

IDNR

**Tier 2 Site Cleanup Report
Leaking Underground Storage Tank Site Assessment
for the Iowa Department of Natural Resources**

IDNR**SITE IDENTIFICATION**

LUST No.

9LT157

UST Registration No.

9918053

Site Name: Lateke Sports Center

Site Address: 1209 Roosevelt

City: Clinton

RESPONSIBLE PARTY IDENTIFICATION

Name: Lateke Sports Center; Kerry Kahler

Phone #: 319-242-2973

Street: 1209 Roosevelt

City: Clinton

State: Iowa

Zip Code: 52732

Classification:

☐ High Risk☐ Low Risk☒ No Action Required

Recommend:

☐ Tier 3☐ Corrective Action

Is this a revised Tier 2 SCR?

☐ Yes☒ No**STATEMENT OF CERTIFICATION**

I, Jeff Ogden; Raymond Professional Group, Inc., Groundwater Professional Certification No. 1676, am familiar with all applicable requirements of Iowa Code § 455B.474 and all rules and procedures adopted thereunder including, but not limited to, the Department of Natural Resources Tier 2 guidance. Based on my knowledge of those documents and information I have prepared and reviewed regarding this site, UST Registration No. 9918053, LUST No. 9LT157, I certify that this document is complete and accurate as provided in 567 IAC § 135.10(11) and meets the applicable requirements of the Tier 2 site assessment.

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

Jeff Ogden; Raymond Professional Group, Inc.

Signature: 

for Shive-Hattery, Inc.

1701 River Drive

Date (Sent/Given to Responsible Party): 10/11/01

Moline, Iowa 61265

800-798-7650

I certify that I have reviewed this document, appendices and attachments for submittal to the Iowa Department of Natural Resources. To the best of my knowledge, the site history and scaled site plan are accurate.

Lateke Sports Center; Kerry Kahler

Print: Name of Responsible Party

Signature - Responsible Party 

Date (Sent/Given to IDNR) 10/15/01

Official IDNR Use Only

Date Received:

11-13-01
10-16-01

Comment Letter Date:

Y ☐ N ☐

Reviewer:

Approved:

[illegible]

TIER 2 REPORT CHECKLIST

☒ Printed from the software

- ☒ ☒ Report Cover Sheet. Signed by certified groundwater professional and responsible party 1
- ☒ Tier 2 Report Checklist 2-3

Summary Sheets:

- ☒ ☒ Tier 2 Data Before Modeling 4
- ☒ ☒ Site Hydrogeology 5
- ☒ ☒ Preliminary Pathway Evaluation Requirements 6
- ☒ ☒ Tier 2 Receptor Summary 7-8

Report Body:

- ☒ Sampling Results (☒ pages 10-12) 9-13
- ☒ Receptor Survey -- Groundwater Well Survey 14
- ☒ Receptor Survey -- Affected Property Owner Table 15
- ☐ Receptor Survey -- Commingled Plume Discussion 16
- ☐ Receptor Survey -- Off-Site Contamination Source Support Discussion 16
- ☐ Free Product 16
- ☒ Receptor Survey -- Enclosed Space Survey 17
- ☒ Receptor Survey -- Surface Water Survey 18
- ☒ Risk Justification and Corrective Action Proposed 19-20
- ☒ ☒ Monitoring Plan 21-22

☒ Pathway Assessment Attachments:

Groundwater Pathways: If a receptor type must be evaluated, check the box at the left and include the Receptor ID (Identification) Map. If any potential or actual receptors are identified by the Receptor ID Map, the Receptor Evaluation Map (for each applicable chemical for each receptor) and SSTL Table (for each receptor) must be provided in the corresponding appendix. Check the boxes in the table for those items attached.

Pathway	Receptor ID Map	Receptor Evaluation Map						SSTL Tables
		B	T	E	X	D	WO	
<input type="checkbox"/> 1a. GW Ingestion - Drinking Water Wells								
<input type="checkbox"/> 1b. GW Ingestion - Nondrinking Water Wells								
<input type="checkbox"/> 2. GW Ingestion - Protected GW Source								
<input type="checkbox"/> 3a. GW Vapor - Confined Space Residential								
<input type="checkbox"/> 3b. GW Vapor - Confined Space Nonresidential								
<input type="checkbox"/> 4. GW Vapor - Potential Confined Space								
<input type="checkbox"/> 5a. GW Vapor - Sanitary Sewer Residential								
<input type="checkbox"/> 5b. GW Vapor - Sanitary Sewer Nonresidential								
<input type="checkbox"/> 6. GW Vapor - Potential Sanitary Sewer								
<input type="checkbox"/> 7. GW to Plastic Water Line								
<input type="checkbox"/> 8. Surface Water								

Soil Leaching Pathways: Check the box at the left if this receptor type must be evaluated. The Receptor ID (Identification) Map and Soil SSTL Table (for each receptor) must be provided in the corresponding appendix.

Pathway	Receptor ID Map	Soil SSTL Table
<input type="checkbox"/> 9-1a. Soil Leaching to GW Ingestion - Drinking Water Wells		
<input type="checkbox"/> 9-1b. Soil Leaching to GW Ingestion - Nondrinking Water Wells		
<input type="checkbox"/> 9-2. Soil Leaching to GW Ingestion - Protected GW Source		
<input type="checkbox"/> 9-3a. Soil Leaching to GW Vapor - Confined Space Residential		
<input type="checkbox"/> 9-3b. Soil Leaching to GW Vapor - Confined Space Nonresidential		
<input type="checkbox"/> 9-4. Soil Leaching to GW Vapor - Potential Confined Space		
<input type="checkbox"/> 9-5a. Soil Leaching to GW Vapor - Sanitary Sewer Residential		
<input type="checkbox"/> 9-5b. Soil Leaching to GW Vapor - Sanitary Sewer Nonresidential		
<input type="checkbox"/> 9-6. Soil Leaching to GW Vapor - Potential Sanitary Sewer		
<input type="checkbox"/> 9-7. Soil Leaching to GW to Plastic Water Line		
<input type="checkbox"/> 9-8. Soil Leaching to Surface Water		

☐ 10. ☐ Soil Vapor to Enclosed Space. If this pathway must be evaluated, check the box at the left and provide the Soil Vapor Map.

☐ 11. ☐ Soil to Plastic Water Line. If this pathway must be evaluated, check the box at the left and provide the Soil to Plastic Water Line Map.

Bedrock Pathway Assessment Attachments:

☐ A. Justification for Bedrock Type

☐ B. Hydrogeologic Cross-section

☐ C. ☐ Hydraulic Conductivity and Total Dissolved Solids Table(s)

<input type="checkbox"/> Pathway	B	T	E	X	TEH - D	TEH - WO
<input type="checkbox"/> 1. GW Ingestion - Actual Map						
<input type="checkbox"/> 2. GW Ingestion - Potential Map						
<input type="checkbox"/> 3. Soil Gas Plume Map						
<input type="checkbox"/> 7. GW to Plastic Water Line Map						
<input type="checkbox"/> 8. Surface Water Map						
<input type="checkbox"/> 9. Soil Leaching Map						
<input type="checkbox"/> 10. Soil Vapor Map						
<input type="checkbox"/> 11. Soil to Plastic Water Line Map						

Other Maps:

☐ 12. ☐ Groundwater Summary Corrective Action Map

☐ 13. ☐ Soil Summary Corrective Action Map

☐ 14. Monitoring Plan Map (Monitoring Not Proposed)

☒ 15. Landowner Map

☒ 16. X, Y Coordinates Map (on a Site Map)

☐ 17. Zoning Documentation (Documentation Not Required)

☒ 18. ☐ Groundwater Source Width/Length Map

☒ 19. ☐ Soil Source Width/Length Map

☒ 20. ☐ Soil Contamination Plume Map

☒ 21. ☐ Groundwater Contamination Plume Map

☒ 22. Groundwater Flow Direction Map

☒ 23. Well Survey Map

☒ 24. Enclosed Space and Conduit Map

☒ 25. Surface Water Map

Other Appendices:

☒ 26. Laboratory Data Sheets / Chromatograms

☐ 27. Construction Diagrams for Soil Vapor Mon. Wells

☒ 28. Soil Boring Logs/Mon. Well Construction Diagrams

☐ 29. Well Logs (drinking and non-drinking water wells)

☐ 30. Off-Site Contamination Source Support Data

☒ 31. Tier 1 Selected Information

☒ Pages 5, 6 and 10 of the Report Body

☒ Appendix 1 - Topographic Site Map

☒ Appendix 4 - Field Screening Map

☐ App. 11 - Tank Tightness Test Results
(No active tank system on site)

☒ Appendix 14 - "K" Measurements

☐ 32. **Corrective Action Documentation - optional**

☐ Declaration of Restrictive Covenants / Institutional Controls

☐ Abandoned Water Well Plugging Record(s)

☐ Water Supply (IDNR) / Designated County Agent Notification

☐ Report of Plastic Water Line Removal and / or Relocation

☐ Utility Company Notification

☐ Sanitary Sewer Notification

☐ Report of Excavation Activities and, if applicable, completed Land Application Notification Form.

☒ Computer Disk

TIER 2 DATA BEFORE MODELING

9LTI57

Free Product Present? No	Groundwater encountered? Yes	SCR conversion? No
TEH-diesel required? Yes	TEH-waste oil required? Yes	Bedrock: No,

Analytical Data							
Groundwater Maximums				Soil Maximums			
	Date	B/MW #	Concentration (ug/L)		Date	B/MW #	Concentration (mg/kg)
B	06/21/2001	MW1	<1.	B	09/04/2001	Bank-RB	<0.005
T	06/21/2001	MW1	<1.	T	12/18/1998	UST	23.
E	06/21/2001	MW1	<1.	E	12/18/1998	UST	9.9
X	06/21/2001	MW1	<3.	X	12/18/1998	UST	63.
TEH d	06/21/2001	MW1	<380.	TEH d	09/04/2001	Bank-RB	<10.
TEH wo	06/21/2001	MW1	<380.	TEH wo	05/02/2001	MW2	81.

Soil Gas	Benzene		Toluene		Ethylbenzene		TEH d	
	Sampled Soil Gas	Result	Sampled Soil Gas	Result	Sampled Soil Gas	Result	Sampled Soil Gas	Result
Soil Source	No		No		No		No	
Groundwater Source	No		No		No		No	

Initial Receptor Evaluation		
Ingestion-Actual	Water supply well survey within 1,000 ft? Yes	
	Drinking water wells within 1,000 ft? No	
	Non-drinking water wells within 1,000 ft? Yes	
Ingestion-Potential	Protected groundwater source? No	Maximum K: 0.004 (0.004) m/d
	Institutional control within 1,000 feet? No	Minimum TDS: () mg/L
Vapors	Explosive vapor levels within 500 ft? No	
	Institutional control within 500 feet? GW Sources: No Soil Sources: No	
Plastic water lines	Shallowest depth to groundwater? 4.83 (4.83) feet	
	Plastic water line within 200 feet of source? Yes	
Surface water	Designated use segment within 500 feet? Yes	Designation(s):B(WW)
	Any surface water within 200 feet? Yes	Pass visual inspection? Pass

Site Name: Lateke Sports Center

V-2.40, 9LT157

Site Hydrogeology

Flow/Migration

Head gradient (i, ft/ft)	0.0178
Hydraulic conductivity (K, m/day)	0.004
MAIN PLUME/FLOW(degrees)	160
RANGE of Plume/FLOW (degrees)	150
Upgradient (fraction)	0.200

Source Dimensions

Groundwater Plume Source Width (Sw-GW) (ft)	398
Soil Plume Source Width (Sw-Soil) (ft)	398
Groundwater Plume Source Length (W-GW) (ft)	400
Soil Plume Source Length (W-Soil) (ft)	406

Soil Parameters

		<u>Default</u>
Fraction organic carbon (foc) (g-C/g-Soil)	0.01	0.01
Total Porosity (Qt)(cm ³ /cm ³ -Soil)	0.3	0.3
Soil bulk density (ps)(g/cm ³ -Soil)	1.86	1.86

Tier 2 Data Before Modeling Justification Section

Justification must be provided if diesel and/or waste oil was stored at the site and the answer given for the following question is "No": "TEH-diesel required?" and /or "TEH-waste oil required?". Justification must also be provided if the answer to "Groundwater encountered?" was answered "No" or anytime an answer given may not be obvious to the IDNR.

Based upon the historical nature of activities reported at the site, soil and groundwater samples were analyzed for the presence of petroleum compounds utilizing Iowa Methods OA-1 and OA-2.

The only water sample collected at this site, prior to commencement of this RBCA assessment, was a surface water sample from the Joyce Slough that is located approximately 10' east of the former UST pit. The water sample was collected approximately three years ago upon the discovery of release. The analytical data is included with this submittal but was ignored in the Tier 2 software because the sample was not collected from a properly constructed groundwater monitoring well. The values are below the current IDNR action levels for the Surface Water Pathway.

The benzene soil source was identified as a surface soil sample collected from the river bank approximately three years ago and also upon the discovery of release. A replacement boring was advanced at this location during the course of this assessment. Further details regarding the replacement boring are included herein on page 9 - Soil Boring and Monitoring Well Placement. The analysis of soil at the replacement boring location was below pathway specific target levels and the percent reduction factor was applied to a prior soil sample that was collected at the former tank pit.

Site Hydrogeology Justification Section

Explain which points were used to determine the gradient at the site. If necessary for clarification, provide justification for the variables used in the Site Hydrogeology section here.

The hydraulic conductivity was calculated from data acquired from MW2 and MW3 during the course of this assessment. The rate of recovery was similar at both locations. A maximum K value of 0.004, calculated for the location of MW2, was used in the Tier 2 software. The hydraulic conductivity at MW1 was not evaluated due to the near proximity of a septic tank.

Groundwater elevation data collected on 6/21/01 was used in the calculation of head gradient at the site. A measurement of values between MW1/MW2 (0.0038), MW1/MW3 (0.0184) and MW2/MW3 (0.0313) yielded an average value of 0.0178.

Groundwater flow direction is concluded to be highly variable based upon the location of the site and its relative proximity to the adjacent river channel. Based upon this conclusion, a range of plume/flow of 150 degrees was entered into the Tier 2 software.

Site Hydrogeology Justification Section

The maximum source width (Sw) and source length (W) estimations for soil and groundwater that were generated by the Tier 2 software were used in this assessment.

PRELIMINARY PATHWAY EVALUATION REQUIREMENTS

9LT157

X=Evaluation Required (A receptor identification plume must be generated.)

Pathway	Receptor Type	B	T	E	X	TEHd	TEHwo
---------	---------------	---	---	---	---	------	-------

Groundwater Pathways

Groundwater Ingestion	Drinking Water Wells-DWW	S<TL	S<TL	S<TL	S<TL	S<TL	S<TL
	Nondrinking Water Wells-NDWW	S<TL	S<TL	S<TL	S<TL	S<TL	S<TL
	Protected Groundwater Source-PGWS	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)

Groundwater Vapor to Enclosed Space	Confined Space Residential-CSR	S<TL	S<TL	S<TL	N/A	S<TL	N/A
	Confined Space Nonresidential-CSNR	S<TL	S<TL	S<TL	N/A	S<TL	N/A
	Sanitary Sewer Residential-SSR	S<TL	S<TL	S<TL	N/A	S<TL	N/A
	Sanitary Sewer Nonresidential-SSNR	S<TL	S<TL	N/A	N/A	S<TL	N/A

Groundwater to Plastic Water Line	Plastic Water Lines(PWL)	S<TL	S<TL	S<TL	S<TL	S<TL	S<TL
-----------------------------------	--------------------------	------	------	------	------	------	------

Surface Water	DU-Cold Water-B(CW)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Warm Water-B(WW)	S<TL	S<TL	S<TL	N/A	S<TL	S<TL
	DU-Limited Resources-B(LR)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Lakes & Wetlands-B(LW)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Drinking Water-C	RNP	RNP	RNP	RNP	RNP	RNP
	DU-State-Owned Lake	RNP	RNP	RNP	RNP	RNP	RNP
	AT-All Surface Water	VIP	VIP	VIP	VIP	VIP	VIP
	AT-Ponds & Lakes	VIP	VIP	VIP	VIP	VIP	VIP

Soil Leaching Pathways

Soil Leaching to Groundwater Ingestion	Drinking Water Wells-DWW	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Nondrinking Water Wells-NDWW	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Protected Groundwater Source-PGWS	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)	NAR(NP)

Soil Leaching to Groundwater Vapor to Enclosed Space	Confined Space Residential-CSR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Confined Space Nonresidential-CSNR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Sanitary Sewer Residential-SSR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Sanitary Sewer Nonresidential-SSNR	SS<STL	SS<STL	N/A	N/A	SS<STL	N/A

Soil Leaching-GW to Plastic Water Line	Plastic Water Lines(PWL)	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
--	--------------------------	--------	--------	--------	-----	--------	-----

Soil Leaching to Surface Water	DU-Cold Water-B(CW)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Warm Water-B(WW)	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	DU-Limited Resources-B(LR)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Lakes & Wetlands-B(LW)	RNP	RNP	RNP	RNP	RNP	RNP
	DU-Drinking Water-C	RNP	RNP	RNP	RNP	RNP	RNP
	DU-State-Owned Lake	RNP	RNP	RNP	RNP	RNP	RNP
	AT-All Surface Water	VIP	VIP	VIP	VIP	VIP	VIP
	AT-Ponds & Lakes	VIP	VIP	VIP	VIP	VIP	VIP

Other Soil Pathways

Soil Vapor to Enclosed Space	Confined Space Residential-CSR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Confined Space Nonresidential-CSNR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Sanitary Sewer Residential-SSR	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
	Sanitary Sewer Nonresidential-SSNR	SS<STL	SS<STL	N/A	N/A	SS<STL	N/A

Soil to Plastic Water Line	Plastic Water Lines(PWL)	SS<STL	SS<STL	SS<STL	N/A	SS<STL	N/A
----------------------------	--------------------------	--------	--------	--------	-----	--------	-----

Preliminary Pathway Evaluation Requirements Legend

X: Evaluation required. X (FSG): Evaluation required, failed soil gas at source.

NAR: No Action Required.

CNE: Can not evaluate, questions have not been answered for receptor type.

N/A: Chemical is not applicable.

NSC: No source concentration for the chemical.

S<TL: GW Source \leq GW Target Level.

NAR(NP): Not a PGWS.

NAR(IC): IC for Enclosed Spaces within 500 feet of GW/Soil sources.

NAR(SG): Soil gas passed at GW/Soil source.

NAR(P1): Well survey done, no DWWs, no NDWWs, not a PGWS.

NAR(P2): Well survey, no DWWs, no NDWWs, PGWS, IC within 1000 feet.

NAR(P3): Well survey, no DWWs, NDWW plume(s) \leq 1000 feet.

NAR(P4): Well survey, no NDWWs, NDWW plume(s) \leq 1000 feet.

NAR(P5): PGWS, IC for PGWS, PGWS plume(s) \leq 1000 feet.

NAR(P6): Depth to GW \geq 20 feet.

NGU: There are no general use surface water bodies with 200 feet of the sources.

RNP: User has indicated (DU/GU) is not present within (500/200) feet.

VIP: Visual Inspection Passed.

SS<STL: Soil source \leq Tier 2 soil default target level.

S<TL(GW): Modeled GW at Soil Source \leq GW Target Level.

GROUNDWATER SOURCE, TIER 2 RECEPTOR SUMMARY

V-2.40, 9LT157

GROUNDWATER SOURCE, TIER 2 RECEPTOR SUMMARY											
Type	Receptor	RISK						Conf.	Corrective Action(s) Completed	Current Risk	To Tier 3
		Group I				TEH					
		B	T	E	X	D	W				
PGWS	No-IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO
PGWS	IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO
PCS	No-IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO
PCS	IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO
PSS	No-IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO
PSS	IC	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	N(PE)	No	--	N	NO

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

SOIL VAPOR/SOIL TO PLASTIC WATER LINE, TIER 2 RECEPTOR SUMMARY

V-2.40, 9LTI57

SOIL VAPOR/SOIL TO PLASTIC WATER LINE, TIER 2 RECEIPT FOR SUMMARY											
Type	Receptor	RISK						Conf.	Corrective Action(s) Completed	Current Risk	To Tier 3
		Group I				TEH					
		B	T	E	X	D	W				
PCSR	Source, SV	N	N	N	N/A	N	N/A	NO	--	N	NO
PCSNR	Source, SV	N	N	N	N/A	N	N/A	NO	--	N	NO
PSSR	Source, SV	N	N	N	N/A	N	N/A	NO	--	N	NO
PSSNR	Source, SV	N	N	N/A	N/A	N	N/A	NO	--	N	NO
PPWL	Source, Soil to PWL	N	N	N	N/A	N	N/A	NO	--	N	NO
Corrective Actions:											
1. Plugged drinking water wells				5. Notified sanitary sewer public authority				9. Established institutional controls			
2. Plugged non-drinking water wells				6. Notified utility company-plastic water line				10. Conducted soil excavation			
3. Notified IDNR Water Supply Section				7. Relocated plastic water lines				11. Cleared with soil gas			
4. Notified designated county authority				8. Replaced plastic water lines							

SOIL LEACHING, TIER 2 RECEPTOR SUMMARY
V-2.40, 9LTI57

SOIL LEACHING, TIER 2 RECEIPTS FOR SUMMARY											
Type	Receptor	RISK						Conf.	Corrective Action(s) Completed	Current Risk	To Tier 3
		Group I				TEH					
		B	T	E	X	D	W				
PGWS	No-IC	N(1)	N(1)	N(1)	N/A	N(1)	N/A	No	--	N	NO
PGWS	IC	N	N	N	N	N	N	No	--	N	NO
PCS	No-IC	N	N	N	N	N	N	No	--	N	NO
PCS	IC	N	N	N	N	N	N	No	--	N	NO
PSS	No-IC	N	N	N	N	N	N	No	--	N	NO
PSS	IC	N	N	N	N	N	N	No	--	N	NO
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											

Soil Leaching, Tier 2 Risk Classification Legend

L: Low Risk.

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

H: High Risk.

N: No action required, or no receptors present for potential receptors.

N/A: Chemical not applicable for soil.

NSC: No Source Concentration.

N(1): Soil source \leq Tier 2 Default.

N(2): Modeled GW at Soil Source \leq GW TL.

N(3): Modeled GW at Receptor \leq GW TL.

N(4): Chemical not applicable for GW.

N(PE): No action required, based on Preliminary Pathway Evaluation.

Sampling Results:

Sample Identification	MW1		MW2		MW3		Bank-RB					
Date Sampled	05/02/01		05/02/01		05/02/01		09/04/01					
Depth of Reading (ft.)	Depth	PID	Depth	PID	Depth	PID	Depth	PID	Depth	PID	Depth	PID
Ground Surface	0		0		0		0	0 **				
	1	0	1	0	1	0	1	0				
	2		2		2		2	0				
	3	0	3	0	3	0	3	0				
	4		4		4		4	0				
	5	0	5	0	5	0	5	0				
	6		6		6							
	7	0	7	0	7	0						
	8		8		8							
	9	0 **	9	0 **	9	0 **						
	10 v		10 v		10 v							
	11	0	11	0	11	0						
	12		12		12							
	13	0	13	0	13	0						
	14		14		14							
	15	0	15	0	15	0						
Total Depth of Boring	15'		15'		15'		5'					

Soil Boring and Monitoring Well Placement. Describe soil and groundwater sampling methods. Explain why those samples selected for laboratory analysis represent the highest contamination concentrations encountered during soil boring / monitoring well installation. Explain why the source(s) has been adequately investigated. If groundwater samples were obtained from wells with free product, describe the method used to collect the samples.

Gasoline was confirmed to have been stored at the site (please see Attachment 31). Due to the nature of historical activity, waste oil or diesel may also have been stored at the site. A surface water sample and a surface soil sample were collected upon the release (12/1/98). An additional soil sample was collected from the base of the former UST pit at the time of tank closure (12/16/98).

During the course of Tier 2 RBCA site assessment activities, three soil boring/permanent monitoring wells were installed - MW 1 (advanced approximately 7' south of the former tank location), MW 2 (advanced approximately 35' north of the former tank location), and MW3 (advanced approximately 15' north of the former tank location). Drilling activity was inhibited by the presence of an overhead deck extending over the location of the former tanks and a sharp and rocky decline extending east to the river bank from the former tank pit.

There were no contamination levels exceeding pathway-specific target limits for any of the soil boring/permanent monitoring well locations advanced during the course of the Tier 2 RBCA assessment. The benzene soil source was identified as the location of the surface soil sample collected from the river bank upon the discovery of a release at the site. The surface soils along the riverbank and downgradient of the former tank location were closely examined for any indication of petroleum contamination by visual and olfactory observations - there were none. Based upon the reported location of the soil sample collected by IDNR personnel, a replacement boring (RB) was advanced within a five-foot radius of the original sample location in an attempt to evaluate the current contaminant levels. The boring was advanced using hand-auger equipment due its inaccessibility to truck-mounted equipment. The RB was terminated at approximately 5' below ground surface based upon non-detect readings by use of a photoionization detector (PID) and the presence of coarse gravel, broken brick and large concrete rubble buried into the soil of the river bank. The soil sample collected at the RB location was 0-1' below ground surface. The analysis of soil at the RB location was below current, pathway-specific Tier 1 target levels. A percent reduction factor (0.002) was then applied to the soil sample data acquired at the former UST pit. The reduced value is represented in the data summary as "UST (Red)" and dated 09/04/01 - the date upon which the RB was advanced.

Soil and groundwater sampling activities were conducted in accordance with Tier 1 Guidance and generally accepted industry practices. A PID, visual and olfactory observations were utilized to assist in the selection of soil samples to be submitted for laboratory analysis. Monitoring wells were purged of approximately three well volumes of water using dedicated bailers, string, and clean, Nitrile gloves. The soil and groundwater samples were placed into laboratory-supplied containers and placed into iced storage for delivery to a certified laboratory. Soil and groundwater samples were analyzed using Iowa Methods OA-1 and OA-2.

Tier 2 Soil Analytical Data (mg/kg), V-2.40, 9L/T157														
Boring/ Well #	Date Sampled	Elevations(ASL)			Group 1					Group 2			Naph.	TPH
		Ground	Sample	SWL	B	T	E	X	TEH-D	TEH-WO				
UST	12/18/1998	586.	579.	N	1.6	23.	9.9	63.	N	N	N	N	N	
UST (Red)	09/04/2001	586.	579.	N	0.002	N	N	N	N	N	N	N	N	
Bank Sample	12/01/1998	579.	580.	580.	3.2	41.	9.7	91.	N	N	N	N	N	
Bank-RB	09/04/2001	580.	579.5	N	<0.005	<0.005	<0.005	<0.015	<10.	26.9	N	N	N	
MW1	05/02/2001	586.72	577.72	576.72	<0.005	<0.005	<0.005	<0.015	<10.	<10.	N	N	N	
MW2	05/02/2001	586.84	577.84	576.84	<0.005	<0.005	<0.005	<0.015	<10.	81.	N	N	N	
MW3	05/02/2001	586.61	577.61	579.61	<0.005	<0.005	0.173	0.267	<10.	<10.	N	N	N	

Tier 2 Groundwater Analytical Data (ug/L), V-2.40, 9LTI57													
Boring/ Well #	Date Sampled	Elevations(ASL)				Group 1				Group 2		Naph.	FP Type
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
Surf Water	12/01/1998	N	N	N	N	8.	48.	24.	990.	N	N	N	N
MW1	06/21/2001	586.72	586.22	583.72	580.80	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW2	06/21/2001	586.84	586.44	583.84	581.88	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW3	06/21/2001	586.61	586.36	583.61	581.78	<1.	<1.	<1.	<3.	<380.	<380.	N	N

[illegible]

Soil Gas Analytical Data

Complete the table below with soil gas analytical data for each vapor sampling point. Group sampling events by location then arrange chronologically with the oldest data first.

Sample Label	Receptor Evaluated	Date Sampled	Elevations (feet Above Sea Level)			Benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)
			Ground Surface	Soil Vapor Sample	Static Groundwater		

Soil Gas Sampling Methods. If soil gas measurements were taken, describe the soil gas sampling methods and explain why the methods provide representative samples. Attach construction diagrams for each soil vapor monitoring well (Appendix 27).

Soil gas samples have not been collected at this site.

Soil Gas Sampling Location Justification. Explain why the location of each vapor sample is adequate for evaluating the identified actual receptors. Indicate which chemicals of concern exceed soil and groundwater target levels, and whether the source locations have been evaluated as potential receptors using soil gas results.

Soil gas samples have not been collected at this site.

Indoor Vapor Analytical Data

Complete the table below with indoor vapor analytical data for each enclosed space receptor sampled. Group sampling events by location then arrange chronologically with the oldest data first.

Receptor Evaluated	Date Sampled	Elevations (feet Above Sea Level)			Benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)
		Ground Surface	Basement Floor	Static Groundwater		

Indoor Vapor Sampling. If indoor vapor measurements were taken, describe the sampling methods and explain why the methods provide representative sample.

Indoor vapor samples have not been collected at this site.

Groundwater Elevations

Identify the methodology and device used to determine static groundwater levels. Explain any anomalous measurements or fluctuations in water levels with special emphasis on those which may alter general groundwater gradient or flow direction.

