft.
- CASING RECORD: ^{ALL} Upper 2 feet of casing removed Yes _____ No
- Date well was sealed: Month NOV. Day 30 Year 2011
- Licensed water well driller or other person approved by the Department performing well sealing.
CHARLEY ROBERTS / ROBERTS 092-006865
Name Complete License Number
1107 S. MULBERRY ST. MILLSTADT 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 85-0263. Disclosure of this information is mandatory. This form has been approved by the Form Management Center.

REDI JOB # 1102177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

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1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS U.S.

2. Well Location: 900 S. CENTRAL AVE. ROXANA MADISON
Address - Lot Number City County

General Description: Township 5 (N)(S) Range 9 (E)(W) Section 34

NE Quarter of the NE Quarter of the SE Quarter LAT: N38° 50' 27"

LONG: W90° 4' 38.8"

3. Year Drilled 2008

4. Drilling Permit Number (and date, if known) _____

5. Type of Well: Bored _____ Drilled _____ Other MONITORING => #NW-6A

6. Total Depth 50' Diameter (inches) 1"

7. Formation clear of obstruction Yes _____ No

8. DETAILS OF PLUGGING

Filled with GRANULAR BENTONITE from 50 to 2 ft.
(cement or other materials)

Kind of plug BENTONITE CLIPS from 2 to 0 ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

9. CASING RECORD: ^{ALL} Upper ~~2 feet~~ of casing removed Yes _____ No

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.

CHARLEY ROBERTS / ENV. DRILLING ROBERTS 092-006865
Name Complete License Number

1107 S. MULBERRY ST. MELLSTADT 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.

REDI JOB # 11Q177

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
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1. Ownership (Name of Controlling Party) SHELL OIL PRODUCTS, INC.

2. Well Location: 900 S. CENTRAL AVE. ROXANA MADISON
Address - Lot Number City County

General Description: Township 5 (N)(S) Range 9 (E)(W) Section 35
NW Quarter of the NW Quarter of the NW Quarter LAT: N38° 50' 52"
LONG: W90° 4' 39.2"

3. Year Drilled PRIOR TO 1980

4. Drilling Permit Number (and date, if known) _____

5. Type of Well: Bored _____ Drilled _____ Other MONITORING => T-1 (WELL AT INTERSECTION
OF FIRST ST. +
CHAFFER ST.)

6. Total Depth ~70' Diameter (inches) 6"

7. Formation clear of obstruction Yes _____ No

8. DETAILS OF PLUGGING

Filled with BENTONITE CHIPS from 70 to 2 ft.
(cement or other materials)

Kind of plug BENTONITE CHIPS from 2 to 0 ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

Filled with _____ from _____ to _____ ft.

Kind of plug _____ from _____ to _____ ft.

9. CASING RECORD: ^{ALL} Upper 2 feet of casing removed Yes _____ No

10. Date well was sealed: Month DEC. Day 15 Year 2011.

11. Licensed water well driller or other person approved by the Department performing well sealing.

CHARLEY ROBERTS / ENV. DRILLING ROBERTS
Name Complete License Number 092-006865

1107 S. MULBERRY ST. MILLSTADT 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.

(REDD SOB # 112181)

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River 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 replacement well is located 2.75 feet east of the original well location, therefore new hole not logged.

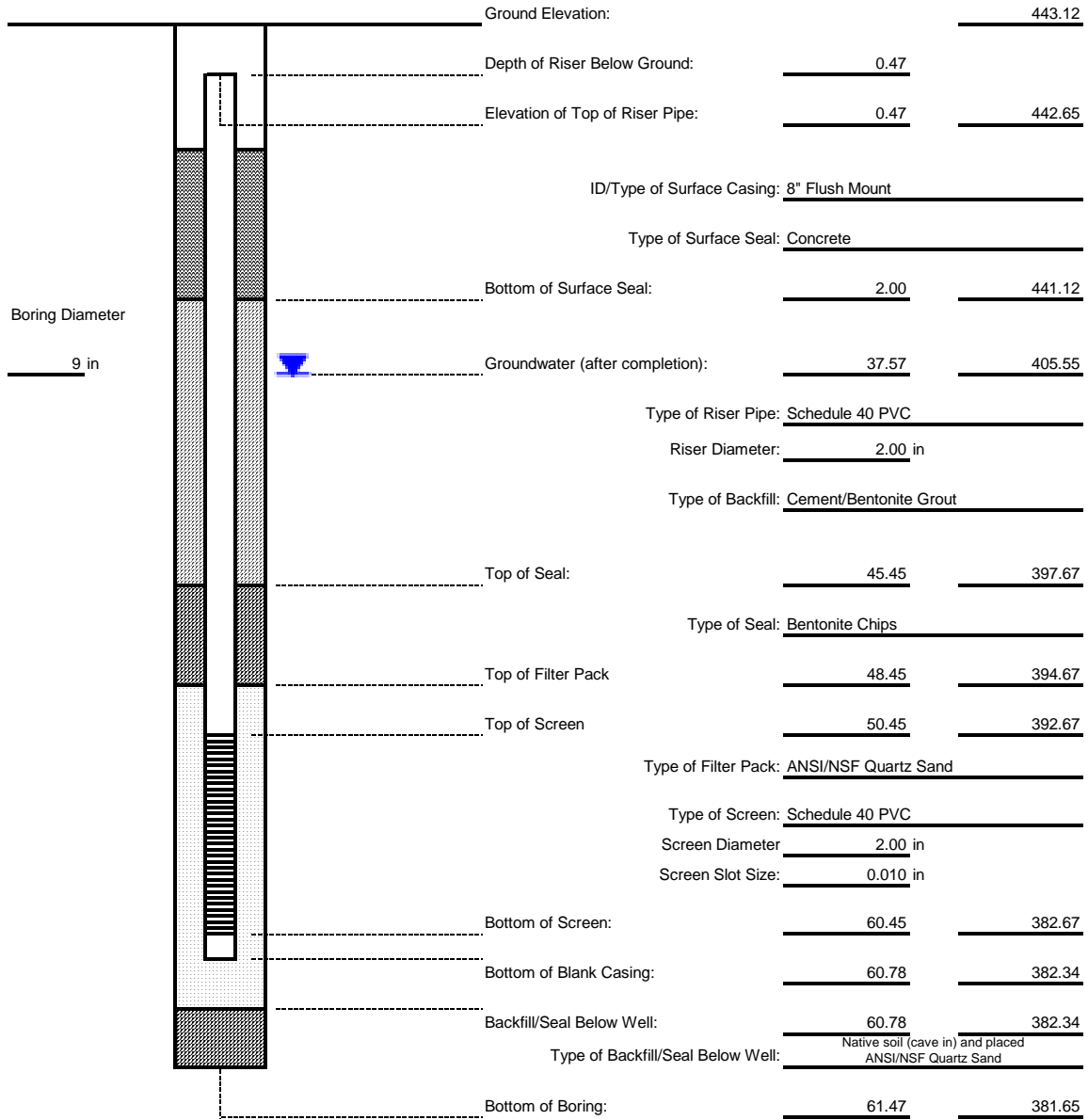


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Roxana Sopus PROJECT NUMBER: 21562593
 DATE: 11-28-11
 WEATHER: 37° Cloudy
 FIELD PERSONNEL: J. Jackson & D. Mattingly
 MONITORING WELL ID: MW-1

