

Key to Summaries

I. Remediation

gwe= groundwater extraction
sve= soil vapor extraction

II. Product

alc= alcohol
kero=kerosene
gas= gasoline
unl= unleaded gas
FO= fuel oil
MO= motor oil
dies= diesel
WO= waste oil
anti= anti-freeze
TF= Transmission fluid
solvent= solvent
HF= heating fuel, fuel oil
df= diesel fuel
eth= ethanol

ust= underground storage tank

ast= above ground storage tank

III. Uppermost bedrock

OPDC= Ordovician Prairie du Chien
OSTP= Ordovician St. Peter
DGAL= Devonian Galena formation

IV. Groundwater Chemistry

B = benzene
T = toluene
E = ethylbenzene
X = xylenes
GRO= gasoline range organics
DRO= diesel range organics
MTBE= Methyl tertiary butyl ether
bdl = below detection level
nd = non-detect

To: MP CA TANKS

STATE OF MINNESOTA

DEPARTMENT OF PUBLIC SAFETY - DIVISION OF EMERGENCY MANAGEMENT
65 STATE CAPITOL, SAINT PAUL, MN 55155-1049

M I N N E S O T A D U T Y O F F I C E R

HAZARDOUS MATERIAL INCIDENT REPORT: TANKS

REPORT DATE: 8-13-96 TIME: 1421 DUTY OFFICER: Judy

REPORTED BY:

Roger Bruner
Foth + Van Dyke

RESPONSIBLE PARTY/PROPERTY OWNER:

John Boetz (STE Mac)

NAME:

CONTACT: John Boetz (STE Mac)

C/O:

C/O: Laidlaw Transit

ADDRESS:

ADDRESS: 2021 3rd Ave

CITY:

CITY: Rochester STATE: Mn

PHONE:

PHONE: 507-289-4541 ZIP:

ALT. PHONE:

ALT. PHONE:

DISCOVERY DATE: 8-13-96 TIME: 0630 PREVIOUSLY REPORTED SITE?: Y N UNK -- LEAK #: 8903

SITE NAME & ADDRESS: same as R.P. Laidlaw Transit 567 not checked

NUMBER(S) OF TANK(S):

CITY: Rochester ZIP: 55901 COUNTY: Olmsted

TANK CONTENTS

AGE OF TANKS

1 @ 10 000

deisel

same as U.S.T.

TYPES

U.S.T. / A.S.T. - STEEL / FIBRE GLAS

1 @ 10 000

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U.S.T. / A.S.T. - STEEL / FIBRE GLAS

U.S.T. / A.S.T. - STEEL / FIBRE GLAS

@

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U.S.T. / A.S.T. - STEEL / FIBRE GLAS

U.S.T. / A.S.T. - STEEL / FIBRE GLAS

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U.S.T. / A.S.T. - STEEL / FIBRE GLAS

U.S.T. / A.S.T. - STEEL / FIBRE GLAS

NATIVE SOIL TYPE: clay

SURFACE WATER NEARBY? Y N UNK

WELLS ON SITE?: Y N UNK

WATER SOURCE: MUNICIPAL / PRIVATE WELL

CONTAMINATED SOIL EXCAVATED? Y N UNK

QUANTITY: 200 ea. gal

ABLE TO DIG OUT OF CONTAMINATION? Y N UNK

GROUND WATER ENCOUNTERED?: Y N UNK

DEPTH TO GW: unk

FREE PRODUCT FOUND?: Y N STAINED SOIL? Y N

PETROLEUM ODORS: Y N

HIGHEST VAPOR READING: Above Action Level ANALYTICAL RESULTS:

NARRATIVE: UST Removal TAPS ID 4697

DUTY OFFICER NOTIFICATIONS MADE (AGENCY, NAME, TIME)

MPCA TANKS, ATTN: KIM GREGG - FAX	
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QUESTIONS? CONTACT THE MINNESOTA DUTY OFFICER AT 649-5451 OR 1-800-422-0798

This space for MPCA use only.

MPCA PROJECT MANAGER: GRB LEAK NUMBER: 9568



Minnesota Pollution Control Agency

February 4, 1998

Mr. Don MacFeely
Laidlaw Transit, Inc.
1240 East Diehl Road
Naperville, Illinois 60563

Mr. John Goetz
Rochester School Bus
Laidlaw Transit, Inc.
2021 32nd Avenue
Rochester, Minnesota 55903

RE: Petroleum Tank Release Site File Closure

Site: Rochester School Bus, 2021 32nd Avenue, Rochester, Minnesota
Site ID#: Leak00009568

Dear Mr. MacFeely and Mr. Goetz:

We are pleased to inform you that the Minnesota Pollution Control Agency (MPCA) Tanks and Emergency Response Section (TERS) has determined that your investigation and/or cleanup has adequately addressed the petroleum tank release at the site listed above. Based on the information provided, the TERS has closed the release site file.

Closure of the file means that the TERS requires no additional investigation and/or clean-up work at this time or in the foreseeable future. Please be aware that file closure does not necessarily mean that all petroleum contamination has been removed from this site. However, the TERS has concluded that any remaining contamination, if present, does not appear to pose a threat to public health or the environment.

The MPCA reserves the right to reopen this file and to require additional investigation and/or clean-up work if new information or changing regulatory requirements make additional work necessary. If you or other parties discover additional contamination (either petroleum or non-petroleum) that was not previously reported to the MPCA, Minnesota law requires that the MPCA be immediately notified.

You should understand that this letter does not release any party from liability for the petroleum contamination under Minn. Stat. ch. 115C (Supp. 1997) or any other applicable state or federal law. In addition, this letter does not release any party from liability for non-petroleum contamination, if present, under Minn. Stat. ch. 115B (1996), the Minnesota Superfund Law.

Mr. Don MacFeely
Mr. John Goetz
Page 2
February 4, 1998

Because you performed the requested work, the state may reimburse you for a major portion of your costs. The Petroleum Tank Release Cleanup Act establishes a fund which may provide partial reimbursement for petroleum tank release clean-up costs. This fund is administered by the Department of Commerce Petro Board. Specific eligibility rules are available from the Petro Board at 612/297-1119 or 612/297-4203.

If future development of this property or the surrounding area is planned, it should be assumed that petroleum contamination may still be present. If petroleum contamination is encountered during future development work, the MPCA should be notified immediately.

For specific information regarding petroleum contamination that may remain at this leak site, please call the TERS File Request Program at 612/297-8499. The MPCA fact sheet #3.35, *Leak/Spill and Underground Storage Tank File Request Form* (August 1997), must be completed prior to arranging a time for file review.

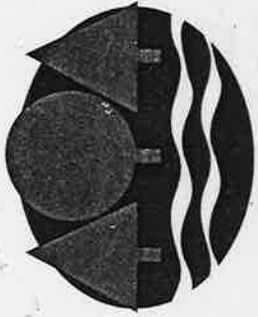
Thank you for your response to this petroleum tank release and for your cooperation with the MPCA to protect public health and the environment. If you have any questions regarding this letter, please call me at 507/280-2996.

Sincerely,


Sandeep R. Burman
Project Manager
Southeast Region
Tanks and Emergency Response Section

SRB/ml

cc: Judy Scherr - City Clerk, Rochester
Lyle Felsch - Fire Chief, Rochester
Gene Mossing - Olmsted County Solid Waste Administrator, Rochester
Stacey A. Larsen - Foth & Van Dyke, Eagan
Petrofund Staff - Minnesota Department of Commerce, St. Paul



Minnesota Pollution Control Agency

August 20, 1996

Mr. John Goetz
Laidlow Transit
2021 32nd Avenue
Rochester, Minnesota 55903

RE: Petroleum Storage Tank Release Investigation and Corrective Action
Site: Laidlow Transit, 2021 32nd Avenue, Rochester
Site ID#: LEAK00009568

Dear Mr. Goetz:

Notice of Release

The Minnesota Pollution Control Agency (MPCA) has been informed that a release of petroleum has occurred from storage tank facilities which you own and/or operate. We appreciate your timely notification so this site can be handled in an efficient manner.

Legal Obligations

Federal and state laws require that persons legally responsible for storage tank releases notify the MPCA of the release, investigate the release and, if necessary, clean up the release. A person is considered legally responsible for a tank release if the person owned or operated the tank either during or after the release, unless specifically exempted under the law. If you believe that you are not legally responsible for this storage tank release, please contact the project manager listed below.

520 Lafayette Rd. N.; St. Paul, MN 55155-4194; (612) 296-6300 (voice); (612) 282-5332 (TTY)
Regional Offices: Duluth • Brainerd • Detroit Lakes • Marshall • Rochester

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Mr. John Goetz
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August 20, 1996

If you are not legally responsible for the release, but hold legal or equitable title to the property where the release occurred, you may volunteer to take corrective action. Responsible persons and volunteers who take corrective action may be eligible for reimbursement for a major portion of the costs of corrective action. The legislature has established the Petroleum Tank Release Cleanup Account to reimburse responsible persons and volunteers. The account is administered by the Petro Board which is part of the Minnesota Department of Commerce. Final decisions regarding the amount of reimbursement are made by the Petro Board. All questions about eligibility and reimbursement should be directed to the Petrofund staff at 612/297-1119 or 612/297-4203.

Request to Take Corrective Action

The MPCA staff requests that you take steps to investigate and, if necessary, clean up the release in accordance with the enclosed MPCA fact sheets. The site investigation must fully define the extent and magnitude of the soil and/or ground water contamination caused by the release. A report (Excavation Report and/or Remedial Investigation/Corrective Action Design (RI/CAD)) which details the results of the investigation or concludes that excavation was sufficient to clean up the release must be submitted to this office within 10 months of the date of this letter. Please refer to MPCA fact sheets for information pertaining to the amount of work needed at the petroleum release site(s).

Sites with free product (free-floating petroleum), drinking water supply impacts, surface water impacts, indoor vapor impacts, fire or explosion hazards, or ground water impacts which pose a significant threat to public health or the environment, are considered high priority for staff review. If one or more of these situations apply to your site, an RI/CAD report must be submitted within 90 days. In addition, if you know or discover that there is free-product from a well, excavation, or borehole, you must notify the MPCA within 24 hours and IMMEDIATELY begin interim free product recovery.

If you have not already done so, the MPCA recommends that you hire a qualified consulting firm registered with the Petrofund staff that has experience in conducting petroleum release site investigations and in proposing and implementing appropriate corrective actions. A list of registered contractors and consultants is available from the Petrofund staff. The MPCA reserves the right to reject proposed corrective actions if the requirements of the site investigation have not been fulfilled. Please note that, under Minn. R. 2890.0075, subp. 2, you must solicit a minimum of two competitive proposals on a form prescribed by the Petro Board to ensure that the consulting costs are reasonable. Questions about bidding requirements should be directed to Petrofund staff.

Mr. John Goetz
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August 20, 1996

Required Response

MPCA staff requests a response to this letter within 30 days. Please tell us whether you intend to proceed with the requested work. If you do not respond within this time frame, the MPCA staff will assume that you do not intend to comply, in which case the MPCA Commissioner may order you to take corrective action. Failure to cooperate with the MPCA in a timely manner may result in reduced reimbursement from the Petro Board. See Minn. R. 2890.0065, subp. 1, item C. The enclosed fact sheets will provide you with the information necessary to complete a successful investigation and cleanup. If you have any questions concerning this letter or need additional information, please contact me at 507/280-2996. Please reference the above LEAK # in all correspondence.

Sincerely,



AB Sandeep Burman
Project Manager

Rochester Regional Staff
Tanks and Emergency Response Section

SRB:dms

Enclosures

cc: Steven Kvenvold, City Administrator, Rochester
David Kaplar, Fire Chief, Rochester
Gene Mossing, Olmstead County Solid Waste Officer
Roger Bruner, Foth and Van Dyke, Eagan

October 30, 1997

RECEIVED

OCT 31 1997

MPCA
Rochester

Mr. Sandeep Burman
Minnesota Pollution Control Agency
2116 Campus Drive SE
Rochester, Minnesota 55904

Dear Mr. Burman:

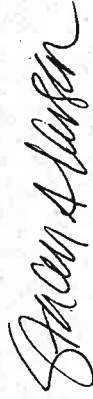
Re: Rochester School Bus Facility
2021 32nd Avenue NW
Rochester, Minnesota 55901
Leak # 9568

On behalf of Laidlaw Transit, Inc., Foth & Van Dyke is submitting one copy of the report titled *Remedial Investigation Report Form, Fact Sheet #3.24*. This report contains the findings of the Limited Site Investigation that took place at Rochester School Bus Facility, located at 2021 32nd Avenue NW, Rochester, Minnesota. Sections 6 and 7 of this form are not required and therefore were not completed.

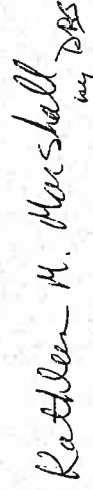
Please feel free to contact us at (612) 452-4396 with any questions or comments.

Sincerely,

Foth & Van Dyke



Stacey A. Larsen, P.G.
Geologist



Kathleen M. Marshall, P.E.
Lead Environmental Engineer

SAA1:kl11

cc: Mr. Don Mac Feely, Laidlaw Transit, Naperville, IL
Mr. Robert Yanchis, Laidlaw Transit, Burlington, Ontario, Canada

Attachments

K:\SAA1\961027\LR-ROCHSBF\10000



Tanks and Emergency Response Section
Minnesota Pollution Control Agency

Remedial Investigation Report Form

Fact Sheet #3.24

April 1996

This form must be completed for all sites in which a remedial investigation (RI) is conducted--this includes either a *Limited Site Investigation (LSI)* or a *full RI*. Completing this form will provide the MPCA with the minimum amount of information necessary for a *full RI*. Additional information should be included if deemed important for making a site cleanup decision. If the consultant has concluded that a *Limited Site Investigation* is applicable to this site, Section 6 and Section 7 may be deleted from this report.

Refer to MPCA fact sheet #3.19 "Leaking Underground Storage Tank Investigation and Cleanup Policy" for guidance for the overall objectives of an RI and other MPCA fact sheets regarding investigations.

When a tank has been excavated, refer to fact sheets #3.6 "Excavation of Petroleum Contaminated Soil" and #3.7 "Excavation Report Worksheet for Petroleum Release Sites" for reporting requirements.

If free product is discovered the initial reporting should be done in accordance with fact sheet #3.3 "Free Product: Evaluation and Recovery" and factsheet #3.4 "Free Product Recovery Report Worksheet."

Leak Number: LEAK00009568 _____ Date: October 30, 1997 _____

Responsible Party: Laidlaw Transit, Inc. _____ R.P. phone #: (630) 955-0003 _____

Facility Name: Rochester School Bus _____

Facility Address: 2021 32nd Avenue Northwest _____ City: Rochester _____

County: Olmsted _____ Zip Code: 55901 _____

Location of site: LAT: 44°2'44" LONG: 92°30'32" _____ Circle one: UTM State

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SECTION 15: Consultant (or other) information

Section 1: Emergency and High Priority Sites

- 1. Is an existing drinking water well impacted? YES NO
- 2. Are there existing vapor impacts? YES NO
- 3. Is there an existing surface water impact as indicated by 1) a product sheen on the surface water or 2) a product sheen or volatile organic compounds in the part per million range in ground water in a well located close to the surface water. YES NO
- 4. Has the release occurred in the last 30 days? YES NO
- 5. Has free product been detected at the site? YES NO
- 6. Is sand or gravel aquifer impacted which is tapped by water wells within or potentially within 500 feet from the edge of the plume or does impacted soil overlie a karsted limestone or fractured bedrock? If yes, explain: YES NO

Minor impacts were detected in the fine-grained till during this investigation. This till unit overlies the Prairie du Chien Group, which is described as a fractured bedrock by the Hydrologic Investigations Atlas HA-543 (1975).

If you answered YES to any of questions 1 through 6 above describe below the actions taken to date to reduce or eliminate the risk posed by the release.

A remedial investigation was completed. The results of this investigation indicate that the impacts to the soil and groundwater are minor and should not pose a risk to human health or the environment.

Section 2: Site and Release Information

2.1 Describe the land use and pertinent geographic features within 1000 feet of the site. The surrounding land use is primarily industrial. The site is located on a slight ridge.

Table 1.

Provide the following for all tanks that have been at the site:

Tank #	UST or AST	Capacity	Contents	Age	Status*	Condition
1	UST	10,000	Diesel Fuel	Unknown	Removed 08/13/96	Good
2	UST	10,000	Diesel Fuel	Unknown	Removed 08/13/96	Good
3	UST	560	Waste Oil	Unknown	Removed 08/20/96	Fair - Spilled product on top by fill hole.
4	UST	560	Fuel Oil	Unknown	Removed 08/20/96	Good
5	UST	1,000	Fuel Oil	Unknown	Removed 08/20/96	Good
6	UST	15,000	Diesel Fuel	1 year	Currently used	Good

*Indicate: *removed (date), abandoned in place (date), or currently used*
Notes:

Tank #6 was installed on August 16, 1996.

