



HEARTLAND
Environmental Services, Inc.

IDNR COPY

CON 12-15
Doc #20228

June 30, 2008

Mr. Lambert A. Nnadi
Environmental Specialist
Iowa DNR - Contaminated Sites Section
Wallace State Office Building
Des Moines, Iowa 50319

SUBJECT: Submittal Of RBCA Site Monitoring Report
Warren County Oil Company - Bulk Plant Facility
700 N. Sixth Street - Indianola, Iowa IDNR No: 03020-RL-1403

Dear Mr. Nnadi:

Please find the enclosed Risk Based Corrective Action Site Monitoring Report for the above referenced site. Sampling was completed following the Monitoring Plan specified in the Risk Based Corrective Action (RBCA) Tier 2 report dated 7/30/01. Four monitoring wells were sampled on 4/29/08.

The recent groundwater monitoring results indicate a continued decrease in the benzene concentration in the source well (MW20) in comparison to the latest sampling event. The recent results indicate a benzene concentration of 523 ug/L in comparison to 5,840 ug/L during the last monitoring event. The very high water table may have influenced the substantial decrease in concentration at the source well.

The site remains classified "low risk" for potential vapor receptors. Annual monitoring will continue following the RBCA Monitoring Plan. Warren County Oil Company may consider the completion of soil gas sampling to justify re-classification of the site to "no further action". Please feel free to call with any additional questions. Thank You!

Sincerely,
Heartland Environmental Services, Inc.

Steven M. Kobberdahl
President/Geologist
Certified Groundwater Professional

cc: Joe Bell (Warren County Oil Company)
Bill Gross (IDNR Field Office #5)

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SITE IDENTIFICATION

LUST No.

91-03020-RL-1403

UST Registration No.

NA

Site Name: Warren County Oil Company - Bulk Plant

Site Address: 700 North Sixth Street

City: Indianola

RESPONSIBLE PARTY IDENTIFICATION

Name: Warren County Oil Company

Phone #: 515-961-2549

Street: 215 North Howard Street

City: Indianola

State: Iowa

Zip Code: 50125

Type of Monitoring: ☒ Low Risk ☐ High Risk: Interim ☐ Exempt Granular BedrockIs site reclassification recommended? Yes ☒ No ☐ If yes, what classification? ☐ NAR ☐ low risk ☐ high risk

STATEMENT OF CERTIFICATION

I, Steven M. Kobberdahl, Groundwater Professional Certification No. 1151, am familiar with all applicable requirements of Iowa Code § 455B.474 and all rules and procedures adopted thereunder including, but not limited to, Chapter 567-135 and the Department of Natural Resources' Site Monitoring Report guidance. Based on my knowledge of those documents and information I have prepared and reviewed regarding this site, UST Registration No. NA, LUST No. 91-03020-RL-1403, I certify that this document is complete and accurate as provided in 567 IAC 135.9(11)"c" and meets the applicable requirements of the Site Monitoring Report.

Print: Name/Address/Phone # of Certified Groundwater Professional

Steven M. Kobberdahl

Heartland Environmental Services, Inc.

10050 NW Lake Drive

Polk City, Iowa 50226

Signature: Steve Kobberdahl

Phone #: 515-984-9166

Date: 6/30/08

I certify that I have reviewed this document, appendices and attachments for submittal to the Iowa Department of Natural Resources.

Warren County Oil Company

Print: Name of Responsible Party

Signature - Responsible Party Joe Beer

Official IDNR Use Only

Date Received:

Comment Letter Date:

Reviewer:

Approved:

Y / N

Site Monitoring Report Checklist

This checklist is for Site Monitoring Reports prepared using Tier 2 software-version 2.51 and later, and applies to the following types of monitoring: **Low risk or High risk: Interim at non-bedrock and exempt granular bedrock sites.** Indicate with "NA" those sections of the report which are not included because they do not apply to site-specific conditions.

REPORT BODY: Page Number

<input checked="" type="checkbox"/> Cover sheet	1
<input checked="" type="checkbox"/> SMR checklist page	2
<input checked="" type="checkbox"/> Receptor summary tables	3,4,5
<input checked="" type="checkbox"/> Potential receptor summary	6
<input checked="" type="checkbox"/> Receptor status change	7
<input checked="" type="checkbox"/> Site reclassification	7
<input checked="" type="checkbox"/> Groundwater analytical data	8
<input checked="" type="checkbox"/> Soil analytical data	9
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<input checked="" type="checkbox"/> Groundwater / Soil Leaching monitoring plan summary	12
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APPENDICES:

- ☒ 1. Evaluation of analytical data
- ☒ 2. Site plan map
- ☒ 3. Site vicinity map
- ☒ 4. Soil summary corrective action map
- ☒ 5. Soil contamination / soil gas map(s)
- ☒ 6. Groundwater summary corrective action map
- ☒ 7. Groundwater monitoring results map
- ☒ 8. Groundwater contamination map (from SMR software)
- ☒ 9. Groundwater flow direction map
- ☒ 10. Analytical data sheets
- ☒ 11. Boring Logs / monitoring well construction diagrams
- ☒ 12. Documentation *IGSB database search results*
- ☒ 13. Best management practices (Initial SMR only)
- ☒ Computer Disk

SMR, GROUNDWATER SOURCE, RECEPTOR SUMMARY TABLE

				B	T	E	X	D	W			
SMR, SOIL GAS AT GW SOURCE, USER							--		--			
SOIL GAS AT GW SOURCE, DATA				NS	NS	NS	--	NS	--			
Type	Receptor	Tier 2 Risk	Last Risk	T2(*) or Computed Risk						Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I				TEH				
				B	T	E	X	D	W			
PCS	No-IC	L	L	L	N	N	N/A	N*	N/A	N		L
PCS	IC	L	L	L	N	N	N/A	N*	N/A	N		L
PSS	No-IC	L	L	L	N	N	N/A	N*	N/A	N		L
PSS	IC	L	L	L	N	N	N/A	N*	N/A	N		L

N: no action required, L: low risk, H: high risk, N/A: not applicable, NSC: No source concentration, N(SG): Passed soil gas at SMR.

PE: Tier 2 preliminary pathway evaluation result. *: Risk shown is Tier 2 risk classification. Not sufficient data for risk reclassification or risk reclassification criteria for N, L or H have not been met.

Corrective Actions:

1. Plugged drinking water wells
2. Plugged non-drinking water wells
3. Notified IDNR Water Supply Section
4. Notified designated county authority

5. Notified sanitary sewer public authority
6. Notified utility company-plastic water line
7. Relocated plastic water lines
8. Replaced plastic water lines

9. Established institutional controls

10. Conducted soil excavation
11. Cleared with soil gas
12. Zoning
13. For actual PWL, GW > 3 feet

SMR, SOIL LEACHING, RECEPTOR SUMMARY TABLE

				B	T	E	X	D	W			
SMR, SOIL GAS AT SOIL SOURCE, USER							--		--			
SOIL GAS AT SOIL SOURCE, DATA				NS	NS	NS	--	NS	--			
SUBMERGED SOIL SOURCE				???	???	???	--	???	--			
Type	Receptor	Tier 2 Risk	Last Risk	T2(*) or Computed Risk						Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I				TEH				
				B	T	E	X	D	W			
PCS	No-IC	L	L	L	N*	N*	N*	N*	N*	N		L
PCS	IC	L	L	L	N*	N*	N*	N*	N*	N		L
PSS	No-IC	L	N	N	N*	N*	N*	N*	N*	N		N
PSS	IC	L	N	N	N*	N*	N*	N*	N*	N		N

For actual receptors, only Tier 2 risk shown for chemicals. For potential, reclassification uses groundwater in vicinity of the soil source.