A Solinst water depth meter was used to collect all static water elevations. Anomalous water level measurements were not observed, however, groundwater elevations at the site are likely influenced by the dynamic elevations of the adjacent river channel.

Describe the benchmark used to survey for groundwater surface elevations, including its location and elevation.

The benchmark used in the elevation survey of this site is the top of the fire hydrant located at the southwest corner of 11th Avenue North and Roosevelt Streets. Its elevation is 599.94 above mean sea level.

If water levels were corrected due to the presence of free product, describe the method used to determine the static water level.

Free product has not been observed at this site.

RECEPTOR SURVEY:

Groundwater Well Survey								
Well Number as identified on Groundwater Well Survey Map	Custom Pack (#1)							
Well Status								
Active	[X]	[]	[]	[]	[]	[]	[]	[]
Abandoned	[]	[]	[]	[]	[]	[]	[]	[]
Plugged	[]	[]	[]	[]	[]	[]	[]	[]
According to Chapter 39	[]	[]	[]	[]	[]	[]	[]	[]
Not according to Chapter 39	[]	[]	[]	[]	[]	[]	[]	[]
Well Use								
Municipal Well	[]	[]	[]	[]	[]	[]	[]	[]
Private Drinking Well	[]	[]	[]	[]	[]	[]	[]	[]
Production Well	[X]	[]	[]	[]	[]	[]	[]	[]
SIC Code	Unknown							
Other:	[]	[]	[]	[]	[]	[]	[]	[]
Static Water Level Elevation	Unknown							
Well Depth Elevation	Unknown							
Well Diameter	Unknown							
Casing Material	Unknown							
Screened Interval	Unknown							
Well Log Provided?	Yes	[]	[]	[]	[]	[]	[]	[]
	No	[x]	[]	[]	[]	[]	[]	[]
Well owners and locations. Provide the name and address of each well owner.								
Well Number - Well Owner Name	Address			City		State	Zip Code	
Custom Pack	1101 11 Avenue S			Clinton		Iowa	52732	
Public Entities. Provide the name and address for each public entity contacted to determine well locations and details. Indicate the date each public entity was contacted.								
<p>A well search request was submitted to Iowa Department of Natural Resources, <u>Iowa Geological Survey Bureau</u>, 109 Trowbridge Hall, Iowa City, Iowa, 52242-1319 on 2/20/01. There were no wells reported as a result of the inquiry.</p> <p>Don Pfeifle, Operations Supervisor of <u>Iowa American Water Company</u> (P.O. Box 1358, Clinton, Iowa, 52733-1358), was contacted by telephone (563-242-0433) on 9/12/01 with regard to the presence of wells within 1000' of the site. He reported that there are no municipal wells within 1000' of the site. He indicated the possibility of a production well in the area and suggested calling the facility known as <u>Custom Pack</u> for further detail.</p> <p>Robert Summers, <u>Well Authority of Clinton County</u> (329 E. 11th St., DeWitt, Iowa, 52742), was contacted by telephone (563-659-8148) on 9/18/01 with regard to the presence of wells within 1000' of the site. He indicated that he was unaware of any in the area.</p> <p>Tim Arvola, Maintenance employee of <u>Custom Pack</u> (1131 11th Avenue S, Clinton, Iowa, 52732), was contacted by telephone (563-244-5116) on 9/14/01 with regard to the presence of wells within 1000' of the site. He indicated the presence of a production well (reportedly not used for any consumption purpose) at their facility on the northwest corner of 11th Avenue S and Roosevelt Street. The structure that reportedly contains the well is within a very near proximity of a 1000' radius of the site. Because the exact physical of the well within the structure was not precisely determined during the course of this assessment, it is assumed that the well is within a 1000' radius for the purposes of this evaluation.</p>								
Plugging Methods. Describe the plugging method for those wells not sealed according to Chapter 567-39 IAC.								
N/A								

AFFECTED PROPERTY OWNER TABLE

List all properties within any Receptor ID Plume and under the "Z" (zoning) column, provide the zoning for each property with either "R" for residential or "NR" for nonresidential; mark "Y" or "N" regarding whether that property owner was contacted to determine if there is a drinking or non-drinking water well on their property; and provide the date the property owner was contacted. This page may be duplicated.

	Z	Property Owner Name	Property Address	Owner Mailing Address
1	NR	Kerry Kahler	1209 Roosevelt Avenue	1209 Roosevelt Avenue Clinton, Iowa 52732
		Contacted? Yes Date: 08/15/01		
2				
		Contacted? Y/N Date: / /		
3				
		Contacted? Y / N Date: / /		
4				
		Contacted? Y / N Date: / /		
5				
		Contacted? Y / N Date: / /		
6				
		Contacted? Y / N Date: / /		
7				
		Contacted? Y / N Date: / /		
8				
		Contacted? Y / N Date: / /		
9				

Well Survey / Contact Method. Identify the method (on-site well survey or letters) for surveying the area within 300 feet of the sources or within the largest receptor identification plume (whichever is smaller). If letters were sent, provide a copy of the letter in Appendix 23 and state how many letters were sent and how many replies were received.

There were no wells identified during a 300' walkabout field survey conducted on 09/04/01.

COMMINGLED PLUME DISCUSSION

If contamination at the site appears to be commingled with another site provide the owner name and address, and if assigned by the IDNR, the Registration and LUST numbers. If the site does not have a Registration or LUST number, provide justification for an off-site source in the section below.

There is no evidence of a commingled plume.

OFF-SITE CONTAMINATION SOURCE SUPPORT DISCUSSION

Provide a detailed justification for any conclusions concerning off-site contamination sources.

There is no evidence of an off-site contamination source.

Free Product

Indicate whether free product has ever been observed at the site and in which wells. If the site has a history of free product, indicate the date the last "Free Product Recovery Report" was submitted. Discuss the status and effectiveness of the free product recovery system.

Free product has not been observed at this site.

Enclosed Space / Conduit Survey							
Conduit Number (on map)	Description (main or service?)	Construction Material	Conduit Backfill Material	Slope of Conduit	Burial Depth	Relationship to Groundwater Level	% LEL
1	Basement of Lateke Sports Center	Concrete	Likely Native	N/A	Approx. 10' bgs	Below	0
2	Storm Sewer Inlets at Roosevelt & 12 Av N	Concrete	Likely Native	East/ West	Approx. 10' bgs	Below	0
3	Combination Sanitary/Storm Main on Roosevelt St	Vitrified Clay	Likely Native	South	Approx. 10' bgs	Below	--
4	Storm Main on Roosevelt St	Concrete	Likely Native	South	Approx. 10' bgs	Below	--
5	Septic Tank at Lateke Residence	Concrete Block	Likely Native	N/A	Approx. 6' bgs	Below	--
6	Basement of Lateke Rental Property at 1221 Roosevelt St	Concrete	Likely Native	N/A	Approx. 8' bgs	Below	--
7							
8							
9							

Survey contacts. Provide the name and address for each public entity and adjacent property owner contacted to determine enclosed space and conduit details and locations. Provide the date of the most recent enclosed space / conduit survey.

Thomas Tucker, City of Clinton Engineering Dept., (611 S. 3rd St., Clinton, Iowa, 52732) was contacted by telephone (319-242-0261) on 8/10/01 with regard to the locations and construction details of storm and sanitary sewer lines in area. Dell Gruhn, Operations Supervisor of Iowa American Water Company (P.O. Box 1358, Clinton, Iowa, 52733-1358), was contacted by telephone (563-242-0433) on 8/10/01 with regard to the presence of water lines in the area. He indicated that all main lines are constructed of cast iron material and that there are no plastic water mains within 200' of the site. Kerry Kahler representative of the site (1209 Roosevelt Street, Clinton, Iowa, 52732) was questioned with regard to the presence of service lines at the site and the neighboring properties that are also under his ownership. He indicated the presence of a plastic water line and septic system serving his residence.

Vapor History. Describe any historic and current problems with vapor accumulation in confined spaces. Indicate the date(s) and where vapors were noted. Describe the measures taken to abate the condition and the current status.

There have been no reported vapor problems at this site.

Surface Water Survey			
Surface Water Name	Classification - designated or general use	Description	Visual Observations
Joyce Slough (Mississippi River)	Designated Use Class A, B(WW) A-Primary contact Recreation-Primary Body Contact B(WW)-Significant Resource-Aquatic Life	Slough of Mississippi River	No sheen observed on 09/04/01 Bank of river also closely examined – No evidence of petroleum product in soil

Surface Water Sampling Analytical Data (µg/L)							
(This previously collected data may not be used to clear the surface water pathway)							
Sample Location	Date Sampled	Group 1				Group 2	
		B	T	E	X	TEH-D	TEH-WO
Surface Water (Joyce Slough)	12/01/98	8	48	21	920	N	N

Surface Water Survey. Explain how the surface water survey was conducted. If surface water samples were collected, describe the sampling methods. Provide a justification for taking samples.

The surface water survey was conducted by a visual inspection of the area in conjunction with a review of geographical information data.

Joyce Slough (Mississippi River) is located approximately 10' feet east of the Lateke site.

John Olson, a representative of IDNR was contacted by telephone (515-281-8905) on 09/25/01 to determine the surface water classification of the Joyce Slough (as indicated above).

RISK JUSTIFICATION AND CORRECTIVE ACTION PROPOSED:

Groundwater Ingestion Pathway

DWW: The maximum measured concentrations do not exceed the Tier 1 target level for actual receptors. There are no drinking water wells located within 1000' of the groundwater source. The pathway is incomplete and NO FURTHER ACTION is required concerning the presence of actual receptors.

NDWW and PGWS: The maximum measured concentration of benzene does not exceed the Tier 1 target level for potential receptors. A non-drinking water well is assumed to be located within 1000' of the groundwater source (as further explained on page 14-Groundwater Well Survey). The maximum measured hydraulic conductivity at the site is 0.005 meters/day and the site is not categorized as a protected groundwater source. The pathway is incomplete for potential receptors and requires NO FURTHER ACTION.

Groundwater Vapor to Enclosed Space Pathway

The maximum measured concentrations do not exceed the Tier 1 target level. There were no elevated explosive vapor levels encountered in the enclosed space/conduit survey.

PCSR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

ACSR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

PCSNR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

ACSNR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

PSSR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

ASSR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

PSSNR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

ASSNR: GW sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

Groundwater to Plastic Water Line Pathway

The maximum measured concentrations do not exceed the Tier 1 target level. There was a plastic water line identified within 200' of the source. The pathway is incomplete for actual receptors and potential receptors and NO FURTHER ACTION is required.

Surface Water Pathway

The maximum measured concentrations do not exceed the Tier 1 target level. There is NO FURTHER ACTION required for this pathway.

Soil Leaching to Groundwater Pathway

The maximum measured concentrations do not exceed the Tier 1 target levels. There are no drinking water wells located within 1000' of the soil source. There is a non-drinking water well within 1000' of the soil source. The site is not categorized as a protected groundwater source.

SL to GWI-DWW: Soil sources < Target Levels. NO FURTHER ACTION required.

SL to GWI-NDWW: Soil sources < Target Levels. NO FURTHER ACTION required.

SL to GWI-PGWS: Soil sources < Target Levels. NO FURTHER ACTION required.

SL to GWVES-PCSR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-ACSR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-PCSNR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-ACSNR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-PSSR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-ASSR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-PSSNR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to GWVES-ASSNR: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to PWL: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

SL to SW: Soil sources < Target Levels. Pathway is incomplete and is classified as NO FURTHER ACTION.

Soil Vapor to Enclosed Space Pathway

The maximum measured concentrations do not exceed the Tier 1 target level.

PCSR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

ACSR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

PCSNR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

ACSNR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

PSSR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

ASSR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

PSSNR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

ASSNR: Soil sources < Tier 2 soil default target level. Pathway is incomplete and is classified as NO FURTHER ACTION.

Soil to Plastic Water Line Pathway

The maximum measured concentrations do not exceed the Tier 1 target level. There is NO FURTHER ACTION required for this pathway.

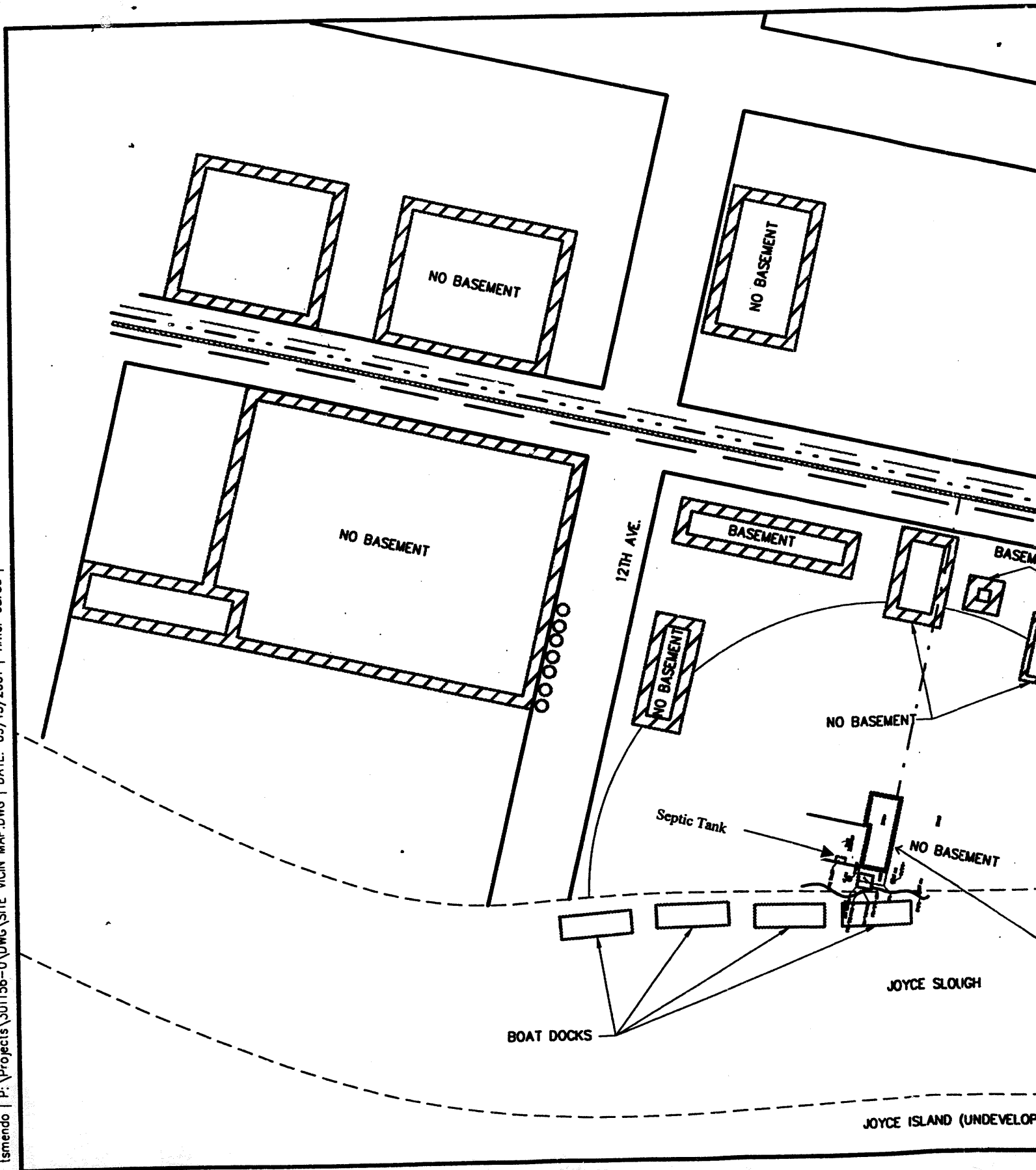
MONITORING PLAN:

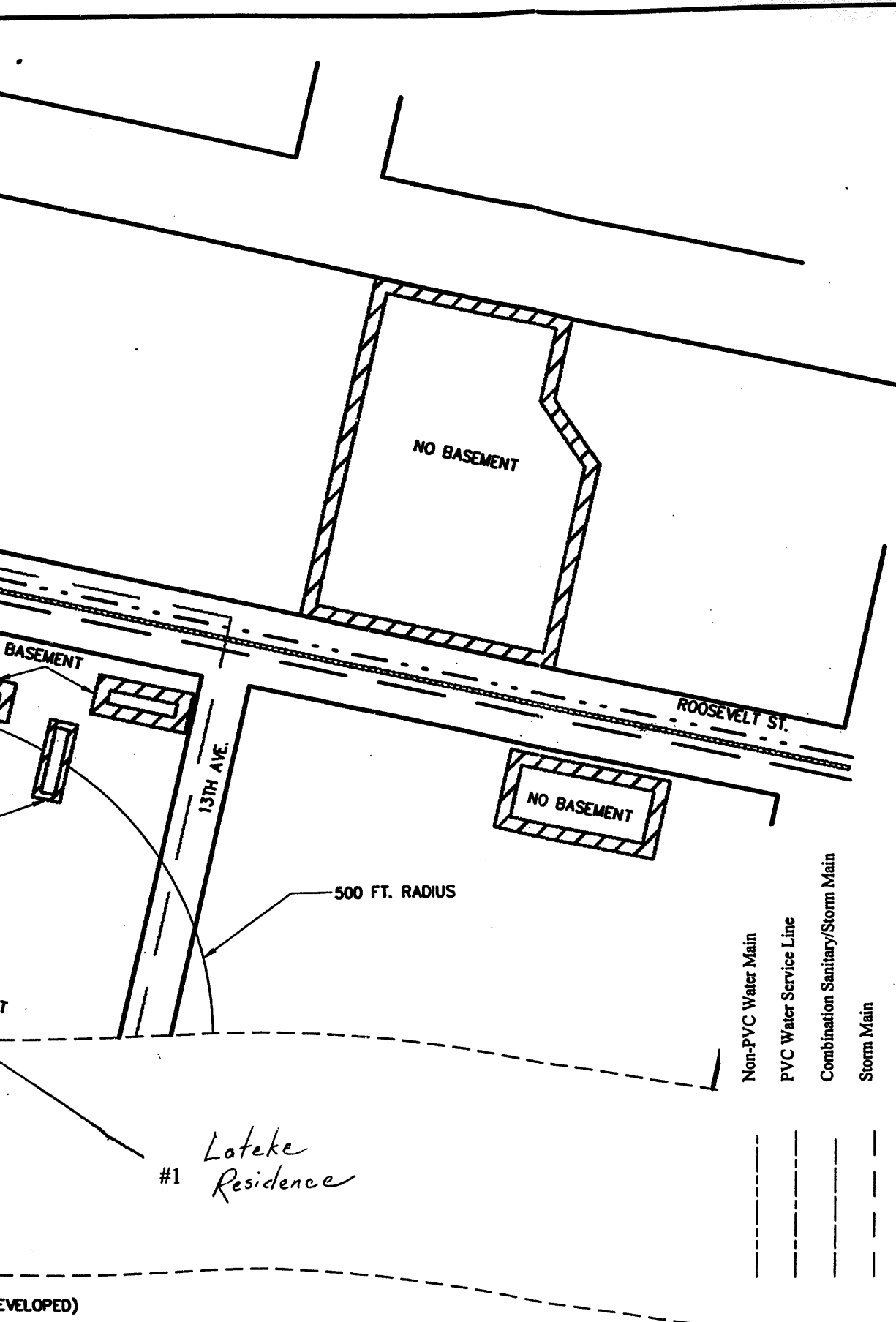
Soil Gas Monitoring Plan Comments/Justification

Soil gas monitoring is not recommended for the site.

Soil Gas Monitoring Plan Summary Table

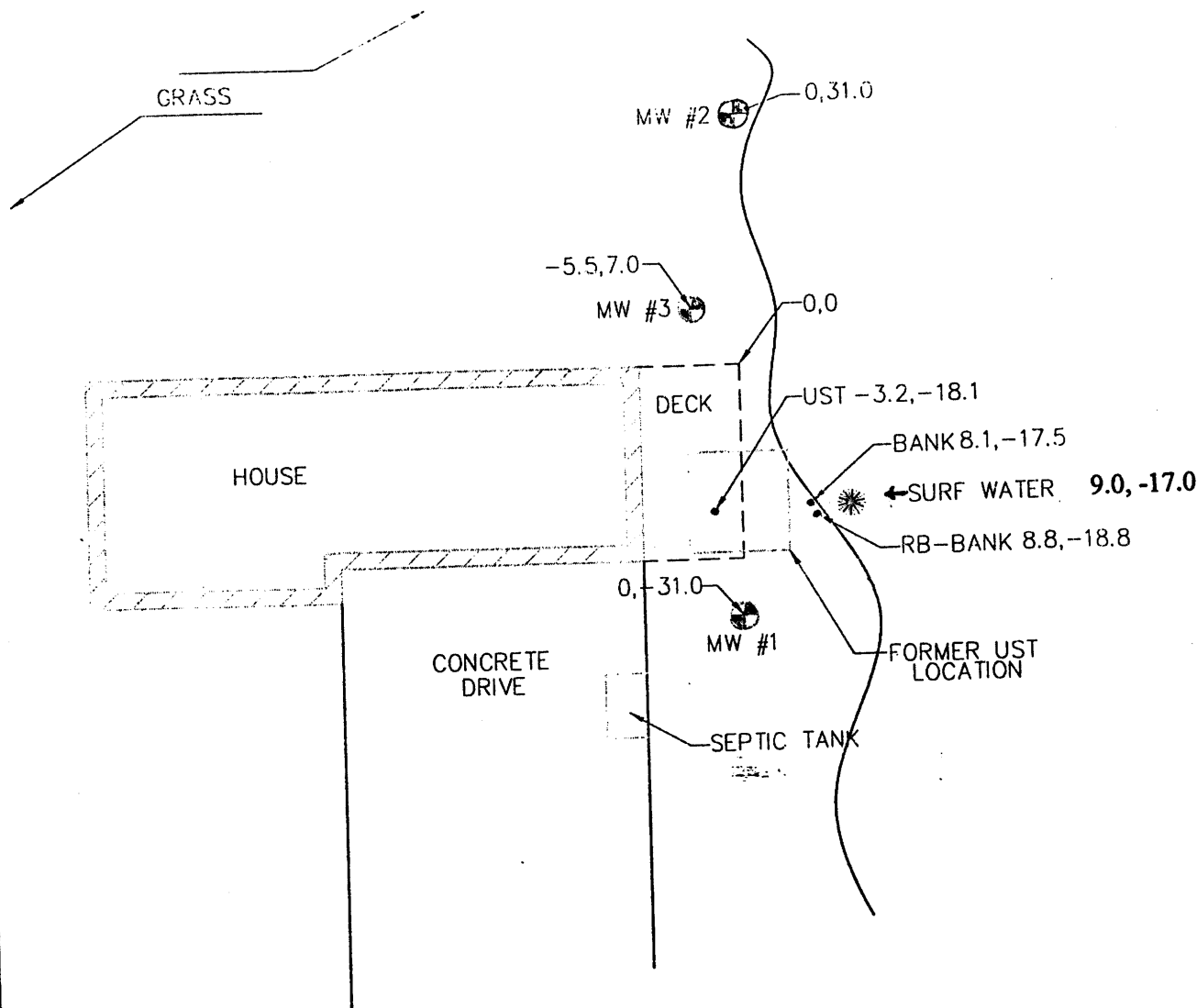
[illegible]





SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL
<http://www.shive-hattery.com>

PROJECT NO. 301156-0 LATEKE		SHEET NO. SITE	
LATEKE SPORTS CENTER LANDOWNER MAP 1209 ROOSEVELT CLINTON, IA		DATE 05/17/01	SCALE 1" = 200'
		DRAWN MDW	FIELD BOOK 37/420
		APPROVED JRF	LUST # 9L1157
PROJECT NO.		SHEET NO.	



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
X,Y COORDINATES MAP
1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
 301156-0
LATEKE

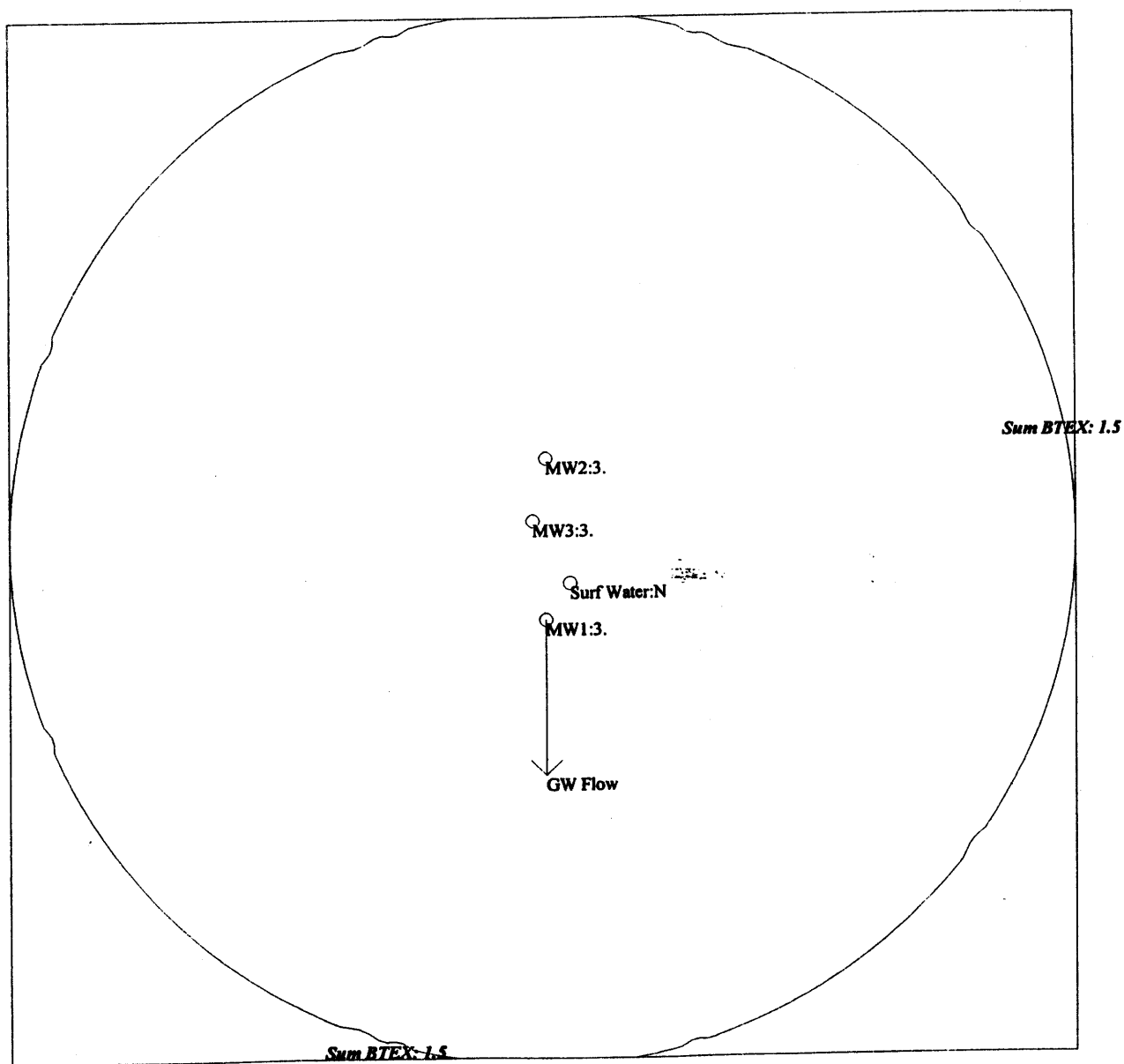
SHEET NO.