2.2 Describe the status of the other components of the tank system(s), (i.e., piping and dispensers) for those tanks listed above.

Piping and dispensers of Tanks #1 - #5 were in fair to good condition. Piping unions and dispensers had spilled product around them.

2.3 Identify and describe the source or suspected source(s) of the release.

Possible sources of the release could be the dispensers, overspill during use or leaking piping unions.

2.4 What was the volume of the release? (if known): unknown gallons

2.5 When did the release occur? (if known): unknown

Section 3: Excavated Soil Information

3.1 Was soil excavated for off-site treatment?

YES

NO

If YES then complete the fact sheet #3.7 "Excavation Report Worksheet for Petroleum Release Sites" and include it as an appendix.

Fact Sheet #3.7 "Excavation Report Worksheet for Petroleum Release Sites" is included as Appendix A

Date(s) excavated:

August 12, 13, and 20, 1996

Volume removed:

300 cubic yards

3.2 Indicate soil treatment type:

___ land treatment

thermal treatment

___ composting/biopiling

___ other (_____)

Name and location of treatment facility:

Johnson Blacktop

2320 14th Avenue Northeast

Rochester, Minnesota 55901

Section 4: Extent and Magnitude of Soil Contamination

4.1 Were soil borings conducted in or immediately adjacent to all likely source areas (e.g., UST basins, AST areas, piping, dispensers, remote fill pipes, known spill areas)?

YES

NO

4.2 To adequately define the vertical extent of contamination soil borings should be completed at least five feet below the water table or ten feet below the deepest measurable (field screening and visual observation) contamination, whichever is deeper. Were all soil borings completed to the required depth?

YES

NO

4.3 To adequately evaluate site stratigraphy at least one boring should be completed 20 feet below the water table, unless a confining layer is present. Was this done?

YES

NO

If you answered NO to any of the three previous questions, explain why the borings were not conducted in the required locations or to the required depths (see fact sheet #3.19 "Soil and Ground Water Investigations Performed During Remedial Investigations" regarding exceptions and MPCA approval for depth of drilling):

A subsurface investigation advanced soil probes to a maximum depth of 26 feet below ground surface (14 feet below the water table), where soil probe refusal was encountered.

4.4 Indicate the drilling method:

hollow-stem auger
 sonic drilling
 push probes
 other _____
 Note: contact MPC/A staff hydro before use of flight augers

Table 2.

Complete the following table indicating jar headspace results (in ppm) for soil samples from soil borings.

ASTM soil classification	Depth (ft)	Soil Boring					
		1	2	3	4	5	6
Fill	0-4		5.0				
Fill	1-5	2.5		5.2	2.2		1.5
ML	1-5					4.3	
Fill	5-9	2.7					
ML	5-9			5.4			
Fill	4-8		8.4				
ML	6-11					4.3	
ML	8-10		4.3				
Fill	8-10						2.8
ML	9-13			2.8			
ML	10-12		3.4		0.9		
ML	11-15					3.4	
ML	12-14		2.0				
SC	12-16	0.0					
ML	12-16						2.5
ML	13-17			1.9			
ML	14-16				2.3		
ML	15-19					3.4	
SM	16-19	0.0					
CL	16-19						3.2
CL	17-19		4.7				
ML	17-21			1.9			
CL	20-22						
CL	21-25			2.1		2.1	
CL	24-26		3.0				

Notes: (type of PID/FID)

The PID used was a PhotoVac Microtip utilizing a 10.6 eV lamp.

Table 3.

Indicate the laboratory analytical results for soil samples in mg/kg.

Well/Boring, Depth(ft)	Date Analyzed	Benzene	Toluene	Ethylbenzene	Xylene	GRO	DRO
P-1 (16-19)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10
P-2 (10-12)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10
P-2 (24-26)	05/25/97	0.700	1.600	1.900	14.00	<20	10
P-3 (23-25)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10
P-4 (20-22)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10
P-5 (17-19)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10
P-6 (18-19)	05/25/97	<0.100	<0.100	<0.100	<0.200	<20	<10

Notes: (use less than symbols to show detection limits)

NA = Not analyzed

DRO was analyzed as Total Petroleum Hydrocarbons as Fuel Oil (TPH as FO). Results reported are from fixed laboratory analysis.

Table 4.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in soil samples. Indicate contaminant and list in reported units mg/kg.

Well/Boring, Depth (ft)	Date Analyzed	MTBE				
P-1 (16-19)	05/25/97	<.140				
P-2 (10-12)	05/25/97	<.140				
P-2 (24-26)	05/25/97	0.560				
P-3 (23-25)	05/25/97	<.140				
P-4 (20-22)	05/25/97	<.140				
P-5 (17-19)	05/25/97	<.140				
P-6 (18-19)	05/25/97	<.140				

Notes:

MTBE = Methyl tert-butyl ether

4.5 If any non-petroleum compounds were detected list them below and identify possible sources of these compounds.

Not Applicable

4.6 Describe the vertical and horizontal extent and magnitude of soil contamination.

Only the soil sample collected from soil probe P-2 from 24 to 26 feet below ground surface (bgs) had detections above the method detection limits for the compounds analyzed. The vertical and horizontal extent of the soil contamination is limited the area immediately around soil probe P-2 from 24 to 26 feet bgs. The magnitude of the soil contamination is interpreted to be insignificant.

Section 5: Aquifer Characteristics/Ground Water Contamination Assessment

5.1 Hydraulic conductivity is used to evaluate risk to present or potential ground water receptors. The level of potential risk determines the level of confidence required of the hydraulic conductivity values. Indicate the hydraulic conductivity and the methods used for measurement and estimation.

Measurement

Methods of measuring aquifer parameters are *aquifer* and *permeameter* tests. Aquifer tests such as pumping and slug tests are necessary to evaluate the actual undisturbed aquifer material. Pumping tests evaluate the largest volume of aquifer material, providing the best measurement of *in situ* aquifer parameters. Slug tests provide *in situ* parameters representing a smaller portion of the aquifer. Permeameter tests are laboratory methods used for the evaluation of discrete samples collected from the aquifer. Permeameter test require an adequate number of representative field samples, and, inherent sampling and analysis technique limitations must be considered when evaluating results.

Estimation

Methods of estimating hydraulic conductivity may involve grain size analysis or correlating a field description with a reference range of values. As with laboratory measurements, estimation methods require an adequate number of representative field samples. Use the most conservative value of a range when using estimates. If there is any question that sediments may be permeable enough to comprise a resource aquifer, confirm by conducting test(s).

Provide hydraulic conductivity values that support the level of investigation based on risk and remediation potential. Be sure to have tests and estimations performed and analyzed by personnel trained and/or experienced in hydrogeological investigations. Improperly performed or analyzed tests may be returned as incomplete. Attach all supporting information for the determination in the Methodologies appendix:

5 x 10⁻⁶ _____ cm/sec

Indicate the measurement or estimation used:

_____ Pumping test analysis by _____ method(s).

_____ Slug tests by _____ method(s).

_____ Permeability tests by _____ method(s).

_____ Grain-size distribution approximations by _____ method(s).

X _____ *Reference from R. A. Freeze & J. A. Cherry, 1979, Groundwater, Prentice Hall,
page.

*provide author(s), year published, title, publisher and page(s).

5.2 Indicate the thickness of the aquifer. If the investigation does not provide enough information to determine the aquifer thickness, assume the aquifer is greater than 20 feet thick:

_____ less than 10 feet

_____ between 10 and 20 feet

X _____ 20 feet or greater

5.3 Describe in detail the geology underlying the site including confining layers, bedrock formations and the lateral extent of these formations:

The surficial sediments at this site are comprised of Pre-Wisconsin-age deposits which consist of loess overlying fine-grained glacial till. The maximum thickness of the surficial deposits penetrated during this investigation was 26 feet. The surficial deposits are reported to be absent approximately five miles south of the site. These surficial deposits directly overly Ordovician-age bedrock.

The bedrock is comprised of the Prairie du Chien Group. The Prairie du Chien Groups contains the Shakopee Dolomite, New Richmond Sandstone and the Oneota Dolomite formations. Regionally the Prairie du Chien Group is reported to be approximately 200 feet thick. These formations extend laterally at least 10 miles in all directions. The bedrock dips regionally to the southwest.

The impacted aquifer or the aquifer that is likely to be impacted at the site is considered a resource aquifer if one of the following situations exist:

- The aquifer is a current water supply source.
- The water bearing unit has a hydraulic conductivity greater than 1×10^{-2} cm/sec and a minimum thickness of 10 feet.
- The water bearing unit has a hydraulic conductivity between 1×10^{-4} cm/sec and 1×10^{-2} cm/sec and a minimum thickness of 20 feet.
- The water bearing unit has a hydraulic conductivity less than 1×10^{-4} cm/sec and no other viable source of water supply is available. (*Bedrock may be considered a resource aquifer if it is the only water supply available.*)

5.4 Based on the aquifer characteristics and water supply availability, is the aquifer at the site a resource aquifer?

YES NO

5.5 If other water supplies are available, explain.

Municipal water is available in the area.

5.6 Are there any other reasons the impacted aquifer should not be considered a resource aquifer?

Not Applicable.

Table 5.

Indicate the water level measured in all of the soil borings.

	Soil Boring							
	1	2	3	4	5	6	7	8
Water level depth, ft	12	12	12	12	12	12	12	12

Notes:

5.7 Is contaminated soil in contact with ground water?

YES

NO

If YES or if ground water contamination appears likely then complete tables 6 and 7 below.

Table 6.

Indicate the laboratory analytical results for water samples collected from the borings, temporary wells or push probes.

Well/Boring Number	Date Analyzed	Benzene	Toluene	Ethylbenzene	Xylene	GRO	DRO
P-3	05/27/97	9.5	<0.2	0.7 JR	4.4	<100	<20
P-5	05/27/97	0.9 JR	<0.2	<0.2	<0.5	<100	<20
P-6	05/27/97	<0.2	<0.2	<0.2	<0.5	<100	<20
P-7	05/28/97	<0.2	<0.2	<0.2	<0.5	<100	<20
P-8	05/28/97	<0.2	<0.2	<0.2	<0.5	<100	<20

Notes:

GRO was analyzed on-site by NTS, all other compounds were analyzed in the NTS fixed laboratory.

DRO was analyzed as Total Petroleum Hydrocarbons as Fuel Oil (TPH as FO).

Table 7.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in water samples collected from the borings, temporary wells or push probes. Indicate contaminant and report in units of ug/l (ppb).

Well/Boring Number	Date Analyzed	Acetone	n-Butylbenzene	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	MTBE	Naphthalene	1,2,4-Trimethylbenzene
P-3	05/27/97	<1.1	0.5 JR	4.1	<0.7	24	1.4 JR	1.0
P-5	05/27/97	<1.1	<0.3	4.2	<0.7	<0.3	<0.5	<0.3
P-7	05/28/97	<1.1	<0.3	3.2	1.8 JR	<0.3	<0.5	<0.3
P-8	05/28/97	28	<0.3	3.2	2.5	<0.3	1.1 JR	<0.3

Notes:

Before a deep well is installed contact the MPCA project hydrologist for guidance on its necessity and placement. A deep monitoring well may be necessary if 1)contamination exist more than 10 feet below the water table or 2) the impacted aquifer is a resource aquifer or is hydraulically connected to a resource aquifer presently utilized by a water supply well located within 500 feet of the site.

Provide estimates of the following additional aquifer parameters:

- Horizontal Gradient (dh/dl): _____
- Vertical Gradient (dv/dl): _____
- Porosity: _____
- Flow direction: _____
- Hydraulic Conductivity (K) _____ m/s
- Pore velocity: _____ meters/year

Table 10.

All ground water monitoring data should be collected from a minimum of *two quarterly sampling events*.

Indicate the laboratory analytical results for water samples.

Well #	Date	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	GRO	DRO
MW-1								
MW-2								
MW-3								
MW-4								

Notes: (e.g., free product, dry well, units etc.)

Table 11.

Indicate other notable contaminants (either petroleum or non-petroleum derived) detected in water samples.

Well #	Date Analyzed							

Notes: units

- 6.2 If any non-petroleum compounds were detected list them below and indicate whether they exceed the HRLs. Also, identify possible sources of these compounds.
- 6.3 Is there a clean or nearly clean (below HRLs) downgradient monitoring well located along the longitudinal axis of the contaminant plume? (approximately 20 degrees plus or minus the axis) YES NO
- 6.4 Is there a worst case well completed through the source area of the release? YES NO
If you have answered NO to any of the above three questions, please explain why a well was not completed in the required location.
- 6.5 Provide an estimate of the longitudinal length of the dissolved contaminant plume: _____ feet
- 6.6 Describe the extent and magnitude of the ground water contamination:

Section 7: Evaluation of natural attenuation

Table 12.

Complete the bioactivity data in the table below. Data should be from two quarterly rounds of sampling. Refer to the fact sheet #3.21 “Assessment of Natural Biodegradation at Petroleum Tank Release Sites” for acceptable methodologies and indicate the chosen method in the Methodologies appendix.

Monitoring Well	Temp. °C	pH	Dissolved oxygen (mg/l)	Nitrate (mg/l)	(Fe II) (mg/l)	(H ₂ S, HS ⁻) (mg/l)
MW-1						
MW-2						
MW-3						
MW-4						

Notes:

7.1 Discuss the results of the bioactivity evaluation. Specifically, compare the concentrations of the inorganic parameters inside and outside the plume.

7.2 In your judgment, is natural biodegradation occurring at this site? Please Explain. YES NO

Section 8: Well Receptor Information/Assessment

Include in the appendices of this report: 1) a list of addresses within 500 feet from the edge of the plume and confirmation of status of water supply from the city utility billing department; 2) well logs; and 3) map showing ½ mile radius, 500 foot radius, water supply wells, other potential petroleum sources, and addresses for properties within 500 feet.

Table 13.

Complete the following table for all water supply wells located within 500 feet of the edge of the plume and any municipal or industrial wells found within ½ mile.

Unique Well #	Ground Elevation	Total Depth (ft)	Base of Casing (ft)	Static Elevation	Aquifer	Use	Owner	Distance & Direction from site
Not Applicable								

Notes:

No water supply wells were located within 500 feet of the site. No municipal or industrial wells were found within ½ mile.

8.1 Is municipal water available in the area?

YES NO

8.2 Were all property owners within 500 feet of the nearest edge of the contaminant plume successfully contacted to determine if water wells are present? If No, please explain.

YES NO

No contaminant migration was noted at the site, therefore property owners within 500 feet of the site were not contacted.

8.3 Discuss the results of the ground water receptor survey and any analytical results from sampling conducted at nearby water wells. Comment on the risks to water supply wells identified within 500 feet from the edge of the plume as well as the risk posed by or to any municipal or industrial wells found within ½ mile. Specifically indicate whether water supply wells identified utilize the impacted aquifer. (Note: an impacted aquifer separated from another aquifer by a clay lens is not considered a separate aquifer.)

No water supply wells were located within 500 feet of the site. No municipal or industrial wells were found within ½ mile. The Rochester Public Utilities office was contacted regarding the confirmation of status of water supplies to surrounding properties. Eighteen individual properties were identified and submitted to the Rochester Public Utilities office. Nine of these properties were identified as not being currently billed for city water use. The majority of these nine properties are believed to be open parcels of land.

8.4 Are there any plans for groundwater development in the impacted aquifer within one half mile of the site, or one mile down gradient of the site if the aquifer is fractured? Please give the name, title and phone number of the person that was contacted for this information.

YES

NO

Doug Rovang Water Division Director, Rochester Public Utilities Phone (507) 280-1605

Section 9: Surface Water Risk Assessment

9.1 Are there any surface waters or wetlands located within ¼ mile of the site?

YES

NO

If YES, indicate its name: _____

9.2 If surface water is present downgradient of the site, is there a clean down gradient soil boring or monitoring well located between the site and the surface water?

YES

NO

N/A

If NO, we assume that contamination discharges to surface water. Therefore, complete the following information:

Name of receiving water: _____

Plume width, (W): _____ feet

Plume thickness, (H): _____ feet

Hydraulic conductivity, (K): _____ gal/day/ft²

Horizontal gradient, (dh/dl): _____ (unitless)

Discharge, (Q) = $H * W * K * (dh/dl) / 1440$ _____ gal/min

If YES, identify them and indicate the distance to these features and discuss the contamination risk potential.

Section 10: Vapor Risk Assessment/Survey

10.1 Is there a history of vapor impacts in the vicinity of the site ?

YES NO

If YES, describe:

10.2 Is there any indication that free product or highly contaminated groundwater may be traveling offsite within the utility corridors? If YES, have they been investigated with borings or push probes?