N: No action required, or no receptors present for potential receptors. N(1): Soil source <=Tier 2 Default.

N(2): Modeled GW at Soil Source<=GW TL. N(3): Modeled GW at Receptor<=GW TL. N(4): Chemical not applicable for GW.

N/A: Chemical not applicable for soil. L: low risk. H: high risk. NSC: no source concentration. N(SG): passed soil gas at SMR.

PE: Tier 2 preliminary pathway evaluation result. *: Tier 2 risk classification result.

L or H: For PGWS, monitoring well(s) needed in vicinity of soil source to complete risk classification.

Corrective Actions:

1. Plugged drinking water wells

2. Plugged non-drinking water wells

3. Notified IDNR Water Supply Section

4. Notified designated county authority

5. Notified sanitary sewer public authority

6. Notified utility company-plastic water line

7. Relocated plastic water lines

8. Replaced plastic water lines

9. Established institutional controls

10. Conducted soil excavation

11. Cleared with soil gas

12. Zoning

13. For actual PWL, GW > 3 feet

SMR, SOIL VAPOR, SOIL TO PLASTIC WATER LINE, RECEPTOR SUMMARY TABLE

				B	T	E	D			
SMR, SOIL GAS AT SOIL SOURCE, USER										
SOIL GAS AT SOIL SOURCE, DATA				NS	NS	NS	NS			
SUBMERGED SOIL SOURCE				???	???	???	???			
Type	Receptor	Tier 2 Risk	Last Risk	Tier 2 Risk				Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I			TEH D			
				B	T	E				
PCSR	Source, SV	L	L	L	N	N	N	N		L
PCSNR	Source, SV	L	L	L	N	N	N	N		L
PSSR	Source, SV	L	L	L	N	N	N	N		L
PSSNR	Source, SV	L	L	L	N	N/A	N	N		L
PCSR	pcsr-1, south property lin	L	L	L	N	N	N	N		L
PSSR	pssr-1, south property lin	L	L	L	N	N	N	N		L

Tier 2 risk classification shown for chemicals.

N: no action required. L: low risk. H: high risk. N/A: chemical is not applicable. NSC: No source concentration. N(SG): Passed soil gas at SMR.

PE: Tier 2 preliminary evaluation result.

Corrective Actions:

1. Plugged drinking water wells
2. Plugged non-drinking water wells
3. Notified IDNR Water Supply Section
4. Notified designated county authority

5. Notified sanitary sewer public authority
6. Notified utility company-plastic water line
7. Relocated plastic water lines
8. Replaced plastic water lines

Established institutional controls

9. Established institutional controls
10. Conducted soil excavation
11. Cleared with soil gas
12. Zoning
13. For actual PWL, GW > 3 feet

Potential Receptor Summary			SMR,V-2.51, 91-03020-RL-1403	
Surveys for new, removed, and replaced receptors must be conducted within the larger area of either 1) the receptor identification plume for the appropriate receptor type; or 2) the receptor-specific distance listed in brackets below.				
Receptor questions	Yes/ No	Contact Name/Company Name/ Complete Address	Contact Phone #	Date
New drinking water well(s)? [1,000']	No	Steve Kobberdahl Heartland Environmental Services 10050 NW Lake Drive Polk City, Iowa, 50226	515 984-9166	7/2/08
New non-drinking water well(s)? [1,000']	No	Steve Kobberdahl Heartland Environmental Services 10050 NW Lake Drive Polk City, Iowa, 50226	515 984-9166	7/2/08
Plugged drinking water well(s)? [1,000']	No	Steve Kobberdahl Heartland Environmental Services 10050 NW Lake Drive Polk City, Iowa, 50226	515 984-9166	7/2/08
Plugged non-drinking water well(s)? [1,000']	No	Steve Kobberdahl Heartland Environmental Services 10050 NW Lake Drive Polk City, Iowa, 50226	515 984-9166	7/2/08
New plastic water lines(s)? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
Replaced or relocated plastic water line(s)? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
New sanitary sewer(s)? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
Replaced or relocated sanitary sewer(s)? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
New building(s) with basements? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
Building(s) with basement(s) removed? [200']	No	Joe Bell Warren County Oil Company 215 N. Howard Street Indianola, Iowa, 50125	515 961-2549	4/29/08
Zoning changes? [200']	No	Mindy Woodruff City of Indianola P.O. Box 299 Indianola, Iowa, 50125	515 961-9410	4/29/08

Receptors: Status change	SMR,V-2.51, 91-03020-RL-1403
List and describe all receptors whose status has changed since the previous receptor evaluation (e.g. Private Well A was plugged/water supply notification form was sent to the proper authorities; new houses were built; etc.).	
There are no changes in the status of potential receptors. No actual receptors exist at the site.	
Site Reclassification	SMR,V-2.51, 91-03020-RL-1403
Should the site be reclassified? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, the site should be reclassified as: <input type="checkbox"/> High Risk <input type="checkbox"/> Low Risk <input type="checkbox"/> No Action Required	
If reclassification is recommended, provide the justification for reclassification and provide all necessary documentation in Appendix 12.	
Re-classification is not proposed. The owner may attempt to obtain a no further action site classification through institutional controls and/or soil gas sampling during low water table conditions.	