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 59.00 ft btoc
 Depth to Water: 37.10 ft btoc
 Height of Water Column: 21.9 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: 3.5 gallons
 Min. Purge Volume: 17 gallons (5 volumes)
 Depth to Top of Screen: 49.0 ft btoc

Water Added during Drilling: 13 gallons
 Water to be Removed: 65 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: monsoon pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (umhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
107	0940				8.16	15.7	701	4.44		
146	1006				6.89	15.4	802	6.55		
181	1029				6.75	16.0	785	6.23	N/A	N/A

Start Time: 08:29 Purge Stop Time: 10:29 Elapsed Time: 2:00/hr Total Volume Purged: 185 gallons
 Average Purge Rate (gallons/min): 1.5 Well Volumes Purged: 33 Water Quality Meter ID: hanqua/hanette Calibrated on: 11-28-11

SAMPLING DATA

Sampling Method: _____
 Sample Date: N/A Sample Time: N/A Analysis: N/A

COMMENTS:

DTB = 59.00 ft btoc prior to development
 DTB = 60.31 ft btoc after development

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-2 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/31/2011		
Well Location:	Alley between 6th and 7th Streets	Date Completed:	10/31/2011	Boring ID:	B-2
Drilling Contractor:	Roberts Environmental Drilling, Inc.	Time Seal Set:	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:	R. Hart	Completion Zone:			

NOTE: This replacement well is located 2.58 feet northwest of the original well location, therefore new hole not logged.

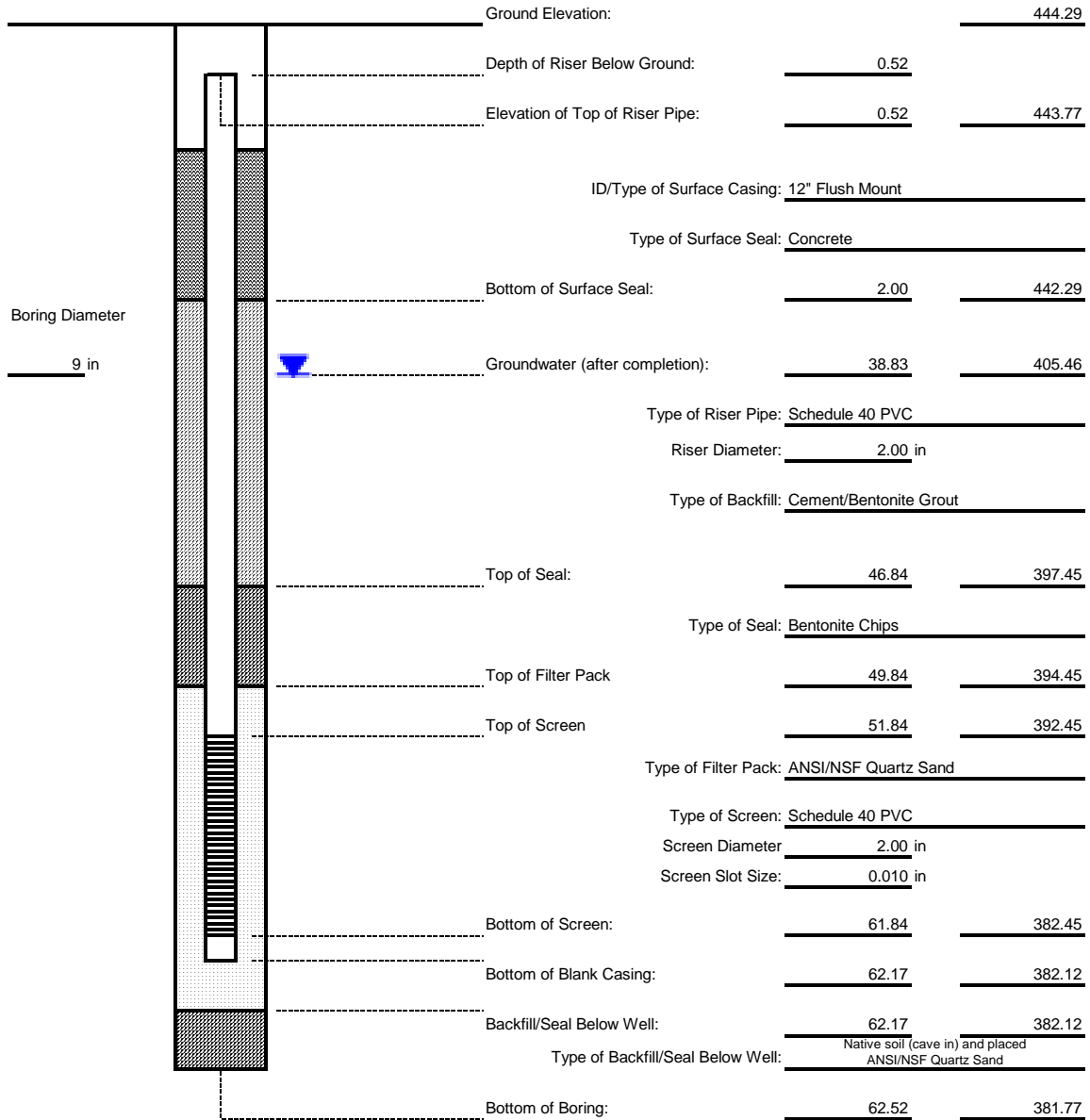


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Rox/WRR Well Development PROJECT NUMBER: 21562593
 DATE: 11-3-11
 WEATHER: clear, 58°
 FIELD PERSONNEL: L. Marquez, M. Mittermeyer
 MONITORING WELL ID: MW-2

INITIAL DATA

Well Diameter: 2 in. Gallons/Lin.Ft: 0.163
 Total Depth of Well: 60 ft btoc Vol. Of Water Column: 3.54 gallons
 Depth to Water: 38.31 ft btoc Min. Purge Volume: 17.7 gallons (5 volumes)
 Height of Water Column: 21.69 ft Depth to Top of Screen: 49.9 ft btoc
 (0.163 gallons/ft for 2 inch well, 1.468 gallons/ft for 6-inch well) Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: monsoon Pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (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	Ø	6.72	17.2	958	2.63	-	-
240	1023		clear	Ø	6.72	17.3	969	3.81	-	-

Start Time: 0810 Purge Stop Time: 1240 Elapsed Time: 4:08 Total Volume Purged: 470 gallons
 Average Purge Rate (gallons/min): 1.8 Well Volumes Purged: 132.8 Water Quality Meter ID: Oakton/LaMotte Calibrated on: 11-3-11

SAMPLING DATA

Sampling Method: _____
 Sample Date: N/A Sample Time: N/A Analysis: N/A

COMMENTS:

DTB = 60 ft btoc prior to development
 DTB = 61.65 ft btoc after development

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-3 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/28/2011		
Well Location:	Alley between 7th and 8th Streets	Date Completed:	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
Geologist:	R. Hart	Completion Zone:			

NOTE: This replacement well is located 2.67 feet south of the original well location, therefore new hole not logged.