YES NO

Not Applicable.

10.3 Discuss the potential for vapor migration/accumulation near the site. In your discussion consider: soil types, product type, presence and distribution of free product or high concentrations of dissolved product. Also, compare the depth of contamination with the location of underground utility lines, location and depth of storm and sanitary sewers and location of nearby basements.

Currently there is low potential for vapor migration/accumulation because very limited soil impacts were detected in samples collected during this investigation. The only soil sample with detected contaminant concentrations was from soil probe P-2 (24'-26').

The on-site soils consist of fine-grained glacial tills. Typically the silts and clays that comprise the till are only slightly permeable to gases and fluids.

If the vapor risk assessment indicated a risk of vapor impacts to buildings or utilities, complete the following table with vapor monitoring data collected. Location numbers should be mapped on an accompanying figure of the surveyed area.

Table 14.

Location #	Date	PID reading (ppm)	Percent of the LEL
Not Applicable			

Notes:

10.4 Describe and interpret the results of the vapor survey.
Not Applicable.

Section 11: Discussion

11.1 Discuss the risks associated with the remaining soil contamination?

The detected soil contamination poses low risk to human health or the environment because the detected soil contamination was limited to soil probe P-2 at the 24 to 26 foot depth.

11.2 Discuss the risks associated with the impacted ground water?

Based on the data collected to date, it is believed that there is only a negligible impact to the aquifer. The contaminant levels detected during this investigation should not pose a risk to human health or the environment.

11.3 Discuss other concerns not mentioned above:

Not Applicable

Section 13: Required Figures

Indicate attached figures:

- FVD- *Figure 1,* Site location map (*approximate scale is not acceptable*) and a large scale site map show all potential receptors within 300 feet of the site. The large scale site map should show those properties with basements and wells.
- Fig.1
- FVD- *Figure 2, 2a,* One or more site map showing: structures; all past and present petroleum storage tanks, piping, and dispensers; extent of soil excavation; boring and well locations (including any drinking water wells on site); horizontal extent of soil contamination; horizontal extent of ground water contamination; and location of end points for all geologic cross sections.
- Fig.2
- FVD- *2b, etc.:*
- Fig.3
- _NA *Figure 3,* Ground water gradient contour maps (for sites with monitoring wells).
- 3a:
- FVD- *Figure 4* Well receptor survey map showing 1/2 mile radius, 500 foot radius, water supply wells, other potential sources of contamination.
- Fig.4
- _NA *Figure 5:* Vapor survey map showing utilities and buildings with basements and monitoring locations (if a survey was required).

FVD- *Figure 6:* Geologic cross sections.

Fig.5

FVD-

Fig.6




Section 14: Appendices

Indicate attached appendices.

- Appendix A* Excavation Report Worksheet for Petroleum Release Sites.
- Appendix B* Laboratory analytical reports for soil and ground water.
- Appendix C* Methodologies and procedures, including field screening of soil, other field analyses, soil boring, soil sampling, well installation, and water sampling.
- Appendix D* Geologic logs for each well or boring using attached template.
- Appendix E* Well construction diagrams and copies of the Minnesota Department of Health Well Record using attached template.
- Appendix F* Copies of water supply well logs with legible unique numbers.
- Appendix G* A list of addresses within 500 feet from the edge of the plume and confirmation of status of water supply from the city utility billing department.

Section 15: Consultant (or other) information

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leaksite. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leaksite that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. Rules 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

Name and Title:	Signature:	Date signed:
<u>Stacey A. Larsen</u> Geologist	<u></u>	<u>10/30/97</u>
<u>Kathleen M. Marshall, P.E.</u> Lead Environmental Engineer	<u></u>	<u>10/28/97</u>
<u>D Roger Bruner</u> Lead Hydrogeologist	<u></u>	<u>10/30/97</u>

Company and mailing address: Foth & Van Dyke

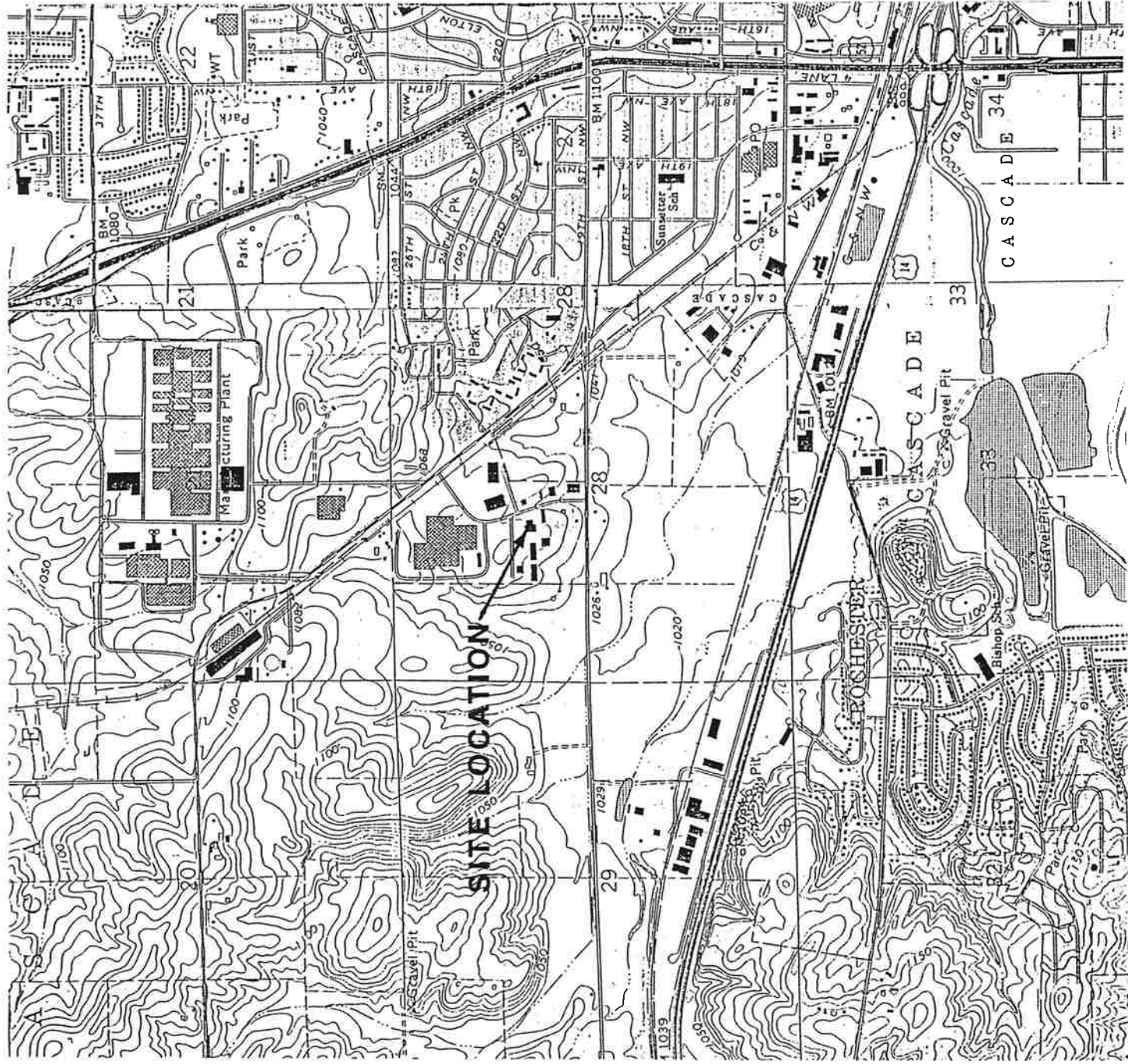
2900 Lone Oak Parkway, Suite 125

Eagan, Minnesota 55121

Phone: (612) 452-4396

Fax: (612) 452-4347

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 612/282-5332 or Greater Minnesota 1-800-657-3864.



SOURCE:
 USGS 7.5' QUADRANGLE MAPS
 DOUGLAS, MINN.
 AND
 ROCHESTER, MINN.

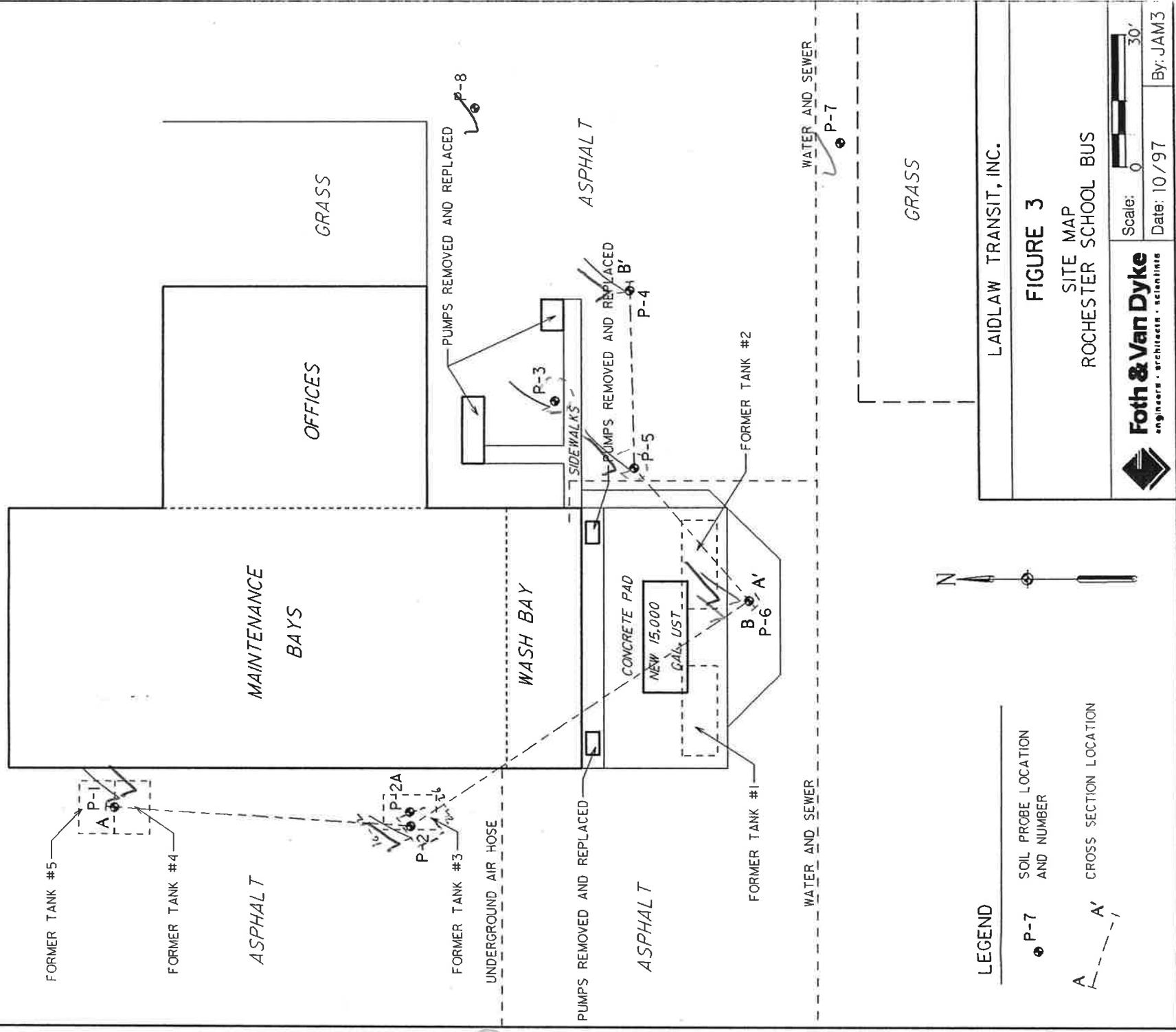
LAILAW TRANSIT, INC.

FIGURE 1
 SITE LOCATION MAP
 ROCHESTER SCHOOL BUS



Foth & Van Dyke
 engineers • architects • scientists

Scale: 0 1000' 2000'
 Date: 10/97 By: JAM3



LEGEND

- P-7 SOIL PROBE LOCATION AND NUMBER
- A---A' CROSS SECTION LOCATION

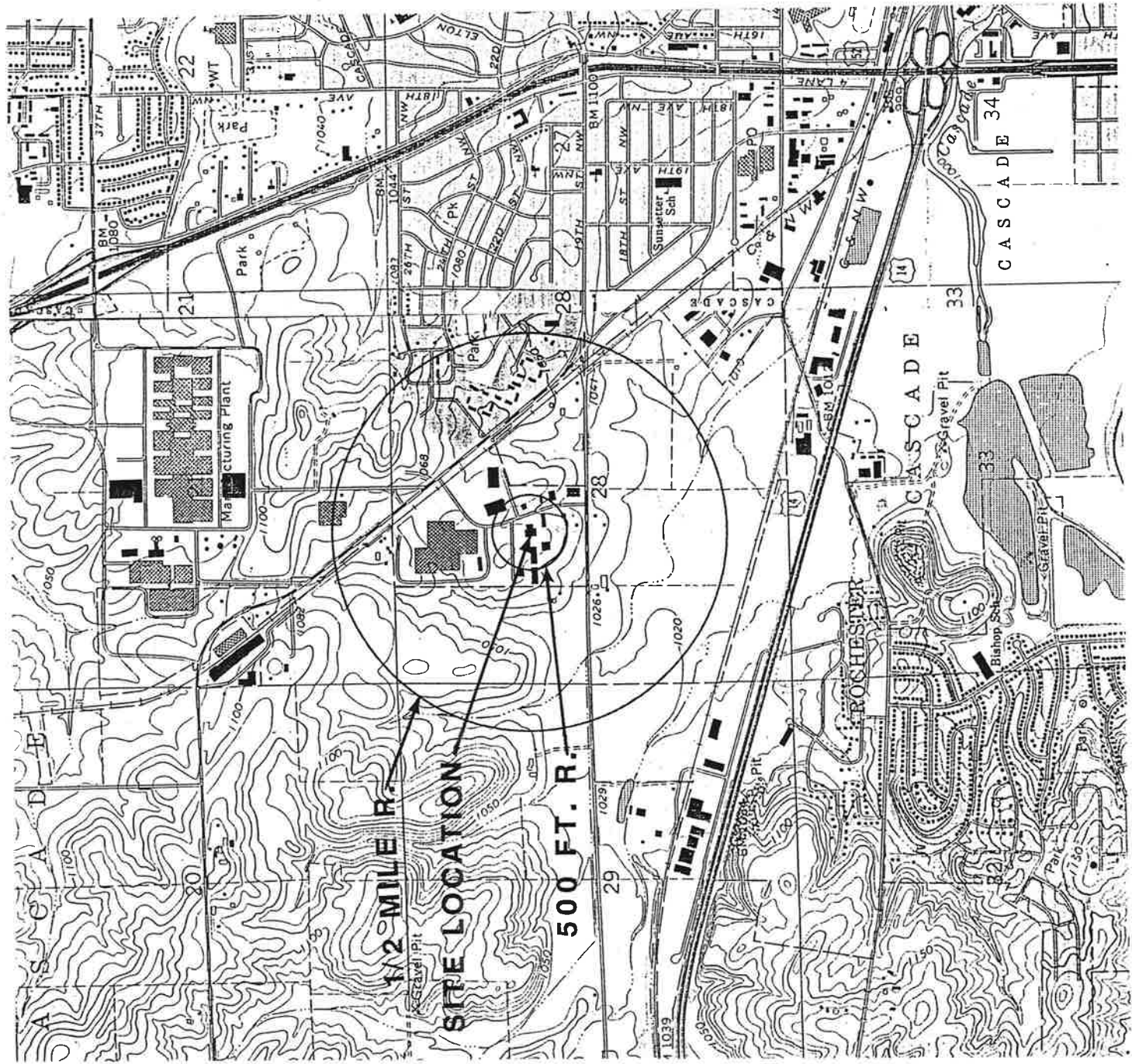
LIDLAW TRANSIT, INC.

FIGURE 3
SITE MAP
ROCHESTER SCHOOL BUS

Foth & Van Dyke
engineers • architects • scientists

Scale: 0 30'

Date: 10/97 By: JAM3



SOURCE:
 USGS 7.5' QUADRANGLE MAPS
 DOUGLAS, MINN.
 AND
 ROCHESTER, MINN.