SMR Groundwater Analytical Data (ug/L), V-2.51, 91-03020-RL-1403													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW1	08/28/1990	957.57	957.71	952.57	950.84	110.	1,700.	110.	3,500.	N	N	N	N
MW1	10/13/1992	957.57	957.71	952.57	N	13,000.	5,700.	1,220.	6,400.	N	N	N	N
MW1	12/27/1993	957.57	957.71	952.57	948.66	7,000.	1,200.	2,100.	6,700.	N	N	N	N
MW1	04/04/1994	957.57	957.71	952.57	946.32	7,400.	1,000.	2,800.	9,200.	N	N	N	N
MW1	06/13/1995	957.57	957.71	952.57	953.60	1,700.	1,000.	750.	1,900.	N	N	N	N
MW1	10/03/1996	957.57	957.71	952.57	947.93	9,100.	4,900.	1,300.	6,500.	N	N	N	N
MW1	04/15/1997	957.57	957.71	952.57	954.74	<2.	<2.	<2.	<3.	N	N	N	N
MW1	10/23/1997	957.68	957.71	952.68	947.92	13,000.	6,600.	1,700.	7,100.	17,000.	<4,000.	N	N
MW1	04/23/1998	957.68	957.71	952.68	954.83	860.	240.	130.	500.	1,200.	<400.	N	N
MW1	10/23/1998	957.68	957.71	952.68	950.16	16,000.	6,600.	2,700.	10,000.	<1,000.	<400.	N	N
MW1	04/23/1999	957.68	957.71	952.68	954.61	470.	29.8	137.	297.	910.	<400.	N	N
MW1	05/09/2000	957.68	957.71	952.68	948.43	8,500.	1,600.	2,100.	10,000.	N	N	N	N
MW1	04/13/2001	957.68	957.71	952.68	955.06	65.9	5.6	36.8	120.	687.	<380.	N	N
MW1	10/28/2002	957.68	957.71	952.68	950.44	6,540.	366.	1,200.	3,560.	N	N	N	N
MW1	11/13/2003	957.68	957.71	952.68	952.02	1,720.	75.4	298.	833.	N	N	N	N
MW1	12/17/2004	957.68	957.71	952.68	950.01	2,830.	80.6	1,170.	2,130.	N	N	N	N
MW1	12/06/2006	957.68	957.71	952.68	949.25	2,170.	46.9	554.	758.	N	N	N	N
MW1	04/29/2008	957.68	957.71	952.68	954.32	2,770.	162.	1,050.	2,490.	N	N	N	N
MW8	09/14/1990	958.20	958.13	953.20	951.74	11.	12.	<10.	<10.	<2,000.	N	N	N
MW8	10/13/1992	958.20	958.13	953.20	951.32	3.	<1.	<1.	<1.	N	N	N	N
MW8	12/27/1993	958.20	958.13	953.20	948.96	3.	<1.	<1.	<1.	N	N	N	N
MW8	08/02/1994	958.20	958.13	953.20	945.86	27.	<1.	2.	2.	N	N	N	N
MW8	11/20/1995	958.20	958.13	953.20	945.02	4.3	2.3	<2.	3.3	N	N	N	N
MW8	10/03/1996	958.20	958.13	953.20	948.43	17.	<2.	<2.	<2.	N	N	N	N
MW8	04/15/1997	958.20	958.13	953.20	954.61	<2.	<2.	<2.	<3.	N	N	N	N
MW8	10/23/1997	958.46	958.13	953.20	948.52	380.	8.4	8.6	8.6	<1,000.	<400.	N	N
MW8	04/23/1998	958.46	958.13	953.20	955.86	<2.	<2.	<2.	<3.	<1,000.	<400.	N	N
MW8	10/23/1998	958.46	958.13	953.20	950.80	<2.	<2.	<2.	<3.	<1,000.	<400.	N	N
MW8	04/23/1999	958.46	958.13	953.20	956.08	<2.	<2.	<2.	<3.	<400.	<400.	N	N
MW8	11/08/1999	958.46	958.13	953.20	944.62	380.	16.	12.	11.	N	N	N	N
MW8	05/09/2000	958.46	958.13	953.20	948.54	<2.	<2.	<2.	<3.	N	N	N	N
MW8	10/28/2002	958.46	958.13	953.20	950.74	17.4	3.	<2.	3.1	N	N	N	N
MW8	11/13/2003	958.46	958.13	953.20	952.52	<2.	<2.	<2.	<3.	N	N	N	N
MW8	12/17/2004	958.46	958.13	953.20	950.48	<2.	<2.	<2.	<3.	N	N	N	N
MW8	12/06/2006	958.46	958.13	953.20	949.51	<2.	<2.	<2.	<3.	N	N	N	N
MW8	04/29/2008	958.46	958.13	953.20	954.44	<2.	<2.	<2.	<3.	N	N	N	N
MW14	11/20/1995	957.05	956.65	952.05	938.75	<2.	<2.	<2.	<2.	N	N	N	N
MW14	10/03/1996	957.05	956.65	952.05	945.27	<2.	<2.	<2.	<2.	N	N	N	N
MW14	04/15/1997	957.05	956.65	952.05	953.28	<2.	<2.	<2.	<3.	N	N	N	N
MW14	10/23/1997	957.18	956.65	952.05	946.84	<2.	<2.	<2.	<3.	<1,000.	<400.	N	N
MW14	04/23/1998	957.18	956.65	952.05	954.10	<2.	<2.	<2.	<3.	<1,000.	<400.	N	N
MW14	10/23/1998	957.18	956.65	952.05	948.11	<2.	<2.	<2.	<3.	<1,000.	<400.	N	N

SMR Groundwater Analytical Data (ug/L), V-2.51, 91-03020-RL-1403													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW14	04/23/1999	957.18	956.65	952.05	953.87	<2.	<2.	<2.	<3.	<400.	<400.	N	N
MW14	11/08/1999	957.18	956.65	952.05	943.36	<2.	<2.	<2.	<3.	N	N	N	N
MW14	05/09/2000	957.18	956.65	952.05	950.76	<2.	<2.	<2.	<3.	N	N	N	N
MW14	10/28/2002	957.18	956.65	952.05	949.69	<2.	<2.	<2.	<3.	N	N	N	N
MW14	11/13/2003	957.18	956.65	952.05	951.09	<2.	<2.	<2.	<3.	N	N	N	N
MW14	12/17/2004	957.18	956.65	952.05	949.17	<2.	<2.	<2.	<3.	N	N	N	N
MW14	12/06/2006	957.18	956.65	952.05	948.40	<2.	<2.	<2.	<3.	N	N	N	N
MW14	04/29/2008	957.18	956.65	952.05	954.21	<2.	<2.	<2.	<3.	N	N	N	N
W-BH7/MW20	03/08/1990	957.57	N	952.57	950.84	20,000.	25,000.	1,800.	9,400.	N	N	N	N
MW20	06/16/2001	957.80	957.39	955.80	955.51	5,350.	14,600.	4,220.	19,900.	5,740.	<380.	N	N
MW20	10/28/2002	957.80	957.39	955.80	950.83	7,660.	6,830.	5,420.	26,800.	N	N	N	N
MW20	11/13/2003	957.80	957.39	955.80	952.66	9,740.	2,590.	5,170.	24,600.	N	N	N	N
MW20	12/17/2004	957.80	957.39	955.80	950.52	10,200.	863.	4,410.	19,800.	N	N	N	N
MW20	12/06/2006	957.80	957.39	955.80	949.78	5,840.	446.	3,390.	15,000.	N	N	N	N
MW20	04/29/2008	957.80	957.39	955.80	955.01	523.	189.	2,900.	11,800.	N	N	N	N

**SMR, GROUNDWATER / SOIL LEACHING MONITORING PLAN SUMMARY
and NFA GW/SL MONITORING RESULTS**

MW	Most Recent Sample	SSTL	SSTL Met	Steady Decline/ 3 Year	Monitor Type(T2)	Receptor			Chem. Risk	Recept. Curr. Risk	Min Freq
						Type	Label	Description			
GW/SL MONITORING PLAN											
W-BH3/MW	3,800										
		4,780	Yes	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		9,550	Yes	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
W-BH5	12,000										
		4,780	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		9,550	No	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
W-BH6	13,000										
		4,780	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		9,550	No	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
W-BH7/MW	523										
		3,797	Yes	Yes	S	PCS	No-IC		L	L	Annu
		3,797	Yes	Yes	S	PCS	IC		L	L	Annu
		7,593	Yes	Yes	S	PSS	No-IC		L	L	Annu
		7,593	Yes	Yes	S	PSS	IC		L	L	Annu
W-BH22	5,100										
		2,454	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		2,454	No	N/A	Int.E/Int.E	PCS	IC		L	L	Onc
		4,907	No	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
		4,907	No	N/A	Int.E/Int.E	PSS	IC		L	L	Onc
MW1	2,770										
		1,559	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		1,559	No	No	T-ML/T-ML	PCS	No-IC		L	L	Annu
		1,559	No	N/A	Int.E/Int.E	PCS	IC		L	L	Onc
		1,559	No	No	T-ML/T-ML	PCS	IC		L	L	Annu
		3,117	Yes	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
		3,117	Yes	No	T-ML/T-ML	PSS	No-IC		L	L	Annu
		3,117	Yes	N/A	Int.E/Int.E	PSS	IC		L	L	Onc
		3,117	Yes	No	T-ML/T-ML	PSS	IC		L	L	Annu
		1,686	No	Yes	SL	PCS	No-IC		L	L	Annu
		1,686	No	Yes	SL	PCS	IC		L	L	Annu
MW6	12,000										
		4,780	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		9,550	No	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
MW7	3,200										
		3,089	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		3,089	No	N/A	Int.E/Int.E	PCS	IC		L	L	Onc
MW8	<2										
		4,780	Yes	Yes	TG/TG	PCS	No-IC		L	L	Annu
		9,550	Yes	Yes	TG/TG	PSS	No-IC		L	L	Annu
MW9	12,000										
		3,797	No	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
		3,797	No	N/A	Int.E/Int.E	PCS	IC		L	L	Onc
		7,593	No	N/A	Int.E/Int.E	PSS	No-IC		L	L	Onc
		7,593	No	N/A	Int.E/Int.E	PSS	IC		L	L	Onc
MW12	4,200										
		4,780	Yes	N/A	Int.E/Int.E	PCS	No-IC		L	L	Onc
MW14	<2										
		1,540	Yes	Yes	G/TG	PCS	No-IC		L	L	Annu
		3,081	Yes	Yes	G/TG	PSS	No-IC		L	L	Annu
NFA GW/SL MONITORING RESULTS											
MW1	2,770										
		3,371	Yes	Yes	SL	PSS	No-IC		N	N	
		3,371	Yes	Yes	SL	PSS	IC		N	N	