SITE

GW: Source Width and Length Estimation: Sum BTEX

V-2.40, 9LT157

Source: GW (ug/L)
Maximum Concentration: 3
Contour Concentration: 1.5
Source Width (Sw): 398. feet
Source Length (W): 400. feet

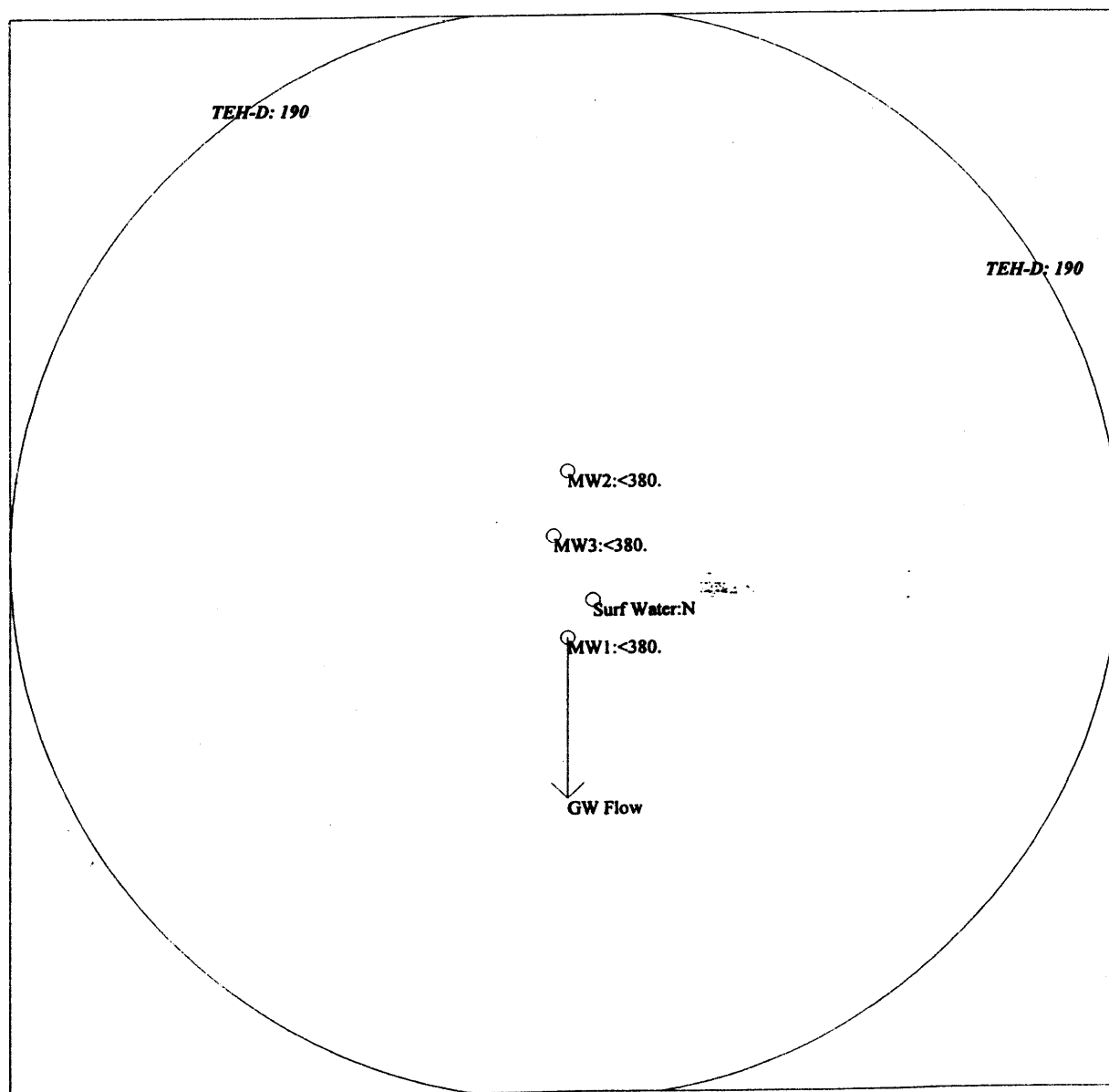


1 inch = 60 feet

GW: Source Width and Length Estimation: TEH-D

V-2.40, 9LT157

Source: GW (ug/L)
Maximum Concentration: 380
Contour Concentration: 190
Source Width (Sw): 398. feet
Source Length (W): 400. feet

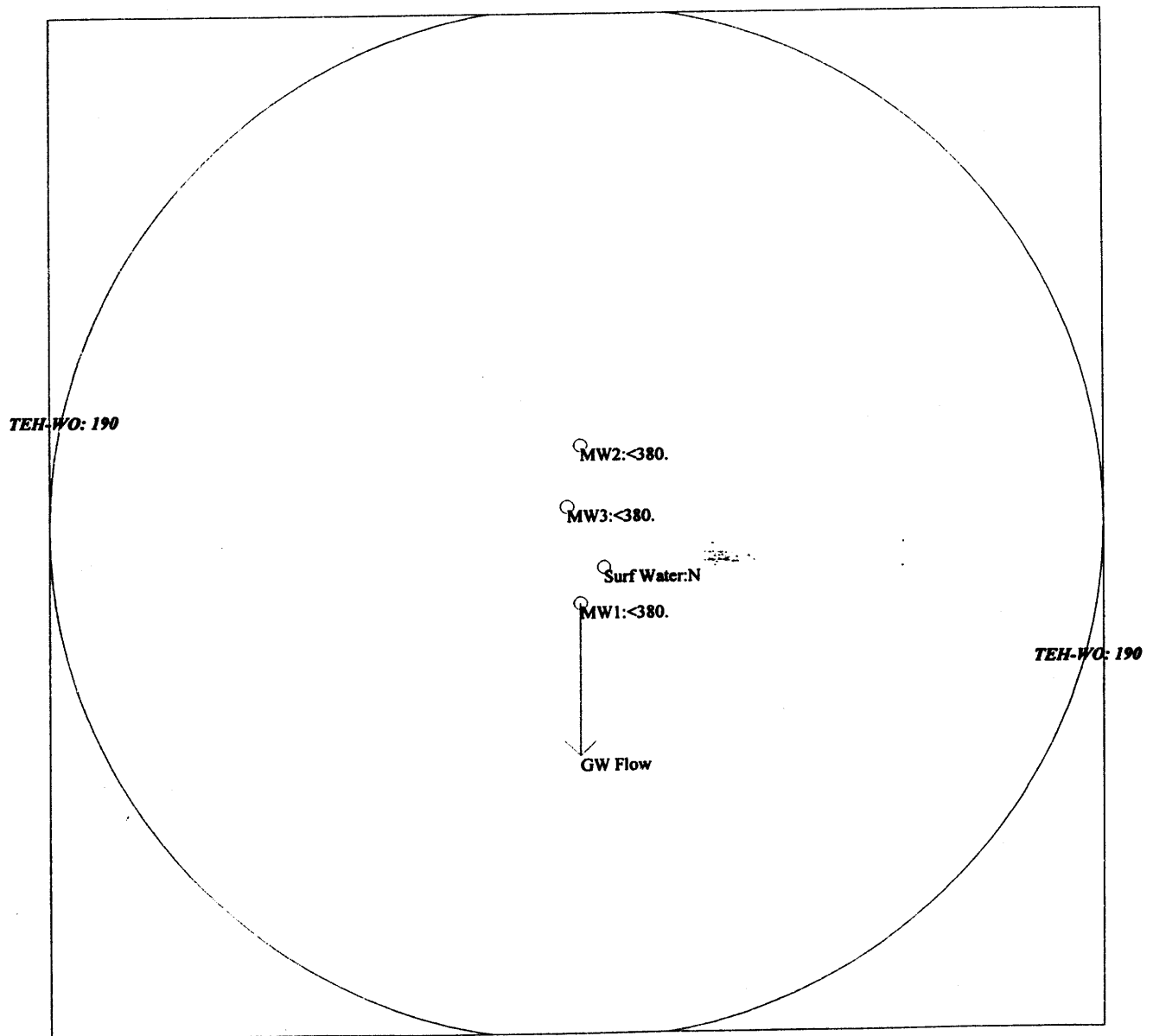


1 inch = 60 feet

GW: Source Width and Length Estimation: TEH-WO

V-2.40, 9LT157

Source: GW (ug/L)
Maximum Concentration: 380
Contour Concentration: 190
Source Width (Sw): 398. feet
Source Length (W): 400. feet

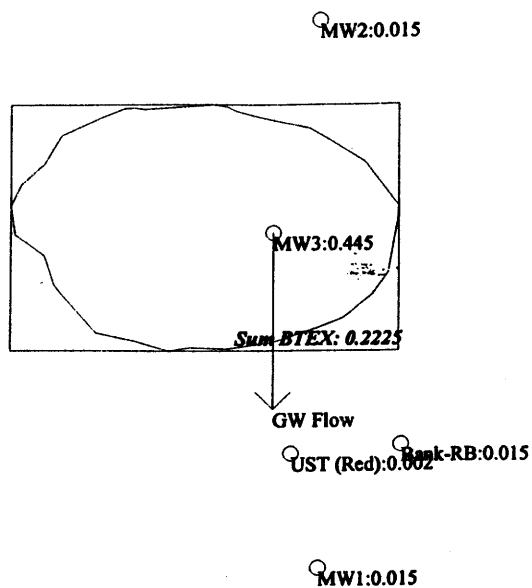


1 inch = 60 feet

Soil: Source Width and Length Estimation: Sum BTEX

V-2.40, 9LT157

Source: Soil (mg/kg)
Maximum Concentration: 0.445
Contour Concentration: 0.2225
Source Width (Sw): 42. feet
Source Length (W): 28. feet

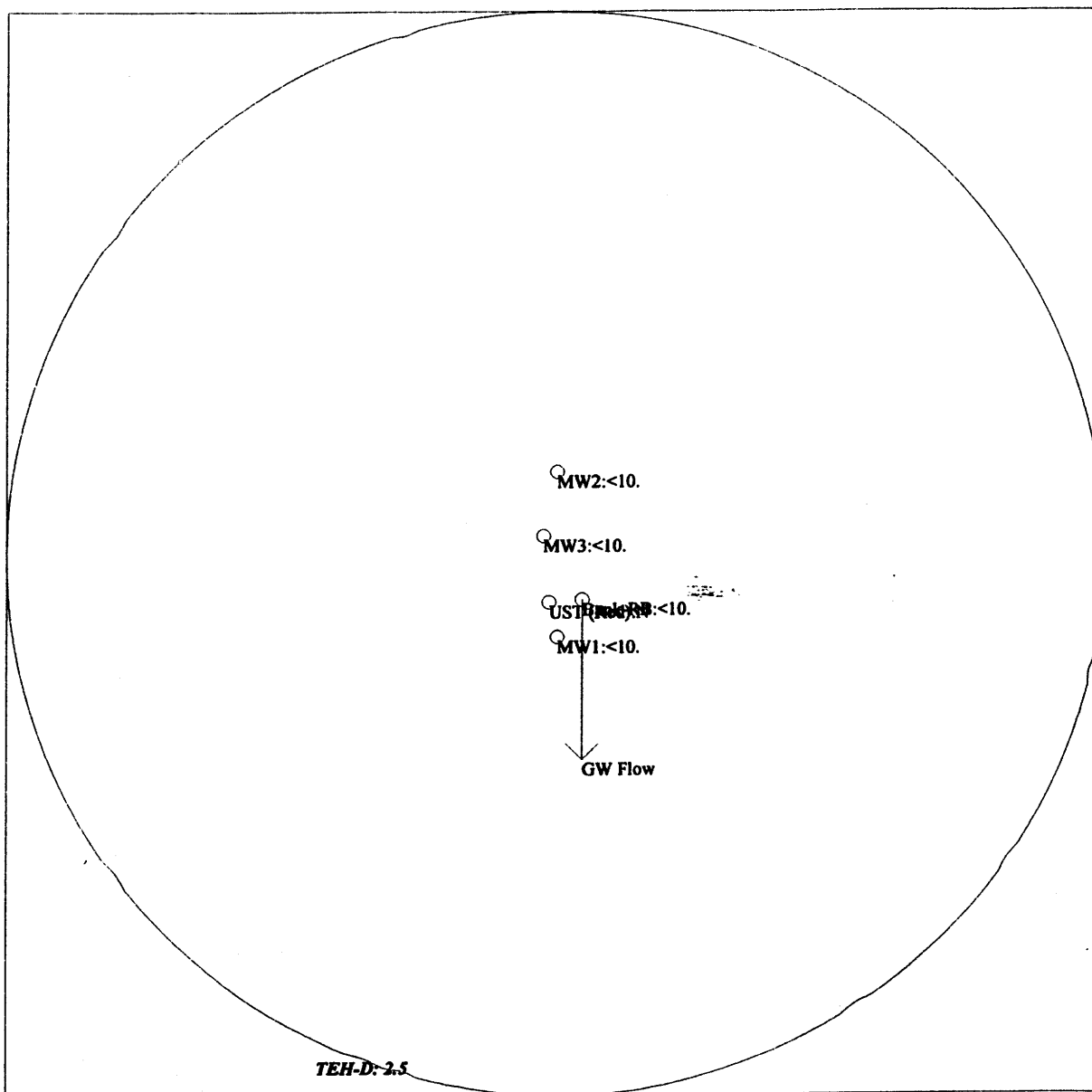


1 inch = 20 feet

Soil: Source Width and Length Estimation: TEH-D

V-2.40, 9LT157

Source: Soil (mg/kg)
Maximum Concentration: 5
Contour Concentration: 2.5
Source Width (Sw): 398. feet
Source Length (W): 406. feet

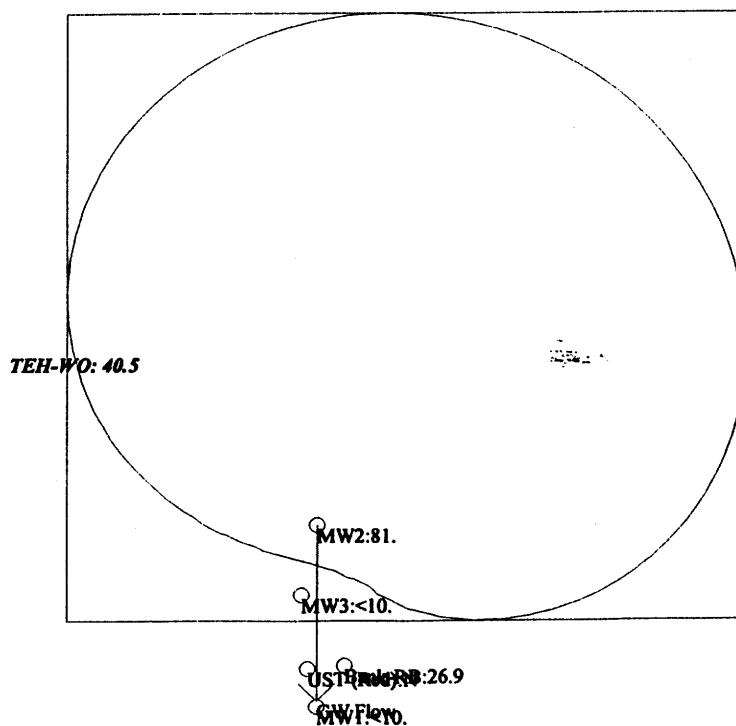


1 inch = 60 feet

Soil: Source Width and Length Estimation: TEH-WO

V-2.40, 9LT157

Source: Soil (mg/kg)
Maximum Concentration: 81
Contour Concentration: 40.5
Source Width (Sw): 224. feet
Source Length (W): 206. feet



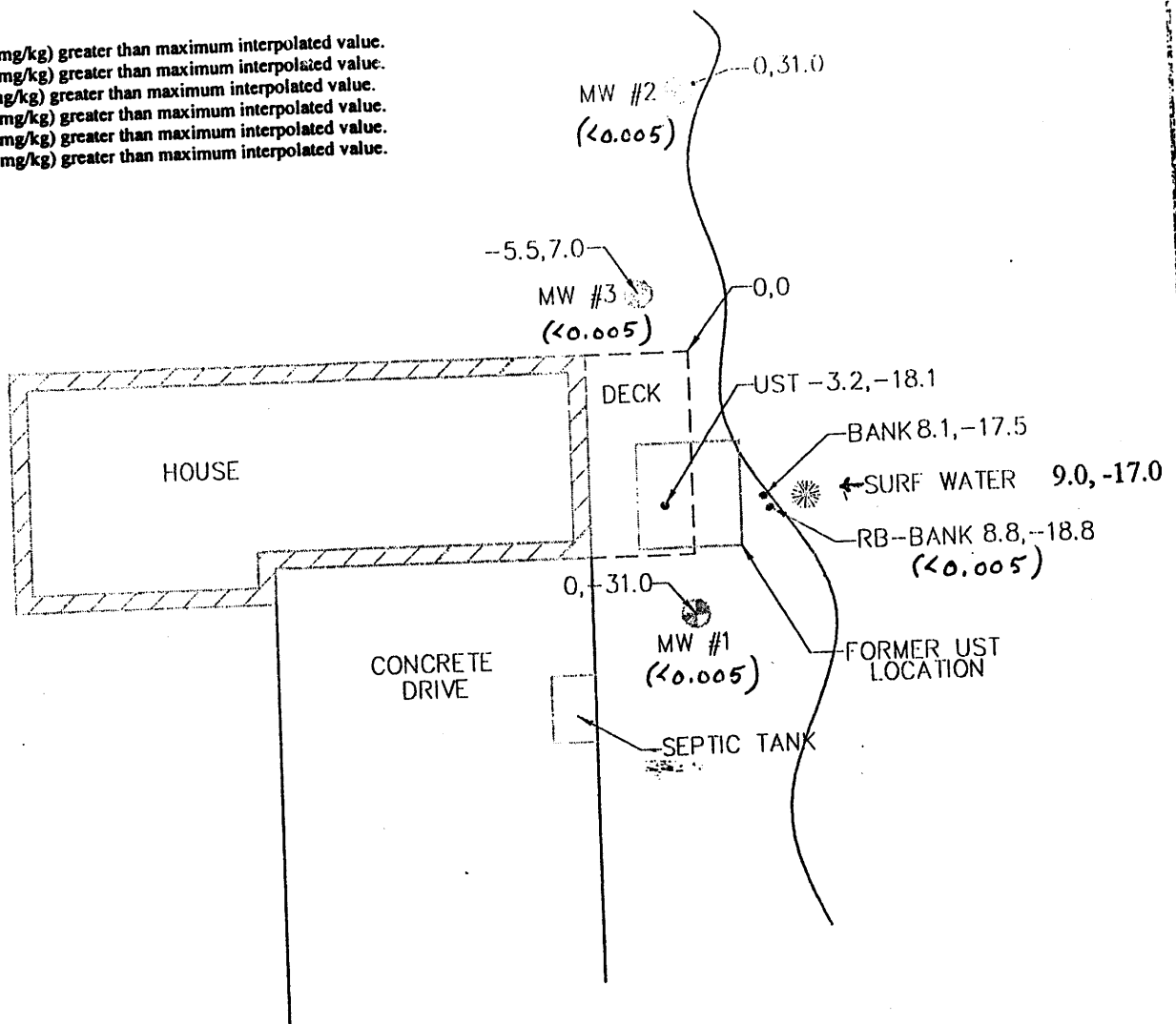
1 inch = 60 feet

ATTACHMENT 20
SOIL CONTAMINATION PLUME MAP

V-2.40, 9LT157

Soil Plume Contours: Benzene(mg/kg)

0.54 (mg/kg) greater than maximum interpolated value.
 1.16 (mg/kg) greater than maximum interpolated value.
 1.8 (mg/kg) greater than maximum interpolated value.
 2.19 (mg/kg) greater than maximum interpolated value.
 2.32 (mg/kg) greater than maximum interpolated value.
 4.38 (mg/kg) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER SCALED SITE PLAN 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

Soil Plume Contours: Benzene(mg/kg)

V-2.40, 9LT157

0.54 (mg/kg) greater than maximum interpolated value.
1.16 (mg/kg) greater than maximum interpolated value.
1.8 (mg/kg) greater than maximum interpolated value.
2.19 (mg/kg) greater than maximum interpolated value.
2.32 (mg/kg) greater than maximum interpolated value.
4.38 (mg/kg) greater than maximum interpolated value.

MW2:<0.005

MW3:<0.005

UST (Red):0.002 Tank-RB:<0.005

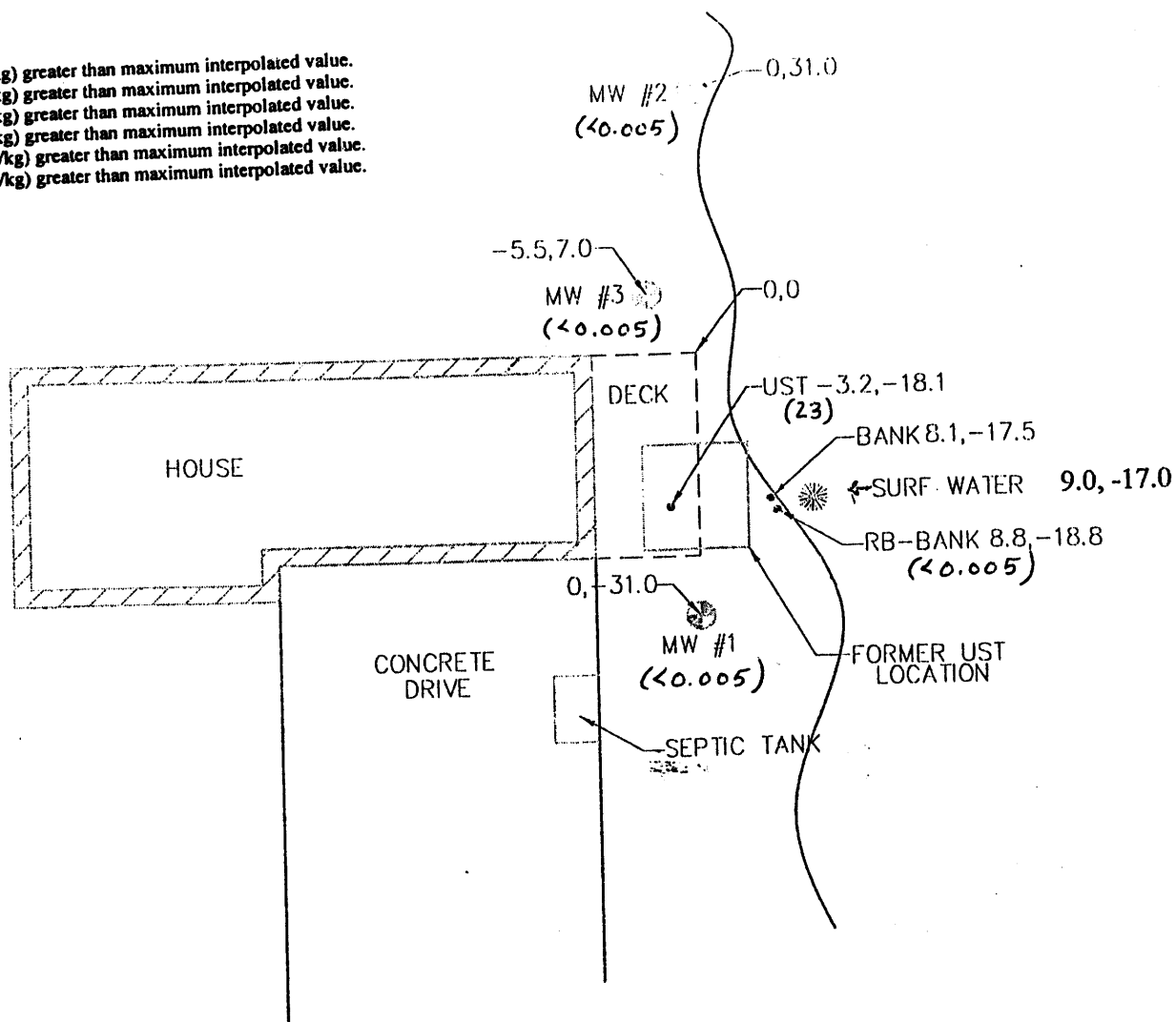
MW1:<0.005

1 inch = 20 feet 

V-2.40, 9LT157

Soil Plume Contours: Toluene(mg/kg)

42 (mg/kg) greater than maximum interpolated value.
 48 (mg/kg) greater than maximum interpolated value.
 75 (mg/kg) greater than maximum interpolated value.
 96 (mg/kg) greater than maximum interpolated value.
 120 (mg/kg) greater than maximum interpolated value.
 150 (mg/kg) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
 SCALED SITE PLAN
 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LIST #	9LT157

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

Soil Plume Contours: Toluene(mg/kg)

V-2.40, 9LT157

42 (mg/kg) greater than maximum interpolated value.
48 (mg/kg) greater than maximum interpolated value.
75 (mg/kg) greater than maximum interpolated value.
96 (mg/kg) greater than maximum interpolated value.
120 (mg/kg) greater than maximum interpolated value.
150 (mg/kg) greater than maximum interpolated value.

MW2:<0.005

MW3:<0.005

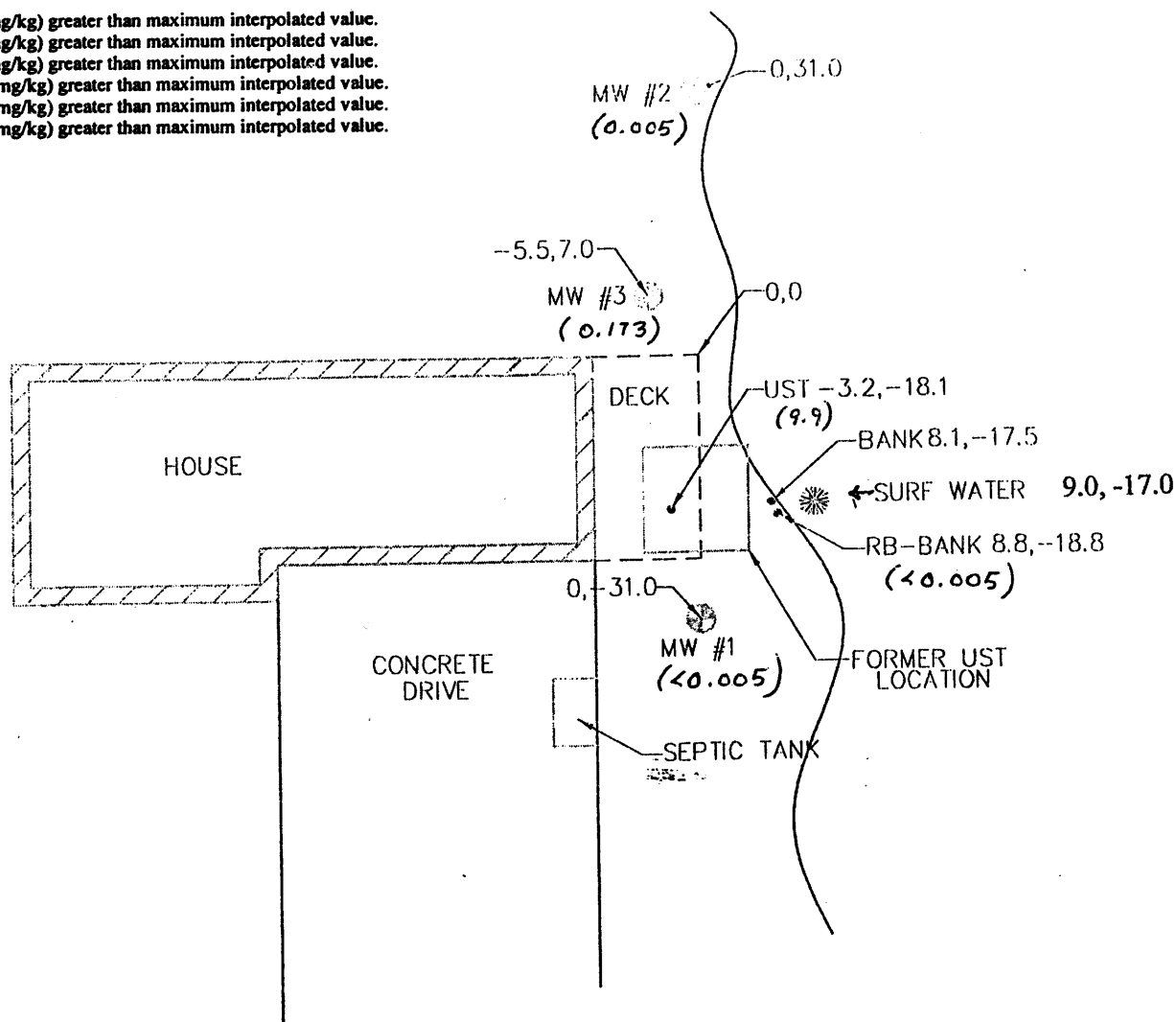
UST:23. Bank-RB:<0.005

MW1:<0.005

Soil Plume Contours: Ethylbenzene(mg/kg)

V-2.40, 9LT157

15 (mg/kg) greater than maximum interpolated value.
43 (mg/kg) greater than maximum interpolated value.
79 (mg/kg) greater than maximum interpolated value.
124 (mg/kg) greater than maximum interpolated value.
158 (mg/kg) greater than maximum interpolated value.
248 (mg/kg) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- * SURFACE WATER SAMPLE



SHIVE-HATTERY

Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
SCALED SITE PLAN
1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
301156-0
LATEKE

SHEET NO.

SITE

V-2.40, 9LT157

Soil Plume Contours: Ethylbenzene(mg/kg)

15 (mg/kg) greater than maximum interpolated value.
43 (mg/kg) greater than maximum interpolated value.
79 (mg/kg) greater than maximum interpolated value.
124 (mg/kg) greater than maximum interpolated value.
158 (mg/kg) greater than maximum interpolated value.
248 (mg/kg) greater than maximum interpolated value.