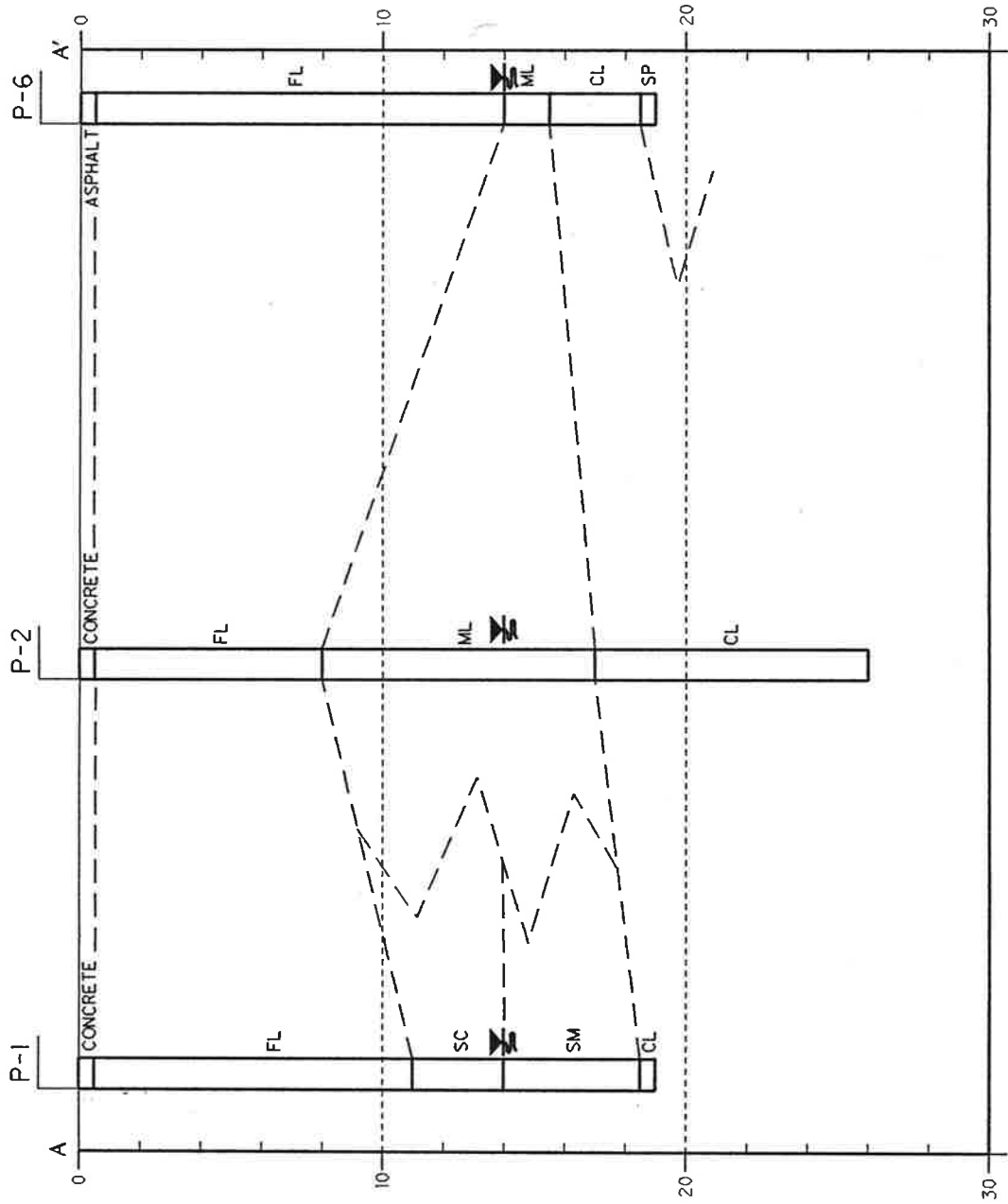
LIDLAW TRANSIT, INC.

FIGURE 4
 WELL RECEPTOR MAP
 ROCHESTER SCHOOL BUS




Foth & Van Dyke
 engineers · architects · interior

Scale: 0 1000' 2000'
 Date: 10/97 By: JAM3



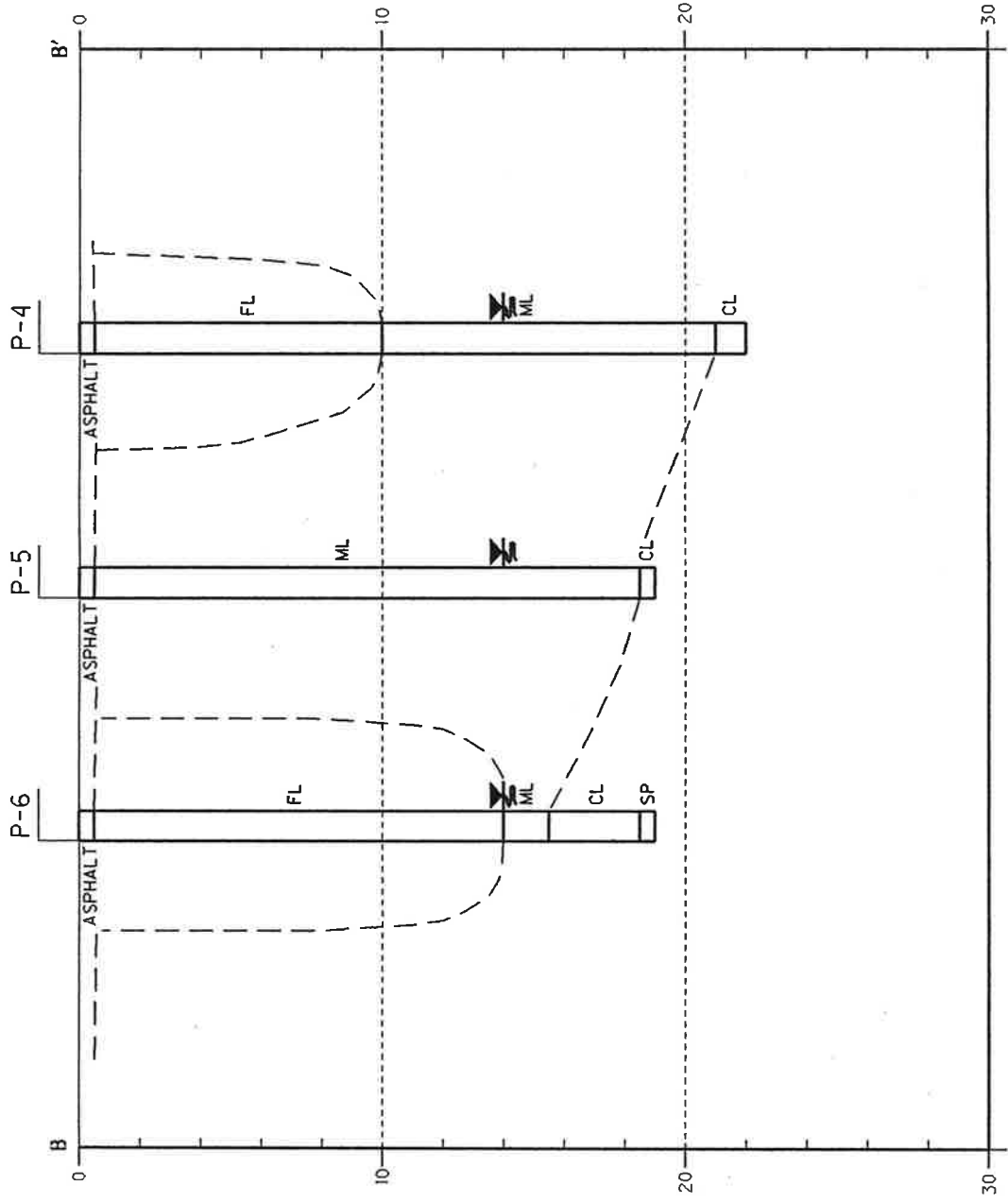
LEGEND

 WATER TABLE ELEVATION


LAIDLAW TRANSIT, INC.

FIGURE 5
 CROSS SECTION A-A'
 ROCHESTER SCHOOL BUS

 Foth & Van Dyke <small>engineers • architects • scientists</small>	Horiz. Scale: 0	30'
	Date: 10/97	
	By: JAM3	



LEGEND

 WATER TABLE ELEVATION

LIDLAW TRANSIT, INC.

FIGURE 6
 CROSS SECTION B-B'
 ROCHESTER SCHOOL BUS



Horiz. Scale: 0 30'
 Date: 10/97

By: JAM3
 96L027

Appendix A

**Excavation Report Worksheet
for
Petroleum Release Sites**



EXCAVATION REPORT WORKSHEET FOR PETROLEUM RELEASE SITES

Fact Sheet #3.7

April 1996

Complete the information below and submit to the Minnesota Pollution Control Agency (MPCA) Tanks and Emergency Response Section to document excavation and treatment of petroleum contaminated soil. Conduct excavations in accordance with "Excavation of Petroleum Contaminated Soil" (fact sheet #3.6). Please attach any available preliminary site investigation reports to this excavation report.

Attach additional pages if necessary. Please type or print clearly.

The excavation reporting deadline is 10 months from the date of receipt of the standard letter. A shorter deadline may be established by MPCA staff for high priority sites.

PART I: BACKGROUND

A. Site: Rochester School Bus

Street: 2021 32nd Avenue NW
City, Zip: Rochester 55901
County: Olmsted

MPCA Site ID#: LEAK00009568

B. Tank Owner/Operator: Laidlaw Transit
Inc.

Mailing Address:

Street/Box: 1240 E. Diehl Road
City, Zip: Naperville, IL 60563
Telephone: (630) 955-0003

C. Excavating Contractor: Griggs Excavating

D. Consultant: Foth & Van Dyke

Contact: Chauncy Griggs
Telephone: (612) 482-0444
Tank Contractor Certification Number:
0018

Contact: Kathleen M. Marshall, P.E.
Street/Box: 2900 Lone Oak Parkway, Ste. 125
City, Zip: Eagan 55121
Telephone: (612) 452-4396

E. Others on-site during site work (e.g., fire marshal, local officials, MPCA staff, etc.):

Dennis D. Olson, Lt. Fire Marshal, Beth A.S. Endersbe MPCA staff

Note: If person other than tank owner and/or operator is conducting the cleanup, provide name, address, and relationship to site on a separate attached sheet.

PART II: DATES

A. Date release reported to MPCA: August 13, 1996

B. Dates site work performed (tanks removed, soil excavation, soil borings, etc.):

Work Performed	Date
Soil excavated _____	<u>August 12, 1996</u>
Soil excavated, Tanks 1 & 2 removed _____	<u>August 13, 1996</u>
Old concrete slab removed, poured new concrete slab _____	<u>August 14, 1996</u>
New 15,000 gallon tank installed and backfilled _____	<u>August 15, 1996</u>
Continued backfilling new tank, product pumped into new tank _____	<u>August 16, 1996</u>
Continued backfilling new tank, installed pump and piping, _____	<u>August 19, 1996</u>
Pipe installation continued, soil excavation, Tanks 3, 4 & 5 removed and backfilled _____	<u>August 20, 1996</u>
Concrete pad poured in on Tank pits 3, 4 & 5, continued backfilling new tank. _____	<u>August 21, 1996</u>
Concrete pad poured for new tank, dispenser pumps hooked up, backfilling new tank. _____	<u>August 26, 1996</u>

PART III: SITE AND RELEASE INFORMATION

A. Describe the land use and pertinent geographic features within 1000 feet of the site. (i.e. residential property, industrial, wetlands, etc.)

The surrounding land use is primarily industrial. The site is located on a slight hillside.

B. Provide the following information for all tanks at the site at the time of the release:

Table 1.

Tank #	UST or AST	Capacity (gallons)	Contents (product type)	Age	Status*	Condition of Tank
1	UST	10,000	Diesel	Unknown	Removed 08/13/96	Good
2	UST	10,000	Diesel	Unknown	Removed 08/13/96	Good
3	UST	560	Waste Oil	Unknown	Removed 08/20/96	Fair - Spilled product of top by fill hole.
4	UST	560	Fuel Oil	Unknown	Removed 08/20/96	Good
5	UST	1,000	Fuel Oil	Unknown	Removed 08/20/86	Good
6	UST	15,000	Diesel Fuel	1 Year	Currently in use	Good

*Indicate: *removed (date), abandoned in place (date), or currently used*
Notes:

Notes:

C. Describe the status of the other components of the tank system(s), (i.e., piping and dispensers) for those tanks listed above.

Piping and dispensers were in fair condition. Piping unions and dispensers had spilled product around them.

D. Identify and describe the source or suspected source(s) of the release and how the release was discovered.

Possible sources of the release could be the dispensers, overspill during use or the piping unions could have leaked. Release was discovered when old tanks were being removed and a new tank installed.

E. What was the volume of the release? (if known): unknown gallons

F. When did the release occur? (if known): unknown

G. Describe source of on-site drinking water. Municipal water.

PART IV: EXCAVATION INFORMATION Tanks 1 & 2

A. Dimensions of excavation: Length 60 feet Width 25.5 feet Depth 13 feet

B. Original tank backfill material (sand, gravel, etc.): sand

C. Native soil type (clay, sand, etc.): clay

D. Quantity of contaminated soil removed for treatment (cubic yards): approximately 300 cubic yards, total. Including the approximate 150 cubic yards that was excavated to install the new tank.

[Note: If more than 150 cubic yards removed, please attach copy of written approval from MPC.A.]

E. Were new tanks installed at the site? (yes/no) If yes, how much soil was excavated to accommodate the installation of the new tanks?

yes, approximately 150 cubic yards of additional soil was excavated.

F. Was ground water encountered or a suspected perched water layer or was there evidence of a seasonally high ground water table (i.e. mottling)? (yes/no) At what depth? Groundwater was encountered at approximately 12 -13 feet below grade.

G. If ground water was not encountered during the excavation, what is the expected depth of ground water? N/A

PART IV: EXCAVATION INFORMATION Tank 3

A. Dimensions of excavation: Length 11 feet Width 8 feet Depth 7 feet

B. Original tank backfill material (sand, gravel, etc.): sand

C. Native soil type (clay, sand, etc.): clay

D. Quantity of contaminated soil removed for treatment (cubic yards): approximately 1.5
cubic yards

[Note: If more than 150 cubic yards removed, please attach copy of written approval from MPCA.]

E. Were new tanks installed at the site? (yes/no) If yes, how much soil was excavated to accommodate the installation of the new tanks?

Not in the Tank 3 location.

F. Was ground water encountered or a suspected perched water layer or was there evidence of a seasonally high ground water table (i.e. mottling)? (yes/no) At what depth? Not at the Tank 3 location.

G. If ground water was not encountered during the excavation, what is the expected depth of ground water? 12 - 13 feet below grade.

PART IV: EXCAVATION INFORMATION Tanks 4 & 5

A. Dimensions of excavation: Length 16 feet Width 12 feet Depth 7 feet

B. Original tank backfill material (sand, gravel, etc.): sand

C. Native soil type (clay, sand, etc.): clay

D. Quantity of contaminated soil removed for treatment (cubic yards): none

[Note: If more than 150 cubic yards removed, please attach copy of written approval from MPCA.]

E. Were new tanks installed at the site? (yes/no) If yes, how much soil was excavated to accommodate the installation of the new tanks?

Not at the Tank 4 & 5 location.

F. Was ground water encountered or a suspected perched water layer or was there evidence of a seasonally high ground water table (i.e. mottling)? (yes/no) At what depth? Not at the Tank 4 & 5 location.

G. If ground water was not encountered during the excavation, what is the expected depth of ground water? 12 - 13 feet below grade.

H. If a soil boring was required (Additional investigation is required at sites that have visual or other evidence of contamination remaining in the suspected source area, with sandy or silty sand soil [Unified Soil Classification System/American Society for Testing Materials] and where the water table is within 25 feet of the ground surface. See fact sheet #3.6 "Excavation of Petroleum Contaminated Soil," Part VI Additional Investigation.) describe the soil screening and analytical results. Attach the boring logs and laboratory results to this report.

A Limited Site Investigation was conducted.

I. If no soil boring was required, explain.

J. If ground water was encountered or if a soil boring was conducted, was there evidence of ground water contamination? (yes/no) Describe this evidence of contamination, e.g., free product (specify thickness), product sheen, ground water in contact with petroleum contaminated soil, water analytical results, etc.

[NOTE: If free product was observed, contact MPCA staff immediately as outlined in fact sheet #3.3 "Free Product: Evaluation and Recovery"].

Groundwater was collected from five soil probes. The groundwater samples were analyzed on site and in a fixed laboratory. Petroleum derived groundwater contaminants were detected above the method detection limits in the samples collected from soil probes P-3 and P-5

K. Was bedrock encountered in the excavation? (yes/no) At what depth?

Bedrock was not encountered.

L. Were other unique conditions associated with this site? (yes/no) If so, explain.

This site had a previous leak and was assigned leak number 9568. That leaksite was closed in June 1996.

PART V: SAMPLING INFORMATION

A. Briefly describe the field screening methods used to distinguish contaminated from uncontaminated soil:

Organic vapor screening of soils followed the MPCA field screening procedures dated April 1996, using a photoionization detector (PID). The PID was calibrated prior to use at the site using isobutylene gas.