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1. Evaluation of Analytical Data

APPENDIX 1 - DATA EVALUATION

SMR Date: 6/30/08
Site Name: Warren County Oil Company – Bulk Plant
Address: 700 North Sixth Street – Indianola, Iowa
IDNR No: 03020-RL-1403

DESCRIPTION OF SITE MONITORING ACTIVITIES

Site monitoring activities were completed following the Monitoring Plan specified in the Risk Based Corrective Action (RBCA) Tier 2 report dated 7/30/01. Four monitoring wells were sampled on 4/29/08. Prior to sampling, static water level measurements were collected from each well using a decontaminated electronic water level probe. Each well was purged and sampled using a dedicated sampling bailer. Samples were labeled, placed on ice, and shipped to Test America Laboratory - Cedar Falls Division for analyses using Iowa method OA-1. In addition, an updated receptor survey was performed at the subject property and the surrounding vicinity.

RESULTS OF SITE MONITORING ACTIVITIES

The recent groundwater monitoring results indicate a continued decrease in the benzene concentration in the source well (MW20) in comparison to the last sampling event. The recent results indicate a benzene concentration of 523 ug/L in comparison to 5,840 ug/L during the last monitoring event. The very high water table may have influenced the substantial decrease in concentration at the source well. The results of the updated receptor survey indicate no changes from the previous survey. No new or plugged drinking water wells exist within a 1,000 foot radius of the site. No new utilities exist within 200 feet of the site. The zoning, which is a mix of residential and commercial, has not changed since the previous survey.

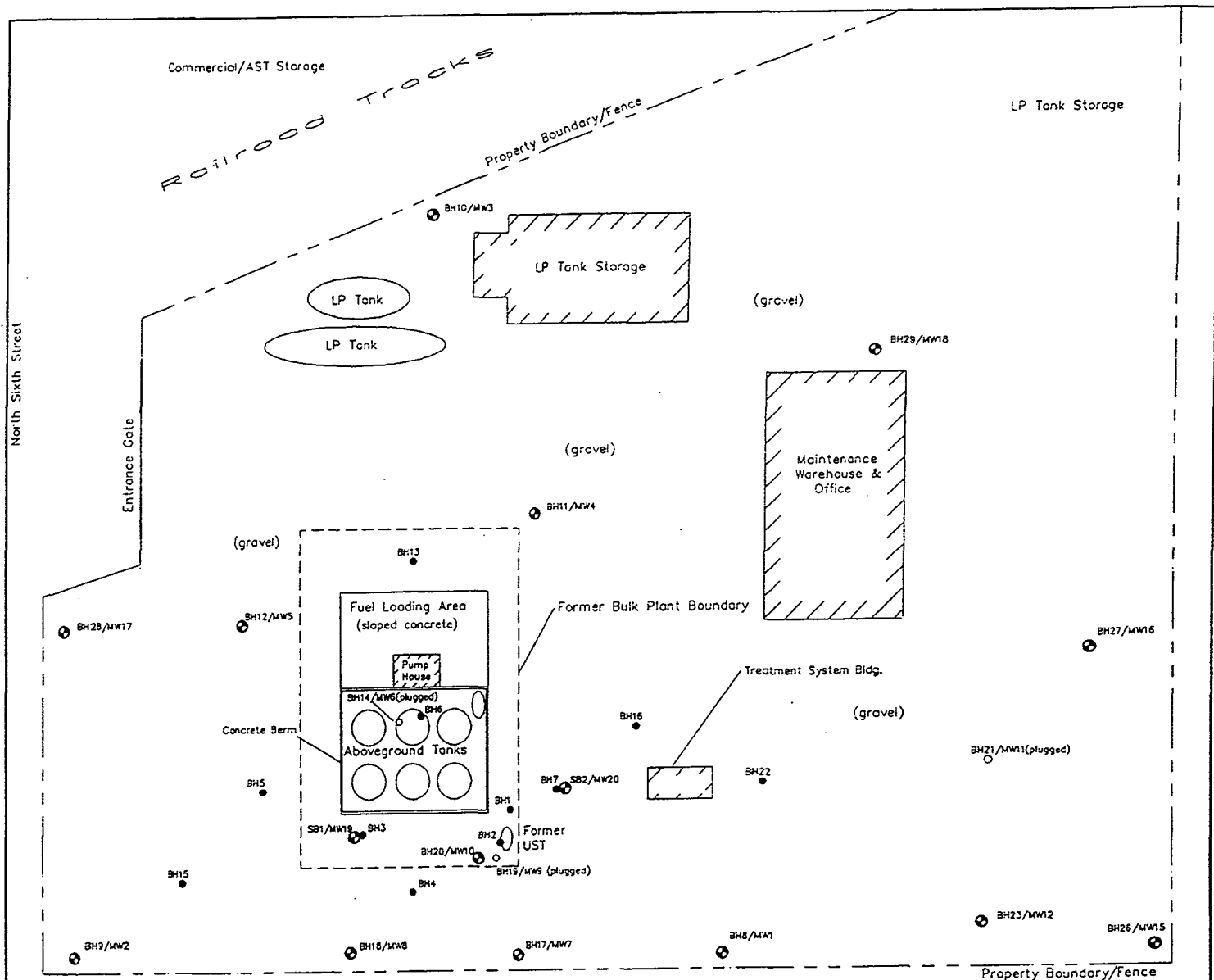
CONCLUSIONS

The site remains classified “low risk” for potential vapor receptors. Annual monitoring will continue following the RBCA Monitoring Plan. Warren County Oil Company may consider the completion of soil gas sampling to justify re-classification of the site to “no further action”.



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2. Site Plan Map



LEGEND

- Monitoring Well Location
- Soil Boring Location
- Plugged Monitoring Well
- Underground Utility (labeled)

Note: See previous maps for treatment system layout.