MW2:<0.005

MW3:0.173

UST:9.9 Bank-RB:<0.005

MW1:<0.005

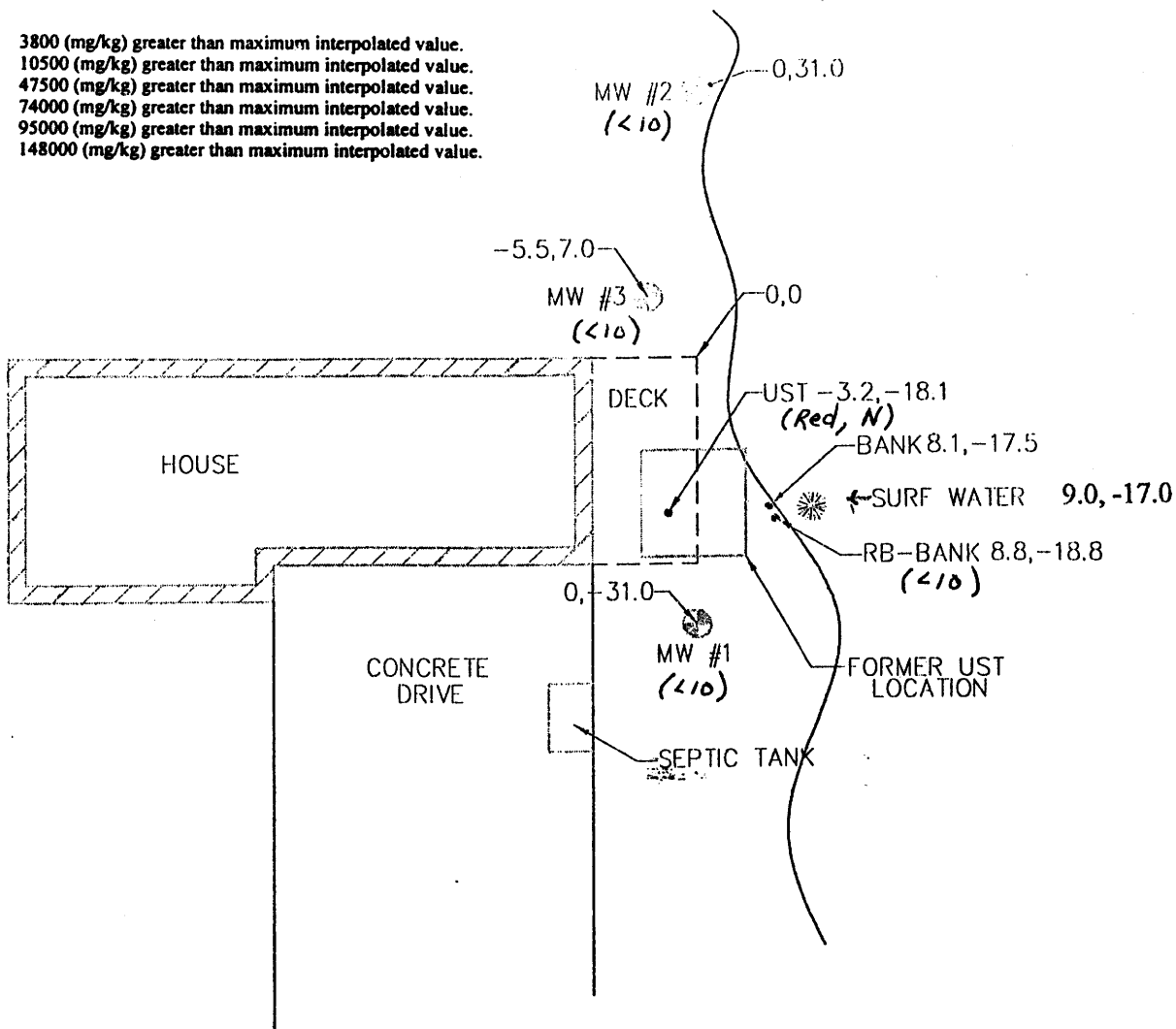
1 inch = 20 feet



V-2.40, 9LT157

Soil Plume Contours: TEH-D(mg/kg)

3800 (mg/kg) greater than maximum interpolated value.
 10500 (mg/kg) greater than maximum interpolated value.
 47500 (mg/kg) greater than maximum interpolated value.
 74000 (mg/kg) greater than maximum interpolated value.
 95000 (mg/kg) greater than maximum interpolated value.
 148000 (mg/kg) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY

Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER SCALED SITE PLAN 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

Soil Plume Contours: TEH-D(mg/kg)

V-2.40, 9LT157

3800 (mg/kg) greater than maximum interpolated value.
10500 (mg/kg) greater than maximum interpolated value.
47500 (mg/kg) greater than maximum interpolated value.
74000 (mg/kg) greater than maximum interpolated value.
95000 (mg/kg) greater than maximum interpolated value.
148000 (mg/kg) greater than maximum interpolated value.

MW2:<10.

MW3:<10.

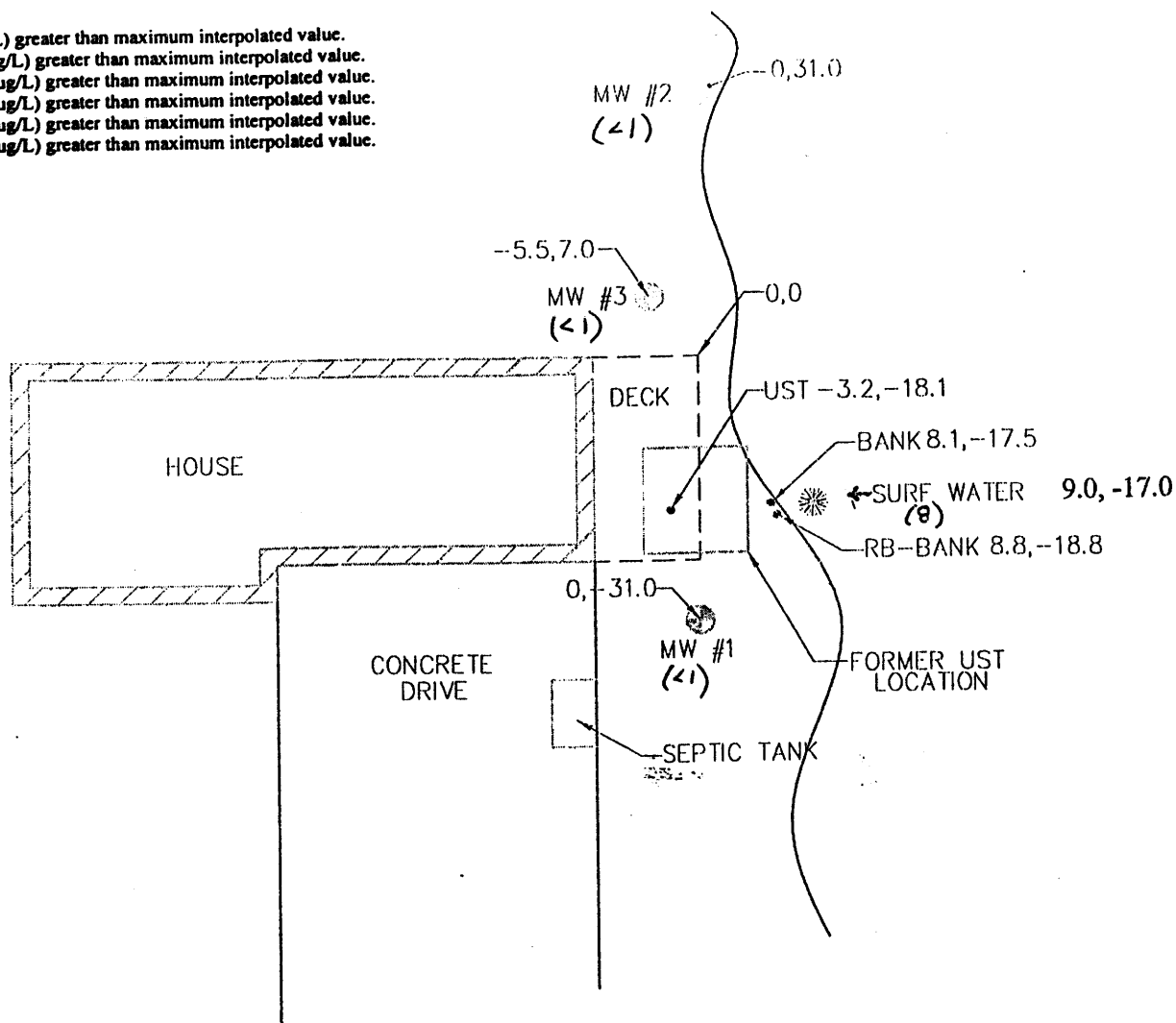
UST (Red):N^oBank-RB:<10.

MW1:<10.

1 inch = 20 feet 

GW Plume Contours: Benzene(ug/L)

5 (ug/L) greater than maximum interpolated value.
 290 (ug/L) greater than maximum interpolated value.
 1540 (ug/L) greater than maximum interpolated value.
 3080 (ug/L) greater than maximum interpolated value.
 4780 (ug/L) greater than maximum interpolated value.
 9550 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- ⊗ SOIL SAMPLE LOCATION
- ⊙ SOIL BORING/MONITORING WELL
- ✱ SURFACE WATER SAMPLE



SHIVE-HATTERY

Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
 SCALED SITE PLAN
 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LTI57

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

GW Plume Contours: Benzene(ug/L)

V-2.40, 9LT157

5 (ug/L) greater than maximum interpolated value.
290 (ug/L) greater than maximum interpolated value.
1540 (ug/L) greater than maximum interpolated value.
3080 (ug/L) greater than maximum interpolated value.
4780 (ug/L) greater than maximum interpolated value.
9550 (ug/L) greater than maximum interpolated value.

MW2:<1.

MW3:<1.

Surf Water:8.

MW1:<1.

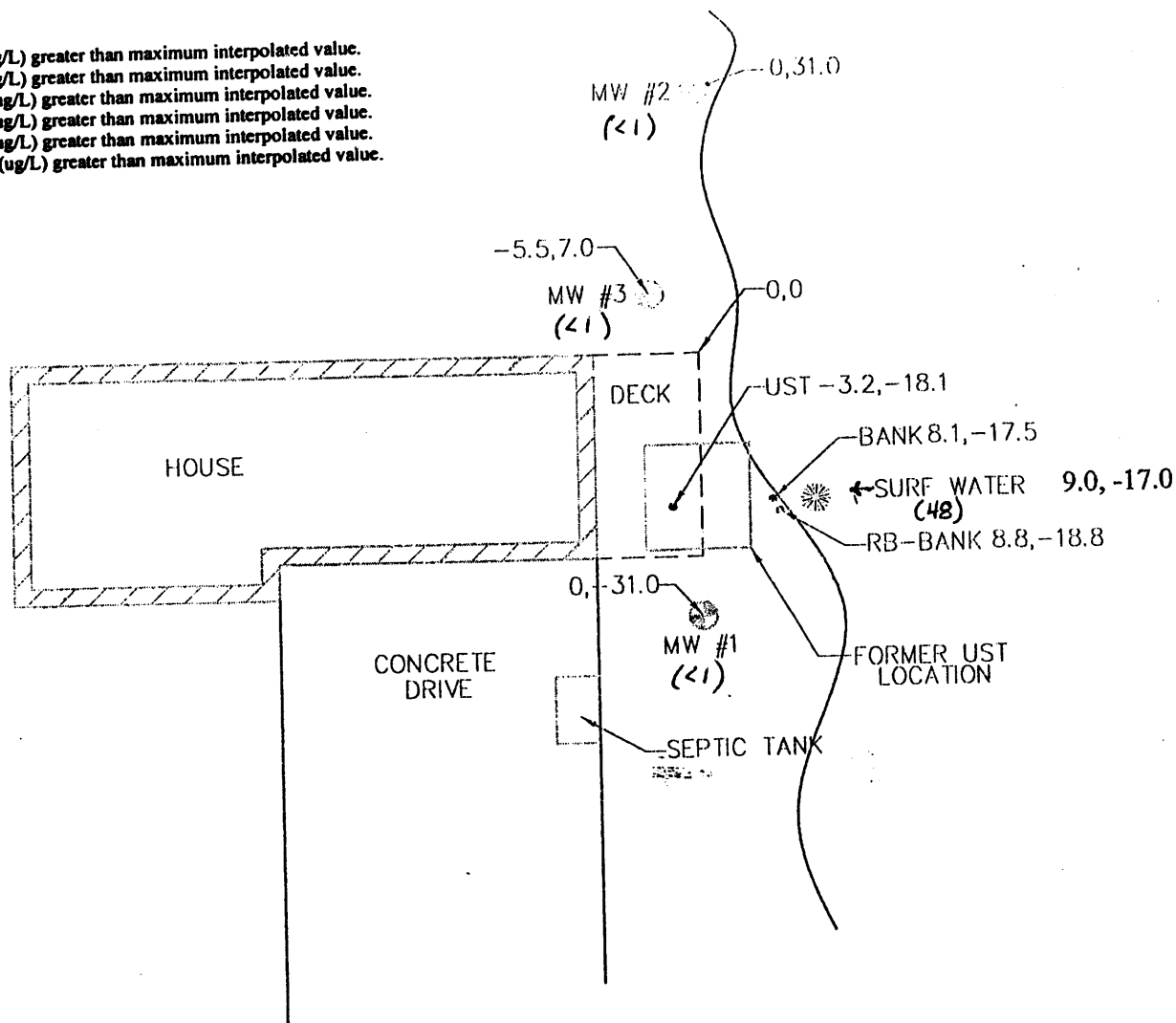
1 inch = 20 feet 

Ismendo | P:\Projects\301156-0\DWG\301156-0-SITE.DWG | DATE: 09/11/2001 | Time: 09:04 |

GW Plume Contours: Toluene(ug/L)

V-2.40, 9LTI57

1000 (ug/L) greater than maximum interpolated value.
 7300 (ug/L) greater than maximum interpolated value.
 20190 (ug/L) greater than maximum interpolated value.
 40390 (ug/L) greater than maximum interpolated value.
 52280 (ug/L) greater than maximum interpolated value.
 104910 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER SCALED SITE PLAN 1209 ROOSEVELT CLINTON, IA			
DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LTI57

PROJECT NO.
301156-0
LATEKE

SHEET NO.

SITE

GW Plume Contours: Toluene(ug/L)

V-2.40, 9LT157

1000 (ug/L) greater than maximum interpolated value.
7300 (ug/L) greater than maximum interpolated value.
20190 (ug/L) greater than maximum interpolated value.
40390 (ug/L) greater than maximum interpolated value.
52280 (ug/L) greater than maximum interpolated value.
104910 (ug/L) greater than maximum interpolated value.

MW2:<1.

MW3:<1.

Surf Water:48.

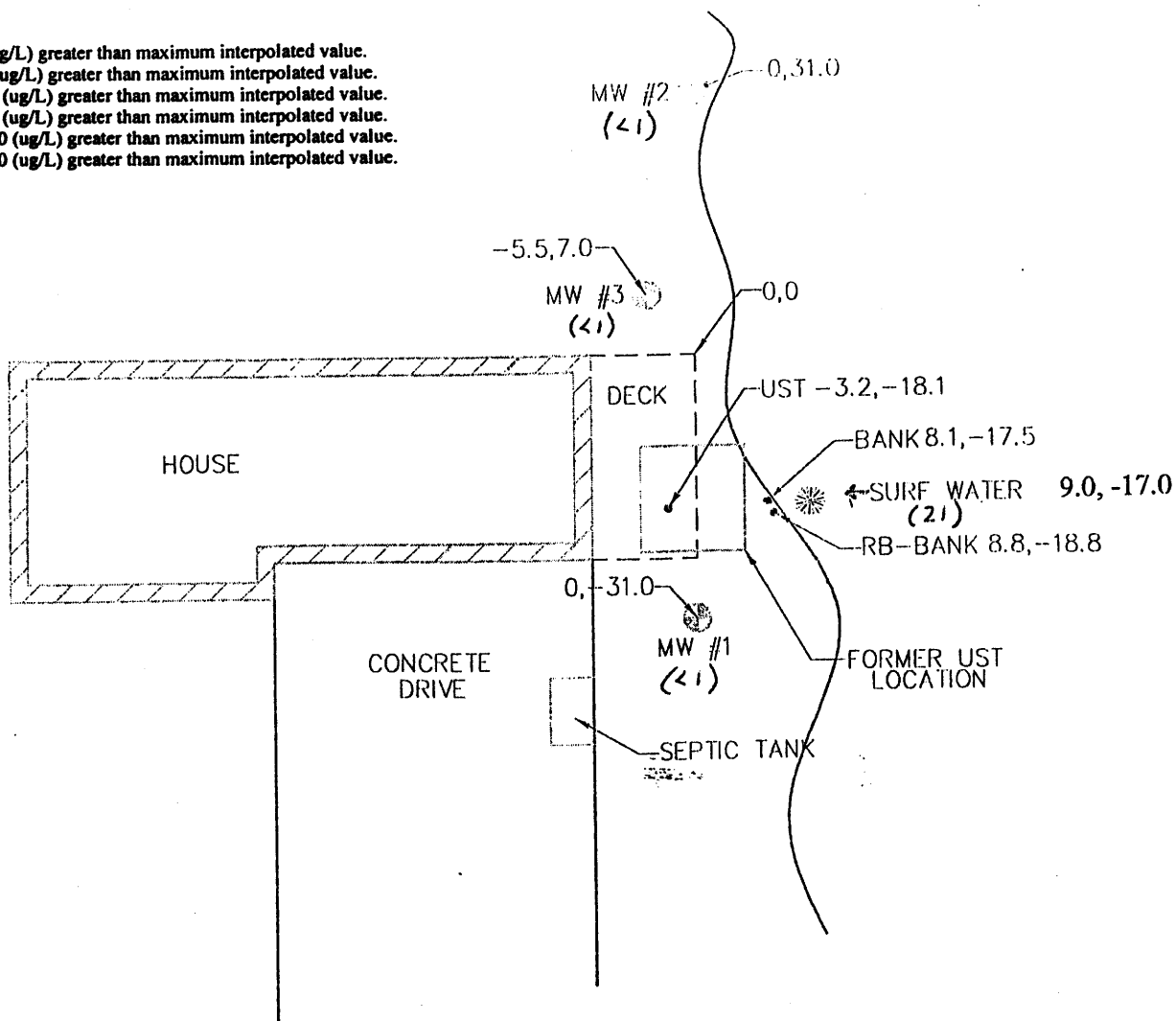
MW1:<1.

1 inch = 20 feet 

GW Plume Contours: Ethylbenzene(ug/L)

V-2.40, 9LTI57

700 (ug/L) greater than maximum interpolated value.
 3700 (ug/L) greater than maximum interpolated value.
 46000 (ug/L) greater than maximum interpolated value.
 91930 (ug/L) greater than maximum interpolated value.
 118970 (ug/L) greater than maximum interpolated value.
 238000 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
 SCALED SITE PLAN
 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JNF	LUST #	9LTI57

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

GW Plume Contours: Ethylbenzene(ug/L)

V-2.40, 9LT157

700 (ug/L) greater than maximum interpolated value.
3700 (ug/L) greater than maximum interpolated value.
46000 (ug/L) greater than maximum interpolated value.
91930 (ug/L) greater than maximum interpolated value.
118970 (ug/L) greater than maximum interpolated value.
238000 (ug/L) greater than maximum interpolated value.

Q MW2:<1.

Q MW3:<1.

Q Surf Water:21.

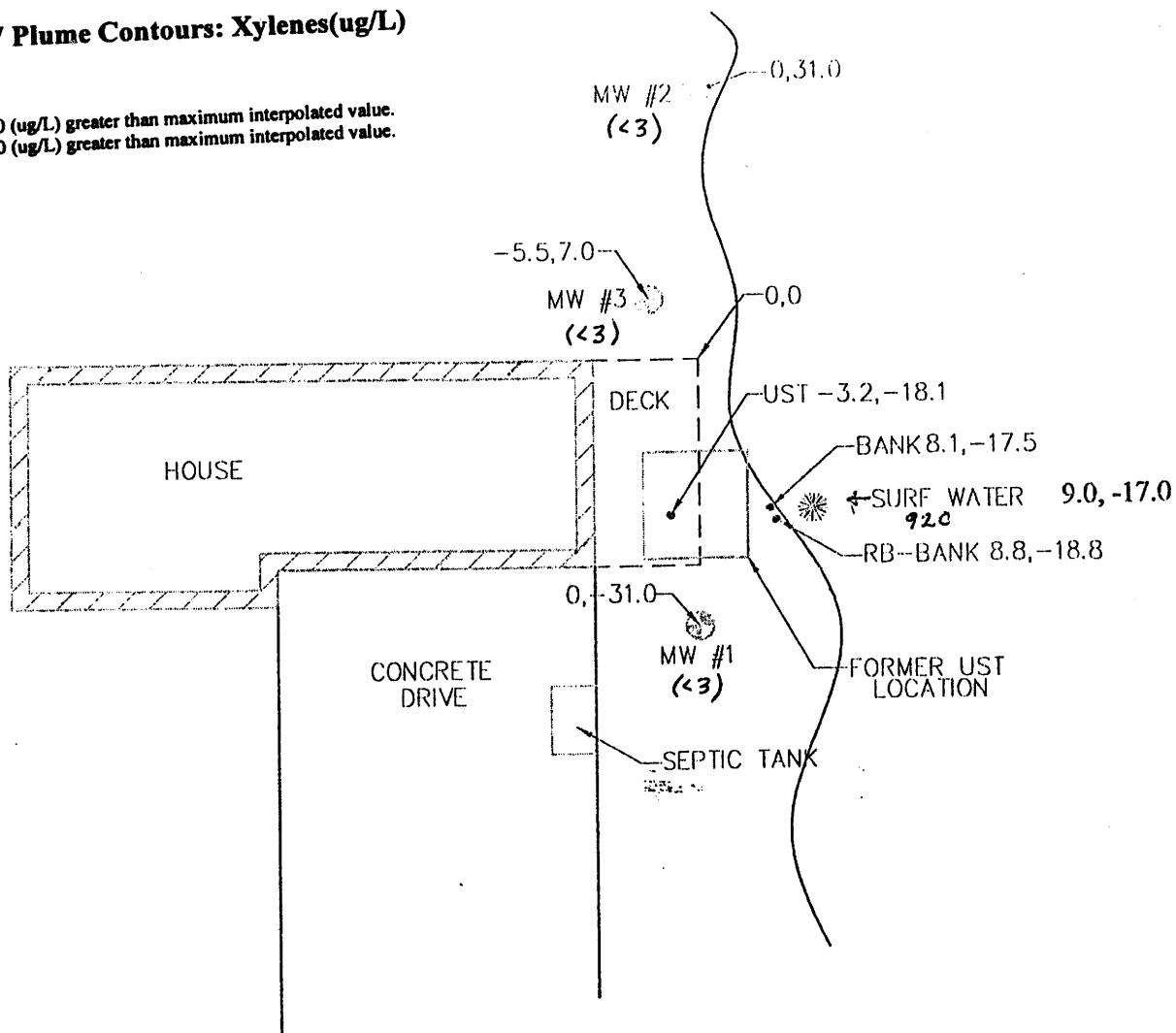
Q MW1:<1.

1 inch = 20 feet 

V-2.40, 9LT157

GW Plume Contours: Xylenes(ug/L)

10000 (ug/L) greater than maximum interpolated value.
73000 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
SCALED SITE PLAN
1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
301156--0
LATEKE

SHEET NO.
SITE

GW Plume Contours: Xylenes(ug/L)

V-2.40, 9LT157

10000 (ug/L) greater than maximum interpolated value.
73000 (ug/L) greater than maximum interpolated value.

Q MW2:<3.

Q MW3:<3.

Q Surf Water:920.

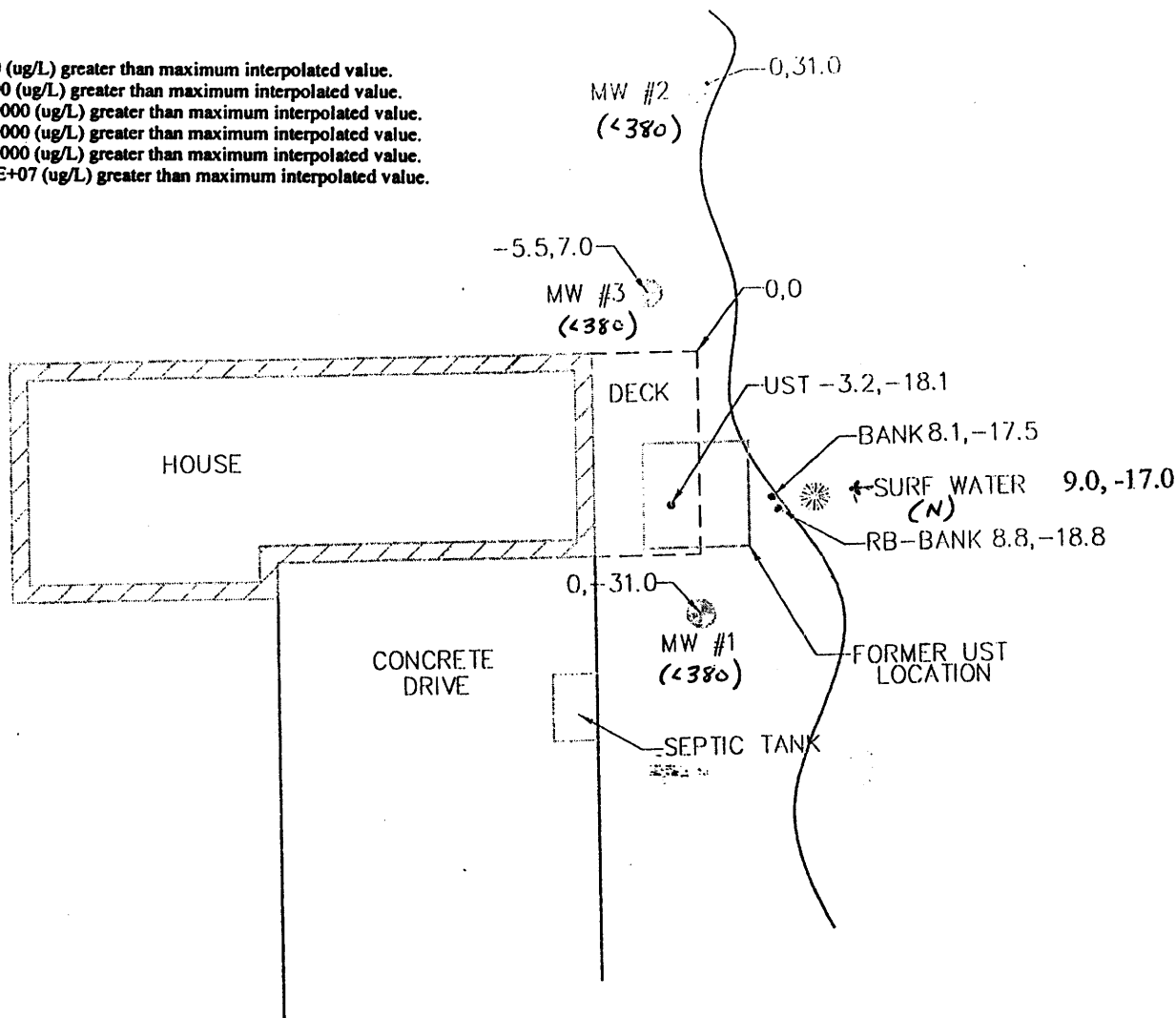
Q MW1:<3.

1 inch = 20 feet 

V-2.40, 9LT157

GW Plume Contours: TEH-D(ug/L)

1200 (ug/L) greater than maximum interpolated value.
 75000 (ug/L) greater than maximum interpolated value.
 2200000 (ug/L) greater than maximum interpolated value.
 4400000 (ug/L) greater than maximum interpolated value.
 5700000 (ug/L) greater than maximum interpolated value.
 1.14E+07 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY

Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER SCALED SITE PLAN 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
 301156-0
 LATEKE

SHEET NO.

SITE

GW Plume Contours: TEH-D(ug/L)

V-2.40, 9LT157

1200 (ug/L) greater than maximum interpolated value.
75000 (ug/L) greater than maximum interpolated value.
2200000 (ug/L) greater than maximum interpolated value.
4400000 (ug/L) greater than maximum interpolated value.
5700000 (ug/L) greater than maximum interpolated value.
1.14E+07 (ug/L) greater than maximum interpolated value.

MW2:<380.

MW3:<380.