B. List all soil vapor headspace analysis results. Indicate all sampling locations using sample codes (with sampling depths in parentheses), e.g. R-1 (2 feet), R-2 (10 feet), etc. "R" stands for "removed." Samples collected at different depths at the same location should be labeled R-1A (2 feet), R-1B (4 feet), R-1C (6 feet), etc. If the sample was collected from the sidewall or bottom after excavation was complete, label it S-1 (for sidewall) or B-1 (for "bottom"). Be sure the sample codes correspond with the site map required in part VI, below.

Sample Code	Soil Type	Reading ppm	Sample Code	Soil Type	Reading ppm
R-1	Sand	121	R-15	Sand	93.1
R-2	Sand	203	R-16	Sand	277
R-3	Clay	29.8	R-17	Sand & Clay	268
R-4	Clay	38.1	R-18	Sand	86.2
R-5	Sand	24.5	R-19	Sand	894
R-6	Sand	10.1	R-20	Clay	184
R-7	Sand	2.4	R-21	Sand	291
R-8	Sand	0.0	R-22	Sand	144
R-9	Sand	0.0	R-23	Sand	0.0
R-10	Sand & Clay	7.8	R-24	Sand	0.0
R-11	Sand	790	R-25	Sand	14.1
R-12	Sand	39.8	R-26	Sand	7.9
R-13	Clay	43.1	R-27	Sand	7.1
R-14	Sand & Clay	7.9	R-28	Sand	9.4

C. Was the "removed soil" placed back into the excavation basin? (yes/no)

If no, please complete Part VIII: Soil Treatment Information section. If yes, a Limited Site Investigation is necessary (see Fact Sheet #3, 19, "Soil and Groundwater Investigations Performed During Remedial Investigations").

The removed soil was not placed back into the excavation basin.

D. Briefly describe the soil analytical sampling and handling procedures used:

Soil samples were transferred into appropriate laboratory prepared sample jars, preserved if necessary, placed on ice and delivered under chain-of-custody procedure to the laboratory.

E. List below all soil sample analytical results from bottom and sidewall samples (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8 feet), S-2 (4 feet), etc.; bottom samples B-1 (13 feet), B-2 (14 feet), stockpile samples SP-1, etc. Be sure the sample codes correspond to the site map required in part VI. Do not include analyses from the stockpiled soils.

Sample Code	GRO/ DRO	Benzene ppm	Ethyl- benzene ppm	Toluene ppm	Xylene ppm	MTBE ppm	Lead ppm
B-1 (13')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
B-2 (13')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
B-3 (13')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
B-4 (13')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
B-5 (7')	12	<0.05	<0.05	<0.05	<0.05	NA	NA
B-6 (7')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
B-7 (7')	11	<0.05	<0.05	<0.05	<0.05	NA	NA
S-1 (10')	180	<0.05	<0.05	<0.05	<0.05	NA	NA
S-2 (1')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
P-1 (4')	1200	<0.05	<0.05	<0.05	0.11	NA	NA
P-2 (4')	<100	0.60	0.38	<0.05	2.2	NA	NA
P-3 (3')	13000	<2.0	3.2	<2.0	8.9	NA	NA
P-4 (4')	5500	<0.05	<0.05	<0.05	0.80	NA	NA
SP-1 (2')	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
SP-2 (2')	12	<0.05	<0.05	<0.05	<0.05	NA	NA
SP-1 (2')*	<10	<0.05	<0.05	<0.05	<0.05	NA	NA
SP-2 (2')*	<10	<0.05	<0.05	<0.05	<0.05	NA	NA

* resampled 10/11/96

B = Bottom of tank basin

S = Sidewall of tank basin

P = Sample collected under piping

NOTE: ATTACH COPIES OF LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS.

PART VI: FIGURES

Attach the following figures to this report:

1. Site location map.
2. Site map(s) drawn to scale illustrating the following:
 - a. Location (or former location) of all present and former tanks, lines, and dispensers;
 - b. Location of other structures (buildings, canopies, etc.);
 - c. Adjacent city, township, or county roadways;
 - d. Final extent and depth of excavation;
 - e. Location of soil screening samples (e.g. R-1), soil analytical samples (e.g., S-1 or B-1), (e.g. SB-1). Also, attach all boring logs.
 - f. North arrow, bar scale and map legend.
 - g. Provide location of any on-site water wells. If on-site water wells exist please provide well logs and/or construction diagrams.

PART VII: SUMMARY

Briefly summarize evidence indicating whether additional investigation is necessary at the site, as discussed in parts VI and VII of "Excavation of Petroleum Contaminated Soil" (fact sheet #3.6). If no further action is recommended, the MPCA staff will review this report following notification of soil treatment.




A Remedial Investigation was completed at this site.

PART VIII: SOIL TREATMENT INFORMATION

- A. Soil treatment method used (thermal, land application, composting, other). If you choose "other" specify treatment method: thermal
- B. Location of treatment site/facility: Johnson Blacktop, Rochester, Minnesota
- C. Date MPCA approved soil treatment (if thermal treatment was used after May 1, 1991, indicate date that the MPCA permitted thermal treatment facility agreed to accept soil):
November 15, 1996
- D. Identify the location of stockpiled contaminated soil:
Not Applicable.

PART IX: CONSULTANT (OR OTHER) PREPARING THIS REPORT

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leaksite. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in reduction of reimbursement awards. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leaksite that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (1994) or Minn. Rules 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

Name and Title:	Signature:	Date signed:
<u>Stacey A. Larsen, P.G.</u> Geologist	<u></u>	<u>10/30/97</u>
<u>Eric A. Moshier, Field Technician</u>	<u></u>	<u>10/30/97</u>
<u>Kathleen M. Marshall, P.E.</u> Lead Environmental Engineer	<u></u>	<u>10/28/97</u>

Company and mailing address: Foth & Van Dyke

The Waters Corporate Park

2900 Lone Oak Parkway, Suite 125

Eagan, Minnesota 55121

Phone: (612) 452-4396

Fax: (612) 452-4347

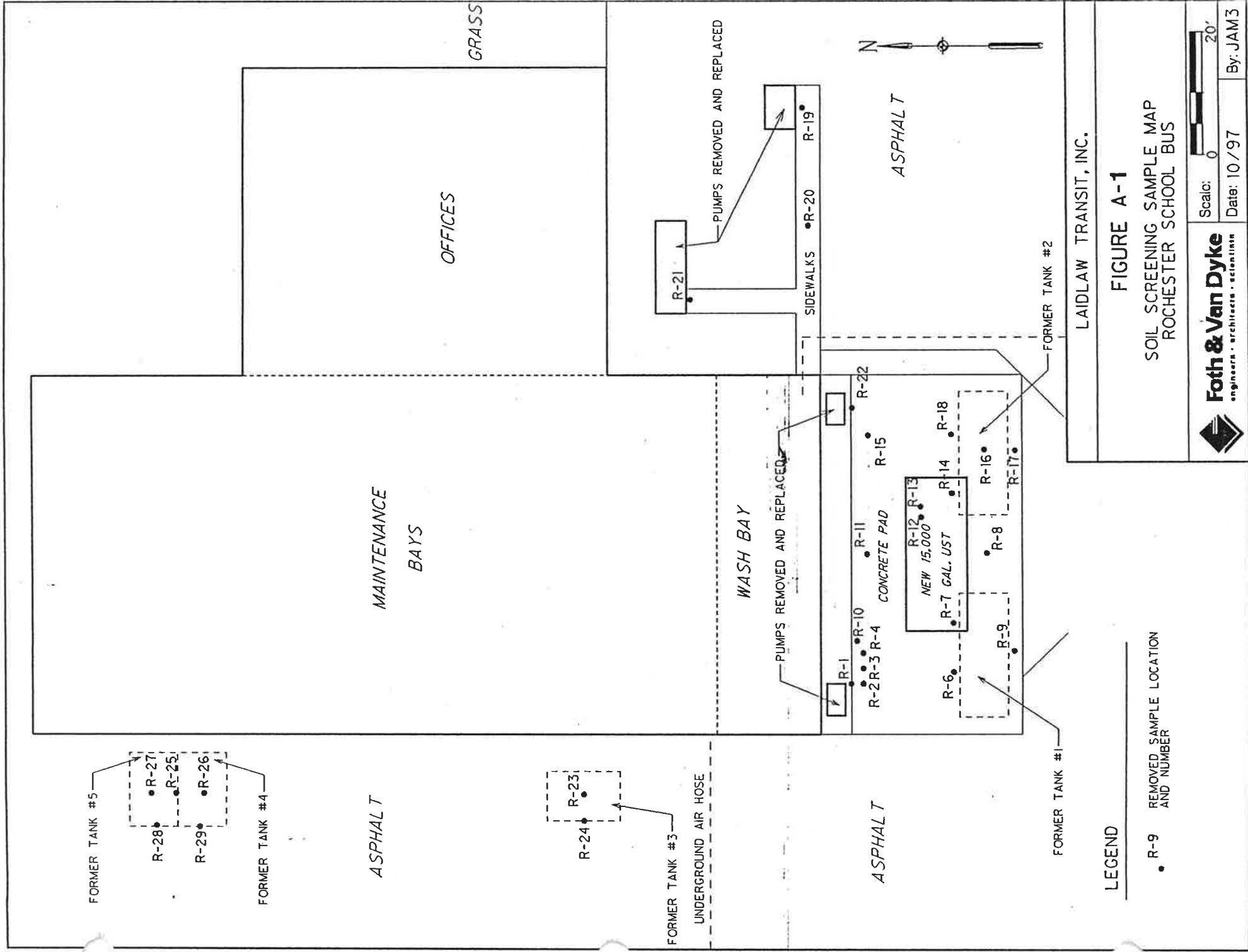
If additional investigation is not required at the site, please mail this form and all necessary attachments to:

(Project Manager)
Minnesota Pollution Control Agency
Hazardous Waste Division
Tanks and Emergency Response Section
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

If additional investigation is required at the site, include this form as an appendix to the "Remedial Investigation Report Form." Excavation reports indicating a limited site investigation (LSI) is necessary will not be reviewed by MPCA staff until the LSI has been completed.

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 612/282-5332 or 1-800-657-3864 (voice/TTY).

Printed on recycled paper containing at least 10 percent fibers from paper recycled by consumers.



LEGEND

- R-9 REMOVED SAMPLE LOCATION AND NUMBER

LIDLAW TRANSIT, INC.

FIGURE A-1
SOIL SCREENING SAMPLE MAP
ROCHESTER SCHOOL BUS

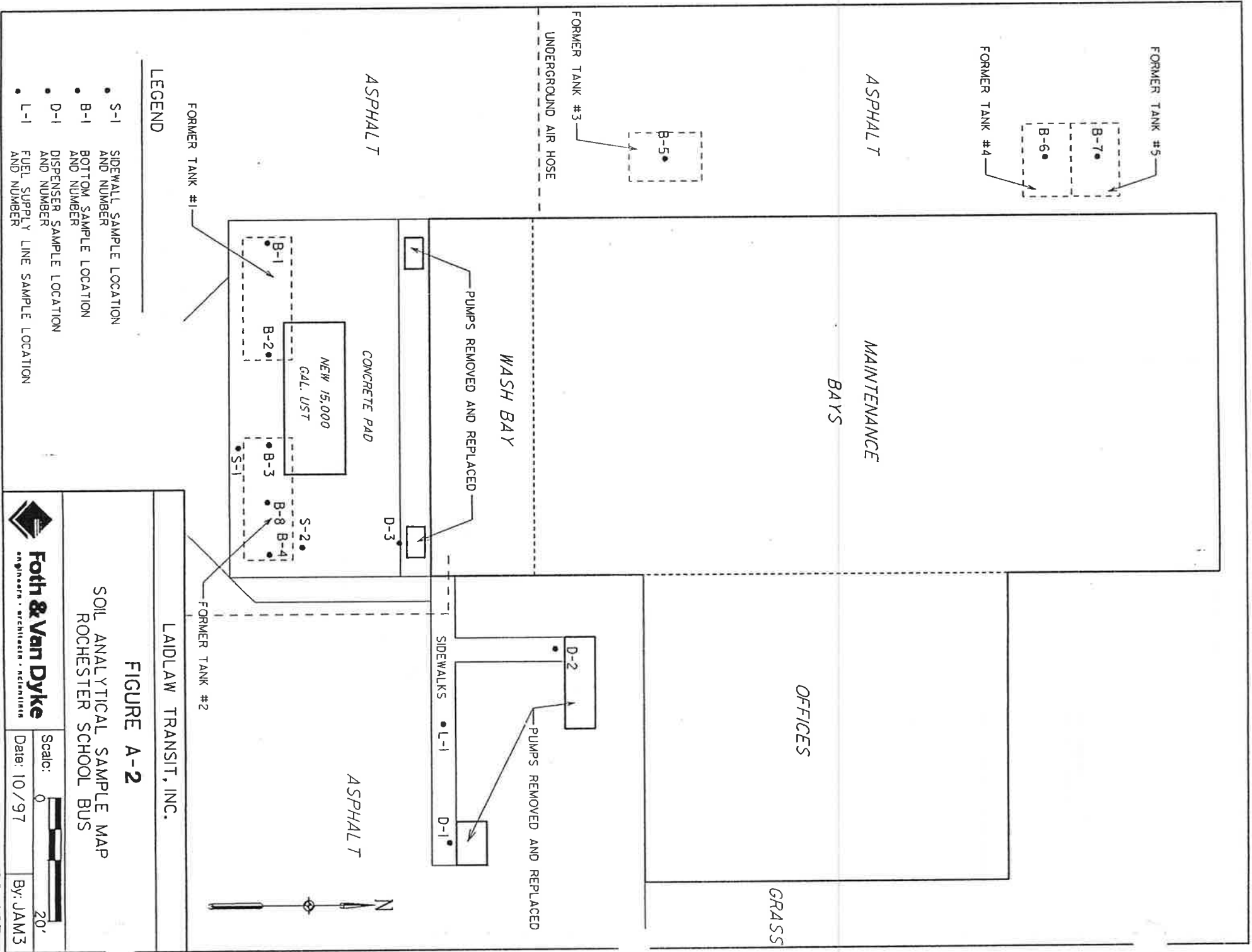


Foth & Van Dyke
engineers • architects • scientists

Scale: 0 20'

Date: 10/97

By: JAM3



LEGEND

- S-1 SIDEWALL SAMPLE LOCATION AND NUMBER
- B-1 BOTTOM SAMPLE LOCATION AND NUMBER
- D-1 DISPENSER SAMPLE LOCATION AND NUMBER
- L-1 FUEL SUPPLY LINE SAMPLE LOCATION AND NUMBER

LAIDLAW TRANSIT, INC.

FIGURE A-2

SOIL ANALYTICAL SAMPLE MAP
ROCHESTER SCHOOL BUS



Foth & Van Dyke
Engineers • Architects • Planners

Scale: 0 20'

Date: 10/97

By: JAM3

Appendix B

Laboratory Analytical Reports

**American
Science**
CORPORATION

11 EMPIRE DRIVE, SAINT PAUL, MN 55103

TEL: 612-291-9472

FAX: 612-291-9475

September 11, 1996

Foth and Van Dyke
The Waters Corporate Park, Suite 125
2900 Lone Oak Parkway
Eagan, MN 55121

Attn: Ms. Kathy Marshall

Client Project ID.: 96L027
COC: AN-4001, AN-4000
American Science Project No.: 69-7135
Samples Collected: August 13 & 14, 1996

The following are results from the samples you submitted for analysis on
August 16, 1996.

Please contact me if you have any questions or comments.

Sincerely,



Cynthia Hansen
Project Manager

encl.

The Original Goldenrod Invoice is attached to the front of your report.
Please forward to accounts payable.