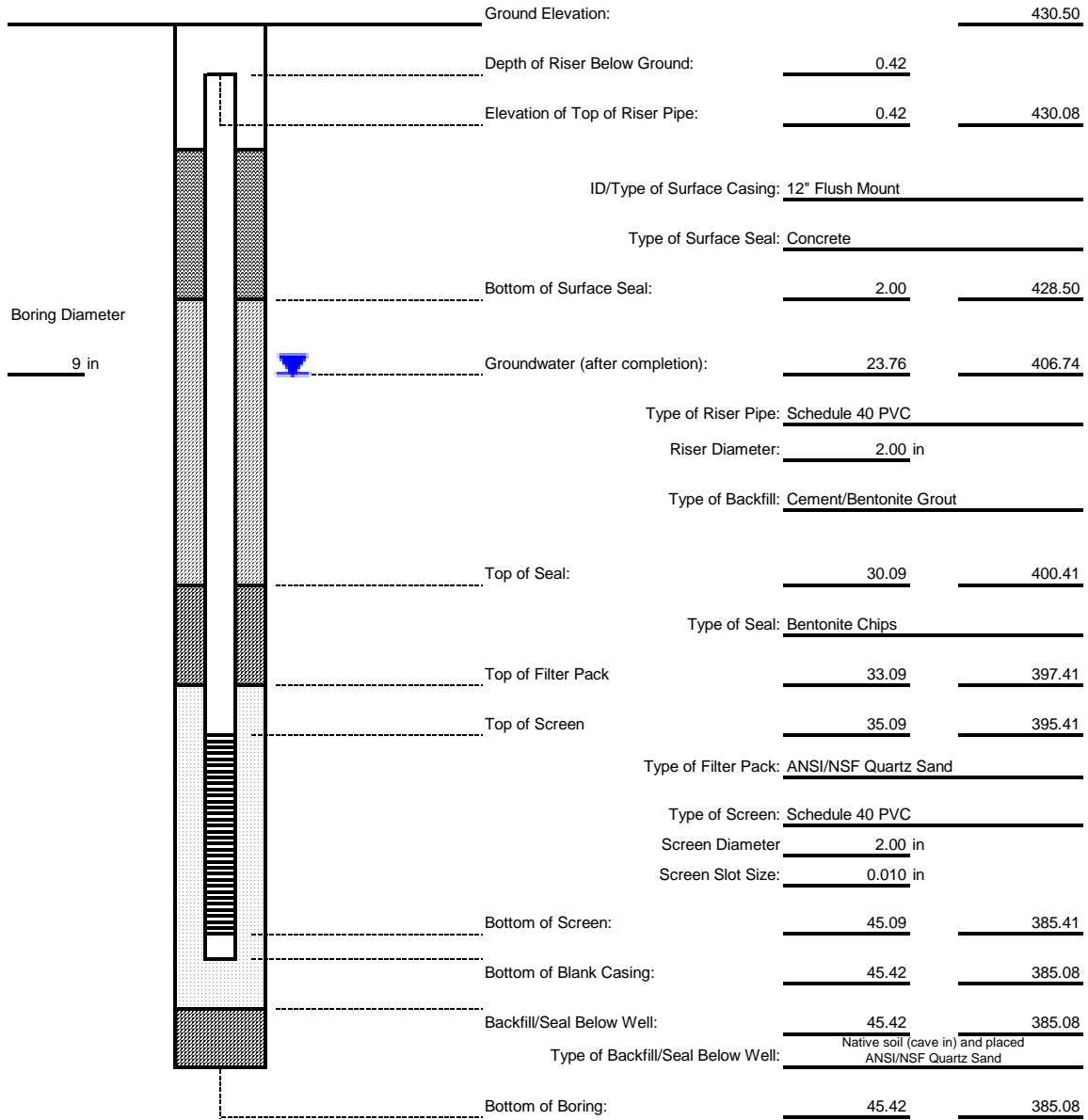


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Rox/WRR Well Development PROJECT NUMBER: 21562593
 DATE: 11-3-11
 WEATHER: cloudy, breezy, 56°
 FIELD PERSONNEL: L. Marquez, M. Mittermeyer
 MONITORING WELL ID: MW-3

INITIAL DATA

Well Diameter: 2 in. Gallons/Lin.Ft: 0.163
 Total Depth of Well: 44 ft btoc Vol. Of Water Column: 3.37 gallons
 Depth to Water: ~~23.34~~ 23.34 ft btoc Min. Purge Volume: 16.8 gallons (5 volumes)
 Height of Water Column: 20.66 ft Depth to Top of Screen: 33.67 ft btoc
 (0.163 gallons/ft for 2 inch well, 1.468 gallons/ft for 6-inch well) Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: Monsoon Pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
76	0915	-	brownish	none	6.92	16.5	929	14.5	-	-
114	0935	-	"	"	6.93	17.3	905	9.37	-	-
162	1000	-	"	"	6.93	17.0	901	7.34	-	-
229	1135	-	cloudy	"	6.90	17.3	705	5.66	-	-
258	1150	-	"	"	6.89	18.3	896	8.54	-	-
315	1220	-	clear	"	6.86	18.8	892	7.79	-	-
353	1240	-	clear	"	6.86	17.9	887	8.28	-	-

Start Time: 0835 Purge Stop Time: 1245 Elapsed Time: 4:10 hrs Total Volume Purged: 480 gallons
 Average Purge Rate (gallons/min): 1.9 Well Volumes Purged: 142.4 Water Quality Meter ID: Oakton/Lamotte Calibrated on: 11-3-11

SAMPLING DATA

Sampling Method:

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

COMMENTS:

DTB = 44 ft btoc prior to development
 DTB = 45.00 ft btoc after development

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-4 (replacement)
Project Location:	Roxana, Illinois	Date Started:	12/12/2011		
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:			

NOTE: This replacement well is located 3.67 feet west of the original well location, therefore new hole not logged.