Surf Water:N

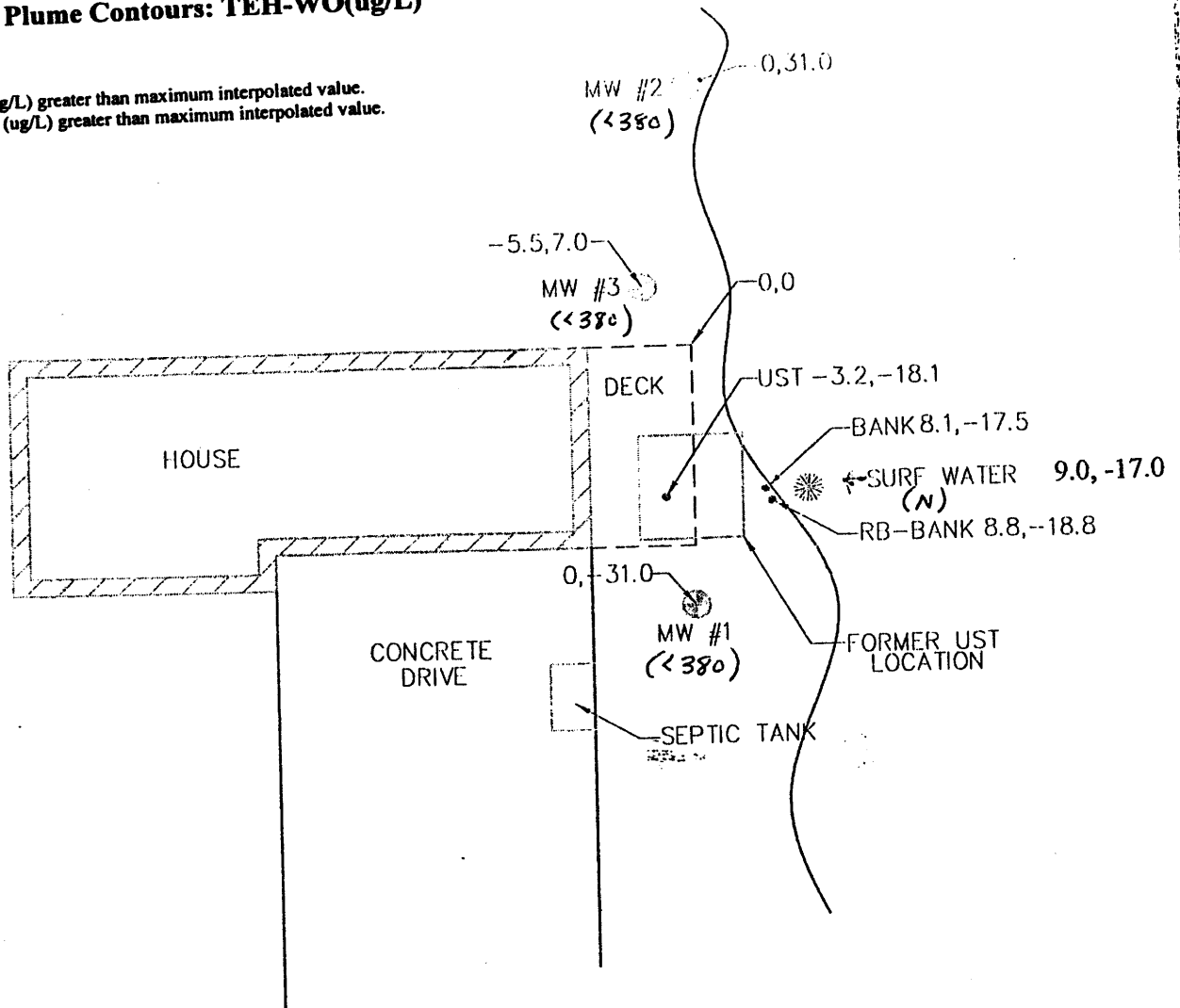
MW1:<380.

1 inch = 20 feet 

V-2.40, 9LT157

GW Plume Contours: TEH-WO(ug/L)

400 (ug/L) greater than maximum interpolated value.
40000 (ug/L) greater than maximum interpolated value.



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
SCALED SITE PLAN
1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	91.1157

PROJECT NO.
301156-0
LATEKE

SHEET NO.
SITE

GW Plume Contours: TEH-WO(ug/L)

V-2.40, 9LT157

400 (ug/L) greater than maximum interpolated value.
40000 (ug/L) greater than maximum interpolated value.

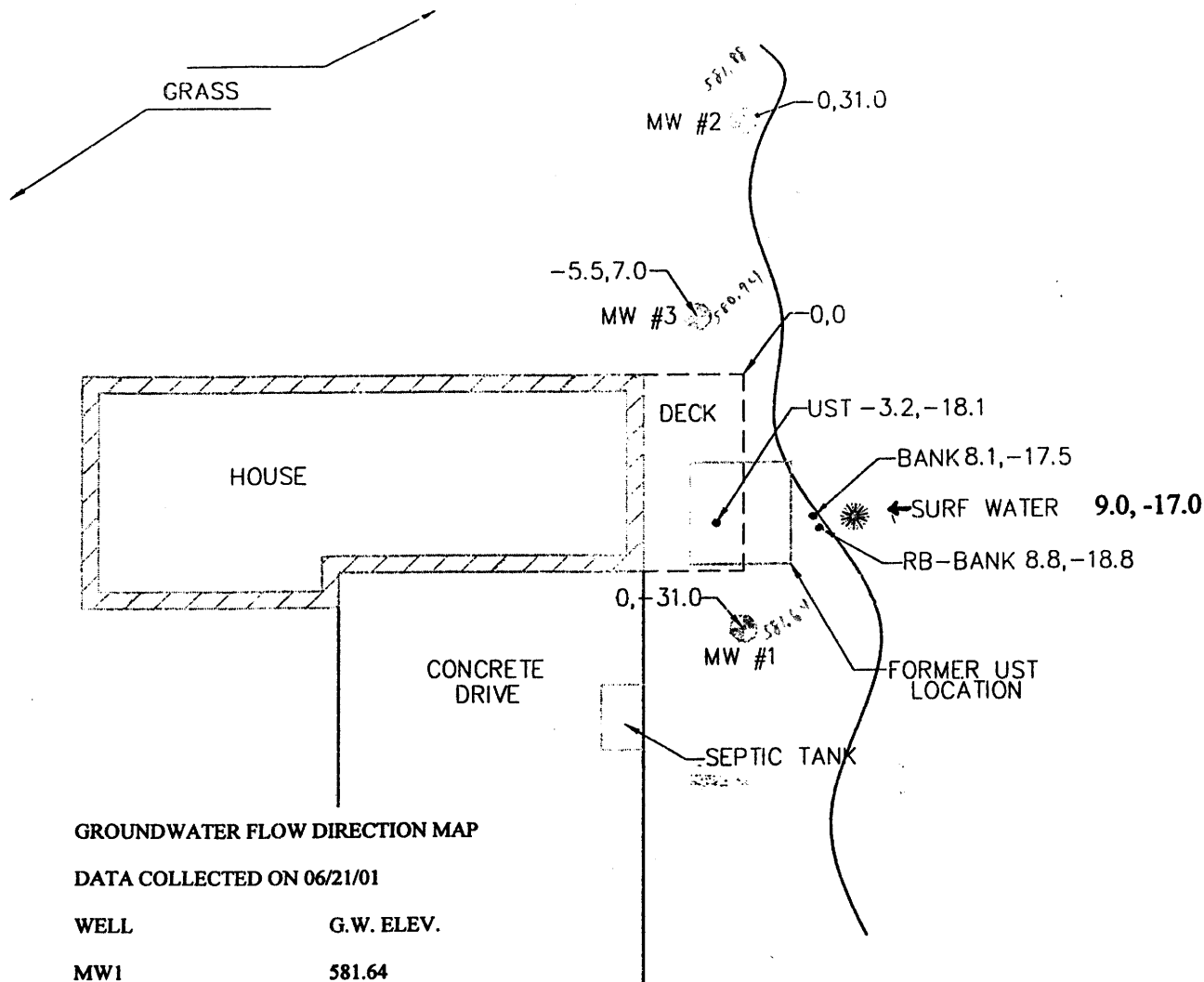
MW2:<380.

MW3:<380.

Surf Water:N

MW1:<380.

1 inch = 20 feet 



GROUNDWATER FLOW DIRECTION MAP

DATA COLLECTED ON 06/21/01

WELL	G.W. ELEV.
MW1	581.64
MW2	581.88
MW3	580.94

1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER
GROUNDWATER FLOW DIRECTION MAP
1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
301156-0
L EKE

SHEET NO.

SITE

**Iowa Department of Natural Resources
Geological Survey Bureau
109 Trowbridge Hall
Iowa City, IA 52242-1319
(319) 335-1575
(319) 335-2754 FAX**

To: Jen Flannery
From: Paul VanDorpe
Date: 2/20/2001
Subject: Well search using 1,000-foot radius for UST site monitoring reports.

The well database files checked below were searched for records using the search criteria you specified. The "records found" column shows which databases had records which met the search criteria. Printouts of the data are enclosed. It is possible there are duplicate records from different databases.

Registration No. of Sites in this report: 9918053

Records found	Files searched	Record type
--	X	General well file - includes geologic, hydrologic, and well construction data (where available) Accuracy varies from 1140 to 70 meters; reported with data. Last update prepared 3/2000.
--	X	Abandoned well files (registered abandoned and plugged wells). Accuracy varies from 1140 to 280 meters; reported with data. Last update prepared 10/30/2000.
--	X	Registered private wells (wells registered with the county or state drilled after 1987) Accuracy varies from 1140 to 280 meters; reported with data. Last update prepared 10/30/2000.
--	X	Private wells registered for water testing (Grants-to-counties water testing program) Accuracy varies from 1140 to 280 meters; reported with data. Last update prepared 10/30/2000.
--	X	Permitted water users (all wells which produce more than 25,000 gallons-per-day). Locations are for facilities only; accuracy is 1140 meters or less. Last update prepared 8/96.
--	X	Public water supplies (wells which supply more than 25 individuals or more than 15 connections) Accuracy is estimated to be 220 meters; not reported with data. Last update prepared 9/96.
--	X	Municipal water supplies Accuracy varies from 1140 meters to 70 meters; not reported with data. Last update prepared 10/2000.
--	X	Wellhead Info. Database (includes public water supplies and permitted users, under construction) Accuracy varies from 140 to 70 meters. Last update 10/2000
--	X	Agricultural drainage wells Accuracy estimated to be 400 meters; not reported with data. Last update prepared 5/92.
--		Descriptive logs of well cuttings Accuracy of locations varies from 1140 to 70 meters. Derived from number of quarter sections reported.

Note on locations: The quarter-sections are arranged with the largest subdivision of the section nearest the section number.

You should also be aware that our records may not include all wells present in an area. Please note the estimated accuracy for each data type and the dates of last revision.

- Sites for which no records were found are noted on the returned lists/maps.

I hope this information is helpful in your work. Please feel free to contact me if you have any further questions.

JPE PM

2-22-01

FAX TRANSMISSION

COVER SHEET



SHIVE HATTERY

1701 River Drive Suite 200 P.O. Box 1169
 Moline, Illinois 61266-8669
 Telephone (309) 764-7650
 FAX (309) 764-8616

TO:

PAUL VAN DORPE
 GEOLOGICAL SURVEY

DATE: 2-16-01

PROJECT #:

TIME:

RE: WELL SEARCH

REQUEST

FAX# SENDING TO:

OF PAGES (INCLUDING THIS PAGE): 2

This facsimile may contain PRIVILEGED AND/OR CONFIDENTIAL INFORMATION INTENDED FOR THE USE OF THE ADDRESSEE. If you are not the addressee (or the person responsible for delivering it to the person addressed) you may not copy or deliver this to anyone else. If you received this facsimile by mistake or if it has not been received properly, PLEASE NOTIFY SENDER IMMEDIATELY BY CALLING (309) 764-7650.

TRANSMITTED:

DATE	DESCRIPTION

COMMENTS:

PLEASE CALL IF QUESTIONS.

UST #9918053

Copy:

THANKS.

Signed:

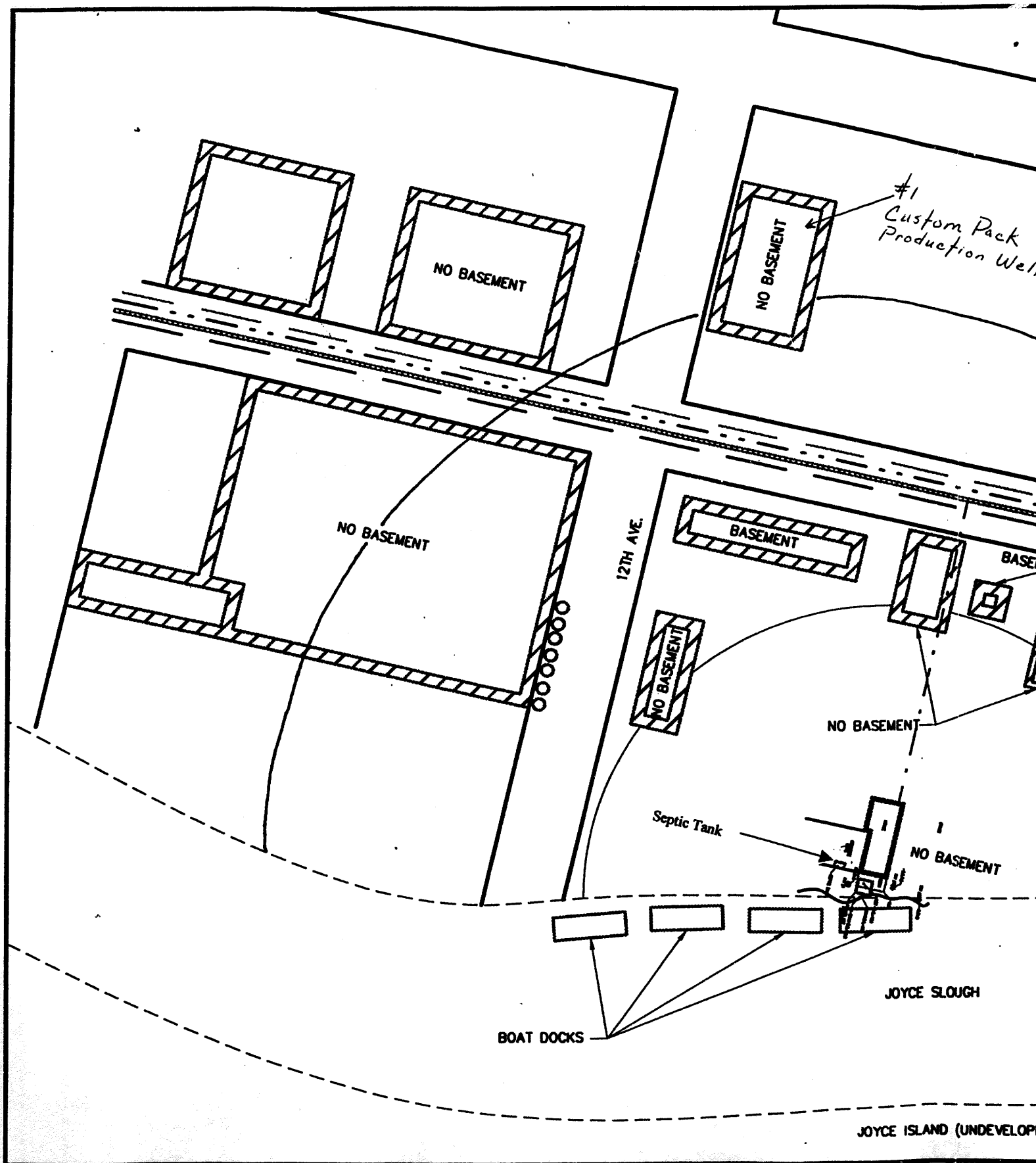
JEN FANNIN

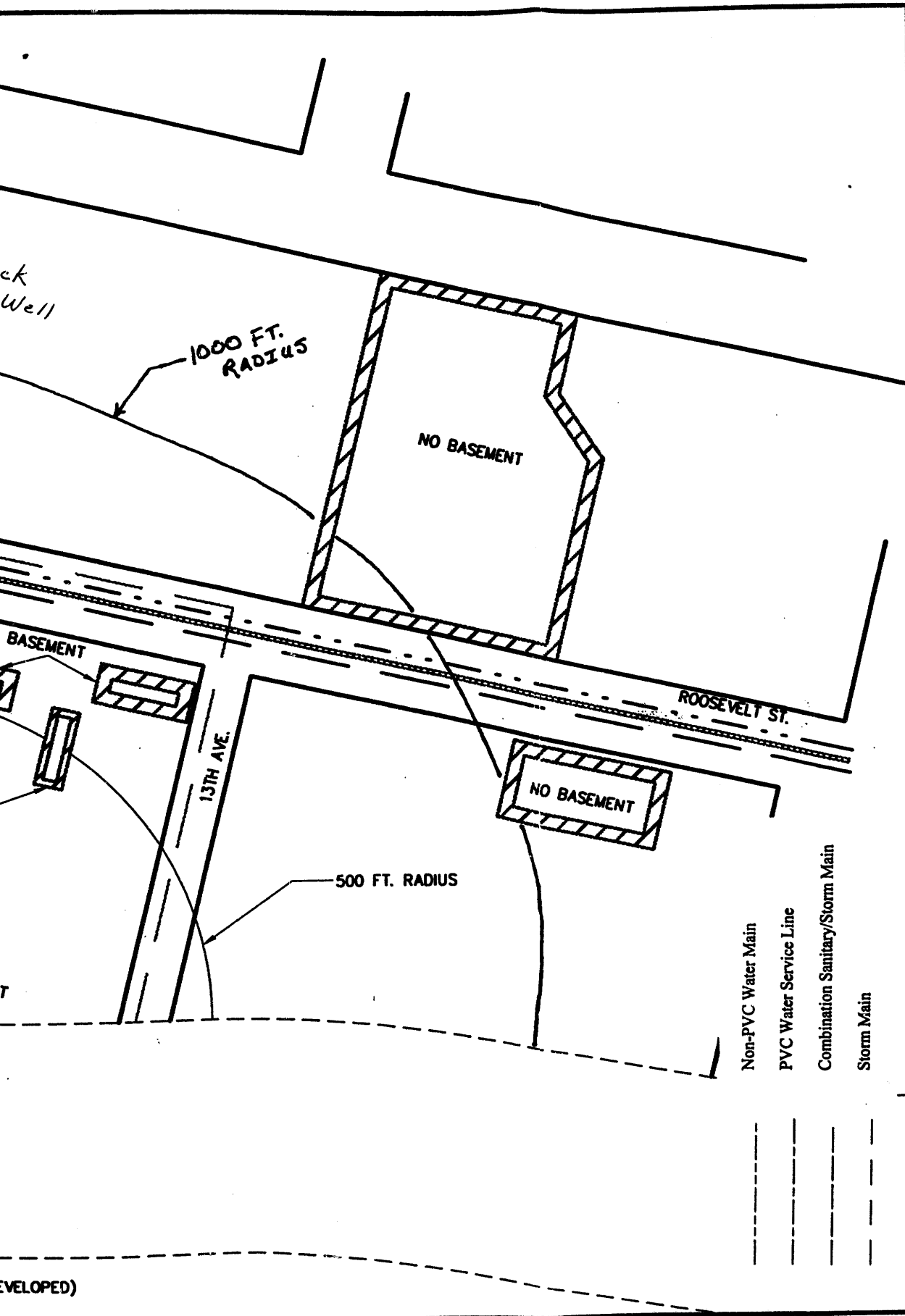
FOLLOW-UP HARD COPY BEING SENT ☐ YES ☒ NO

UST NOT IN DATABASE.
 FROM MAP LOCATION:
 NO WELLS FOUND

Fax.doc

2/20/01

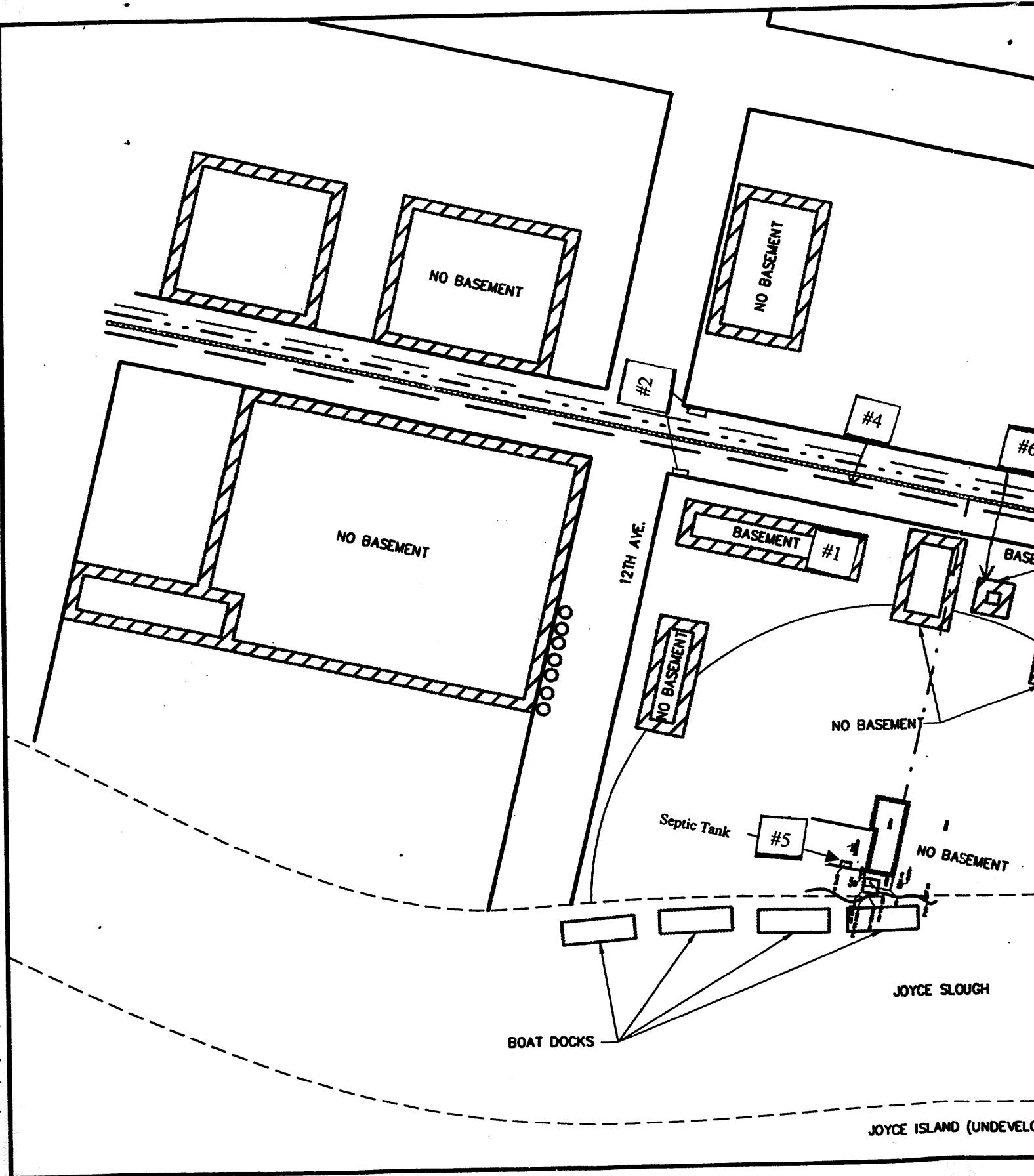


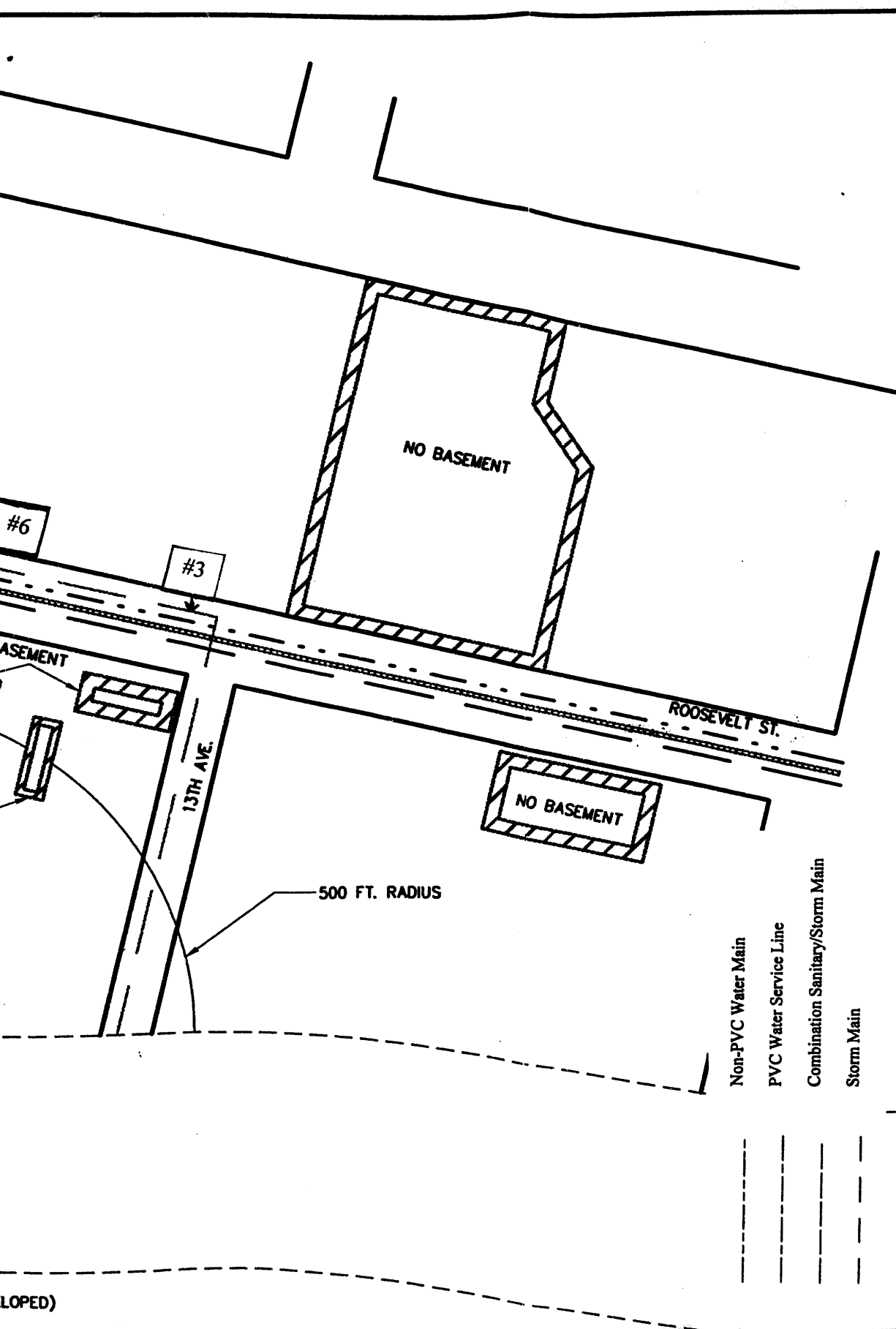



SHIVE-HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL
<http://www.shive-hattery.com>

PROJECT NO. 301156-0		SHEET NO.	
LATEKE		SITE	
LATEKE SPORTS CENTER WELL SURVEY MAP 1209 ROOSEVELT CLINTON, IA		SCALE 1" = 200'	DATE 05/17/01
APPROVED	JRF	FIELD BOOK 37/420	LIST # 9L7157
PROJECT NO.		SHEET NO.	

(VELOPED)





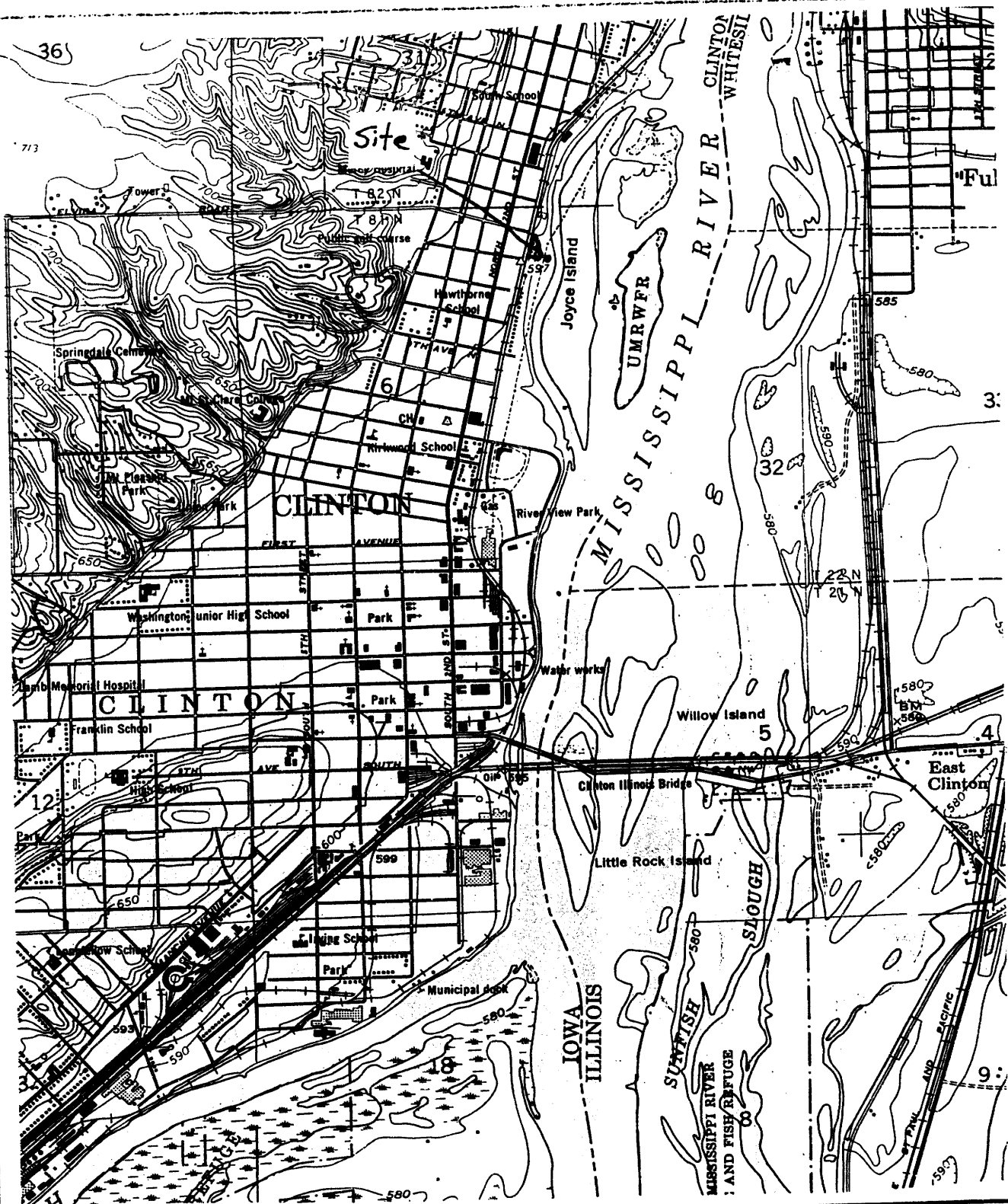
SHIVE HATTERY
 Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
 Moline, IL • Bloomington, IL • Chicago, IL
<http://www.shive-hattery.com>

PROJECT NO. 301156-0		SHEET NO.	
LATEKE		SITE	
LATEKE SPORTS CENTER ENCLOSED SPACE/CONDUIT MAP 1209 ROOSEVELT CLINTON, IA		DATE 05/17/01	SCALE 1" = 100'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9L157

PROJECT NO.