SCALE

(1" = 50')

SITE PLAN MAP

Warren County Oil Company
Bulk Plant - Indianola, Ia

PROJECT NO	DRAWING NO	REVISION DATE
91-03020-RL-1403	WCBP-01	4/23/01

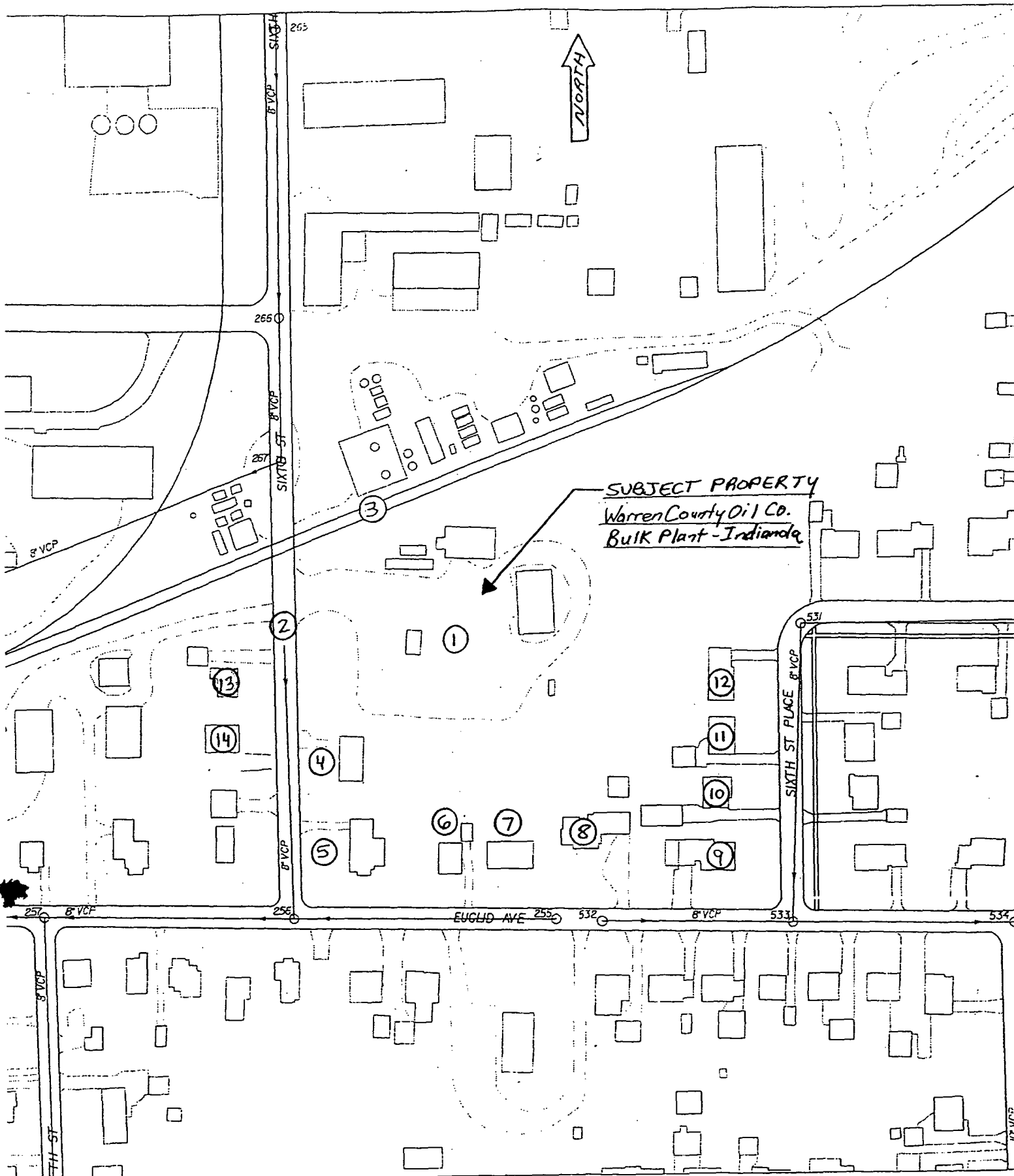
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3. Site Vicinity Map



Notes

1. Numbered properties correspond to Affected Property Owner Table (Tier 2 pg 15).
2. See following Plat Map for subject and adjacent property boundaries.
3. Please refer to Zoning Map (Att 17) for property zoning information. Subject site and properties to north are non-residential. Properties to west, east, and south are

ATT. 3 - SITE VICINITY MAP
(Approx. Scale 1" = 150')

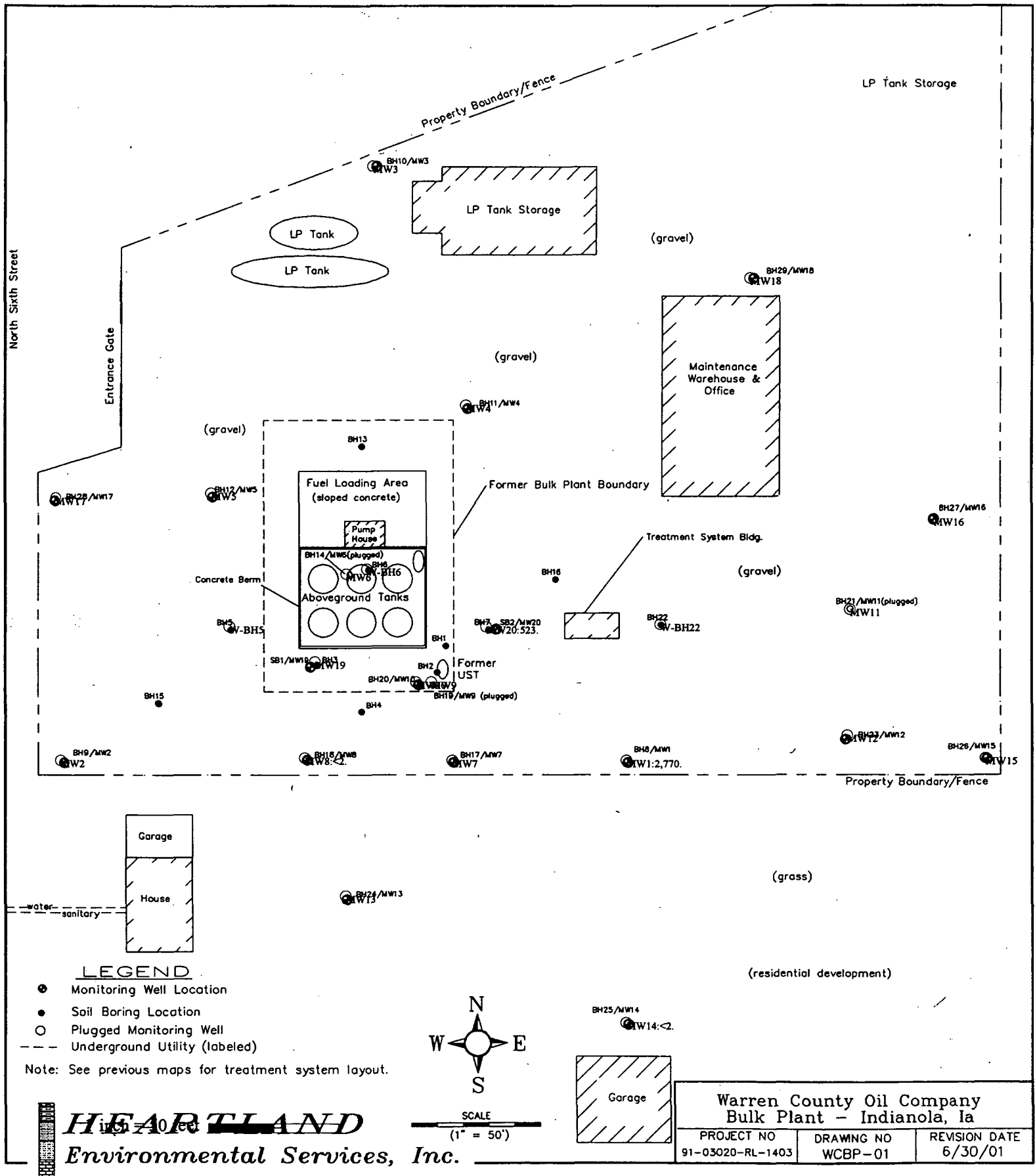


7. Groundwater Monitoring Results Map

SMR, Groundwater Monitoring Results Map: 04/29/2008, Benzene(ug/L)

V-2.51, 91-03020-RL-1403

#: Most recent sample more than 6 months older than current risk date.