BTEX & GRO in SOIL

Sample ID: **B-1**

Lab sample No:	66320
Sample Collected:	8/13/96
Sample Analyzed:	8/27/96

Sample ID: **B-2**

Lab sample No:	66321
Sample Collected:	8/13/96
Sample Analyzed:	8/23/96

Sample ID: **B-3**

Lab sample No:	66322
Sample Collected:	8/13/96
Sample Analyzed:	8/23/96

Analytes	QL		QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.05	ND	0.05	ND	0.05	ND
Toluene	0.05	ND	0.05	ND	0.05	ND
Ethylbenzene	0.05	ND	0.05	ND	0.05	ND
Xylene	0.05	ND	0.05	ND	0.05	ND

Sample ID: **B-4**

Lab sample No:	66323
Sample Collected:	8/13/96
Sample Analyzed:	8/23/96

Sample ID: **S-1**

Lab sample No:	66324
Sample Collected:	8/13/96
Sample Analyzed:	8/23/96

Sample ID: **S-2**

Lab sample No:	66325
Sample Collected:	8/13/96
Sample Analyzed:	8/23/96

Analytes	QL		QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.05	ND	0.05	ND	0.05	ND
Toluene	0.05	ND	0.05	ND	0.05	ND
Ethylbenzene	0.05	ND	0.05	ND	0.05	ND
Xylene	0.05	ND	0.05	ND	0.05	ND

Sample ID: **P-1**

Lab sample No:	66326
Sample Collected:	8/13/96
Sample Analyzed:	8/27/96

Sample ID: **P-2**

Lab sample No:	66327
Sample Collected:	8/13/96
Sample Analyzed:	8/24/96

Sample ID: **U-1**

Lab sample No:	66328
Sample Collected:	8/13/96
Sample Analyzed:	8/27/96

Sample ID: **P-3**

Lab sample No:	66329
Sample Collected:	8/13/96
Sample Analyzed:	8/27/96

Analytes	QL		QL		QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Benzene	0.05	ND	0.05	0.60	0.5	ND	2.0	ND
Toluene	0.05	ND	0.05	ND	0.5	ND	2.0	ND
Ethylbenzene	0.05	ND	0.05	0.38	0.5	ND	2.0	3.2
Xylene	0.05	0.11	0.05	2.2	0.5	0.80	2.0	8.9

Method: 8020 Modified

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

American Science Project No.: 69-7135
Client Project ID: 96L027
Chain of Custody Reference: AN-4001, AN-4000
Report Date: 9/11/96

BTEX in Water

Sample ID:	GW-1
Lab sample No:	66330
Sample Collected:	8/14/96
Sample Analyzed:	8/27/96

Analytes	ug/L	ug/L
Benzene	1.0	ND
Toluene	1.0	ND
Ethylbenzene	1.0	ND
Xylene	1.0	ND

Method: 8020 Modified

ND = Not Detected, concentration less than Quantitation Limit.
QL = Quantitation Limit

American Science Project No.: 69-7135
Client Project ID: 96L027
Chain of Custody Reference: AN-4001, AN-4000
Report Date: 9/11/96

DRO in Soil

Sample ID: B-1		B-2		B-3	
Lab sample No:	66320	66321	66322	66322	66322
Sample Collected:	8/13/96	8/13/96	8/13/96	8/13/96	8/13/96
Sample Extracted:	8/23/96	8/23/96	8/23/96	8/23/96	8/23/96
Sample Analyzed:	8/30/96	8/30/96	8/30/96	8/30/96	8/30/96

Parameter	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	ND	10	ND	10
Other (See Key)	9	1	10	ND	9

Sample ID: B-4		S-1		S-2	
Lab sample No:	66323	66324	66325	66325	66325
Sample Collected:	8/13/96	8/13/96	8/13/96	8/13/96	8/13/96
Sample Extracted:	8/23/96	8/23/96	8/23/96	8/23/96	8/23/96
Sample Analyzed:	8/30/96	9/3/96	8/30/96	8/30/96	8/30/96

Parameter	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	ND	100	180	10
Other (See Key)	9	9	1.7	1.7	9

Method: Wisconsin DNR DRO Modified
 All samples received on ice unless otherwise noted.

Key

1. Sample odor detected.
2. Sample extraction solvent added beyond holding time.
3. Sample received by Laboratory beyond 4 days of collection.
4. Analysis holding times exceeded.
5. QC sample(s) out of control.
6. Unidentified but detected compounds.
7. Sample run at a dilution.
8. Samples not received on ice, temperature reported.
9. None of the above.

ND = Not Detected, concentration less than Quantitation Limit.
 QL = Quantitation Limit

American Science Project No.: 69-7135

Client Project ID: 96L027

Chain of Custody Reference: AN-4001, AN-4000

Report Date: 9/11/96

DRO in Soil

Parameter	Sample ID: P-1		P-2		U-1	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	1200	100	ND	10	5500
Other (See Key)	QL	1	QL	1	QL	1

Lab sample No: 66326
Sample Collected: 8/13/96
Sample Extracted: 8/23/96
Sample Analyzed: 9/3/96

66327
8/13/96
8/23/96
8/30/96

66328
8/13/96
8/23/96
9/3/96

Parameter	Sample ID: P-3	
	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	100	13000
Other (See Key)	QL	1.7

Lab sample No: 66329
Sample Collected: 8/13/96
Sample Extracted: 8/23/96
Sample Analyzed: 9/3/96

Method: Wisconsin DNR DRO Modified

All samples received on ice unless otherwise noted.

Key

1. Sample odor detected.
2. Sample extraction solvent added beyond holding time.
3. Sample received by Laboratory beyond 4 days of collection.
4. Analysis holding times exceeded.
5. QC sample(s) out of control.
6. Unidentified but detected compounds.
7. Sample run at a dilution.
8. Samples not received on ice, temperature reported.
9. None of the above.

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

American Scienco Project No.: 69-7135
Client Project ID: 96L027
Chain of Custody Reference: AN-4001, AN-4000
Report Date: 9/11/96

DRO in Water

Sample ID:	GW-1
Lab sample No:	66330
Sample Collected:	8/14/96
Sample Extracted:	8/20/96
Sample Analyzed:	8/22/96

Parameter	µg/L	µg/L
TPH-Diesel Range Organics (DRO)	1000	4000
pH		1.6
Other (See Key)		1.510

Method: Wisconsin DNR DRO Modified ✓

All samples received on ice unless otherwise noted.

Key:

1. Sample odor detected.
2. Unidentified but detected compounds.
3. Analysis holding times exceeded.
4. Sample received by Laboratory beyond 4 days of collection.
5. Samples not received on ice, temperature reported.
6. QC sample(s) out of control.
7. Samples not extracted within 7 days of collection.
8. Containers not supplied with preservative, pH reported.
9. Containers supplied with preservative, pH not reported.
10. Sample run at a dilution. ✓
11. Sample pH greater than 2.

QL = Quantitation Limit ✓

Client: Father's Landfill
 Client Project #: 961037

Send Results to: Kathy Marshall
 Invoice to &/or Purchase Order #:

Phone #: 4524396
 Fax #:

American Science

11 Empire Drive, Saint Paul, MN 55103
 612-291-9472 fax: 612 291-9475

* Indicate sample container type and preservative method in COLUMN HEADING (e.g. 1 Liter, HNO₃<2)

* List number of containers collected in box across from SAMPLE IDENTIFICATION

SAMPLE CONTAINER TYPE

40 mL Vial
 60 mL
 250 mL
 500 mL
 1 L

PRESERVATION METHOD

No preservative
 Hydrochloric, HCl, pH < 2
 Methanol
 Nitric, HNO₃, pH < 2
 Sodium Hydroxide, NaOH,
 pH > 12
 Sulfuric, H₂SO₄, pH < 2
 Other

All samples must be preserved on ice (4°C), unless specified otherwise.

Chain-of-Custody No: AN 4001

Item No.	Sample Identification	Samplers:		Matrix	Water Soil Waste-- Liquid Solids Other-- specify	bond none Filed	bond none Filed	bond none 25-35g	Total Sample Bottles	Analyses Requested	Use the space at bottom of form to describe analyses requested. Record number here.	Description/Comments
		Date/Time:	Date/Time:									
1	B-1	8/13/96	1027	Soil		1	1	1	3	1,2,3		66320
2	B-2		1029			1	1	1	3	1,2,3		66321
3	B-3		1309			1	1	1	3	1,2,3		66322
4	B-4		1310			1	1	1	3	1,2,3		66323
5	S-1		1325			1	1	1	3	1,2,3		66324
6	S-2		1328			1	1	1	3	1,2,3		66325
7	P-1		1520			1	1	1	3	1,2,3		66326
8	P-2		1525			1	1	1	3	1,2,3		66327

Trans. No.	Item No.(s)	Relinquished By	Accepted By	Date/Time	Turnaround:
1			<u>P. Hansen</u>	<u>8/16/96</u>	X std, 10-15 work days
2					TCLP, 15-20 work days
3					RUSH, need results
Run #/Airbill #:					
Courier:					

Analyses Requested	5)	6)	7)	8)	9)
		11 BTEX	21 Moisture	31 DR0	

69-2125

112

Client: Foth's Van Dyle Send Results to: Kathy Marshall Phone #: 452 4396
 Client Project #: 96L027 Invoice to &/or Purchase Order #: _____ Fax #: _____

American Science
 CORPORATION
 11 Empire Drive, Saint Paul, MN 55103
 612-291-9472 fax: 612 291-9475

* Indicate sample container type and preservative method in COLUMN HEADING (e.g. 1 Liter, HNO₃<2)
 * List number of containers collected in box across from SAMPLE IDENTIFICATION

SAMPLE CONTAINER TYPE
 40 mL Vial
 60 mL
 250 mL
 500 mL
 1 L

PRESERVATION METHOD
 No preservative
 Hydrochloric, HCl, pH<2
 Methanol
 Nitric, HNO₃, pH<2
 Sodium Hydroxide, NaOH, pH>12
 Sulfuric, H₂SO₄, pH<2
 Other _____

All samples must be preserved on ice (4°C), unless specified otherwise.

Chain-of-Custody No:
AN 4000

Item No.	Sample Identification	(One sampling set per line.) Samplers: <u>EAM</u> Date/Time:	Matrix Water Soil Waste-- Liquid Solids Other-- specify	60ml none Filled	60ml none 2.5-35g	40ml vial HCL	1-2 Amber HCL pH<2	Total Sample Bottles	Analyses Requested Use the space at bottom of form to describe analyses requested. Record number here.	Description/Comments
2	P-3	1 1601	Soil	2	1			3	1,2,3	66329
3	GW-1	8/14/96 1030	Water			3	1	4	1,3	66330
4	Trip Blank	---	Water			1		1	1	CH
5										temp blank
6										not trip blank
7										
8										

Trans. No.	Item No.(s)	Relinquished By	Accepted By	Date/Time	Turnaround:	Analyses Requested	
1	1-4	<u>[Signature]</u>	<u>C. Hansen</u>	8/16/96 1425	<input checked="" type="checkbox"/> Std, 10-15 work days	1) BTEX	6)
2					<input type="checkbox"/> TCLP, 15-20 work days	2) Moisture	7)
3					<input type="checkbox"/> RUSH, need results	3) DRO	8)
Courier: _____ Run #/Airbill #:					by _____	4)	9)

**American
Science**
CORPORATION

11 EMPIRE DRIVE, SAINT PAUL, MN 55103

TEL: 612-291-9472

FAX: 612-291-9475

September 24, 1996

Foth and Van Dyke
The Waters Corporate Park
2900 Lone Oak Parkway, Suite 125
Eagan, MN 55121

Attn:

Ms. Kathy Marshall

Client Project ID.:

96L027

COC:

AN-4011

American Science Project No.:

69-7162

Samples Collected:

August 20 & 21, 1996.

The following are results from the samples you submitted for analysis on
August 23, 1996.

Please contact me if you have any questions or comments.

Sincerely,



Steven Petersen
Project Manager

encl.

The Original Goldenrod Invoice is attached to the front of your report.
Please forward to accounts payable.

American Science Project No.: 69-7162

Client Project ID: 96L027

Chain of Custody Reference: AN-4011

Report Date: 9/24/96

BTEX in Soil

Sample ID:	B-5¹
Lab sample No:	66411
Sample Collected:	8/20/96
Sample Analyzed:	9/7/96

B-6¹
66412
8/20/96
9/6/96

B-7¹
66413
8/20/96
9/7/96

Analytes	QL			QL			QL		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Benzene	0.05	ND	0.05	ND	0.05	ND	0.05	ND	
Toluene	0.05	ND	0.05	ND	0.05	ND	0.05	ND	
Ethylbenzene	0.05	ND	0.05	ND	0.05	ND	0.05	ND	
Xylene	0.05	ND	0.05	ND	0.05	ND	0.05	ND	

Method: EPA 8020 Modified

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

¹Samples analyzed outside of recommended holding time.

American Science Project No.: 69-7162
 Client Project ID: 96L027
 Chain of Custody Reference: AN-4011
 Report Date: 9/24/96

BTEX in SOIL

Sample ID:	G-1¹	G-2¹
Lab sample No:	66414	66415
Sample Collected:	8/21/96	8/21/96
Sample Analyzed:	9/7/96	9/7/96

Analytes	QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.05	ND	0.05	ND
Toluene	0.05	ND	0.05	ND
Ethylbenzene	0.05	ND	0.05	ND
Xylene	0.05	ND	0.05	ND

Method: EPA 8020 Modified

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

¹Sample analyzed outside of recommended holding time.

DRO in Soil

Sample ID:	B-5	B-6	B-7
Lab sample No:	66411	66412	66413
Sample Collected:	8/20/96	8/20/96	8/20/96
Sample Extracted:	8/30/96	8/30/96	8/30/96
Sample Analyzed:	9/10/96	9/10/96	9/10/96

Parameter	QL		QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	12	10	ND	10	11
Other (See Key)		9		9		9

Method: Wisconsin DNR DRO Modified

All samples received on ice unless otherwise noted.

Key

1. Sample odor detected.
2. Sample extraction solvent added beyond holding time.
3. Sample received by Laboratory beyond 4 days of collection.
4. Analysis holding times exceeded.
5. QC sample(s) out of control.
6. Unidentified but detected compounds.
7. Sample run at a dilution.
8. Samples not received on ice, temperature reported.
9. None of the above.

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

American Science Project No.: 69-7162
 Client Project ID: 96L027
 Chain of Custody Reference: AN-4011
 Report Date: 9/24/96

DRO in Soil

Sample ID:	G-1	G-2
Lab sample No:	66414	66415
Sample Collected:	8/21/96	8/21/96
Sample Extracted:	8/30/96	8/30/96
Sample Analyzed:	9/10/96	9/10/96

Parameter	QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	ND	10	12
Other (See Key)		9		9

Method: Wisconsin DNR DRO Modified

All samples received on ice unless otherwise noted.

Key

1. Sample odor detected.
2. Sample extraction solvent added beyond holding time.
3. Sample received by Laboratory beyond 4 days of collection.
4. Analysis holding times exceeded.
5. QC sample(s) out of control.
6. Unidentified but detected compounds.
7. Sample run at a dilution.
8. Samples not received on ice, temperature reported.
9. None of the above.

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

Chain-Of-Custody Record

Proposal #: _____

69-1062
Internal Use Only: Lab Project No. _____

Client: Foth's VanDyke Send Results to: Kathy Marshall Phone #: 4524396
 Client Project #: 96L027 Invoice to &/or Purchase Order #: _____ Fax #: _____

American Science
 CORPORATION
 11 Empire Drive, Saint Paul, MN 55103
 612-291-9472 fax: 612 291-9475

* Indicate sample container type and preservative method in COLUMN HEADING (e.g. 1 Liter, HNO₃<2)
 * List number of containers collected in box across from SAMPLE IDENTIFICATION

SAMPLE CONTAINER TYPE
 40 mL Vial
 60 mL
 250 mL
 500 mL
 1 L

PRESERVATION METHOD
 No preservative
 Hydrochloric, HCl, pH<2
 Methanol
 Nitric, HNO₃, pH<2
 Sodium Hydroxide, NaOH, pH>12
 Sulfuric, H₂SO₄, pH<2
 Other _____

All samples must be preserved on ice (4°C), unless specified otherwise.

Chain-of-Custody No:
AN 4011

Item No.	Sample Identification	Samplers: <u>EAM</u> Date/Time:	Matrix Water Soil Waste-- Liquid Solids Other-- specify	60ml none Filled	60ml none 25-35g	40ml none HCL	Total Sample Bottles	Analyses Requested Use the space at bottom of form to describe analyses requested. Record number here.	Description/Comments
1	B-5	8/20/96 0955	Soil	2	1		3	1-3	66411
2	B-6	1528							66412
3	B-7	1538							66413
4	L-1	8/21/96 1436							66414
5	L-2	1451							66415
6	Temp Trip Blank	- -	Water			1	1	+ (E) by Eric Moshier	
7	L7 temp blank (not trip blank) per RTH 8/26/96								
8									

Trans. No.	Item No.(s)	Relinquished By	Accepted By	Date/Time	Turnaround:	Analyses Requested	
1	1-6	<u>S.O.</u>	<u>Robert J. ...</u>	<u>8/23/96/1111</u>	<input checked="" type="checkbox"/> Std, 10-15 work days	1) BTEX	5)
2					<input type="checkbox"/> TCLP, 15-20 work days	2) % Moisture	6)
3					<input type="checkbox"/> RUSH, need results	3) DRO	7)
Courier: _____ Run #/Airbill #: _____						4)	8)
							9)

**American
Science**
CORPORATION

11 EMPIRE DRIVE, SAINT PAUL, MN 55103

TEL: 612-291-9472

FAX: 612-291-9475

October 16, 1996

Foth and Van Dyke
The Waters Corporate Park, 2900 Lone Oak Parkway, Suite 125
Eagan, MN 55121

Attn: Ms. Kathy Marshall

Client Project ID.: 96L027

COC: AN-4091

American Science Project No.: 69-7287

Samples Collected: October 11, 1996

The following are results from the samples you submitted for rush analysis on October 14, 1996. Faxed results were provided to you on October 16, 1996.