SHEET NO.

| tsmdo | P: \Projects\301156-0\DWG\301156-0-SITE.DWG | DATE: 09/11/2001 | Time: 09:04 |



SHIVE-HATTERY
Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

**LATEKE SPORTS CENTER
SURFACE WATER MAP
1209 ROOSEVELT CLINTON, IA**

DATE	05/17/01	SCALE	1" = 2000'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

PROJECT NO.
301156-0
LATEKE

SHEET NO.
SITE



Hygienic Laboratory

RECEIVED

Date of report: 12-17-1998

|||||
TERRY JONES
EPD 6
1004 WEST MADISON
WASHINGTON IA 52353

Sample Number 9809977
Date Received 12-02-1998
Project WQUEST
Date Collected 12-01-1998 14:00
Collection Site Lake Inc
Collection Town Clinton
Description water
Reference JONES TERRY
Collector (319) 653-2135
Phone
PWS Id & Type
Purchase Order

Results of Analyses

Volatile Petroleum Hydrocarbon Analysis

	8	2
Benzene	48	2
Toluene	21	2
Ethylbenzene	920	5
Total Xylenes	3600	100
Gasoline		

pH > 2.0

Analyst: WB
Verified: SM

Date Analyzed: 12-03-1998
Method: OA-1

Description of units used within this report
Quant Limit - Lowest concentration reliably measured

ug/L - Micrograms per Liter

Iowa Laboratory Certification No. 027. AHA, ICR, NVLAP, USEPA and other credentials available upon request.

If you have any questions please call Sherri Martine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Mary J. E. Glicker, Ph.D.
Director

102 Oakdale Campus, #101 OH
Iowa City, Iowa 52242-3002
319/335-4300 Fax: 319/335-4555

<http://www.hhl.iastate.edu>

H.A. Wallace Building
East Grand, Des Moines, Iowa 50319-0
515/281-5371 Fax: 515/245-1349

TOTAL P. 10

Surface H₂O Sample



Hygienic Laboratory

The University of Iowa

Date of report: 12-17-1998

|||||
TERRY JONES
EPD 6
1004 WEST MADISON
WASHINGTON IA 52353

Sample Number 9809578
Date Received 12-02-1998
Project WQUEST
Date Collected 12-01-1998 14:00
Collection Site Lake Inc
Collection Town Clinton
Description soil
Reference
Collector JONES TERRY
Phone (319) 653-2135
FWS Id & Type
Purchase Order

Results of Analyses

Volatile Petroleum Hydrocarbon Analysis

Component	Concentration (ug/kg)	Limit (ug/kg)
Benzene	3200	100
Toluene	41000	100
Ethylbenzene	9700	100
Total Xylenes	91000	250
Gasoline	740000	3000

Analyst: WB
Verified: SM

Date Analyzed: 12-10-1998
Method: OA-1

ug/kg - Micrograms per Kilogram

Description of units used within this report
Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, ICR, NVLAP, USEPA and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

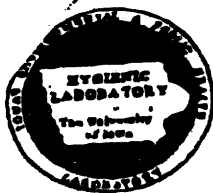
Mary J. A. Gilbert, Ph.D.
Director

102 Oldale Campus, #101 OH
Iowa City, Iowa 52242-5002
319/335-4500 Fax: 319/335-4335

<http://www.uhl.iowa.edu>

H.A. Wallace Building
East Grand Des Moines, Iowa 50319-003
315/281-5371 Fax: 315/243-1549

Collected From bank of surface H₂O



Hygienic Laboratory

Date of report: 01-06-1999

.....
 TERRY JONES
 EPD 6
 1004 WEST MADISON
 WASHINGTON IA 52353

Sample Number 9809946
 Date Received 12-18-1998
 Project 04WQFS
 Data Collected 12-18-1998 12:03
 Collection Site centerline of uat @ base
 Collection Town
 Description Soil
 Reference UST
 Collector JONES TERRY
 Phone (319) 653-2135
 PWS Id & Type
 Purchase Order

Results of Analyses

Volatile Petroleum Hydrocarbon Analysis

Gasoline	610000	5000
Benzene	1600	100
Toluene	23000	100
Ethylbenzene	9900	100
Total Xylenes	63000	250

Date Analyzed: 12-30-1998
 Method: OA-1

Analyst: CR
 Verified: SM

ug/kg - Micrograms per Kilogram

Description of units used within this report

Quant Limit - Lowest concentration reliably measured

Iowa Laboratory Certification No. 027. AIHA, ICR, NVLAP, USEPA and other credentials available upon request.

If you have any questions please call Sherri Marine at 800/421-IOWA (4692) or 319/335-4500. Thank you.

Mary J. R. Gluchta, Ph.D.
 Director

102 Oakdale Campus, #101 OES
 Iowa City, Iowa 52242-5002
 319/335-4500 Fax: 319/335-4555

<http://www.hhl.uiowa.edu>

H.A. Watson Building
 East Grand, Des Moines, Iowa 50319-007
 515/281-3371 Fax: 515/243-1349

Collected below west-most UST, approx. 1'
 1.1.1 UST base (IHR investigation report)

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

05/17/2001

Job Number: 01.05056

Sample Number: 618312

Collected by: Client

Collectors Phone No.:

Job Description: LATEKE

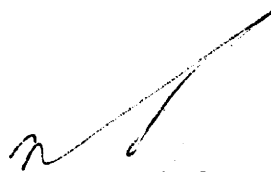
Date Taken: 05/02/2001

Date Received: 05/05/2001

Sample ID: MW1 8-10' Project #301156-0

Analyte	Result	Result		Analyst	Date	Method	Quantitation		
		Units	Flag		Analyzed		Limit	Matrix	
UST VOLATILE COMPOUNDS - 8260									
Benzene	<0.005	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL	
Toluene	<0.005	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL	
Ethylbenzene	<0.005	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL	
Xylenes	<0.015	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL	
MTBE	<0.015	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL	
Extraction Prep, soil	complete			kak	05/08/2001	IOWA-OA2		SOIL	
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	<10	mg/kg		mpc	05/09/2001	IA-OA2/S-8015	10	SOIL	
Diesel	<10	mg/kg		mpc	05/09/2001	IA-OA2/S-8015	10	SOIL	
Gasoline	<10	mg/kg		mpc	05/09/2001	IA-OA2/S-8015	10	SOIL	
Motor Oil	<10	mg/kg		mpc	05/09/2001	IA-OA2/S-8015	10	SOIL	

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

05/17/2001

Job Number: 01.05056

Sample Number: 618313

Collected by: Client

Collectors Phone No.:

Job Description: LATEKE

Date Taken: 05/02/2001

Date Received: 05/05/2001

Sample ID: MW2 8-10' Project #301156-0

Analyte	Result	Units	Result		Analyst	Date		Quantitation	
			Flag			Analyzed		Method	Limit
UST VOLATILE COMPOUNDS - 8260									
Benzene	<0.005	mg/kg			mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Toluene	<0.005	mg/kg			mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Ethylbenzene	<0.005	mg/kg			mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Xylenes	<0.015	mg/kg			mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL
MTBE	<0.015	mg/kg			mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL
Extraction Prep, soil	COMPLETE				jdm	05/14/2001	IOWA-OA2		SOIL
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	81.0	mg/kg			rxg	05/15/2001	IA-OA2/S-8015	10	SOIL
Diesel	<10	mg/kg			rxg	05/15/2001	IA-OA2/S-8015	10	SOIL
Gasoline	<10	mg/kg			rxg	05/15/2001	IA-OA2/S-8015	10	SOIL
Motor Oil	81.0	mg/kg			rxg	05/15/2001	IA-OA2/S-8015	10	SOIL

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

05/17/2001

Job Number: 01.05056

Sample Number: 618314

Collected by: Client

Collectors Phone No.:

Job Description: LATEKE


Date Taken: 05/02/2001

Date Received: 05/05/2001

Sample ID: MW3 8-10' Project #301156-0

Analyte	Result	Units	Flag	Analyst	Date Analyzed	Method	Quantitation Limit	Matrix
UST VOLATILE COMPOUNDS - 8260								
Benzene	<0.005	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Toluene	<0.005	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Ethylbenzene	0.173	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.005	SOIL
Xylenes	0.267	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL
MTBE	<0.015	mg/kg		mmk	05/07/2001	IA OA-1/8260B	0.015	SOIL
Extraction Prep, soil	complete			kak	05/08/2001	IOWA-OA2		SOIL
EXTRACTABLE HYDROCARBONS-SOIL								
Total Extractable Hydrocarbons	<10	mg/kg		mpc	05/10/2001	IA-OA2/S-8015	10	SOIL
Diesel	<10	mg/kg		mpc	05/10/2001	IA-OA2/S-8015	10	SOIL
Gasoline	<10	mg/kg		mpc	05/10/2001	IA-OA2/S-8015	10	SOIL
Motor Oil	<10	mg/kg		mpc	05/10/2001	IA-OA2/S-8015	10	SOIL

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

Client: Shive Hattery Project: _____

City: _____

Date: 5/5/01 Receiver's Initials mf

Time (if Applicable): _____

Temperature Record

Cooler #1: 2.5 °C On Ice

Cooler #2: _____ °C / On Ice

Cooler #3: _____ °C / On Ice

Cooler #4: _____ °C / On Ice

Couriers

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Airborne | <input type="checkbox"/> Speedy |
| <input checked="" type="checkbox"/> UPS | <input type="checkbox"/> TA Courier |
| <input type="checkbox"/> Velocity | <input type="checkbox"/> TA Field Svs |
| <input type="checkbox"/> FedEx | <input type="checkbox"/> Client |
| <input type="checkbox"/> DHL | <input type="checkbox"/> Other |

Cooler Checklist (Check indicates conformance failure)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Improper Container	<input type="checkbox"/>	Temperature above 6°C
<input type="checkbox"/>	Improperly Preserved	<input type="checkbox"/>	Missing Sample	<input type="checkbox"/>	Expired Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	Insufficient Sample Volume	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:

Client Sample IDs:

Remarks:

QC only

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

05/17/2001

Job Number: 01.05056

Enclosed is the Quality Control data for the following samples submitted to TestAmerica, Inc. - Cedar Falls for analysis:

Sample Number	Sample Description	Date Taken	Date Received
618312	MW1 8-10' Project #301156-0	05/02/2001	05/05/2001
618313	MW2 8-10' Project #301156-0	05/02/2001	05/05/2001
618314	MW3 8-10' Project #301156-0	05/02/2001	05/05/2001

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Iowa Laboratory Certification number - 7

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

05/17/2001

Job Number: 01.05056

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
618312 MW1 8-10' Project #301156-0 05/02/2001						
UST VOLATILE COMPOUNDS - 8260						
Benzene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Toluene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Ethylbenzene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Xylenes	<0.015	mg/kg	05/07/2001	696	IA OA-1/8260B	0.015
MTBE	<0.015	mg/kg	05/07/2001	696	IA OA-1/8260B	0.015
Toluene-d8 (Surr.)	97.0	μ	05/07/2001	696	IA OA-1/8260B	
4-Bromofluorobenzene (Surr.)	99.0	μ	05/07/2001	696	IA OA-1/8260B	
Extraction Prep, soil	complete		05/08/2001	2431	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	<10	mg/kg	05/09/2001	2431	3966 IA-OA2/S-8015	10
Diesel	<10	mg/kg	05/09/2001	2431	3966 IA-OA2/S-8015	10
Gasoline	<10	mg/kg	05/09/2001	2431	3966 IA-OA2/S-8015	10
Motor Oil	<10	mg/kg	05/09/2001	2431	3966 IA-OA2/S-8015	10
N-Octacosane (Surr.)	86	μ	05/09/2001	2431	3966 IA-OA2/S-8015	1.0
618313 MW2 8-10' Project #301156-0 05/02/2001						
UST VOLATILE COMPOUNDS - 8260						
Benzene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Toluene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Ethylbenzene	<0.005	mg/kg	05/07/2001	696	IA OA-1/8260B	0.005
Xylenes	<0.015	mg/kg	05/07/2001	696	IA OA-1/8260B	0.015
MTBE	<0.015	mg/kg	05/07/2001	696	IA OA-1/8260B	0.015
Toluene-d8 (Surr.)	102.0	μ	05/07/2001	696	IA OA-1/8260B	
4-Bromofluorobenzene (Surr.)	91.0	μ	05/07/2001	696	IA OA-1/8260B	
Extraction Prep, soil	COMPLETE		05/14/2001	2434	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	81.0	mg/kg	05/15/2001	2434	3976 IA-OA2/S-8015	10

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

05/17/2001

Job Number: 01.05056

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
618313 MW2 8-10' Project #301156-0			05/02/2001				
Diesel	<10	mg/kg	05/15/2001	2434	3976	IA-OA2/S-8015	10
Gasoline	<10	mg/kg	05/15/2001	2434	3976	IA-OA2/S-8015	10
Motor Oil	81.0	mg/kg	05/15/2001	2434	3976	IA-OA2/S-8015	10
N-Octacosane (Surr.)	109	%	05/15/2001	2434	3976	IA-OA2/S-8015	1.0
618314 MW3 8-10' Project #301156-0			05/02/2001				
UST VOLATILE COMPOUNDS - 8260							
Benzene	<0.005	mg/kg	05/07/2001		696	IA OA-1/8260B	0.005
Toluene	<0.005	mg/kg	05/07/2001		696	IA OA-1/8260B	0.005
Ethylbenzene	0.173	mg/kg	05/07/2001		696	IA OA-1/8260B	0.005
Xylenes	0.267	mg/kg	05/07/2001		696	IA OA-1/8260B	0.015
MTBE	<0.015	mg/kg	05/07/2001		696	IA OA-1/8260B	0.015
Toluene-d8 (Surr.)	102.0	%	05/07/2001		696	IA OA-1/8260B	
4-Bromofluorobenzene (Surr.)	92.0	%	05/07/2001		696	IA OA-1/8260B	
Extraction Prep, soil	complete		05/08/2001	2431		IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL							
Total Extractable Hydrocarbons	<10	mg/kg	05/10/2001	2431	3966	IA-OA2/S-8015	10
Diesel	<10	mg/kg	05/10/2001	2431	3966	IA-OA2/S-8015	10
Gasoline	<10	mg/kg	05/10/2001	2431	3966	IA-OA2/S-8015	10
Motor Oil	<10	mg/kg	05/10/2001	2431	3966	IA-OA2/S-8015	10
N-Octacosane (Surr.)	101	%	05/10/2001	2431	3966	IA-OA2/S-8015	1.0

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

05/17/2001

Job Number: 01.05056

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	Concentration Found	Percent Recovery
UST VOLATILE COMPOUNDS - 8260					
Benzene		696	50.0	55.8	111.6
Toluene		696	50.0	53.0	106.0
Ethylbenzene		696	50.0	54.4	108.8
Xylenes		696	150.0	171	114.0
MTBE		696	50.0	65.4	130.8
Toluene-d8 (Surr.)		696	100.0	96.1	96.1
4-Bromofluorobenzene (Surr.)		696	100.0	98.3	98.3
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		3966	5,000	4,951	99.0
Gasoline		3966	5,000	4,774	95.5
Motor Oil		3966	5,000	5,219	104.4
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		3976	5,000	4,686	93.7
Gasoline		3976	5,000	5,701	114.0
Motor Oil		3976	5,000	5,385	107.7

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT BLANKS

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

05/17/2001

Job Number: 01.05056

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
UST VOLATILE COMPOUNDS - 8260				
Benzene		696	<0.005	mg/kg
Toluene		696	<0.005	mg/kg
Ethylbenzene		696	<0.005	mg/kg
Xylenes		696	<0.015	mg/kg
MTBE		696	<0.015	mg/kg
EXTRACTABLE HYDROCARBONS-SOIL				
Total Extractable Hydrocarbons	2431	3967	<10	mg/kg
Diesel	2431	3967	<10	mg/kg
Gasoline	2431	3967	<10	mg/kg
Motor Oil	2431	3967	<10	mg/kg
EXTRACTABLE HYDROCARBONS-SOIL				
Total Extractable Hydrocarbons	2434	3976	<10	mg/kg
Diesel	2434	3976	<10	mg/kg
Gasoline	2434	3976	<10	mg/kg
Motor Oil	2434	3976	<10	mg/kg

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669

05/17/2001

Job Number: 01.05056

Analyte	Prep Batch No.	Run Batch No.	Sample Result	Units	MS Spike			MSD Spike			RPD	Flag(s)
					Conc. Added	MS Result	MS %Rec.	Conc. Added	MSD Result	MSD % Rec.		
UST VOLATILE COMPOUNDS - 8260		696	<0.005	mg/kg	0.0356	0.0438	123	0.0332	0.0376	113		15
Benzene		696	<0.005	mg/kg	0.0356	0.0411	115	0.0332	0.0371	112		10
Toluene		696	<0.005	mg/kg	0.0356	0.0417	117	0.0332	0.0376	113		10
Ethylbenzene		696	<0.015	mg/kg	0.107	0.128	120	0.0997	0.117	117		9
Xylenes		696	<0.015	mg/kg	0.0356	0.0455	128	0.0332	0.0425	128		6.8
MTBE												
EXTRACTABLE HYDROCARBONS-SOIL												
Diesel	2431	3969	<10	mg/kg	66.5	61.2	92	65.8	48.0	73		24
EXTRACTABLE HYDROCARBONS-SOIL												
Diesel	2434	3976	<10	mg/kg	66.4	52.0	78	66.4	65.1	98		22



Page 10 of 10

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

05/17/2001

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669

Job No: 01.05056

Analyte	Prep	Run	LCS	Units	LCS	LCSD	LCS	LCSD	Control	Relative
	Batch	Batch					Percent	Percent		Percent
	Number	Number	Amount		Result	Result	Recovery	Recovery	Limits	Difference
UST VOLATILE COMPOUNDS - 8										
Benzene		696	0.0406	mg/kg	0.0542		133.5		65 - 152	
Toluene		696	0.0406	mg/kg	0.0509		125.4		62 - 148	
Ethylbenzene		696	0.0406	mg/kg	0.0518		127.6		62 - 154	
Xylenes		696	0.122	mg/kg	0.159		130.3		59 - 155	
MTBE		696	0.0406	mg/kg	0.0583		143.6		57 - 159	
Toluene-d8 (Surr.)		696	100.000	%	95.4		95.4		80 - 116	
4-Bromofluorobenzene (Surr		696	100.000	%	95.0		95.0		75 - 119	
EXTRACTABLE HYDROCARBONS-S										
Diesel	2431	3969	66.7	mg/kg	64.5		96.7		59 - 119	
N-Octacosane (Surr.)	2431	3969	100	%	94		94.0		25 - 183	
EXTRACTABLE HYDROCARBONS-S										
Diesel	2434	3976	66.7	mg/kg	65.0		97.5		59 - 119	
N-Octacosane (Surr.)	2434	3976	100	%	93		93.0		25 - 183	

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

06/29/2001

Job Number: 01.07157

Sample Number: 625867

Collected by: Jen Flannery

Collectors Phone No.: 309-764-7650

Job Description: LATEKE - CLINTON, IOWA

Date Taken: 06/21/2001

Date Received: 06/23/2001

Sample ID: MW-1 Project #301156-0

Analyte	Result	Units	Flag	Analyst	Date Analyzed	Method	Quantitation Limit	Matrix
UST VOLATILE COMPOUNDS - 8260								
Benzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Toluene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Ethylbenzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Xylenes	<3.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	3.0	WATER
MTBE	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Extraction Prep	Complete			mpc	06/27/2001	IOWA-OA2		WATER
EXTRACTABLE HYDROCARBONS-WATER								
Total Extractable Hydrocarbons	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Diesel	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Gasoline	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Motor Oil	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
VOA Preservation pH	<2	units		dmd	06/26/2001	SW 9041A		WATER

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

06/29/2001

Job Number: 01.07157

Sample Number: 625868

Collected by: Jen Flannery

Collectors Phone No.: 309-764-7650

Job Description: LATEKE - CLINTON, IOWA

Date Taken: 06/21/2001

Date Received: 06/23/2001

Sample ID: MW-2 Project #301156-0

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	Result	<u>Analyst</u>	Date	<u>Method</u>	Quantitation	<u>Matrix</u>
			<u>Flag</u>		<u>Analyzed</u>		<u>Limit</u>	
UST VOLATILE COMPOUNDS - 8260								
Benzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Toluene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Ethylbenzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Xylenes	<3.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	3.0	WATER
MTBE	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER
Extraction Prep	Complete			mpc	06/27/2001	IOWA-OA2		WATER
EXTRACTABLE HYDROCARBONS-WATER								
Total Extractable Hydrocarbons	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Diesel	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Gasoline	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
Motor Oil	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER
VOA Preservation pH	<2	units		dmd	06/26/2001	SW 9041A		WATER

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

ANALYTICAL REPORT

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

06/29/2001

Job Number: 01.07157

Sample Number: 625869

Collected by: Jen Flannery

Collectors Phone No.: 309-764-7650

Job Description: LATEKE - CLINTON, IOWA

Date Taken: 06/21/2001

Date Received: 06/23/2001

Sample ID: MW-3 Project #301156-0

Sample ID: MW-3		Project #301156-0		Result		Date	Quantitation		
Analyte	Result	Units	Flag	Analyst	Analyzed	Method	Limit	Matrix	
UST VOLATILE COMPOUNDS - 8260									
Benzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER	
Toluene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER	
Ethylbenzene	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER	
Xylenes	<3.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	3.0	WATER	
MTBE	<1.0	ug/L		dmd	06/26/2001	IA OA-1/8260B	1.0	WATER	
Extraction Prep	Complete			mpc	06/27/2001	IOWA-OA2		WATER	
EXTRACTABLE HYDROCARBONS-WATER									
Total Extractable Hydrocarbons	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER	
Diesel	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER	
Gasoline	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER	
Motor Oil	<380	ug/L		mpc	06/28/2001	IA-OA2/S-8015	380	WATER	
VOA Preservation pH	<2	units		dmd	06/26/2001	SW 9041A		WATER	

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

06/29/2001

Job Number: 01.07157

Enclosed is the Quality Control data for the following samples submitted to TestAmerica, Inc. - Cedar Falls for analysis:

Sample Number	Sample Description	Date Taken	Date Received
625867	MW-1 Project #301156-0	06/21/2001	06/23/2001
625868	MW-2 Project #301156-0	06/21/2001	06/23/2001
625869	MW-3 Project #301156-0	06/21/2001	06/23/2001

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Iowa Laboratory Certification number - 7

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

06/29/2001

Job Number: 01.07157

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
625867 MW-1 Project #301156-0		06/21/2001				
UST VOLATILE COMPOUNDS - 8260						
Benzene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Toluene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Ethylbenzene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Xylenes	<3.0	ug/L	06/26/2001	1251	IA OA-1/8260B	3.0
MTBE	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Toluene-d8 (Surr.)	97.0	%	06/26/2001	1251	IA OA-1/SW 8260B	
4-Bromofluorobenzene (Surr.)	91.0	%	06/26/2001	1251	IA OA-1/SW 8260B	
Extraction Prep	Complete		06/27/2001	1695	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-WATER						
Total Extractable Hydrocarbons	<380	ug/L	06/28/2001	1695	2902 IA-OA2/S-8015	380
Diesel	<380	ug/L	06/28/2001	1695	2902 IA-OA2/S-8015	380
Gasoline	<380	ug/L	06/28/2001	1695	2902 IA-OA2/S-8015	380
Motor Oil	<380	ug/L	06/28/2001	1695	2902 IA-OA2/S-8015	380
N-Octacosane (Surr.)	76	%	06/28/2001	1695	2902 IA-OA2/S-8015	100
VOA Preservation pH	<2	units	06/26/2001	233	SW 9041A	
625868 MW-2 Project #301156-0		06/21/2001				
UST VOLATILE COMPOUNDS - 8260						
Benzene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Toluene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Ethylbenzene	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Xylenes	<3.0	ug/L	06/26/2001	1251	IA OA-1/8260B	3.0
MTBE	<1.0	ug/L	06/26/2001	1251	IA OA-1/8260B	1.0
Toluene-d8 (Surr.)	96.0	%	06/26/2001	1251	IA OA-1/SW 8260B	
4-Bromofluorobenzene (Surr.)	90.0	%	06/26/2001	1251	IA OA-1/SW 8260B	
Extraction Prep	Complete		06/27/2001	1695	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-WATER						

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

06/29/2001

Job Number: 01.07157

	Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
625868 MW-2 Project #301156-0			06/21/2001				
Total Extractable Hydrocarbons	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Diesel	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Gasoline	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Motor Oil	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
N-Octacosane (Surr.)	100	%	06/28/2001	1695	2902	IA-OA2/S-8015	100
VOA Preservation pH	<2	units	06/26/2001		233	SW 9041A	
625869 MW-3 Project #301156-0			06/21/2001				
UST VOLATILE COMPOUNDS - 8260							
Benzene	<1.0	ug/L	06/26/2001		1251	IA OA-1/8260B	1.0
Toluene	<1.0	ug/L	06/26/2001		1251	IA OA-1/8260B	1.0
Ethylbenzene	<1.0	ug/L	06/26/2001		1251	IA OA-1/8260B	1.0
Xylenes	<3.0	ug/L	06/26/2001		1251	IA OA-1/8260B	3.0
MTBE	<1.0	ug/L	06/26/2001		1251	IA OA-1/8260B	1.0
Toluene-d8 (Surr.)	95.0	%	06/26/2001		1251	IA OA-1/SW 8260B	
4-Bromofluorobenzene (Surr.)	93.0	%	06/26/2001		1251	IA OA-1/SW 8260B	
Extraction Prep	Complete		06/27/2001	1695		IOWA-OA2	
EXTRACTABLE HYDROCARBONS-WATER							
Total Extractable Hydrocarbons	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Diesel	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Gasoline	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
Motor Oil	<380	ug/L	06/28/2001	1695	2902	IA-OA2/S-8015	380
N-Octacosane (Surr.)	98	%	06/28/2001	1695	2902	IA-OA2/S-8015	100
VOA Preservation pH	<2	units	06/26/2001		233	SW 9041A	

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

06/29/2001

Job Number: 01.07157

Analyte	Prep Batch Number	Run Batch Number	CCV True Concentration	Concentration Found	Percent Recovery
UST VOLATILE COMPOUNDS - 8260		1251	50.0	55.5	111.0
Benzene		1251	50.0	53.6	107.2
Toluene		1251	50.0	52.4	104.8
Ethylbenzene		1251	150.	154	102.7
Xylenes		1251	50.0	53.4	106.8
MTBE		1251	100	100.0	100.0
Toluene-d8 (Surr.)		1251	100	101.0	101.0
4-Bromofluorobenzene (Surr.)					
EXTRACTABLE HYDROCARBONS-WATER		2902	2,500	2,449	98.0
Diesel		2902	2,500	2,619	104.8
Gasoline		2902	2,500	2,449	98.0
Motor Oil					

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT BLANKS

06/29/2001

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Jen Flannery

Job Number: 01.07157

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
UST VOLATILE COMPOUNDS - 8260				
Benzene		1251	<1.0	ug/L
Toluene		1251	<1.0	ug/L
Ethylbenzene		1251	<1.0	ug/L
Xylenes		1251	<3.0	ug/L
MTBE		1251	<1.0	ug/L
EXTRACTABLE HYDROCARBONS-WATER				
Total Extractable Hydrocarbons	1695	2901	<380	ug/L
Diesel	1695	2901	<380	ug/L
Gasoline	1695	2901	<380	ug/L
Motor Oil	1695	2901	<380	ug/L
EXTRACTABLE HYDROCARBONS-WATER				
Total Extractable Hydrocarbons	1695	2902	<380	ug/L
Diesel	1695	2902	<380	ug/L
Gasoline	1695	2902	<380	ug/L
Motor Oil	1695	2902	<380	ug/L

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

06/29/2001

Jen Flannery
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669

Job No: 01.07157

Analyte	Prep	Run	LCS	Units	LCS	LCSD	LCS	LCSD	Control	Relative
	Batch	Batch					Percent	Percent		
	Number	Number	Amount		Result	Result	Recovery	Recovery	Limits	Difference
UST VOLATILE COMPOUNDS - 8										
Benzene		1251	20.0	ug/L	22.6	20.2	113.0	101.0	78 - 125	11.2
Toluene		1251	20.0	ug/L	22.0	19.6	110.0	98.0	78 - 125	11.5
Ethylbenzene		1251	20.0	ug/L	20.8	18.5	104.0	92.5	82 - 123	11.7
Xylenes		1251	60.0	ug/L	60.3	53.8	100.5	89.7	78 - 123	11.4
MTBE		1251	20.0	ug/L	22.0	20.8	110.0	104.0	61 - 139	5.6
Toluene-d8 (Surr.)		1251	100	μ	101.0	101	101.0	101.0	84 - 114	0.0
4-Bromofluorobenzene (Surr)		1251	100	μ	101.0	97	101.0	97.0	82 - 111	4.0
EXTRACTABLE HYDROCARBONS-W										
Diesel	1695	2901	2,000	ug/L	NA	2,000		100.0	48 - 110	
Gasoline	1695	2901	2,000	ug/L	1,883	2,175	94.2	108.8		14.4
Motor Oil	1695	2901	2,000	ug/L	NA	2,000		100.0		
N-Octacosane (Surr.)	1695	2901	100	μ	96	104	96.0	104.0	41 - 151	8.0

Sample Receipt and Temperature Log Form

Client: Shive Hattery

Project: Lateke

City: QCCSC

Date: 6-23-01 Receiver's Initials CH

Time (if Applicable): _____

Temperature Record

Cooler #1: 3° °C / On Ice
☒ Temp. Blank

Cooler #2: _____ °C / On Ice
☐ Temp. Blank

Cooler #3: _____ °C / On Ice
☐ Temp. Blank

Cooler #4: _____ °C / On Ice
☐ Temp. Blank

Thermometer:

☐ IR-905085

☐ CF07-03-T1

☒ IR-809065

☐ CF07-03-T2

Couriers

<input type="checkbox"/> Airborne	<input type="checkbox"/> Speedy
<input type="checkbox"/> UPS	<input type="checkbox"/> TA Courier
<input checked="" type="checkbox"/> Velocity	<input type="checkbox"/> TA Field Svs
<input type="checkbox"/> FedEx	<input type="checkbox"/> Client
<input type="checkbox"/> DHL	<input type="checkbox"/> Other
<input type="checkbox"/> US Postal	

COC Completed Correctly? ☐ Yes ☐ No
 (Cite inconsistencies below)

<input type="checkbox"/> Samples Not Received in a Cooler
<input type="checkbox"/> Temperature Not Taken

Cooler Checklist

(Check indicates conformance failure)

<input type="checkbox"/> Received Broken	<input type="checkbox"/> Improper Container	<input type="checkbox"/> Temperature above 6°C
<input type="checkbox"/> Improperly Preserved	<input type="checkbox"/> Missing Sample	<input type="checkbox"/> Expired Sample
<input type="checkbox"/> Missing Label	<input type="checkbox"/> Custody Seals Intact	<input type="checkbox"/> Extra Sample
<input type="checkbox"/> Insufficient Sample Volume	<input type="checkbox"/> Other:	<input type="checkbox"/> Other:

Client Sample IDs:

Remarks/Action Taken:

Initial/Date:

Increased emphasis has been put on sample preservation by the various regulators. Any sample being sent to TestAmerica - Cedar Falls Division, must be properly preserved, this includes sending sample in a properly cooled shipping container. The majority of tests performed for regulatory compliance must be preserved at 4°C +/- 2°C during storage and shipment as directed by 40 CFR Part 136. Results from sample which are not properly preserved at 4°C +/- 2°C may be rejected by regulators. Rejection or acceptance is solely at the discretion of the regulators.