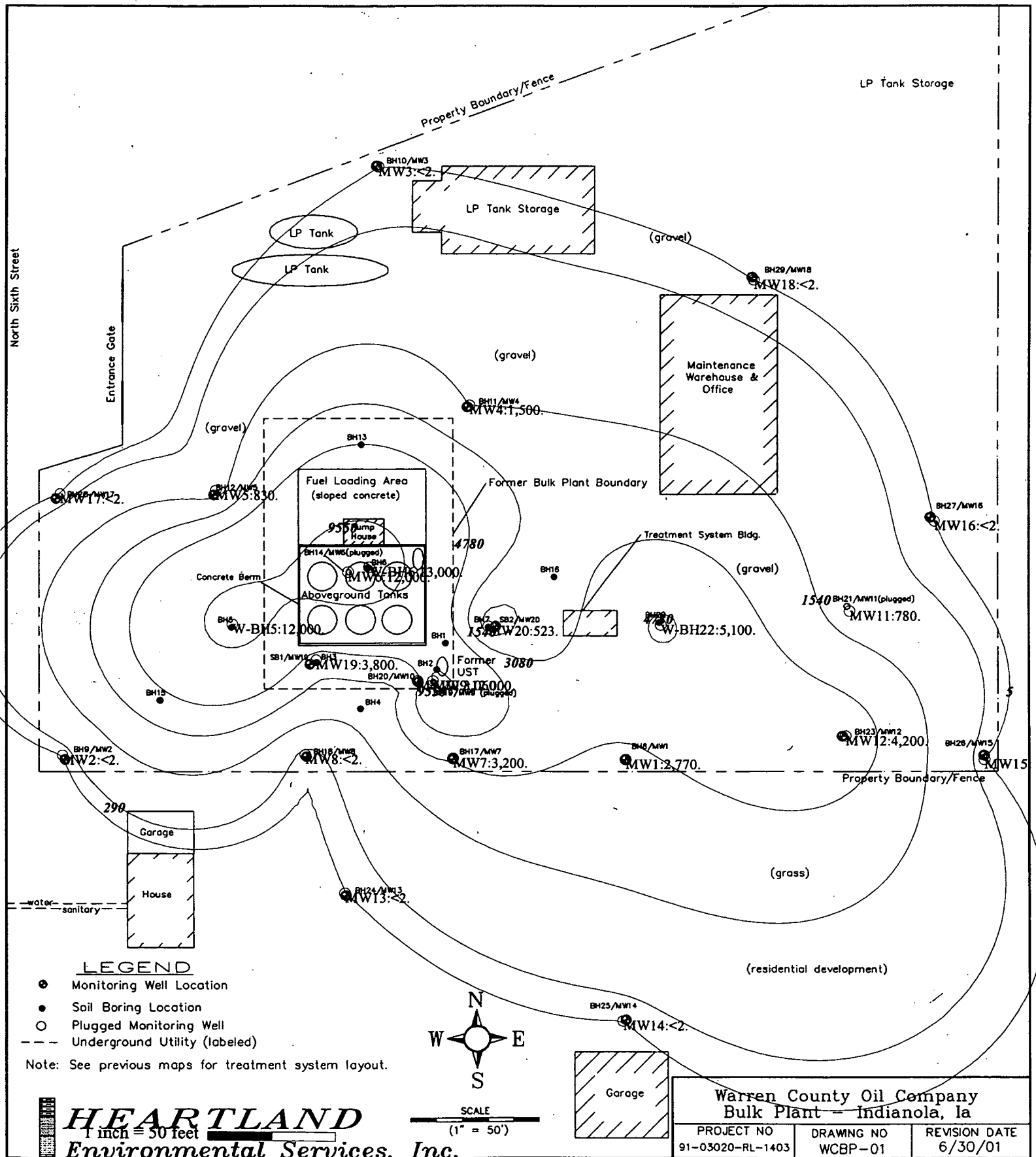


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8. Groundwater Contamination Map

8. Groundwater contamination map
SMR, GW Plume Contours: Benzene(ug/L)

V-2.51, 91-03020-RL-1403



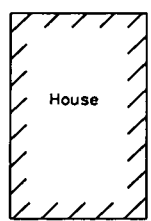
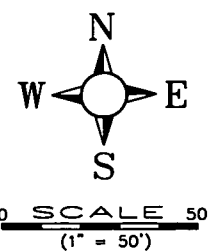
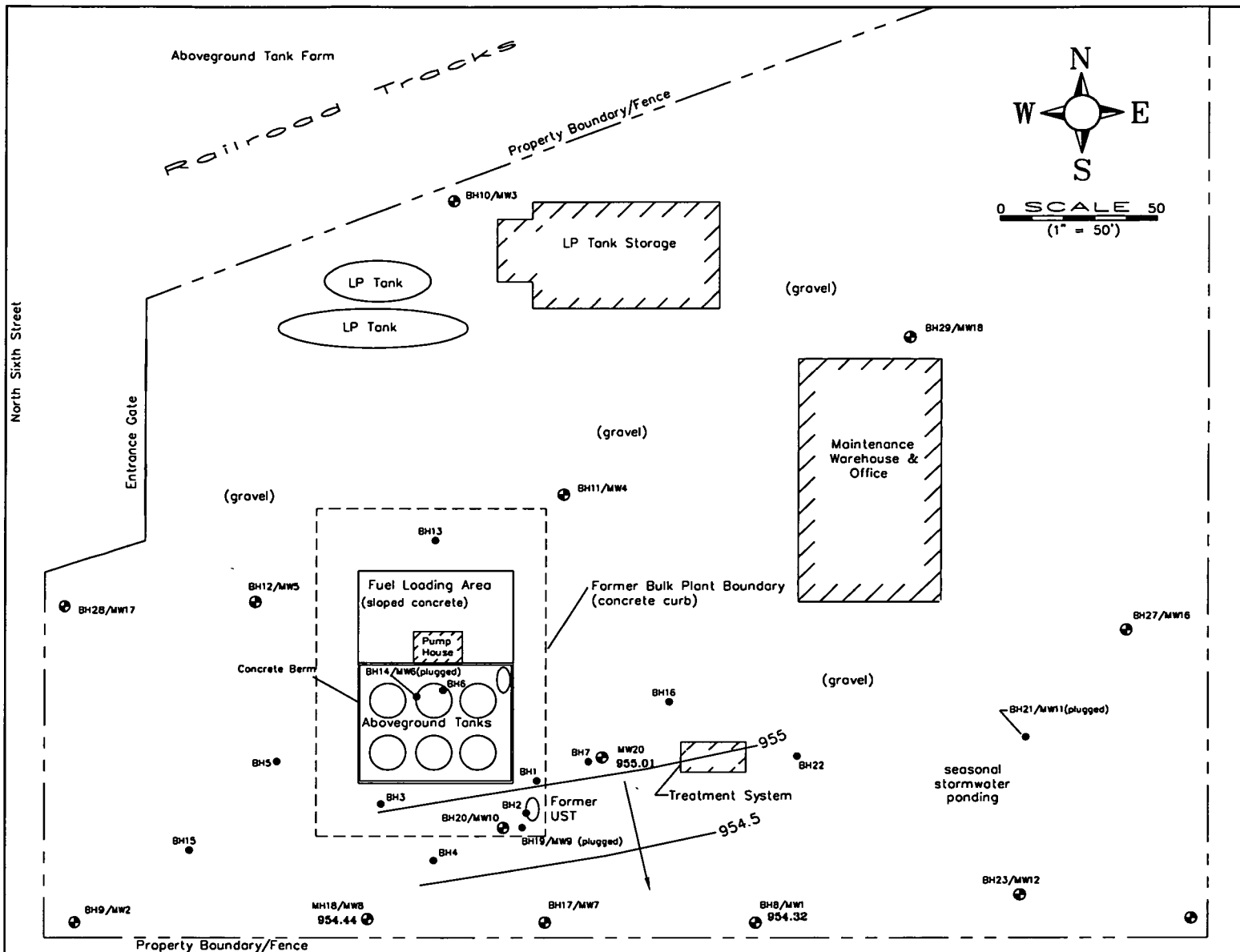
HEARTLAND
Environmental Services, Inc.