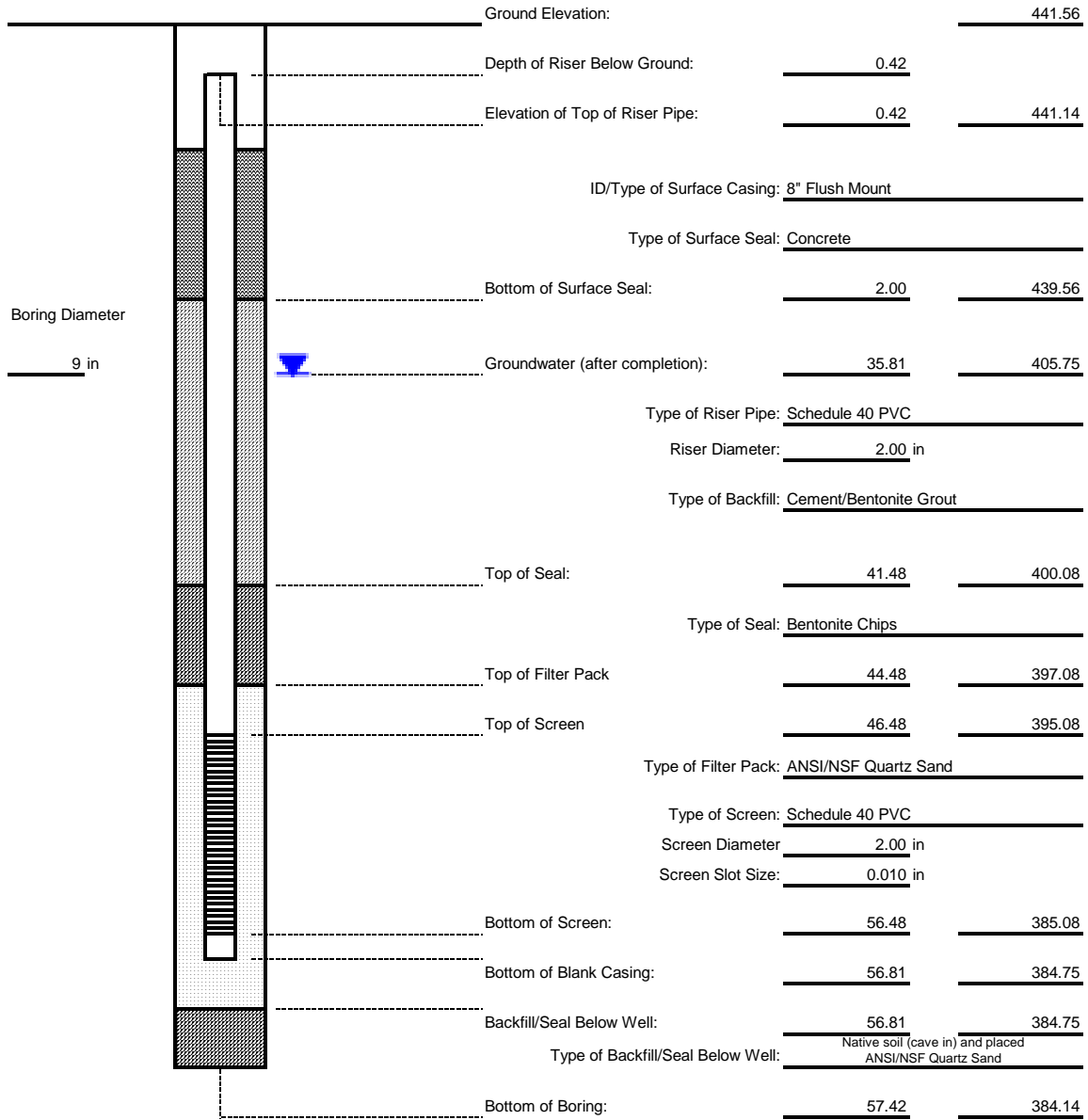


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Boxany GW 4A 2011 PROJECT NUMBER: 21562593
 DATE: 12-14-11
 WEATHER: 59° Partly Cloudy
 FIELD PERSONNEL: J. Jackson, L. Rathnow
 MONITORING WELL ID: MW-4

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 56.10 ft btoc
 Depth to Water: 35.39 ft btoc
 Height of Water Column: 20.71 ft
 (0.163 gallons/ft for 2 inch well, 1.468 gallons/ft for 6-inch well)

Gallons/Lin.Ft: ~~3040~~ 0.163
 Vol. Of Water Column: 3.47 gallons
 Min. Purge Volume: ~~50~~ 17.4 gallons (5 volumes)
 Depth to Top of Screen: 46.10 ft btoc

Water Added during Drilling: 18 gallons
 Water to be Removed: 90 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: Monsoon 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)
90	1406	-	Clear	none	7.77	18.3	588	12.4	-	-
100	1410 1428	-	1	1	7.98	17.9	647	9.62	-	-

Start Time: 12:50 Purge Stop Time: 15:26 Elapsed Time: 2:16 HS Total Volume Purged: 185 gallon
 Average Purge Rate (gallons/min): 1.30 Well Volumes Purged: ~~190~~ 53.3 Water Quality Meter ID: Oakton / LaMotte Calibrated on: 12-14-11

SAMPLING DATA

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

COMMENTS:

DTB = 56.10 ft btoc prior to development
 DTB = 56.39 ft btoc after development

DTB-55.5
H₂O - 18 gallons
Groundwater Development/Sampling Data Sheet

56.10 35.39
DTB = DTW x 0.163 x 5 = 106 gallons

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-5 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/27/2011		
Well 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
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2321805
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	430.16
Geologist:	R. Hart	Completion Zone:			

NOTE: This replacement well is located 4.50 feet south of the original well location, therefore new hole not logged.