TestAmerica

ANALYTICAL REPORT

Page 1 of 8

Sue Albrecht
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
309-764-7650

09/13/2001

Job Number: 01.10457

Sample Number: 637446

Collected by: Sue Albrecht

Collectors Phone No.: 309-764-7650

Job Description: LATEKE

Date Taken: 09/04/2001

CLINTON, IOWA

Sample ID: Bank - RB Project #301156-0

Date Received: 09/06/2001

Analyte	Result	Units	Flag	Analyst	Date Analyzed	Method	Quantitation Limit	Matrix
UST VOLATILE COMPOUNDS - 8260								
Benzene	<0.005	mg/kg		mmk	09/08/2001	IA OA-1/8260B	0.005	SOIL
Toluene	<0.005	mg/kg		mmk	09/08/2001	IA OA-1/8260B	0.005	SOIL
Ethylbenzene	<0.005	mg/kg		mmk	09/08/2001	IA OA-1/8260B	0.005	SOIL
Xylenes	<0.015	mg/kg		mmk	09/08/2001	IA OA-1/8260B	0.015	SOIL
MTBE	<0.015	mg/kg		mmk	09/08/2001	IA OA-1/8260B	0.015	SOIL
Extraction Prep. soil	COMPLETE			eee	09/10/2001	IOWA-OA2		SOIL
EXTRACTABLE HYDROCARBONS-SOIL								
Total Extractable Hydrocarbons	26.9	mg/kg		jcp	09/11/2001	IA-OA2/S-8015	10	SOIL
Diesel	<10	mg/kg		jcp	09/11/2001	IA-OA2/S-8015	10	SOIL
Gasoline	<10	mg/kg		jcp	09/11/2001	IA-OA2/S-8015	10	SOIL
Motor Oil	26.9	mg/kg		jcp	09/11/2001	IA-OA2/S-8015	10	SOIL

All results are calculated on a wet weight basis.


R. L. Bindert
Operations Manager
IA UST LAB CERTIFICATION NO. 0007

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Sue Albrecht

09/13/2001

Job Number: 01.10457

Enclosed is the Quality Control data for the following samples submitted to TestAmerica, Inc. - Cedar Falls for analysis:

Sample Number	Sample Description	Date Taken	Date Received
637446	Bank - RB Project #301156-0	09/04/2001	09/06/2001

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Iowa Laboratory Certification number - 7

QUALITY CONTROL REPORT

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Sue Albrecht

09/13/2001

Job Number: 01.10457

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
637446 Bank - RB Project #301156-0		09/04/2001				
UST VOLATILE COMPOUNDS - 8260						
Benzene	<0.005	mg/kg	09/08/2001	807	IA OA-1/8260B	0.005
Toluene	<0.005	mg/kg	09/08/2001	807	IA OA-1/8260B	0.005
Ethylbenzene	<0.005	mg/kg	09/08/2001	807	IA OA-1/8260B	0.005
Xylenes	<0.015	mg/kg	09/08/2001	807	IA OA-1/8260B	0.015
MTBE	<0.015	mg/kg	09/08/2001	807	IA OA-1/8260B	0.015
Toluene-d8 (Surr.)	118.0	†	09/08/2001	807	IA OA-1/8260B	
4-Bromofluorobenzene (Surr.)	90.0	†	09/08/2001	807	IA OA-1/8260B	
Extraction Prep, soil	COMPLETE		09/10/2001	2498	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	26.9	mg/kg	09/11/2001	2498	4105 IA-OA2/S-8015	10
Diesel	<10	mg/kg	09/11/2001	2498	4105 IA-OA2/S-8015	10
Gasoline	<10	mg/kg	09/11/2001	2498	4105 IA-OA2/S-8015	10
Motor Oil	26.9	mg/kg	09/11/2001	2498	4105 IA-OA2/S-8015	10
N-Octacosane (Surr.)	109	†	09/11/2001	2498	4105 IA-OA2/S-8015	1.0

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Sue Albrecht

09/13/2001

Job Number: 01.10457

Analyte	Prep	Run	CCV	Concentration Found	Percent Recovery
	Batch Number	Batch Number	True Concentration		
UST VOLATILE COMPOUNDS - 8260					
Benzene		807	50.0	48.9	97.8
Toluene		807	50.0	54.9	109.8
Ethylbenzene		807	50.0	51.0	102.0
Xylenes		807	150.0	132	88.0
MTBE		807	50.0	51.7	103.4
Toluene-d8 (Surr.)		807	100.0	117.0	117.0
4-Bromofluorobenzene (Surr.)		807	100.0	105.0	105.0
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		4105	2,500	2,740	109.6
Gasoline		4105	2,500	2,558	102.3
Motor Oil		4105	2,500	2,512	100.5

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT BLANKS

SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669
Sue Albrecht

09/13/2001

Job Number: 01.10457

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
UST VOLATILE COMPOUNDS - 8260				
Benzene		807	<0.005	mg/kg
Toluene		807	<0.005	mg/kg
Ethylbenzene		807	<0.005	mg/kg
Xylenes		807	<0.015	mg/kg
MTBE		807	<0.015	mg/kg
EXTRACTABLE HYDROCARBONS-SOIL				
Total Extractable Hydrocarbons	2498	4104	<10	mg/kg
Diesel	2498	4104	<10	mg/kg
Gasoline	2498	4104	<10	mg/kg
Motor Oil	2498	4104	<10	mg/kg

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sue Albrecht
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669

09/13/2001

Job Number: 01.10457

Analyte	Prep Batch No.	Run Batch No.	Sample Result	Units	MS Spike			MSD Spike			RPD	Flag(s)
					Conc. Added	MS Result	MS %Rec.	Conc. Added	MSD Result	MSD % Rec.		
UST VOLATILE COMPOUNDS - 8260		807	0.066	mg/kg	0.0573	0.144	136	0.0598	0.122	94	17	
Benzene		807	0.006	mg/kg	0.0573	0.0768	124	0.0598	0.0650	99	17	
Toluene		807	0.051	mg/kg	0.0573	0.141	157	0.0598	0.118	112	18	
Ethylbenzene		807	0.015	mg/kg	0.172	0.141	73	0.180	0.177	90	23	
Xylenes		807	<0.015	mg/kg	0.057	0.070	123	0.060	0.066	110	5.9	
MTBE												



QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

09/13/2001

Sue Albrecht
SHIVE HATTERY ENGINEERS
1701 River Drive, Ste. 200
P.O. Box 1169
Moline, IL 61265-8669

Job No: 01.10457

Analyte	Prep	Run	LCS		LCS	LCSD	LCS	LCSD	Relative
	Batch	Batch	Amount	Units	Result	Result	Percent	Percent	
	Number	Number					Recovery	Recovery	Percent
							Limits		Difference
UST VOLATILE COMPOUNDS - 8									
Benzene		807	0.0339	mg/kg	0.0434		128.0		65 - 152
Toluene		807	0.0339	mg/kg	0.0394		116.2		62 - 148
Ethylbenzene		807	0.0339	mg/kg	0.0436		128.6		62 - 154
Xylenes		807	0.102	mg/kg	0.110		107.8		59 - 155
MTBE		807	0.0339	mg/kg	0.0351		103.5		57 - 159
Toluene-d8 (Surr.)		807	100.000	%	103.0		103.0		80 - 116
4-Bromofluorobenzene (Surr)		807	100.000	%	103.0		103.0		75 - 119
EXTRACTABLE HYDROCARBONS-S									
Diesel	2498	4104	66.7	mg/kg	53.3		79.9		59 - 119
Gasoline	2498	4104	1.0	mg/kg	NA				44 - 149
Motor Oil	2498	4104	1.0	mg/kg	NA				
N-Octacosane (Surr.)	2498	4104	100	%	82		82.0		25 - 183



Page 8 of 8

TestAmerica Job Number: 01.10457

ATTACHMENTS

Following are the sample receipt log and the chain of custody applicable to this analytical report.

For questions regarding this report, please contact the individual who signed the analytical report.

Sample Receipt and Temperature Log Form

Client: Shive Hattery Project: _____
 City: QCCSC
 Date: 9-6-01 Receiver's Initials: CH Time (if Applicable): _____

Temperature Record

Cooler #1: 26 °C / On Ice ☒ Temp. Blank
 Cooler #2: _____ °C / On Ice ☐ Temp. Blank
 Cooler #3: _____ °C / On Ice ☐ Temp. Blank
 Cooler #4: _____ °C / On Ice ☐ Temp. Blank

Thermometer:

☐ IR-905085 ☐ CF07-03-T1
☒ IR-809065 ☐ CF07-03-T2

COC Completed Correctly? ☒ Yes ☐ No
 (Cite inconsistencies below)

Couriers

<input type="checkbox"/> Airborne	<input type="checkbox"/> Speedy
<input type="checkbox"/> UPS	<input type="checkbox"/> TA Courier
<input checked="" type="checkbox"/> Velocity	<input type="checkbox"/> TA Field Svs
<input type="checkbox"/> FedEx	<input type="checkbox"/> Client
<input type="checkbox"/> DHL	<input type="checkbox"/> Other
<input type="checkbox"/> US Postal	

<input type="checkbox"/> Samples Not Received in a Cooler
<input type="checkbox"/> Temperature Not Taken
<input type="checkbox"/> Samples Received Within 6 hrs of sampling

Cooler Checklist (Check indicates conformance failure)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Improper Container	<input type="checkbox"/>	Temperature*
<input type="checkbox"/>	Improperly Preserved	<input type="checkbox"/>	Missing Sample	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date	<input type="checkbox"/>	Improper Label
<input type="checkbox"/>	Insufficient Sample Volume	<input type="checkbox"/>	Other:		

Client Sample IDs:

Remarks/Action Taken:

Initial/Date:

To assist us in using the proper analytical methods,
is this work being conducted for regulatory purposes?
Compliance Monitoring Yes - In RBCA

Client #:

1

5

1

197

1

1

PO#:

Rush (surcharges may apply)

ple

Dati

44

1

1

1

1

1

1

1

1

1

1

1

Lafek

0-5756

for

2

Shive-H

PO#

1

NOVA

Level 2

1991 3

Level 4

Curriculum: _____

REMARKS

LABORATORY COMMENTS

Just Say Tonsa!

THE NEW YORK PUBLIC LIBRARY

2000
 1999
 1998
 1997
 1996
 1995
 1994
 1993
 1992
 1991
 1990
 1989
 1988
 1987
 1986
 1985
 1984
 1983
 1982
 1981
 1980
 1979
 1978
 1977
 1976
 1975
 1974
 1973
 1972
 1971
 1970
 1969
 1968
 1967
 1966
 1965
 1964
 1963
 1962
 1961
 1960
 1959
 1958
 1957
 1956
 1955
 1954
 1953
 1952
 1951
 1950
 1949
 1948
 1947
 1946
 1945
 1944
 1943
 1942
 1941
 1940
 1939
 1938
 1937
 1936
 1935
 1934
 1933
 1932
 1931
 1930
 1929
 1928
 1927
 1926
 1925
 1924
 1923
 1922
 1921
 1920
 1919
 1918
 1917
 1916
 1915
 1914
 1913
 1912
 1911
 1910
 1909
 1908
 1907
 1906
 1905
 1904
 1903
 1902
 1901
 1900

Bottles Supplied by TestAmerica: Y

.....

Wahpogonche

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: MW1		Facility Name: Lateke Sports Center		Facility 1209 Roosevelt St.			
				Street Address: Clinton, Iowa			
Boring Depth (ft) X Diameter (in): 15' x 6.25"				Drilling Method: Hollow-Stem Auger			
Well Contractor Name: Maxim				Logged by: Jennifer Flannery			
Registration Number: 40449							
Ground Surface Elevation (ASL): 586.72			Top of Casing Elevation (ASL): 586.22				
Date: 05/02/01		Date: 05/02/01		UST			
Start Time: 1330		End Time: 1415		Number: 9918053			
				LUST Number: 9LTI57			
Depth (feet)	Well Construction Details	Blow Count if applicable	Sample No.	Type*	PID / FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, odor, etc.) First column for USCS	
0			1			Surface Cover= Grass	
1			2	CC	0	CL 0-2' CLAY, dark brown	
2			3	CC	0	CL 2-6' CLAY, dark brown	
3			4	CC	0	CL 6-8' Sandy CLAY, dark brown	
4			5	CC	0	CL 8-14' CLAY, dark brown	
5			6	CC	0	CL 14-15' Sandy CLAY, dark brown, sand at tip	
6			7	CC	0		
7			8	CC	0		
8							EOB= @ approx. 15'
9							No odors noted throughout boring
10							**Sample submitted for analysis @ 8-10' bgs
11							Well constructed from 2", Schedule 40 PVC, 10-slot screen
12							3' PVC Riser
13							12' PVC Screen
14							
15							

* SS(split spoon) CC (continuous coring) HA (hand auger bucket)

Observations	Date:	05/02/01	06/21/01	07/16/01		
Water Levels (ASL)	Level:	576.72	581.64	576.95		
Static Water Level Symbol v	Time:	1400	1230	1000		

DNR FORM 542-1392

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: MW2		Facility Name: Lateke Sports Center		Facility 1209 Roosevelt St. Street Address: Clinton, Iowa		
Boring Depth (ft) X Diameter (in): 15' x 6.25"				Drilling Method: Hollow-Stem Auger		
Well Contractor Name: Maxim Registration Number: 40449				Logged by: Jennifer Flannery		
Ground Surface Elevation (ASL): 586.84			Top of Casing Elevation (ASL): 586.44			
Date: 05/02/01 Start Time: 1530		Date: 05/02/01 End Time: 1615		UST Number: 9918053		
Date: 05/02/01 Start Time: 1530		Date: 05/02/01 End Time: 1615		LUST Number: 9LTI57		
Depth (feet)	Well Construction Details	Blow Count if applicable	Sample No.	Type*	PID / FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, odor, etc.) First column for USCS
0			1			Surface Cover= Grass
1			2	CC	0	CL 0-2' CLAY, brown
2			3	CC	0	CL 2-15' CLAY, brown, coarse gravel
3			4	CC	0	
4			5	CC	0 **	
5			6	CC	0	EOB= @ approx. 15'
6			7	CC	0	No odors noted throughout boring
7			8	CC	0	
8						**Sample submitted for analysis @ 8-10' bgs
9						Well constructed from 2", Schedule 40 PVC, 10-slot screen
10 V						3' PVC Riser
11						12' PVC Screen
12						
13						
14						
15						

* SS(split spoon) CC (continuous coring) HA (hand auger bucket)

Observations	Date:	05/02/01	06/21/01	07/16/01		
Water Levels (ASL)	Level:	576.84	581.88	573.25		
Static Water Level Symbol v	Time:	1630	1230	0900		

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: MW3		Facility Name: Lateke Sports Center		Facility 1209 Roosevelt St. Street Address: Clinton, Iowa			
Boring Depth (ft) X Diameter (in): 15' x 6.25"				Drilling Method: Hollow-Stem Auger			
Well Contractor Name: Maxim Registration Number: 40449				Logged by: Jennifer Flannery			
Ground Surface Elevation (ASL): 586.61			Top of Casing Elevation (ASL): 586.36				
Date: 05/02/01 Start Time: 1630		Date: 05/02/01 End Time: 1715		UST Number: 9918053			
				LUST Number: 9LT157			
Depth (feet)	Well Construction Details	Blow Count if applicable	Sample No.	Type*	PID / FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, odor, etc.) First column for USCS	
0			1			Surface Cover= Grass	
1						CL 0-2' CLAY, brown	
2							
3						CL 2-15' CLAY, brown, coarse gravel	
4				2	CC	0	
5				3	CC	0	
6				4	CC	0	
7				5	CC	0 **	
8				6	CC	0	EOB= @ approx. 15'
9				7	CC	0	No odors noted throughout boring
10 V				8	CC	0	
11							**Sample submitted for analysis @ 8-10' bgs
12							Well constructed from 2", Schedule 40 PVC, 10-slot screen
13							3' PVC Riser
14							12' PVC Screen
15							

* SS(split spoon) CC (continuous coring) HA (hand auger bucket)

Observations	Date:	05/02/01	06/21/01			
Water Levels (ASL)	Level:	576.61	580.94			
Static Water Level Symbol v	Time:	1700	1300			

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring / Well Number: Bank-RB (Replacement Boring)		Facility Name: Lateke Sports Center		Facility 1209 Roosevelt St. Street Address: Clinton, Iowa		
Boring Depth (ft) X Diameter (in): 5' x 2"				Drilling Method: Hand Auger		
Well Contractor Name: N/A Registration Number:				Logged by: Sue Albrecht		
Ground Surface Elevation (ASL): 580.00 Est.			Top of Casing Elevation (ASL): N/A			
Date: 09/04/01 Start Time: 1745		Date: 09/04/01 End Time: 1830		UST Number: 9918053		
				LUST Number: 9LTI57		
Depth (feet)	Well Construction Details	Blow Count if applicable	Sample No. Type*		PID / FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, odor, etc.) First column for USCS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Permanent Monitoring Well Not Installed		1	HA	0 **	Surface Cover = Weeds and Concrete Rubble CL 0-5' Silty CLAY, black, damp, large chunks of concrete rubble, broken brick, coarse gravel and river rock Boring terminated due to the presence of obstructions in the soil - there was no indication by visual or olfactory observations of petroleum contamination EOB= @ approx. 5' No odors noted throughout boring **Sample submitted for analysis @ 0-1' bgs
			2	HA	0	
			3	HA	0	
			4	HA	0	
			5	HA	0	

* SS(split spoon) CC (continuous coring) HA (hand auger bucket)

Observations	Date:				
Water Levels (ASL)	Level:				
Static Water Level Symbol v	Time:				

ATTACHMENT 31

TIER 1 SELECTED INFORMATION

- ☒ PAGES 5, 6, & 10 OF THE REPORT BODY
 - ☒ APPENDIX 1-TOPOGRAPHIC MAP
 - ☒ APPENDIX 4-FIELD SCREENING MAP
 - ☐ APPENDIX 10-LEGAL DESCRIPTION
 - ☐ APPENDIX 11-TANK TIGHTNESS TEST RESULTS
- ☒ APPENDIX 14-HYDRAULIC CONDUCTIVITY MEASUREMENTS

SITE HISTORY

Site Activity and Owner Chronology			
Date the petroleum release was discovered (mm/dd/yy): 12/01/98			
Date the petroleum release was reported to IDNR (mm/dd/yy): 12/01/98			
Describe the circumstances of the discovery of the release and the initial actions taken to abate the release.			
<p>A petroleum sheen was observed on the Joyce Slough of the Mississippi River (located approximately 10' east of the UST location). The owner notified the IDNR and a field specialist visited the site. The IDNR field specialist collected a surface water sample and a surface soil sample from the river bank. Both of the samples reportedly contained concentrations above the current IDNR action levels. The release was associated with two USTs that were still on-site but had not been in service for approximately twenty-five years. A significant amount of product was still present in the tanks. The USTs were removed by the owner on approximately 12/16/98. The IDNR field representative collected a tank closure soil sample on 12/18/98 that also reportedly exceeded current IDNR action levels. The tank pit was backfilled with large concrete rubble and clean soil and no further action was taken until the commencement of a RBCA assessment in May of 2001.</p>			
<p>Site Owner Chronology: Provide a chronological summary of past and present site and tank owners and operational history in the table below. Begin with the present and work backwards. Include all periods of time petroleum products have been stored, used or sold at the site. This page may be copied for additional site history.</p> <p>Has this page been copied? Y <input type="checkbox"/> N <input checked="" type="checkbox"/></p>			
Date:	1998 to Present	Approx. 1959-1998	Prior to 1959
Land Owner Name and Address:	Kerry Kahler 1209 Roosevelt Street Clinton, Iowa 52732	Harry Kahler 1209 Roosevelt Street Clinton, Iowa 52732	Unknown
Tank Owner Name and Address:	Same	Same	
Operator Name and Address:	Same	Same	
Contract Agreements:	N/A	N/A	
Site Activities:	<p>Current use as a residential property and marina boat storage at docks located on the river.</p> <p>There is no active tank system currently at the site</p>	<p>Installed approximately 1962:</p> <p>1-500 gal., steel, gas UST 1-1,000 gal., steel, gas UST Used to fuel boats on river</p> <p>Both USTs removed on 12/16/98</p>	<p>Residential Property</p> <p>No fuel known to be stored on-site.</p>

SITE HISTORY (continued)

Current Site Conditions						
Description of Existing UST System (This page may be photocopied if more than six tanks exist at this site)						
<input checked="" type="checkbox"/> Check here if no USTs currently exist at the site						
	1	2	3	4	5	6
Tank Number						
Capacity						
Product Stored						
Construction Material						
Operational Status Check one box only for each tank						
Contains product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contains no product and is out of use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tank and Line Tightness Tests						
Tank Leak Rate (g/h)						
Line Leak Rate (g/h)						
<p>Tank and Line Tightness Test. Explain the cause of testing anomalies and discuss any corrective actions or repairs made to the system. Identify the leak detection method. Confirm that the method and results have been reviewed and note whether releases are indicated.</p> <p style="margin-top: 20px;">There is no active tank system at the site.</p>						
<p>Financial Responsibility. Indicate the financial assurance mechanism for the site and the status of coverage for corrective action:</p> <p style="margin-top: 10px;">The site is not covered by the Iowa Underground Storage Tank Fund. The site owner is responsible for the costs associated with this assessment.</p>						
<p>Site Geology. Provide a general description.</p> <p style="margin-top: 10px;">The site is located approximately 10-15' west of the Joyce Slough of the Mississippi River. Site geology consists primarily of clay soils. A coarse fill material consisting of concrete rubble and coarse gravel is present in the former tank pit. Concrete rubble, coarse gravel and broken brick is combined with silty soil on the bank located east of the former tank pit.</p>						
<p>Surrounding Land Use. Provide a general description of the current surrounding land use. Identify relevant land use restrictions and known future land use (e.g., surrounding properties are zoned for residential use).</p> <p style="margin-top: 10px;">The site is located in an area of industrial zoning. The site is bordered by property that is also zoned industrial to the north and south. Property located west of the site is zoned for commercial use. This information was obtained from the City of Clinton during the course of this site assessment.</p>						

SAMPLING RESULTS (continued):

Hydraulic Conductivity				
Complete the table below with the well geometry variables used to calculate hydraulic conductivity for each well which was slug tested. Indicate the units (meters, feet, seconds, etc.) for each variable and the date the tests were conducted.				
Monitoring Well Number	MW3	MW2		
Date of Slug Test (mm/dd/yy)	07/16/01	07/16/01		
Static Water Level	9.27	11.19		
Volume of Slug (Gal.)	0.790	0.593		
H (ft)	11.80	7.62		
L _s (ft)	5.90	3.81		
L _w (ft)	5.90	3.81		
r _c (ft)	0.08	0.08		
r _w (ft)	0.26	0.26		
r _a (ft)	0.151	0.151		
Gravel pack porosity (% as a decimal)	0.15	0.15		
Hydraulic Conductivity (m/d)	0.002	0.004		

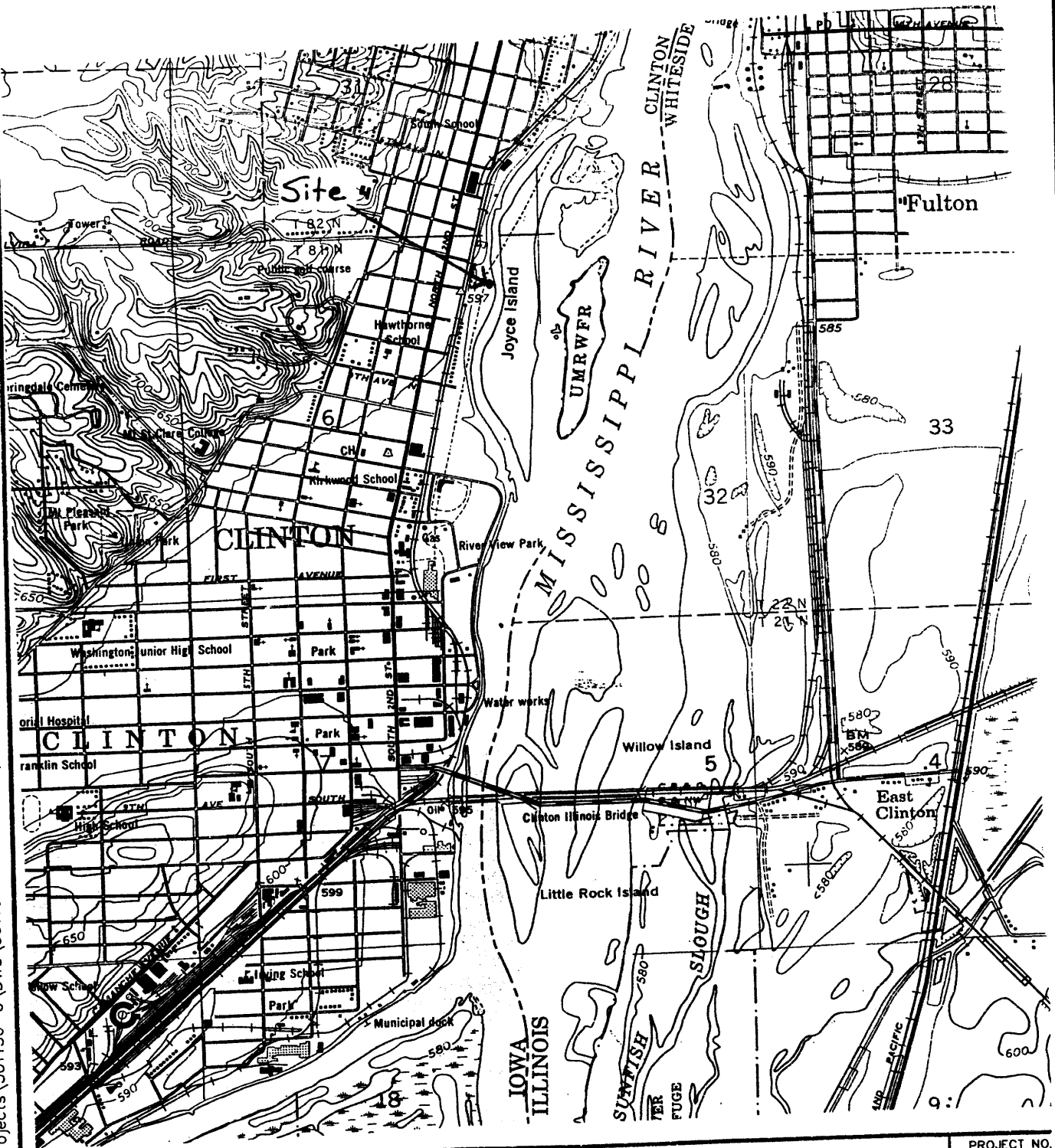
Hydraulic Conductivity. Explain why the location/number of data points where hydraulic conductivity was determined adequately provides a representative indication of conductivity at the site. If a program other than AQTESOLV or BRSLUG was used to calculate hydraulic conductivity, identify the program name, version, vendor name, address, and phone number. Provide a justification if adjustments were made to best fit line for the plots of time versus drawdown data.