Warren County Oil Company
Bulk Plant - Indianola, Ia

PROJECT NO	DRAWING NO	REVISION DATE
91-03020-RL-1403	WCBP-01	6/30/01



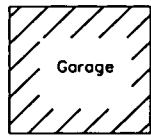
9. Groundwater Flow Direction Map



LEGEND

- Soil Boring/Monitoring Well Location
- Groundwater Elevation Contour
- General Groundwater Flow Direction
- Historic Soil Boring/Plugged Well Location

BH25/MW4
954.21



GROUNDWATER FLOW MAP (for date: 4/29/08)		
Warren County Oil Company Bulk Plant - Indianola, Ia		
PROJECT NO 91-03020-RL-1403	DRAWING NO WCBP-04	REVISION DATE 6/08

HEARTLAND
Environmental Services, Inc.



10. Analytical Data Sheets

May 13, 2008

Client:

HEARTLAND ENVIRONMENTAL SERVICES, INC.
10050 NW Lake Drive
Polk City, IA 50226

Work Order: CRD1567
Project Name: Warren County Oil Bulk Plant
Project Number: RL-1403

Attn: Steve Kobberdahl

Date Received: 04/30/08

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(800)750-2401

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW1	CRD1567-01	04/29/08 14:40
MW8	CRD1567-02	04/29/08 14:20
MW14	CRD1567-03	04/29/08 14:00
MW20	CRD1567-04	04/29/08 15:00

Case Narrative:

This report was amended due to a data entry error on TA sample CRD1567-01 for BTEX. 05/13/08 AM.

Samples were received into laboratory at a temperature of 2 °C.

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

Please refer to the Temperature and Sample Receipt form that is included with this report for additional information regarding the condition of samples at the time of receipt by the laboratory.

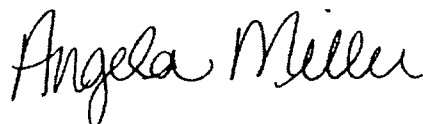
The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Iowa Certification Number: 007

Reproduction of this analytical report is permitted only in its entirety. This report shall not be reproduced except in full without the written approval of the laboratory.

TestAmerica Laboratories, Inc. certifies that the analytical results contained herein apply only to the specific sample analyzed.

Approved By:



Iowa UST Lab Certification No. 007

TestAmerica Cedar Falls
Angie Miller
Project Coordinator

HEARTLAND ENVIRONMENTAL SERVICES, INC.
10050 NW Lake Drive
Polk City, IA 50226
Steve Kobberdahl

Work Order: CRD1567

Project: Warren County Oil Bulk Plant

Project Number: RL-1403

Received: 04/30/08

Reported: 05/13/08 14:26

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Seq/ Analyst Batch	Method
Sample ID: CRD1567-01 (MW1 - Ground Water)				Sampled: 04/29/08 14:40			Recvd: 04/30/08 08:40	
Sampled By: Steve Kobberdahl				Phone		515-984-9166		
UST Volatile Compounds by GC								
Benzene	2770		ug/L	20.0	10	05/02/08 18:49	mmk 8050235	OA-1 - 8021B
Toluene	162		ug/L	2.00	1	05/01/08 13:16	mmk 8050106	OA-1 - 8021B
Ethylbenzene	1050		ug/L	20.0	10	05/02/08 18:49	mmk 8050235	OA-1 - 8021B
Xylenes, total	2490		ug/L	30.0	10	05/02/08 18:49	mmk 8050235	OA-1 - 8021B
Surr: 4-Bromofluorobenzene (75-135%)		116 %						
VOC Preservation Check								
pH	<2.00		units	2.00	1	05/02/08 16:33	fmk 8050120	SW

HEARTLAND ENVIRONMENTAL SERVICES, INC. Work Order: CRD1567
 10050 NW Lake Drive
 Polk City, IA 50226 Project: Warren County Oil Bulk Plant
 Steve Kobberdahl Project Number: RL-1403

Received: 04/30/08
 Reported: 05/13/08 14:26

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Seq/ Analyst Batch	Method
Sample ID: CRD1567-02 (MW8 - Ground Water)				Sampled: 04/29/08 14:20			Recvd: 04/30/08 08:40	
Sampled By: Steve Kobberdahl				Phone	515-984-9166			
UST Volatile Compounds by GC								
Benzene	<2.00		ug/L	2.00	1	05/02/08 15:54	mmk 8050235	OA-1 - 8021B
Toluene	<2.00		ug/L	2.00	1	05/02/08 15:54	mmk 8050235	OA-1 - 8021B
Ethylbenzene	<2.00		ug/L	2.00	1	05/02/08 15:54	mmk 8050235	OA-1 - 8021B
Xylenes, total	<3.00		ug/L	3.00	1	05/02/08 15:54	mmk 8050235	OA-1 - 8021B
Surr: 4-Bromofluorobenzene (75-135%)	108 %							
VOC Preservation Check								
pH	<2.00		units	2.00	1	05/02/08 16:33	fmk 8050120	SW

HEARTLAND ENVIRONMENTAL SERVICES, INC.
10050 NW Lake Drive
Polk City, IA 50226
Steve Kobberdahl

Work Order: CRD1567
Project: Warren County Oil Bulk Plant
Project Number: RL-1403

Received: 04/30/08
Reported: 05/13/08 14:26

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Seq/ Analyst Batch	Method
Sample ID: CRD1567-03 (MW14 - Ground Water)					Sampled: 04/29/08 14:00		Recvd: 04/30/08 08:40	
Sampled By: Steve Kobberdahl				Phone	515-984-9166			
UST Volatile Compounds by GC								
Benzene	<2.00		ug/L	2.00	1	05/01/08 14:26	mmk 8050106 OA-1 - 8021B	
Toluene	<2.00		ug/L	2.00	1	05/01/08 14:26	mmk 8050106 OA-1 - 8021B	
Ethylbenzene	<2.00		ug/L	2.00	1	05/01/08 14:26	mmk 8050106 OA-1 - 8021B	
Xylenes, total	<3.00		ug/L	3.00	1	05/01/08 14:26	mmk 8050106 OA-1 - 8021B	
Surr: 4-Bromofluorobenzene (75-135%)	109 %							
VOC Preservation Check								
pH	<2.00		units	2.00	1	05/02/08 16:33	fmk 8050120	SW