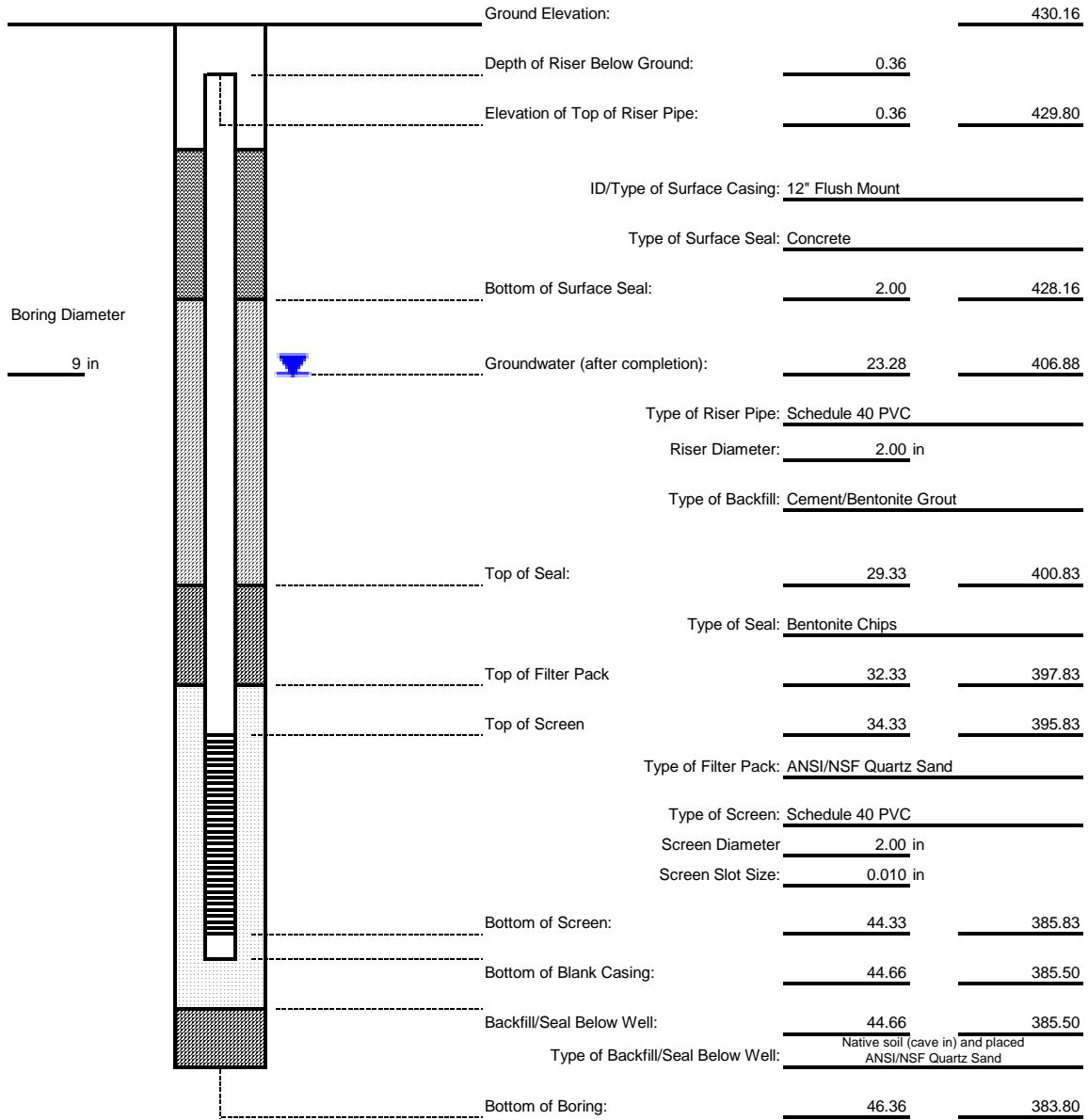


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: 20-WRL WELL DEVELOPMENT PROJECT NUMBER: SOPUS
 DATE: 11-7-11, 11-9-11
 WEATHER: CLOUDY, RAINY, COLD 48° 11-7-11 / CLEAR, COLD, WINDY 43°
 FIELD PERSONNEL: LUIS MARQUEZ, JASON JACKSON
 MONITORING WELL ID: MW-5

INITIAL DATA

Well Diameter: 2" in.
 Total Depth of Well: 22.92 ft btoc 744.00
 Depth to Water: 22.97 ft btoc
 Height of Water Column: 28.03 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: 3.76204 3.44 gallons
 Min. Purge Volume: 30 17.1 gallons (5 volumes)
 Depth to Top of Screen: 36.00 33.67 ft btoc

Water Added during Drilling: 16 gallons
 Water to be Removed: 80 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: Monsoon Pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
53	14:50	22.92	CLOUDY	WONGE	6.82	18.5	761	21.8	-	-
113	15:30	22.92	CLOUDY	"	6.81	18.4	752	24.5	-	-
203	16:30	22.96	CLEAR	"	6.96	18.4	733	7.42	-	-
233	16:50	22.98	CLEAR	"	6.81	18.3	722	11.8	-	-
DATE - (11-9-11)	14:30	22.93	CLOUDY	"	6.84	16.8	731	11.8	-	-
TOTAL	15:00	1	CLEAR	"	6.84	17.2	733	8.92	-	-
520	15:30	1	CLEAR	"	6.85	17.2	715	3.42	-	-

Start Time: 13:25 - 11/7/11 13:30 7/9/11 Purge Stop Time: 16:55 / 15:30
 Average Purge Rate (gallons/min): 1.35 Well Volumes Purged: 151.2 / 138.3
 Elapsed Time: 3:30 HR. / 2 HRs.
 Water Quality Meter ID: Oakton / hamette
 Total Volume Purged: 520 gallon
 Calibrated on: 11-7-11

SAMPLING DATA

Sampling Method:

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

COMMENTS:

DTB = 44 ft btoc prior to development
 DTB = 44.30 ft btoc after development

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-6A (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/27/2011		
Well 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
Driller:	P. Seymour	Type of Rig:	CME 55	Easting:	2322073
Consulting Firm:	URS Corporation	Drilling Method:	HSA (4.25" ID)	Elevation Datum:	432.89
Geologist:	R. Hart	Completion Zone:			

NOTE: This replacement well is located 2.67 feet west of the original well location, therefore new hole not logged.