Please contact me if you have any questions or comments.

Sincerely,



Steven Petersen
Project Manager

encl.

The Original Goldenrod Invoice is attached to the front of your report.
Please forward to accounts payable.

American Science Project No.: 69-7287

Client Project ID: 96L027

Chain of Custody Reference: AN-4091

Report Date: 10/16/96

BTEX in Soil

Sample ID:	G-1	G-2
Lab sample No:	66938	66939
Sample Collected:	10/11/96	10/11/96
Sample Analyzed:	10/14/96	10/14/96

Analytes	QL		QL	
	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.05	ND	0.05	ND
Toluene	0.05	ND	0.05	ND
Ethylbenzene	0.05	ND	0.05	ND
Xylene	0.05	ND	0.05	ND

Method: EPA 8020 Modified

ND = Not Detected, concentration less than Quantitation Limit.

QL = Quantitation Limit

American Science Project No.: 69-7287
 Client Project ID: 96L027
 Chain of Custody Reference: AN-4091
 Report Date: 10/16/96

DRO in Soil

Sample ID: G-1		Sample ID: G-2	
Lab sample No:	66938	66939	
Sample Collected:	10/11/96	10/11/96	
Sample Extracted:	10/14/96	10/14/96	
Sample Analyzed:	10/14/96	10/14/96	

Parameter	QL	
	mg/kg	mg/kg
TPH-Diesel Range Organics (DRO)	10	10
Other (See Key)	9	9

Method: Wisconsin DNR DRO Modified
 All samples received on ice unless otherwise noted.

Key

1. Sample odor detected.
2. Sample extraction solvent added beyond holding time.
3. Sample received by Laboratory beyond 4 days of collection.
4. Analysis holding times exceeded.
5. QC sample(s) out of control.
6. Unidentified but detected compounds.
7. Sample run at a dilution.
8. Samples not received on ice, temperature reported.
9. None of the above.

ND = Not Detected, concentration less than Quantitation Limit.
 QL = Quantitation Limit

Client: Fath's Van Dyke Send Results to: Kathy Marshall Phone #: 452 4396
 Client Project #: 966027 Invoice to &/or Purchase Order #: _____ Fax #: _____

American Science
 CORPORATION
 11 Empire Drive, Saint Paul, MN 55103
 612-291-9472 fax: 612 291-9475

* Indicate sample container type and preservative method in COLUMN HEADING (e.g. 1 Liter, HNO₃<2)
 * List number of containers collected in box across from SAMPLE IDENTIFICATION

SAMPLE CONTAINER TYPE
 40 mL Vial
 60 mL
 250 mL
 500 mL
 1 L

PRESERVATION METHOD
 No preservative
 Hydrochloric, HCl, pH<2
 Methanol
 Nitric, HNO₃, pH<2
 Sodium Hydroxide, NaOH, pH>12
 Sulfuric, H₂SO₄, pH<2
 Other _____

All samples must be preserved on ice (4°C), unless specified otherwise.

Chain-of-Custody No:
AN 4091

Item No.	Sample Identification (One sampling set per line.)	Samplers: <u>EAM</u> Date/Time:	Matrix Water Soil Waste-- Liquid Solids Other-- specify	60ml soil		Total Sample Bottles	Analyses Requested Use the space at bottom of form to describe analyses requested. Record number here.	Description/Comments
				60ml soil	None Filled			
1	4-1	10/11/96 1231	Soil	2	1	3	1, 2, 3	66938
2	4-2	1 1249	1	2	1	3	1, 2, 3	66939
3								
4								
5								
6								
7								
8								

Trans. No.	Item No.(s)	Relinquished By	Accepted By	Date/Time	Turnaround:	Analyses Requested		
1	1-2	<u>[Signature]</u>	<u>G. Hansen</u>	10/14/96 1358	<input type="checkbox"/> Std, 10-15 work days	1) BTEX	5)	
2					<input type="checkbox"/> TCLP, 15-20 work days	2) % Moisture	6)	
3					<input checked="" type="checkbox"/> RUSH, need results	3) DRO	7)	
Courier: _____ Run #/Airbill #: _____							4)	8)
							9)	



MOBILE LABORATORY ANALYTICAL RESULTS

Client: Foth & Van Dyke
 Contact: Stacey Larson
 Site: Rochester School Bus
 Date: May 14 & 15, 1997
 Chemist: Tony Goldenstein
 Method: EPA 5030/8020/8015

NTS Project #: 4153.11

Soil samples methanol preserved. All soil results on a wet weight basis.

Analytical Results

Sample Description	Dilution Factor	Benzene mg/Kg	Toluene mg/Kg	Ethyl Benzene mg/Kg	Total Xylenes mg/Kg	GRO mg/Kg	TPH as Fuel Oil mg/Kg
Soil Matrix							
Analyzed on 5/14/97							
P2 10-12'	1	<0.50	<0.50	<0.50	<1.5	<10	<25
P2 24-26'	1	<0.50	<0.50	<0.50	<1.5	<10	<25
P3	1	<0.50	<0.50	<0.50	<1.5	<10	<25
P4 20-22'	1	<0.50	<0.50	<0.50	<1.5	<10	<25
Analyzed on 5/15/97							
P5	1	<0.50	<0.50	<0.50	<1.5	<10	<25
P6 16-19'	1	<0.50	<0.50	<0.50	<1.5	<10	<25
P1 16-19'	1	<0.50	<0.50	<0.50	<1.5	<10	<25
Water Matrix							
Analyzed on 5/14/97							
P3	1	<5.0	<5.0	<5.0	<15	<100	<0.5
Minimal sample volume collected from hole.							
Analyzed on 5/15/97							
P3	1	17	<5.0	<5.0	<15	<100	<0.5
P5	1	<5.0	<5.0	<5.0	<15	<100	<0.5

QC Reviewed:  6/11/97



MOBILE LABORATORY ANALYTICAL RESULTS

Client: Foth & Van Dyke

NTS Project #: 4153.11

Contact: Stacey Larson

Site: Rochester School Bus

Date: May 14 & 15, 1997

Chemist: Tony Goldenstein

Method: EPA 5030/8020/8015

Soil samples methanol preserved. All soil results on a wet weight basis.

Analytical Results

Sample Description	Dilution Factor	Benzene	Toluene	Ethyl Benzene	Total Xylenes	GRO	TPH as Fuel Oil
P6	1	<5.0	<5.0	<5.0	<15	<100	<0.5
P7	1	<5.0	<5.0	<5.0	18	<100	<0.5
P8	1	<5.0	<5.0	<5.0	<15	<100	<0.5

QC Reviewed: *PA 6/11/97*



Northeast Technical Services, Inc.

CHAIN OF CUSTODY RECORD

315 CHESTNUT STREET • P.O. BOX 1142
 VIRGINIA, MINNESOTA 55792
 218-741-4290 * FAX 218-741-4291

Client Name, Address, Phone		Samplers:		Report To:		Verbal Results To:	
Folha van Dyke Stacey Larsen Rochester, MN		Samples Shipped/Received By: Air _____ In Person _____ Fed. Ex. _____ Other _____		Project #/Department #		Copy of Report To:	
Log-In #	Sample #	Sample Description	Date	Time	Collection	Sample Matrix	Field Filtered
	ML-1	Pa 10-12	5/16/97	1:00pm		X	
	ML-2	Pa 24-26				X	
	ML-3	P3				X	
	ML-4	P3				X	
	ML-5	Pa 20-22				X	
	ML-6	P5	5/15/97	8:15am		X	
	ML-7	P5				X	
	ML-8	Pa 16-19				X	
	ML-9	Pa				X	
Retinquished By:	Date	Time	Received By:	Time	Retinquished By:	Date	Time
Retinquished By:	Date	Time	Received By:	Time	Retinquished By:	Date	Time
Retinquished By:	Date	Time	Received For Laboratory By:	Time	Date	Time	Temperature upon receipt:
			Received For Laboratory By:	Time	5/15/97		
White Copy - Client							
Canary Copy - Laboratory							

Comments:

Type/# of Containers
 G O V
 E N T
 E R T
 L A R
 S
 T N E
 I P
 C O V
 P O R
 T O R
 D
 F A
 95
 T P H

Analysis/Remarks

MeOH pres

MeOH pres.

meoh pres

meoh pres

MeOH preserved

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4725 Date Collected: 05/15/97
Sample Description: P 1 16-19' Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 103

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.
TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.
MDL = Method Detection Limit
RL = Reporting Limit (Practical quantitation limit)

Report approved by:  Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4726 Date Collected: 05/15/97
Sample Description: P 2 10-12' Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil Moisture NA

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 104

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

Report approved by:



Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4727 Date Collected: 05/15/97
Sample Description: P 2 24-26' Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Soil Moisture NA

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	560	140	45
Benzene	ug/Kg	1.0	700	100	25
Toluene	ug/Kg	1.0	1600	100	25
Ethyl Benzene	ug/Kg	1.0	1900	100	25
Total Xylenes	ug/Kg	1.0	14000	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 137

TPH as Fuel Oil mg/Kg 1.0 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.
TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.
MDL = Method Detection Limit
RL = Reporting Limit (Practical quantitation limit)

Report approved by:  Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4728 Date Collected: 05/15/97
Sample Description: P 3 Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil

Moisture

NA

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 106

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

Report approved by:



Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4729

Date Collected: 05/15/97

Sample Description P 3

Date Received: 05/16/97

Foth & Van Dyke

Date VOC Analyzed: 05/27/97

Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Allyl Chloride	ug/L	1.0	< 0.4	1.0	0.4
Bromobenzene	ug/L	1.0	< 0.2	0.5	0.2
Bromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
Bromodichloromethane	ug/L	1.0	< 0.2	0.5	0.2
Bromoform	ug/L	1.0	< 0.3	1.0	0.3
Bromomethane	ug/L	1.0	< 0.4	1.0	0.4
Carbon Tetrachloride	ug/L	1.0	< 0.2	1.0	0.2
Chlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
Chloroethane	ug/L	1.0	< 0.3	1.0	0.3
Chloroform	ug/L	1.0	< 0.4	1.0	0.4
Chloromethane	ug/L	1.0	< 1.0	3.0	1.0
2-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
4-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
Dibromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dibromo-3-chloropropane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dibromoethane	ug/L	1.0	< 0.3	1.0	0.3
Dibromomethane	ug/l	1.0	< 0.2	1.0	0.2
1,2-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,3-Dichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,4-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Dichlorodifluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,1-Dichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dichloroethane	ug/L	1.0	< 0.1	0.5	0.1
1,1-Dichloroethylene	ug/L	1.0	< 0.4	1.0	0.4
Cis-1,2-Dichloroethylene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,2-Dichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Dichlorofluoromethane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dichloropropane	ug/L	1.0	< 0.3	1.0	0.3
1,3-Dichloropropane	ug/L	1.0	< 0.2	0.5	0.2
2,2-Dichloropropane	ug/L	1.0	< 0.4	1.0	0.4

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4729 Date Collected: 05/15/97
Sample Description P 3 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
1,1-Dichloropropene	ug/L	1.0	< 0.3	1.0	0.3
Cis-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Hexachlorobutadiene	ug/L	1.0	< 0.4	1.0	0.4
Methylene Chloride	ug/L	1.0	< 0.2	1.0	0.2
1,1,1,2-Tetrachloroethane	ug/L	1.0	< 0.2	1.0	0.2
1,1,2,2-Tetrachloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2,2-Tetrachloroethylene	ug/L	1.0	< 0.3	1.0	0.3
1,2,3-Trichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,2,4-Trichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,1,1-Trichloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,1,2-Trichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Trichlorofluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,2,3-Trichloropropane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichlorotrifluoroethane	ug/L	1.0	< 0.4	1.0	0.4
Vinyl Chloride	ug/L	1.0	< 1.1	20.0	1.1
Acetone	ug/L	1.0	9.5	1.0	0.2
Benzene	ug/L	1.0	9.5	1.0	0.2
n-Butylbenzene	ug/L	1.0	0.5 JR	1.0	0.3
sec-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
tert-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
Isopropylbenzene (Cumene)	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Benzene	ug/L	1.0	0.7 JR	1.0	0.2
Ethyl Ether	ug/L	1.0	< 0.4	1.0	0.4
p-Isopropyltoluene	ug/L	1.0	< 0.3	1.0	0.3
Methyl Ethyl Ketone	ug/L	1.0	4.1	3.0	0.9
Methyl Isobutyl Ketone	ug/L	1.0	< 0.7	2.0	0.7
Methyl tert-butyl ether	ug/L	1.0	24	1.0	0.3
n-Propylbenzene	ug/L	1.0	< 0.2	1.0	0.2

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4729
Sample Description: P 3
Foth & Van Dyke

Date Collected: 05/15/97
Date Received: 05/16/97
Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Naphthalene	ug/L	1.0	1.4 JR	2.0	0.5
Styrene	ug/L	1.0	< 0.3	1.0	0.3
Tetrahydrofuran	ug/L	1.0	< 0.5	2.0	0.5
Toluene	ug/L	1.0	< 0.2	1.0	0.2
1,2,4-Trimethylbenzene	ug/L	1.0	1.0	1.0	0.3
1,3,5-Trimethylbenzene	ug/L	1.0	< 0.2	1.0	0.2
m-Xylene & p-Xylene	ug/L	1.0	1.7	1.5	0.5
o-Xylene	ug/L	1.0	2.7	1.0	0.3

Fluorobenzene (Surrogate Recovery)

104

2-Bromo-1-Chloropropane (Surrogate Recovery)

112

Total Petroleum Hydrocarbons as Fuel Oil

mg/L 1.0

< 0.02

0.06

0.02

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.
VOCs analyzed in accordance to Minnesota Department of Health Method 465E (modified EPA 8021).
MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

JR = Value reported is above the MDL but below the RL

DF = Dilution Factor

Report approved by:



Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4730 Date Collected: 05/15/97
Sample Description: P 4 Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil Moisture NA

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 101

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

Report approved by:



Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4731 Date Collected: 05/15/97
Sample Description: P 5 Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 96

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.
TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.
MDL = Method Detection Limit
RL = Reporting Limit (Practical quantitation limit)

Report approved by:  Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P. O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4732 Date Collected: 05/15/97
Sample Description P 5 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Allyl Chloride	ug/L	1.0	< 0.4	1.0	0.4
Bromobenzene	ug/L	1.0	< 0.2	0.5	0.2
Bromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
Bromodichloromethane	ug/L	1.0	< 0.2	0.5	0.2
Bromoform	ug/L	1.0	< 0.3	1.0	0.3
Bromomethane	ug/L	1.0	< 0.3	1.0	0.3
Carbon Tetrachloride	ug/L	1.0	< 0.4	1.0	0.4
Chlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Chloroethane	ug/L	1.0	< 0.3	1.0	0.3
Chloroform	ug/L	1.0	< 0.4	1.0	0.4
Chloromethane	ug/L	1.0	< 1.0	3.0	1.0
2-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
4-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
Dibromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dibromo-3-chloropropane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dibromoethane	ug/L	1.0	< 0.3	1.0	0.3
Dibromomethane	ug/L	1.0	< 0.2	1.0	0.2
1,2-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,3-Dichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,4-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Dichlorodifluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,1-Dichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dichloroethane	ug/L	1.0	< 0.1	0.5	0.1
1,1-Dichloroethylene	ug/L	1.0	< 0.4	1.0	0.4
Cis-1,2-Dichloroethylene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,2-Dichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Dichlorofluoromethane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dichloropropane	ug/L	1.0	< 0.3	1.0	0.3
1,3-Dichloropropane	ug/L	1.0	< 0.2	0.5	0.2
2,2-Dichloropropane	ug/L	1.0	< 0.4	1.0	0.4

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4732

Date Collected: 05/15/97

Sample Description P 5

Date Received: 05/16/97

Foth & Van Dyke

Date VOC Analyzed: 05/27/97

Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
1,1-Dichloropropene	ug/L	1.0	< 0.3	1.0	0.3
Cis-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Hexachlorobutadiene	ug/L	1.0	< 0.4	1.0	0.4
Methylene Chloride	ug/L	1.0	< 0.2	1.0	0.2
1,1,1,2-Tetrachloroethane	ug/L	1.0	< 0.2	1.0	0.2
1,1,2,2-Tetrachloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2,2-Tetrachloroethylene	ug/L	1.0	< 0.3	1.0	0.3
1,2,3-Trichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,2,4-Trichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,1,1-Trichloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,1,2-Trichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Trichlorofluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,2,3-Trichloropropane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichlorotrifluoroethane	ug/L	1.0	< 0.4	1.0	0.4
Vinyl Chloride	ug/L	1.0	< 0.3	1.0	0.3
Acetone	ug/L	1.0	< 1.1	20.0	1.1
Benzene	ug/L	1.0	0.9 JR	1.0	0.2
n-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
sec-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
tert-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
Isopropylbenzene (Cumene)	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Benzene	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Ether	ug/L	1.0	< 0.4	1.0	0.4
p-Isopropyltoluene	ug/L	1.0	< 0.3	1.0	0.3
Methyl Ethyl Ketone	ug/L	1.0	4.2	3.0	0.9
Methyl Isobutyl Ketone	ug/L	1.0	< 0.7	2.0	0.7
Methyl tert-butyl ether	ug/L	1.0	< 0.3	1.0	0.3
n-Propylbenzene	ug/L	1.0	< 0.2	1.0	0.2

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4732 Date Collected: 05/15/97
Sample Description P 5 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Naphthalene	ug/L	1.0	< 0.5	2.0	0.5
Styrene	ug/L	1.0	< 0.3	1.0	0.3
Tetrahydrofuran	ug/L	1.0	< 0.5	2.0	0.5
Toluene	ug/L	1.0	< 0.2	1.0	0.2
1,2,4-Trimethylbenzene	ug/L	1.0	< 0.3	1.0	0.3
1,3,5-Trimethylbenzene	ug/L	1.0	< 0.2	1.0	0.2
m-Xylene & p-Xylene	ug/L	1.0	< 0.5	1.5	0.5
o-Xylene	ug/L	1.0	< 0.3	1.0	0.3
Fluorobenzene (Surrogate Recovery)	%		103		
2-Bromo-1-Chloropropane (Surrogate Recovery)	%		107		
Total Petroleum Hydrocarbons as Fuel Oil	mg/L	1.0	< 0.02	0.06	0.02

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

VOCs analyzed in accordance to Minnesota Department of Health Method 465E (modified EPA 8021).