HEARTLAND ENVIRONMENTAL SERVICES, INC.
10050 NW Lake Drive
Polk City, IA 50226
Steve Kobberdahl

Work Order: CRD1567
Project: Warren County Oil Bulk Plant
Project Number: RL-1403

Received: 04/30/08
Reported: 05/13/08 14:26

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Seq/ Analyst Batch	Method
Sample ID: CRD1567-04 (MW20 - Ground Water)					Sampled: 04/29/08 15:00		Recvd: 04/30/08 08:40	
Sampled By: Steve Kobberdahl				Phone	515-984-9166			
UST Volatile Compounds by GC								
Benzene	523		ug/L	2.00	1	05/01/08 15:00	mmk 8050106	OA-1 - 8021B
Toluene	189		ug/L	2.00	1	05/01/08 15:00	mmk 8050106	OA-1 - 8021B
Ethylbenzene	2900		ug/L	20.0	10	05/02/08 19:24	mmk 8050235	OA-1 - 8021B
Xylenes, total	11800		ug/L	30.0	10	05/02/08 19:24	mmk 8050235	OA-1 - 8021B
Surr: 4-Bromofluorobenzene (75-135%)	127 %							
VOC Preservation Check								
pH	<2.00		units	2.00	1	05/02/08 16:33	fmk 8050120	SW

ANALYTICAL TESTING CORPORATION

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

Compliance Monitoring

Client Name

Address:

City/State/Zip Code:

Project Manager:

Telephone Number:

Sampler Name: (Print Name)

Sampler Signature:

Email Address

Project Name**Project #**

Site/Location ID

Report To

Invoice To

Quote #

TAT
☒ Standard
☐ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y ☒
Email Results: ☒ N
SAMPLE ID

Matrix	Preservation & # of Containers
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1
17	1
18	1
19	1
20	1
21	1
22	1
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83	1
84	1
85	1
86	1
87	1
88	1
89	1
90	1
91	1
92	1
93	1
94	1
95	1
96	1
97	1
98	1
99	1
100	1

Analyze For:

Key Deliverables

☐ None
☐ Level 2
 (Batch QC)
☐ Level 3
☐ Level 4
 Other: _____

REMARKS

Special instructions:**LABORATORY COMMENTS:**

Retinol 6000

Date:

Tempe

Received By:

Date:

Time:

Retinquished By:

Date: _____

Time:

Received By:

Date:

Time:

Relinquished By:

Date _____

Time

Received By _____

石炭

Tide

Sample Receipt and Temperature Log Form

Client: Heartland Env. Project: _____

City: _____

Date: 4/30/08 Receiver's Initials: SH Time (Delivered): 8:40**Temperature Record:**

Cooler ID# (If Applicable)

ST-342.7 °C On Ice**Thermometer:**☐ IR - 61997670 'A'☒ IR - 61997671 'B'☐ IR - 61854108☐ 22126775**Courier:**☒ UPS☐ FedEx☐ DHL☐ US Postal Service☐ Spee-Dee☐ TA Courier☐ TA Field Services☐ Client☐ Other☒ Temp Blank☐ Temperature out of compliance

Custody seals present?

☒ Yes

Custody seals intact?

☐ Yes ☐ No☐ Non-Conformance report started**Exceptions Noted**☐ Sample(s) not received in a cooler.☐ Samples(s) received same day of sampling.☐ Evidence of a chilling process☐ Temperature not taken:



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Environmental Services, Inc.

12. Documentation

[Re-Start](#)

Well Search


[Print](#) | [Help](#)

Well Search Report ?

Search Method: LUST/UST**Subject:** LUST ID: 7LTD20

Site Name: Warren Co Highway Dept

Address: 704 NORTH 6TH STREET Indianola IA, 501250000

XY UTM Coordinates: 453803/4579710

Search Radius(ft.): 1000

Date: 7/2/2008**Prepared By:** skobber

Included in search	No. of wells	Database
X	0	IGS well database General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005.
X	0	Public wells Municipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development.
X	0	SDWIS public wells Public well database developed from the Safe Drinking Water Information System database maintained by IDNR, estimated locational accuracy varies from 15m. to 3300m. Created from 5/2005 data.
X	0	Private well tracking system IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/- 17 m., Last update 7/2005.
X	0	Wells registered for testing Wells tested under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Permitted private wells Wells permitted under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	12	Registered abandoned wells Wells abandoned under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	0	Water use facilities Wells used by facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/-20m to 1150 m. Created from 7/2005 data.
X	0	Municipal wells and intakes Locational accuracy 220 m., last updated 8/96.
X	0	Ag drainage wells Locational accuracy 100 m., last updated 4/98.

Well Search Detail

Subject: LUST ID: 7LTD20

XY UTM Coordinates: 453803/4579710

Search Radius (ft.): 1000

IGS Well Database

Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
--------	----------	-------------------	------------------	------------	---------------------------	------------------	-------------------

No records found from this data source

Public Wells

Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
--------	----------	-------------------	------------------	------------	---------------------------	------------------	-------------------

No records found from this data source

SDWIS public wells

Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
--------	----------	-------------------	------------------	------------	---------------------------	------------------	-------------------

No records found from this data source

Private Well Tracking System

Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
--------	----------	-------------------	------------------	------------	---------------------------	------------------	-------------------

No records found from this data source

Wells Registered For Testing

Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
--------	----------	-------------------	------------------	------------	---------------------------	------------------	-------------------

No records found from this data source

Permitted Private Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
253319	207	T. 76 N., R. 23 W., Sec. 19, SWSE	Calc. +/- 285m.	90 (m)	200	unkn	Theis, James P.	Primary use: Domestic/household

Abandoned Wells (plugged)

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
253126	34819	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	83 (m)	18	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253129	34802	T. 76 N., R.	Calc. +/-	77	15	n.a.	Office Of The	Well plugged:

		23 W., Sec. 19, SW, SE, NW	140m.	(m)			Warren Cty, Engineers	12/16/1998; Well type: < 18" dia.
253130	34804	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	77 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253133	34814	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	79 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253134	34815	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	77 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253136	34812	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	76 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253150	34818	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	72 (m)	18	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253151	34810	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	68 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253157	34813	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	68 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253158	34816	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	67 (m)	17	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253164	34805	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	69 (m)	15	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.
253167	34817	T. 76 N., R. 23 W., Sec. 19, SW, SE, NW	Calc. +/- 140m.	67 (m)	18	n.a.	Office Of The Warren Cty, Engineers	Well plugged: 12/16/1998; Well type: < 18" dia.

Water Use Facilities

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source								

Municipal Wells And Intakes

Map	Well	Location	Accuracy	Dist.	Well	Construction/	Owner/Permittees	Other
-----	------	----------	----------	-------	------	---------------	------------------	-------

ID	No.	From Point	Depth	Permit Date	Information		
No records found from this data source							
Ag Drainage Wells							
Map ID	Well No.	Location Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/Permittees	Other Information
No records found from this data source							

Well Search Buffered Map



Subject: LUST ID: 7LTD20

XY UTM Coordinates: 453803/4579710

Search Radius (ft.): 1000



Map Notes:

-  UST
-  LUST
- Please refer to the Accuracy column in Well Search Detail.
- Since multiple points can be at the same spot (as those located to the center of a quarter section), points were randomly dispersed within 10 meters around that spot so all points can be seen.
- Aerial photos were flown in 2002.

[Search by Interactive Map](#)

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