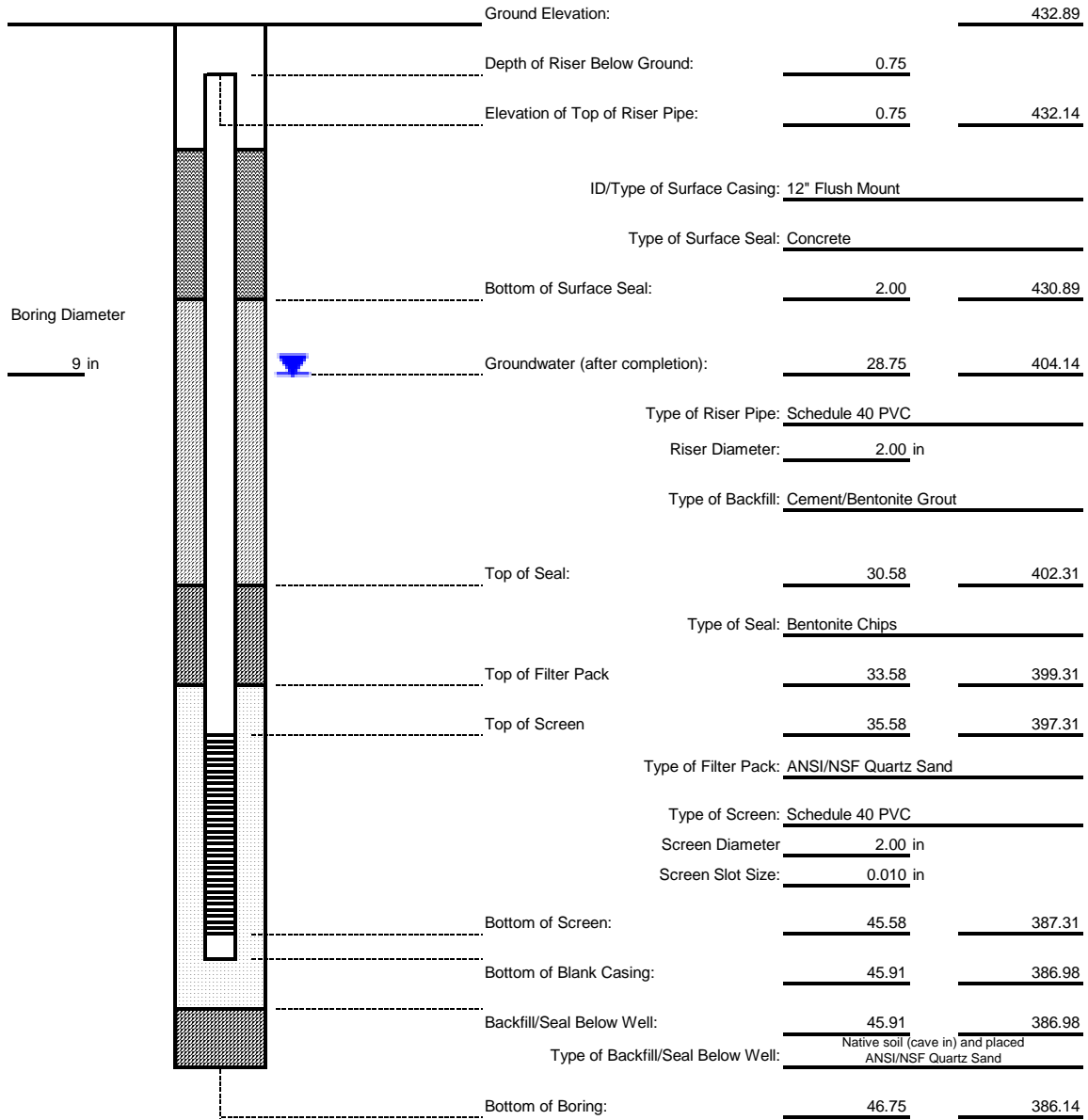


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Rox / WRR Well Development PROJECT NUMBER: 21562593
 DATE: 11/1/11 and 11/2/11
 WEATHER: Sunny 60s
 FIELD PERSONNEL: L. Marquez, M. Mansker
 MONITORING WELL ID: MW-6A

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 43 ft btoc
 Depth to Water: 28 ft btoc
 Height of Water Column: 15 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: 2.45 gallons
 Min. Purge Volume: 12.25 gallons (5 volumes)
 Depth to Top of Screen: 32.67 ft btoc

Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: monsoon pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
70	1632				6.80	18.9	1253	25.1	-	-
89	1645				6.77	19.1	1227	14.1	-	-
96	1650				6.77	19.1	1227	10.71	-	-
	11/2/11									
	1013				6.79	17.7	1215	15.5	-	-
	1030				6.79	18.4	1198	9.89	-	-
	1206				6.77	18.8	1195	1.92	-	-
	1224				6.77	18.9	1185	3.01	-	-

Start Time: 1542 / 0953 / 1150 Purge Stop Time: 1650 / 1040 / 1230 Elapsed Time: 1:08 / 1:27 Total Volume Purged: 215 gallons
 Average Purge Rate (gallons/min): 0.75 Well Volumes Purged: 30.7 87.8 Water Quality Meter ID: Oakton/Lamotte Calibrated on: 11-1-11 and 11/2/11
1.4

SAMPLING DATA

Sampling Method: _____
 Sample Date: N/A Sample Time: N/A Analysis: N/A

COMMENTS:

DTB = 43 ft btoc prior to development
 DTB = 45.16 ft btoc after development

Monitoring Well Installation Details
Stick Up Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	T-1 (replacement)
Project Location:	Roxana, Illinois	Date Started:	10/25/2011		
Well 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 replacement well is located 4.42 feet northwest of the original well location, therefore new hole not logged.