Hydraulic conductivity (K) was field tested by Shive-Hattery personnel at two permanent monitoring well locations by performing a slug out test. MW2 and MW3 are characterized by clay and coarse gravel geology. MW1 was not tested due to the nearby presence of a septic tank. The values of K appear to be consistent with the reported boring geology at each location.

Bouwer-Rice (BR Slug) software was used to calculate the hydraulic conductivity values using a filter pack porosity of 15% and a saturated thickness of 2L_s.

Approximately the first 10% of the slug test data was attributed to filter pack drainage and approximately the last 10% was considered late drawdown. These data points were therefore ignored in creating a best-fit line for the plots of time vs. drawdown.

tsmendo | P:\Projects\301156-0\DWG\301156-0-SITE.DWG | DATE: 09/11/2001 | Time: 09:04 |



SHIVE-HATTERY

Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

**LATEKE SPORTS CENTER
TOPOGRAPHIC MAP
CLINTON, IOWA**

DATE	05/17/01	SCALE	1" = 2000'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

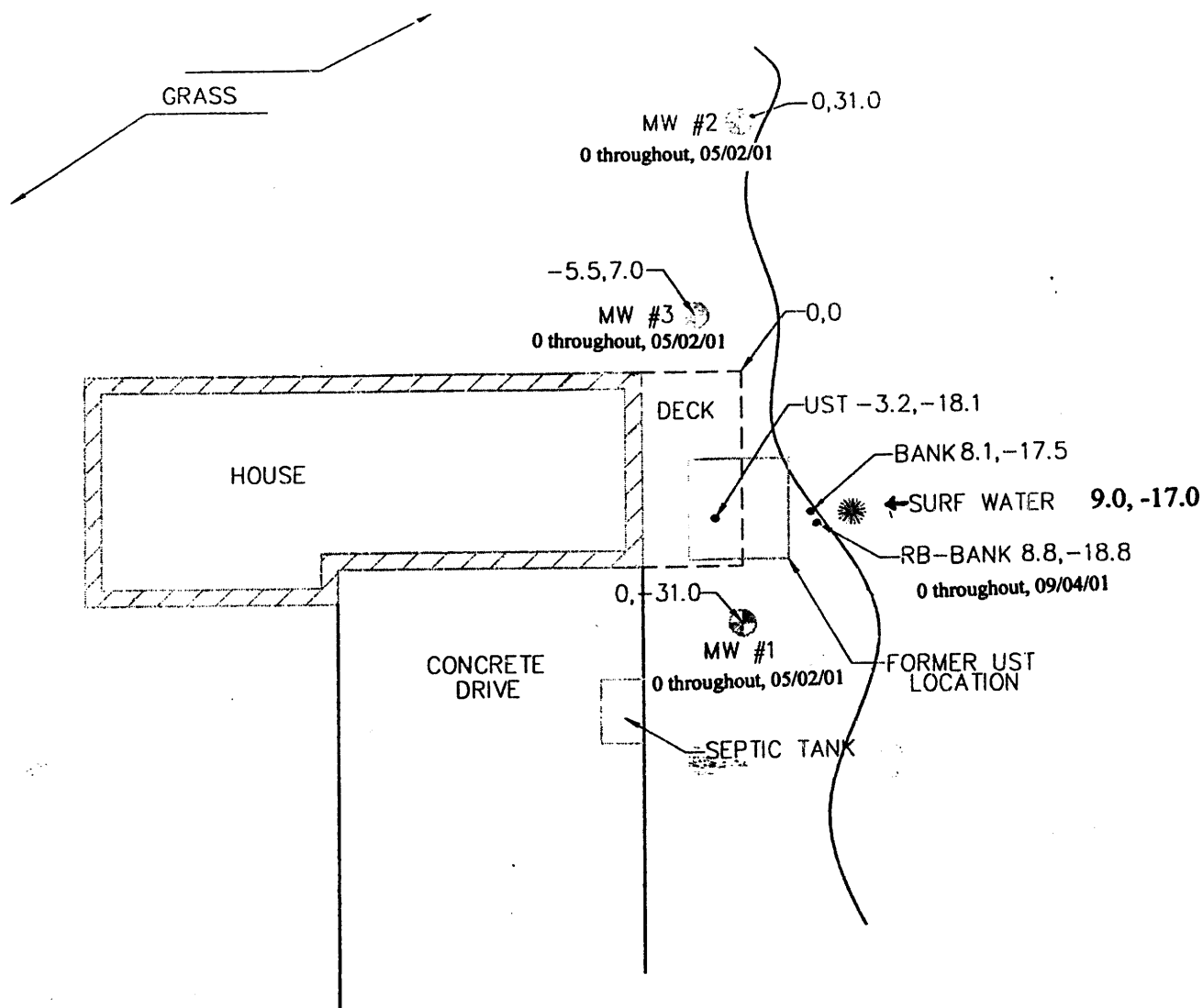
PROJECT NO.
301156-0
LATEKE

SHEET NO.

SITE

| tsmdo | P: \Projects\301156-0\DWG\301156-0-SITE.DWG | DATE: 09/11/2001 | Time: 09:04 |

Field Screening of Samples by use of Photoionization Detector (PID)



1 SITE PLAN

- SOIL SAMPLE LOCATION
- SOIL BORING/MONITORING WELL
- SURFACE WATER SAMPLE



SHIVE-HATTERY
Cedar Rapids, IA • Iowa City, IA • Des Moines, IA
Moline, IL • Bloomington, IL • Chicago, IL

LATEKE SPORTS CENTER FIELD SCREENING MAP 1209 ROOSEVELT CLINTON, IA

DATE	05/17/01	SCALE	1"=20'
DRAWN	MDW	FIELD BOOK	37/420
APPROVED	JRF	LUST #	9LT157

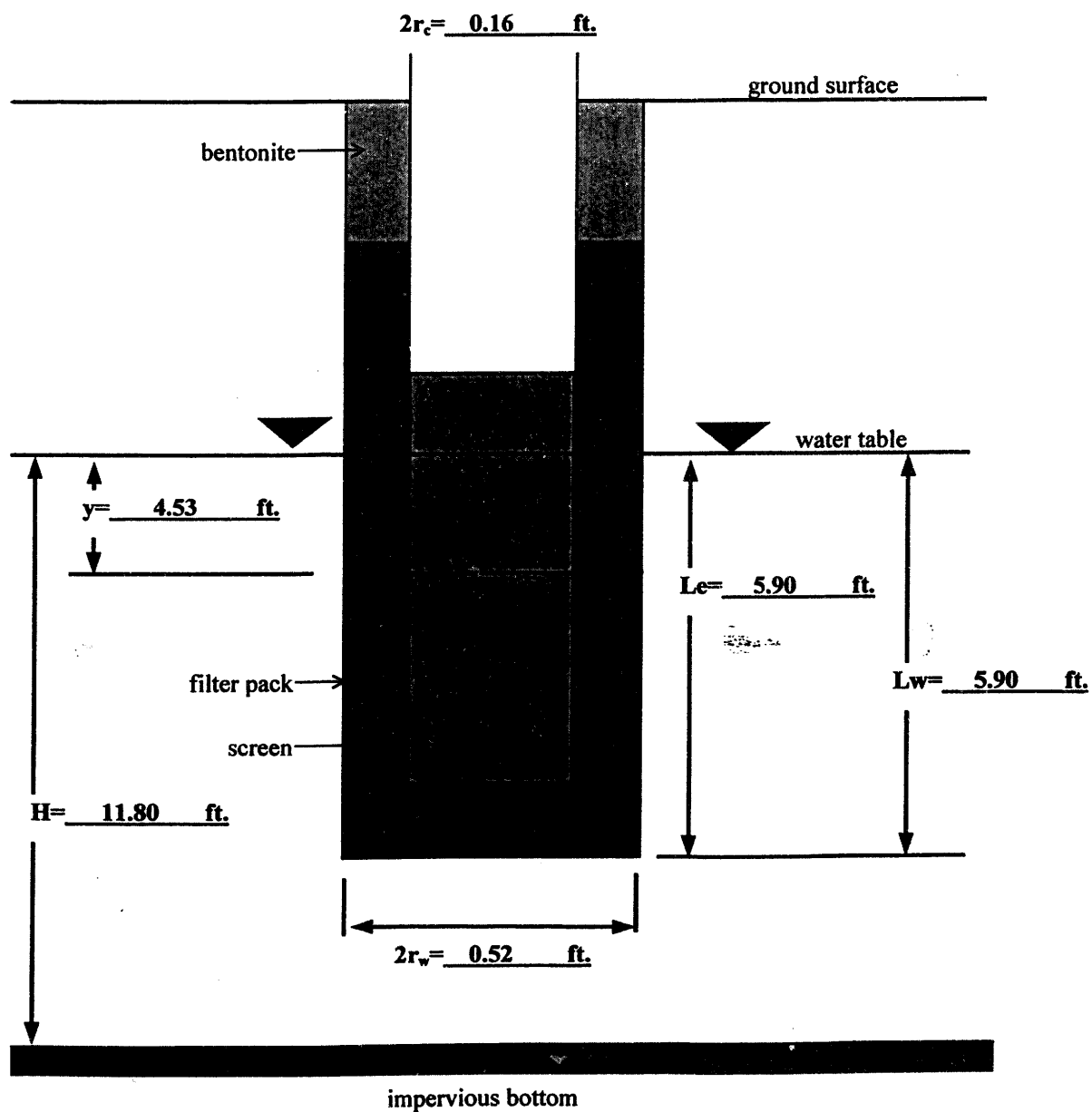
PROJECT NO.
301156-0
LATEKE

SHEET NO.

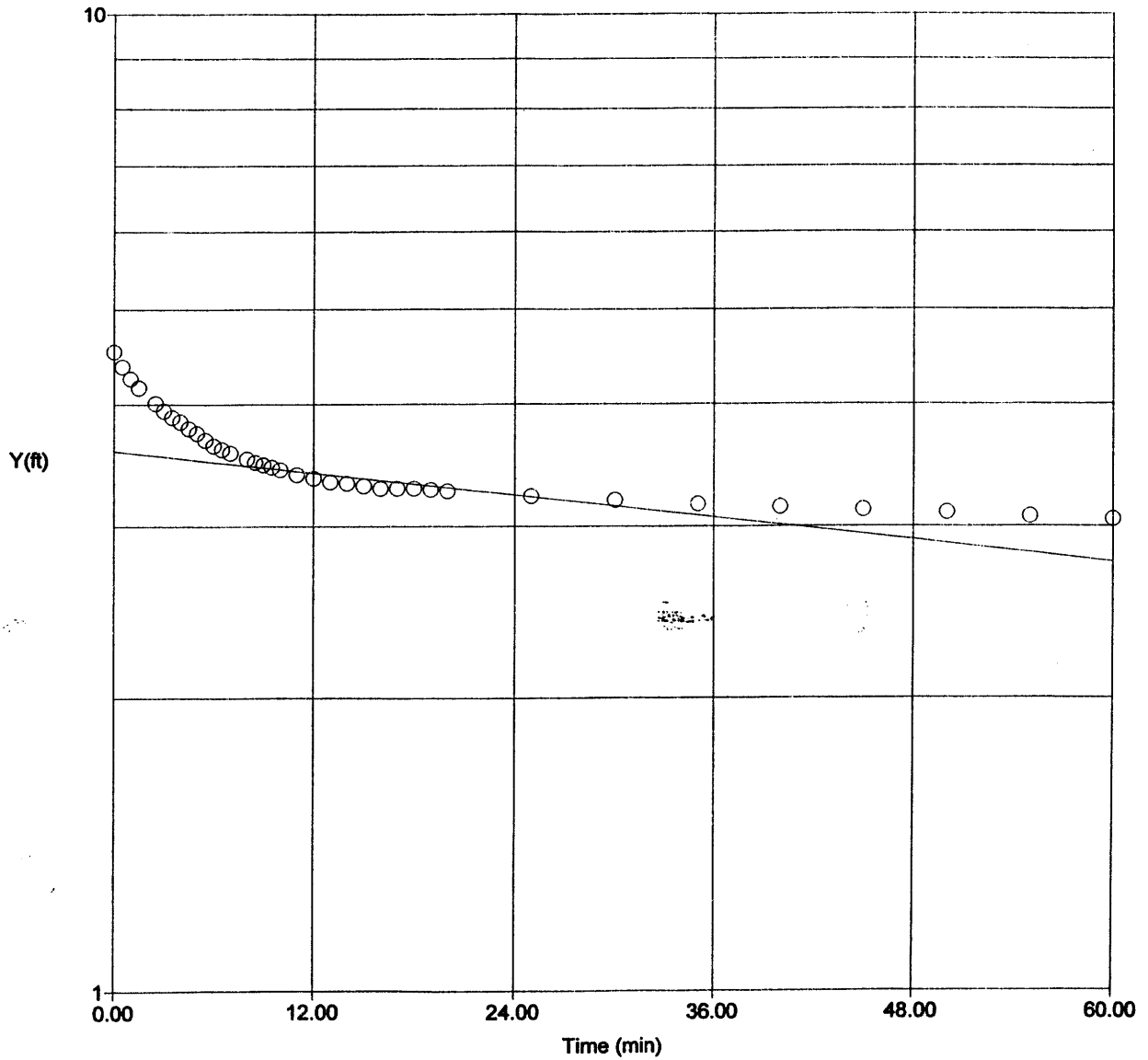
SITE

Hydraulic Conductivity Well Diagram

Monitoring Well: MW3
Date Measured: 07/16/01



Lateke
MW3



LUST No.: 9LT157		Site Name: Lateke Sports Center	
Hydraulic Conductivity: 6.04e-04 m/day		Well: MW3	Slug Test Date:
Shive-Hattery, Inc.		CGWP: Jeff Ogden, 1676	

BOUWER-RICE SLUG TEST ANALYSIS

SITE

Lateke Sports Center
1209 Roosevelt
Clinton, Iowa, 52732
LUST No. 9LTI57 UST Registration No. 9918053

CLIENT

Lateke Sports Center
1209 Roosevelt
Clinton, Iowa, 52732

CONSULTANT

Shive-Hattery, Inc.
1701 River Drive
Moline, Illinois, 61265
Certified Groundwater Professional: Jeff Ogden, 1676

SLUG TEST

Hydraulic Conductivity: 0.00231 m/day

Monitoring Well: MW3
Field Testing by: Jennifer Flannery
Test Analysis by: Sue Albrecht

WELL GEOMETRY

H: 11.80 ft
Lw: 5.9 ft
Le: 5.9 ft
dw: 6.25 in, rw: 3.13 in
dc: 2 in, rc: 1.0 in
Drained Filter Pack Porosity (%): 0.15
Effective Radius (re): 1.01 in
Slug Volume(GAL): 0.79

BOUWER-RICE COEFFICIENTS

Le/rw: 22.7
A: 2.21
B: 0.313
C: 1.64
Ln(Re/rw): 2.03

LEAST SQUARES BEST FIT

Ln(Y)-cm versus Time-sec
Slope: -7.27e-05
Intercept: 4.69

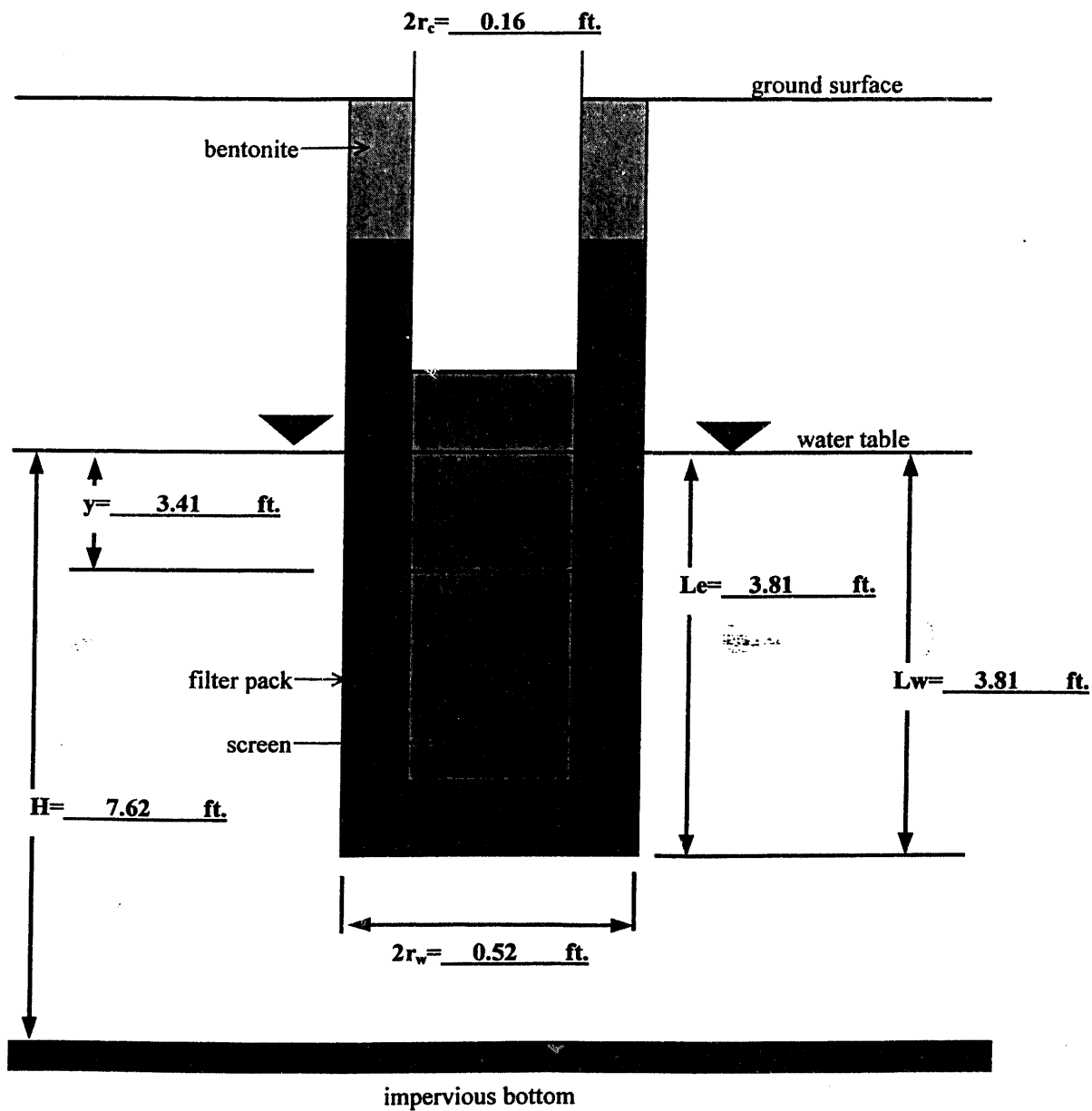
MW 3

Slug Test Type: Rising head
Recovery Data Type: D: Depth to Groundwater
Static Water Level: 9.27 ft

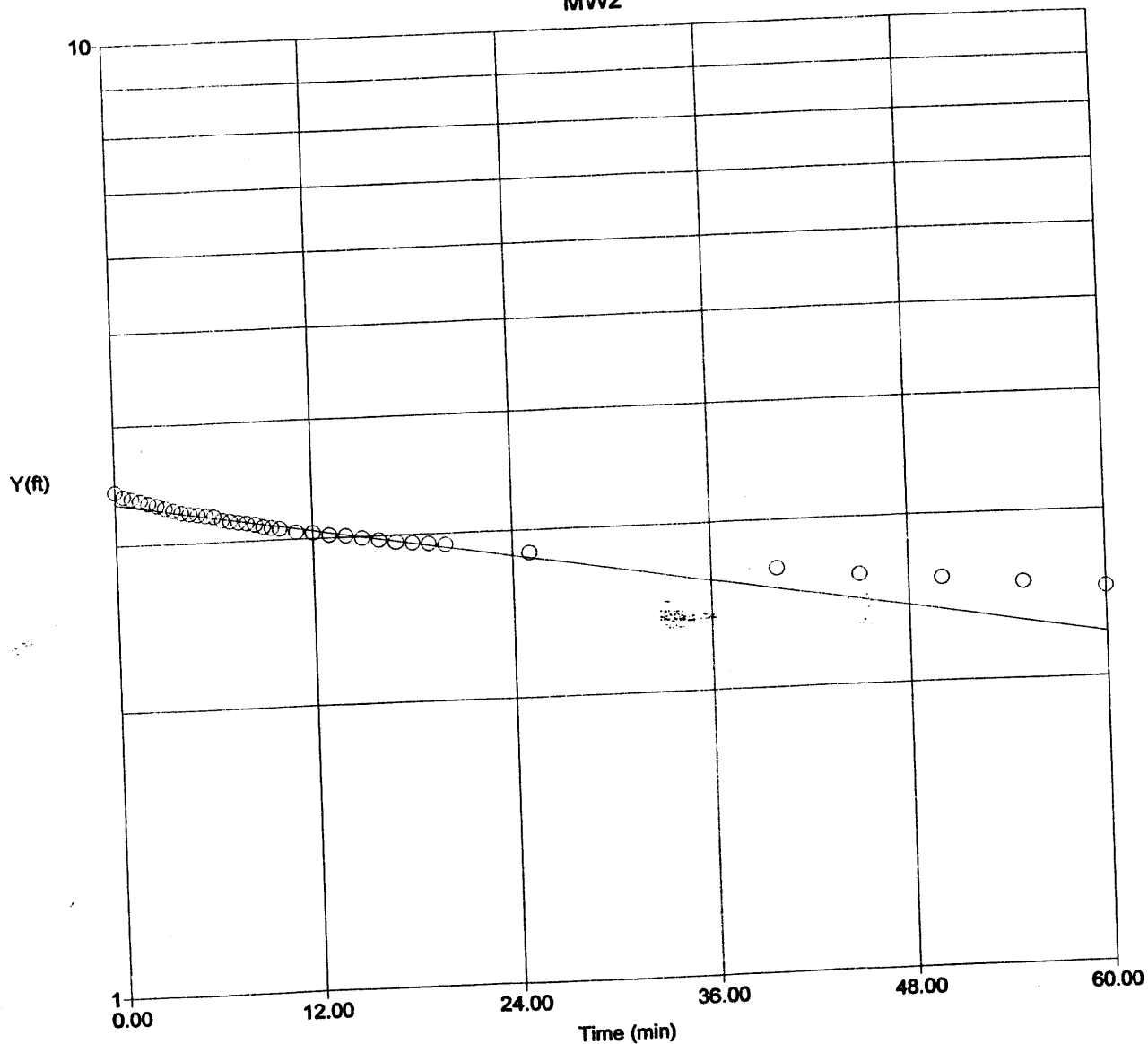
Time (min)	Recovery:D(ft)	Fit Criteria	Y(ft)	Fit Y(ft)
0	13.8	Ignore	4.53	3.59
.5	13.64	Ignore	4.37	3.58
1	13.52	Ignore	4.25	3.57
1.5	13.43	Ignore	4.16	3.56
2.5	13.28	Ignore	4.01	3.55
3	13.21	Ignore	3.94	3.54
3.5	13.15	Ignore	3.88	3.53
4	13.11	Ignore	3.84	3.52
4.5	13.05	Ignore	3.78	3.52
5	13.01	Ignore	3.74	3.51
5.5	12.95	Ignore	3.68	3.5
6	12.90	Ignore	3.63	3.49
6.5	12.87	Use	3.6	3.49
7	12.84	Use	3.57	3.48
8	12.79	Use	3.52	3.46
8.5	12.76	Use	3.49	3.46
9	12.74	Use	3.47	3.45
9.5	12.72	Use	3.45	3.44
10	12.70	Use	3.43	3.43
11	12.66	Use	3.39	3.42
12	12.63	Use	3.36	3.4
13	12.6	Use	3.33	3.39
14	12.59	Use	3.32	3.37
15	12.57	Use	3.3	3.36
16	12.55	Use	3.28	3.34
17	12.55	Use	3.28	3.33
18	12.55	Use	3.28	3.32
19	12.54	Use	3.27	3.3
20	12.53	Use	3.26	3.29
25	12.49	Use	3.22	3.22
30	12.46	Use	3.19	3.15
35	12.43	Use	3.16	3.08
40	12.41	Ignore	3.14	3.01
45	12.39	Ignore	3.12	2.95
50	12.37	Ignore	3.1	2.88
55	12.34	Ignore	3.07	2.82
60	12.32	Ignore	3.05	2.76

Hydraulic Conductivity Well Diagram

Monitoring Well: MW2
Date Measured: 07/16/01



Lateke
MW2



LUST No.: 9LT157	Site Name: Lateke Sports Center	Slug Test Date: 07/16/01
Hydraulic Conductivity: 0.00449 m/day	Well: MW2	CGWP: Jeff Ogden; Raymond Professional Group, 1676
Shive-Hattery, Inc.		

BOUWER-RICE SLUG TEST ANALYSIS

SITE

Lateke Sports Center
1209 Roosevelt
Clinton, Iowa, 52732
LUST No. 9LTI57 UST Registration No. 9918053

CLIENT

Lateke Sports Center
1209 Roosevelt
Clinton, Iowa, 52732
Job/Account: 301156-0

CONSULTANT

Shive-Hattery, Inc.
1701 River Drive
Moline, Illinois, 61265
Certified Groundwater Professional: Jeff Ogden; Raymond Professional Group, 1676

SLUG TEST

Hydraulic Conductivity: 0.00449 m/day

Monitoring Well: MW2
Test Date: 07/16/01
Field Testing by: Jennifer Flannery
Test Analysis by: Sue Albrecht

WELL GEOMETRY

H: 7.62 ft
Lw: 3.81 ft
Le: 3.81 ft
dw: 6.25 in, rw: 3.13 in
dc: 2 in, rc: 1.0 in
Drained Filter Pack Porosity (%): 0.15
Effective Radius (re): 1.01 in
Slug Volume (GAL): 0.51

BOUWER-RICE COEFFICIENTS

Le/rw: 14.6
A: 1.99
B: 0.267
C: 1.24
Ln(Re/rw): 1.68

LEAST SQUARES BEST FIT

Ln(Y)-cm versus Time-sec
Slope: -1.10e-04
Intercept: 4.61

M/W 2

Slug Test Type: Rising head
Recovery Data Type: D: Depth to Groundwater
Static Water Level: 11.19 ft

Time (min)	Recovery: D(ft)	Fit Criteria	Y(ft)	Fit Y(ft)
0	14.6	Ignore	3.41	3.31
.5	14.56	Ignore	3.37	3.3
1	14.54	Ignore	3.35	3.29
1.5	14.52	Ignore	3.33	3.28
2	14.50	Ignore	3.31	3.27
2.5	14.48	Use	3.29	3.25
3	14.46	Use	3.27	3.24
3.5	14.44	Use	3.25	3.23
4	14.42	Use	3.23	3.22
4.5	14.41	Use	3.22	3.21
5	14.4	Use	3.21	3.2
5.5	14.39	Use	3.2	3.19
6	14.38	Use	3.19	3.18
6.5	14.35	Use	3.16	3.17
7	14.34	Use	3.15	3.16
7.5	14.33	Use	3.14	3.15
8	14.32	Use	3.13	3.14
8.5	14.31	Use	3.12	3.13
9	14.29	Use	3.1	3.12
9.5	14.28	Use	3.09	3.11
10	14.27	Use	3.08	3.1
11	14.24	Use	3.05	3.08
12	14.23	Use	3.04	3.06
13	14.21	Use	3.02	3.04
14	14.20	Use	3.01	3.02
15	14.18	Use	2.99	3.0
16	14.16	Use	2.97	2.98
17	14.14	Use	2.95	2.96
18	14.13	Use	2.94	2.94
19	14.12	Use	2.93	2.92
20	14.11	Use	2.92	2.9
25	14.03	Use	2.84	2.81
40	13.86	Ignore	2.67	2.54
45	13.8	Ignore	2.61	2.46
50	13.76	Ignore	2.57	2.38
55	13.72	Ignore	2.53	2.3
60	13.68	Ignore	2.49	2.23