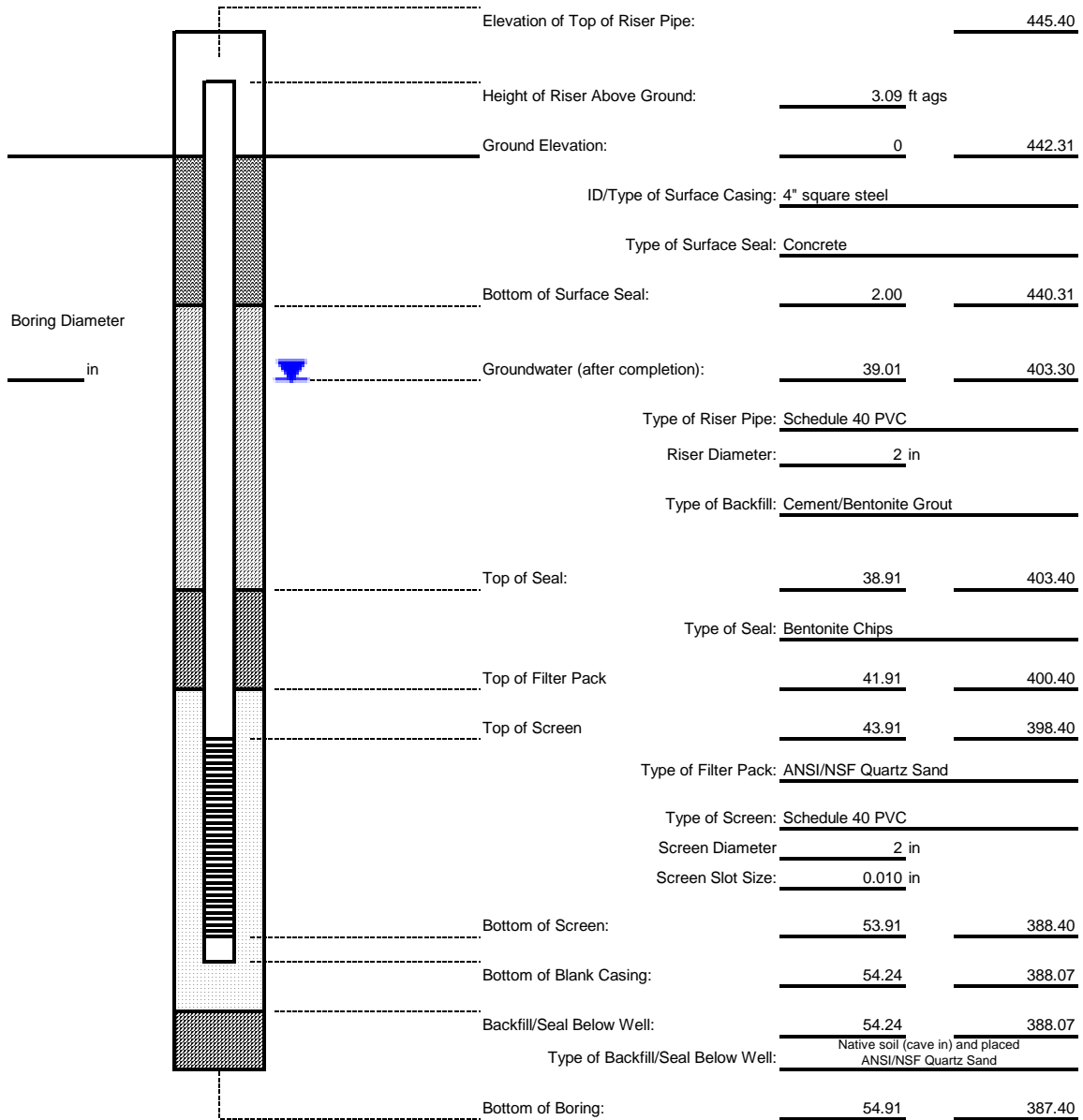


DIAGRAM IS NOT TO SCALE
ATD = At time of drilling

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: WRP Well development, sampling 4Q PROJECT NUMBER: 215025913
 DATE: 11/11/11
 WEATHER: 60-70 Sunny
 FIELD PERSONNEL: M. Mansker, L. Margace
 MONITORING WELL ID: T-1

INITIAL DATA

Well Diameter: 2 in. Total Depth of Well: 54.3 ft btoc
 Depth to Water: 38.67 ft btoc
 Height of Water Column: 15.6 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: 2.5 gallons
 Min. Purge Volume: 12.7 gallons (5 volumes)
 Depth to Top of Screen: 44 ft btoc

Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: _____

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
95 gal	0945		brown	—	7.17	16.3	960	48.4		
170 gal	1005		cloudy	—	7.19	16.5	913	23.6		
190 gal	1037		brown	—	7.10	16.9	947	64.2		
260 gal	1353		clear	—	7.06	17.9	950	9.08		
300 gal	1413		clear	—	7.09	17.9	953	8.28		
					7.08	17.7	945	8.78		

Start Time: 0855 Purge Stop Time: 1413 Elapsed Time: 578 min Total Volume Purged: 300 gallon
 Average Purge Rate (gallons/min): 0.6 Well Volumes Purged: 120 Water Quality Meter ID: Oakton/LaMotte Calibrated on: 11/11

SAMPLING DATA

Sampling Method: _____
 Sample Date: N/A Sample Time: N/A Analysis: N/A

COMMENTS:

DTB = 54.3 ft btoc prior to development
 DTB = 57.33 ft btoc after development

LOG OF BORING MW-14

Starting Date: 10/24/11 Completion Date: 10/24/11 Casing Elevation: 434.44 Ground Elevation: 434.96	Quadrangle Sec: N/A T: N/A R: N/A UTM (or State Plane) Coord N: (X): 791393.40 E: (Y): 2322340.00
--------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	DESCRIPTION	NOTES
				10.4			ASPHALT	6" Asphalt	Boring advanced to a depth of 10' via air knife.
				9.4			FILL	Clay, sand, and <1" gravel (FILL) Large, clean gravel up to 1.5"	
				4.6			ML	Medium dense, moist, gray, Clayey SILT (ML)	
5				3.7			ML		
				6.7			SC	Medium stiff, moist, gray, medium plastic, moist, CLAY, with fine grained Sand.	
				2.3			SM	Moist, brown, fine grained, poorly graded, Silty SAND (SM)	
				2.3			SM		
				2.6			SM		
				2.0			SM		
10	24	18	1 3 3 5	1.1			SM		
	24	21	3 4 5 5	2.1			SM		
15	24	18	3 5 6 7	3.8			SM	Becomes dark gray Becomes brown	
	24	20	8 9 9 9	6.5			SM		
	24	20	2 6 7 10	4.0			SM		
20	24	22	2 7 8 8	3.1			SM		
	24	22	5 9 14 13	6.4			SM		
			6				SM		

Completion Depth: 44.0 Ft bgs
 Project No.: 21562593
 Project Name: Roxana Interim Groundwater Program
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: P. Seymour
 Drilling Method: Hollow Stem Auger
 Drill Rig Type: CME 55
 Logged by: R. Hart
 County: Madison
 Site ID No.: 1191150002
 Federal ID No.: ILD080012305

Water Depth: 27.5 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

Geoprobe
 Air Knife/Hand Auger Sampler
 Air Rotary
 Sonic
 Splitspoon Sampler
 Hollow Stem Auger- Soil samples not collected



USC based on field visual observations

URS (ENVI/IRON) LOG (EPA FORM 101) 2:1562593.00014 (ROXANA SVE INSTALL) GPJ_URSSSTLEV.GDT 1/10/12

**LOG OF BORING
MW-14**

Depth In feet	Inches Driven	Inches Recovered	Blow Counts	PID (ppm)	Sampler Graphic	Symbol	USCS	Starting		Completion		Quadrangle	
								Date: 10/24/11	Completion Date: 10/24/11	Sec: N/A	T: N/A	R: N/A	UTM (or State Plane) Coord

								DESCRIPTION	NOTES	
30	24	21	6 8 8	6.3	[Redacted]	[Redacted]		SAME: Poorly graded, moist, brown, fine grained, Silty SAND (SM)		
	24	20	4 11 15 10	12.4						Becomes wet
	24	22	2 10 10 12	6.7						
	24	12	2 3 8 13	5.4						
	24	21	1 10 12 12	7.1						
35	24	22	5 5 12 24	10.2	[Redacted]	[Redacted]	Dense, wet, dark gray to black, fine to medium grained, SAND (SP), with Silt			
	24	24	4 5 15 29	4.2					Becomes brown	
	24	24	7 10 30 32	7.4						
40	24	24	2 5 15 31	13.8	[Redacted]	[Redacted]	Becomes fine grained, silty			
	24	22	3 5 23 31	5.6					Becomes medium grained	
45								Bottom of boring at 44ft bgs		

URS (ENVI/IRON) LOG (EPA FORMAT) 2:1562593.00014 (ROXANA SVE INSTALL) GPJ_URSSTLEV.GDT 1/10/12

Completion Depth: 44.0 Ft bgs
 Project No.: 21562593
 Project Name: Roxana Interim Groundwater Program
 Drilling Contractor: Roberts Environmental Drilling, Inc.
 Driller Name: P. Seymour
 Drilling Method: Hollow Stem Auger
 Drill Rig Type: CME 55
 Logged by: R. Hart
 County: Madison
 Site ID No.: 1191150002
 Federal ID No.: ILD080012305

Water Depth: 27.5 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

Geoprobe
 Air Knife/Hand Auger Sampler
 Air Rotary
 Sonic
 Splitspoon Sampler
 Hollow Stem Auger- Soil samples not collected



USC based on field visual observations

Monitoring Well Installation Details
Flush Mount Monitoring Well Construction Diagram



Project:	West Fenceline - Roxana / Wood River Refinery			Well ID:	MW-14
Project Location:	Roxana, Illinois	Date Started:	10/24/2011		
Well Location:	WRR Main Property - New Rack Area	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:			

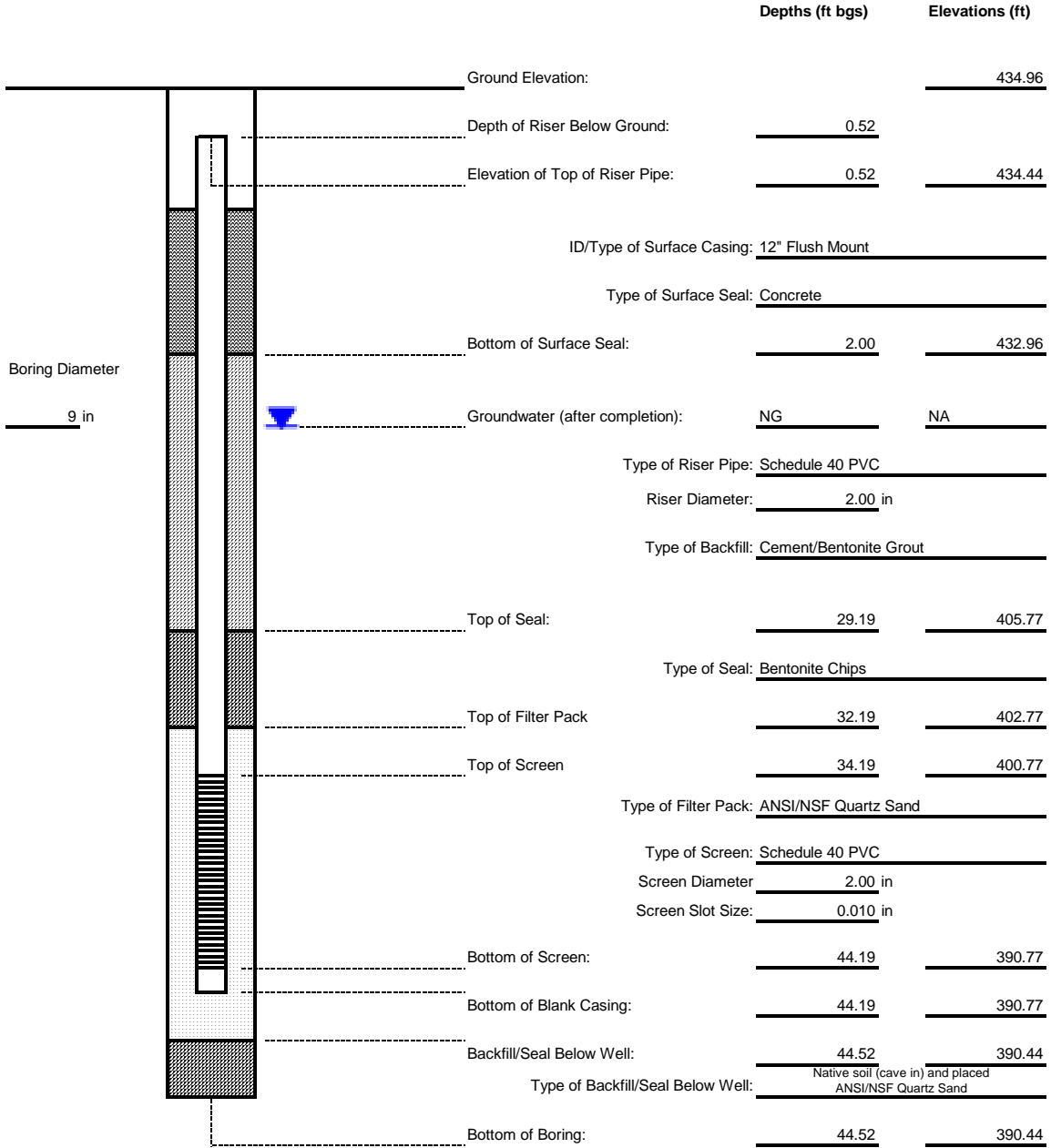


DIAGRAM IS NOT TO SCALE

GROUNDWATER DEVELOPMENT/SAMPLING DATA SHEET

PROJECT NAME: Rox/WRR Well Development PROJECT NUMBER: 21562593
 DATE: 10/31/11
 WEATHER: Sunny, 60's
 FIELD PERSONNEL: L. Marquez, M. Mittermeyer
 MONITORING WELL ID: MW-14

INITIAL DATA

Well Diameter: 2 in.
 Total Depth of Well: 44 ft btoc
 Depth to Water: X ft btoc
 Height of Water Column: na 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: na gallons
 Min. Purge Volume: na gallons (5 volumes)
 Depth to Top of Screen: 33.67 ft btoc

Water Added during Drilling: 15 gallons
 Water to be Removed: 75 gallons (5x added)
 Ambient PID/FID Reading: 0.0 ppm
 Wellbore PID/FID Reading: 0.0 ppm

PURGE DATA

Purge Method: monsoon pump

Purge Volume (gals)	Time	Depth to Water (ft)	Color	Odor	pH	Temp (°C)	Cond. (µmhos/cm)	Turbidity (NTUs)	DO (mg/l)	ORP (mv)
	1715				6.68	18.7	941	4.21		
	1723				6.71	18.8	921	6.66		

Start Time: 1030/1315/1525 Purge Stop Time: 1200/1500/1735 Elapsed Time: 5:25 Total Volume Purged: 490 gallon
 Average Purge Rate (gallons/min): 1.5 Well Volumes Purged: na Water Quality Meter ID: oakton/Lamotte Calibrated on: 10/31/11

SAMPLING DATA

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

COMMENTS:

DTB = 44 ft btoc prior to development
 DTB = X ft btoc after development
* water level meter was unavailable during development activities.