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

JR = Value reported is above the MDL but below the RL

DF = Dilution Factor

Report approved by:



Analytical Chemist

Northeast Technical Services, Inc., makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties, either expressed or implied.

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

NTS Lab Number: 97-4733 Date Collected: 05/15/97
Sample Description: P 6 Date Received: 05/16/97
Foth & Van Dyke

Date BTEX Analyzed: 05/25/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Soil

Moisture NA

Parameter	Units	DF	Result	RL	MDL
Methyl tert-butyl ether (MTBE)	ug/Kg	1.0	< 140	140	45
Benzene	ug/Kg	1.0	< 100	100	25
Toluene	ug/Kg	1.0	< 100	100	25
Ethyl Benzene	ug/Kg	1.0	< 100	100	25
Total Xylenes	ug/Kg	1.0	< 200	200	60

4-Bromofluorobenzene (Surrogate Recovery) % 103

TPH as Fuel Oil mg/Kg 1.0 < 10 10 3.0

BTEX analyzed in accordance to EPA SW-846 5030/8020.
TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.
MDL = Method Detection Limit
RL = Reporting Limit (Practical quantitation limit)

Report approved by:  Analytical Chemist

Northeast Technical Services, Inc., makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties, either expressed or implied.

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4734 Date Collected: 05/15/97
Sample Description P 6 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Allyl Chloride	ug/L	1.0	< 0.4	1.0	0.4
Bromobenzene	ug/L	1.0	< 0.2	0.5	0.2
Bromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
Bromodichloromethane	ug/L	1.0	< 0.2	0.5	0.2
Bromoform	ug/L	1.0	< 0.3	1.0	0.3
Bromomethane	ug/L	1.0	< 0.3	1.0	0.3
Carbon Tetrachloride	ug/L	1.0	< 0.4	1.0	0.4
Chlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Chloroethane	ug/L	1.0	< 0.3	1.0	0.3
Chloroform	ug/L	1.0	< 0.4	1.0	0.4
Chloromethane	ug/L	1.0	< 1.0	3.0	1.0
2-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
4-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
Dibromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dibromo-3-chloropropane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dibromoethane	ug/L	1.0	< 0.3	1.0	0.3
Dibromomethane	ug/L	1.0	< 0.2	1.0	0.2
1,2-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,3-Dichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,4-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Dichlorodifluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,1-Dichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dichloroethane	ug/L	1.0	< 0.1	0.5	0.1
1,1-Dichloroethylene	ug/L	1.0	< 0.4	1.0	0.4
Cis-1,2-Dichloroethylene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,2-Dichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Dichlorofluoromethane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dichloropropane	ug/L	1.0	< 0.3	1.0	0.3
1,3-Dichloropropane	ug/L	1.0	< 0.2	0.5	0.2
2,2-Dichloropropane	ug/L	1.0	< 0.4	1.0	0.4

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4734 Date Collected: 05/15/97
Sample Description P 6 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
1,1-Dichloropropene	ug/L	1.0	< 0.3	1.0	0.3
Cis-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Hexachlorobutadiene	ug/L	1.0	< 0.4	1.0	0.4
Methylene Chloride	ug/L	1.0	< 0.2	1.0	0.2
1,1,1,2-Tetrachloroethane	ug/L	1.0	< 0.2	1.0	0.2
1,1,2,2-Tetrachloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2,2-Tetrachloroethylene	ug/L	1.0	< 0.3	1.0	0.3
1,2,3-Trichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,2,4-Trichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,1,1-Trichloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,1,2-Trichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Trichlorofluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,2,3-Trichloropropane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichlorotrifluoroethane	ug/L	1.0	< 0.4	1.0	0.4
Vinyl Chloride	ug/L	1.0	< 1.1	20.0	1.1
Acetone	ug/L	1.0	< 0.2	1.0	0.2
Benzene	ug/L	1.0	< 0.2	1.0	0.2
n-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
sec-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
tert-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
Isopropylbenzene (Cumene)	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Benzene	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Ether	ug/L	1.0	< 0.4	1.0	0.4
p-Isopropyltoluene	ug/L	1.0	< 0.3	1.0	0.3
Methyl Ethyl Ketone	ug/L	1.0	< 0.9	3.0	0.9
Methyl Isobutyl Ketone	ug/L	1.0	< 0.7	2.0	0.7
Methyl tert-butyl ether	ug/L	1.0	< 0.3	1.0	0.3
n-Propylbenzene	ug/L	1.0	< 0.2	1.0	0.2

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4734 Date Collected: 05/15/97
Sample Description P 6 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/27/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Naphthalene	ug/L	1.0	< 0.5	2.0	0.5
Styrene	ug/L	1.0	< 0.3	1.0	0.3
Tetrahydrofuran	ug/L	1.0	< 0.5	2.0	0.5
Toluene	ug/L	1.0	< 0.2	1.0	0.2
1,2,4-Trimethylbenzene	ug/L	1.0	< 0.3	1.0	0.3
1,3,5-Trimethylbenzene	ug/L	1.0	< 0.2	1.0	0.2
m-Xylene & p-Xylene	ug/L	1.0	< 0.5	1.5	0.5
o-Xylene	ug/L	1.0	< 0.3	1.0	0.3
Fluorobenzene (Surrogate Recovery)	%		103		
2-Bromo-1-Chloropropane (Surrogate Recovery)	%		101		
Total Petroleum Hydrocarbons as Fuel Oil	mg/L	1.0	< 0.02	0.06	0.02

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

VOCs analyzed in accordance to Minnesota Department of Health Method 465E (modified EPA 8021).

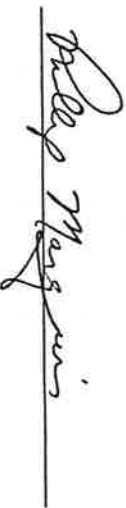
MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

JR = Value reported is above the MDL but below the RL

DF = Dilution Factor

Report approved by:



Analytical Chemist

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Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4735

Date Collected: 05/15/97

Sample Description P 7

Date Received: 05/16/97

Foth & Van Dyke

Date VOC Analyzed: 05/28/97

Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Allyl Chloride	ug/L	1.0	< 0.4	1.0	0.4
Bromobenzene	ug/L	1.0	< 0.2	0.5	0.2
Bromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
Bromodichloromethane	ug/L	1.0	< 0.2	0.5	0.2
Bromoform	ug/L	1.0	< 0.3	1.0	0.3
Bromomethane	ug/L	1.0	< 0.3	1.0	0.3
Carbon Tetrachloride	ug/L	1.0	< 0.4	1.0	0.4
Chlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Chloroethane	ug/L	1.0	< 0.3	1.0	0.3
Chloroform	ug/L	1.0	< 0.4	1.0	0.4
Chloromethane	ug/L	1.0	< 1.0	3.0	1.0
2-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
4-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
Dibromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dibromo-3-chloropropane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dibromoethane	ug/L	1.0	< 0.3	1.0	0.3
Dibromomethane	ug/L	1.0	< 0.2	1.0	0.2
1,2-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,3-Dichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,4-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Dichlorodifluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,1-Dichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dichloroethane	ug/L	1.0	< 0.1	0.5	0.1
1,1-Dichloroethylene	ug/L	1.0	< 0.4	1.0	0.4
Cis-1,2-Dichloroethylene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,2-Dichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Dichlorofluoromethane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dichloropropane	ug/L	1.0	< 0.3	1.0	0.3
1,3-Dichloropropane	ug/L	1.0	< 0.2	0.5	0.2
2,2-Dichloropropane	ug/L	1.0	< 0.4	1.0	0.4

Northeast Technical Services, Inc.

315 Chestnut Street, P. O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4735 Date Collected: 05/15/97
Sample Description P 7 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/28/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
1,1-Dichloropropene	ug/L	1.0	< 0.3	1.0	0.3
Cis-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Hexachlorobutadiene	ug/L	1.0	< 0.4	1.0	0.4
Methylene Chloride	ug/L	1.0	< 0.2	1.0	0.2
1,1,1,2-Tetrachloroethane	ug/L	1.0	< 0.2	1.0	0.2
1,1,2,2-Tetrachloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2,2-Tetrachloroethylene	ug/L	1.0	< 0.3	1.0	0.3
1,2,3-Trichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,2,4-Trichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,1,1-Trichloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,1,2-Trichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Trichlorofluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,2,3-Trichloropropane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichlorotrifluoroethane	ug/L	1.0	< 0.3	1.0	0.3
Vinyl Chloride	ug/L	1.0	< 1.1	20.0	1.1
Acetone	ug/L	1.0	< 0.2	1.0	0.2
Benzene	ug/L	1.0	< 0.2	1.0	0.2
n-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
sec-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
tert-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
Isopropylbenzene (Cumene)	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Benzene	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Ether	ug/L	1.0	< 0.4	1.0	0.4
p-Isopropyltoluene	ug/L	1.0	< 0.3	1.0	0.3
Methyl Ethyl Ketone	ug/L	1.0	3.2	3.0	0.9
Methyl Isobutyl Ketone	ug/L	1.0	1.8 JR	2.0	0.7
Methyl tert-butyl ether	ug/L	1.0	< 0.3	1.0	0.3
n-Propylbenzene	ug/L	1.0	< 0.2	1.0	0.2

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4735

Date Collected: 05/15/97

Sample Description P 7

Date Received: 05/16/97

Foth & Van Dyke

Date VOC Analyzed: 05/28/97

Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Naphthalene	ug/L	1.0	< 0.5	2.0	0.5
Styrene	ug/L	1.0	< 0.3	1.0	0.3
Tetrahydrofuran	ug/L	1.0	< 0.5	2.0	0.5
Toluene	ug/L	1.0	< 0.2	1.0	0.2
1,2,4-Trimethylbenzene	ug/L	1.0	< 0.3	1.0	0.3
1,3,5-Trimethylbenzene	ug/L	1.0	< 0.2	1.0	0.2
m-Xylene & p-Xylene	ug/L	1.0	< 0.5	1.5	0.5
o-Xylene	ug/L	1.0	< 0.3	1.0	0.3

Fluorobenzene (Surrogate Recovery) % 100

2-Bromo-1-Chloropropane (Surrogate Recovery) % 114

Total Petroleum Hydrocarbons as Fuel Oil mg/L 1.0 < 0.02 0.06 0.02

TPH as Fuel Oil analyzed according to EPA SW-846 5030/801.5B Modified.
VOCs analyzed in accordance to Minnesota Department of Health Method 465E (modified EPA 8021).

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

JR = Value reported is above the MDL but below the RL

DF = Dilution Factor

Report approved by:



Analytical Chemist

Northeast Technical Services, Inc., makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties, either expressed or implied.

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4736 Date Collected: 05/15/97
Sample Description P 8 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/28/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Allyl Chloride	ug/L	1.0	< 0.4	1.0	0.4
Bromobenzene	ug/L	1.0	< 0.2	0.5	0.2
Bromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
Bromodichloromethane	ug/L	1.0	< 0.2	0.5	0.2
Bromoform	ug/L	1.0	< 0.3	1.0	0.3
Bromomethane	ug/L	1.0	< 0.3	1.0	0.3
Carbon Tetrachloride	ug/L	1.0	< 0.4	1.0	0.4
Chlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Chloroethane	ug/L	1.0	< 0.3	1.0	0.3
Chloroform	ug/L	1.0	< 0.4	1.0	0.4
Chloromethane	ug/L	1.0	< 1.0	3.0	1.0
2-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
4-Chlorotoluene	ug/L	1.0	< 0.2	1.0	0.2
Dibromochloromethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dibromo-3-chloropropane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dibromoethane	ug/L	1.0	< 0.3	1.0	0.3
Dibromomethane	ug/L	1.0	< 0.2	1.0	0.2
1,2-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,3-Dichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,4-Dichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
Dichlorodifluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,1-Dichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,2-Dichloroethane	ug/L	1.0	< 0.1	0.5	0.1
1,1-Dichloroethylene	ug/L	1.0	< 0.4	1.0	0.4
Cis-1,2-Dichloroethylene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,2-Dichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Dichlorofluoromethane	ug/L	1.0	< 0.5	2.0	0.5
1,2-Dichloropropane	ug/L	1.0	< 0.3	1.0	0.3
1,3-Dichloropropane	ug/L	1.0	< 0.2	0.5	0.2
2,2-Dichloropropane	ug/L	1.0	< 0.4	1.0	0.4

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4736

Date Collected: 05/15/97

Sample Description P 8

Date Received: 05/16/97

Foth & Van Dyke

Date VOC Analyzed: 05/28/97

Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11

Matrix: Water

Parameter	Units	DF	Result	RL	MDL
1,1-Dichloropropene	ug/L	1.0	< 0.3	1.0	0.3
Cis-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Trans-1,3-Dichloropropene	ug/L	1.0	< 0.2	1.0	0.2
Hexachlorobutadiene	ug/L	1.0	< 0.4	1.0	0.4
Methylene Chloride	ug/L	1.0	< 0.2	1.0	0.2
1,1,1,2-Tetrachloroethane	ug/L	1.0	< 0.2	1.0	0.2
1,1,2,2-Tetrachloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2,2-Tetrachloroethylene	ug/L	1.0	< 0.3	1.0	0.3
1,2,3-Trichlorobenzene	ug/L	1.0	< 0.3	1.0	0.3
1,2,4-Trichlorobenzene	ug/L	1.0	< 0.2	1.0	0.2
1,1,1-Trichloroethane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichloroethane	ug/L	1.0	< 0.3	1.0	0.3
1,1,2-Trichloroethylene	ug/L	1.0	< 0.3	1.0	0.3
Trichlorofluoromethane	ug/L	1.0	< 0.4	1.0	0.4
1,2,3-Trichloropropane	ug/L	1.0	< 0.4	1.0	0.4
1,1,2-Trichlorotrifluoroethane	ug/L	1.0	< 0.4	1.0	0.4
Vinyl Chloride	ug/L	1.0	< 0.3	1.0	0.3
Acetone	ug/L	1.0	28	20.0	1.1
Benzene	ug/L	1.0	< 0.2	1.0	0.2
n-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
sec-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
tert-Butylbenzene	ug/L	1.0	< 0.3	1.0	0.3
Isopropylbenzene (Cumene)	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Benzene	ug/L	1.0	< 0.2	1.0	0.2
Ethyl Ether	ug/L	1.0	< 0.4	1.0	0.4
p-Isopropyltoluene	ug/L	1.0	< 0.3	1.0	0.3
Methyl Ethyl Ketone	ug/L	1.0	3.2	3.0	0.9
Methyl Isobutyl Ketone	ug/L	1.0	2.5	2.0	0.7
Methyl tert-butyl ether	ug/L	1.0	< 0.3	1.0	0.3
n-Propylbenzene	ug/L	1.0	< 0.2	1.0	0.2

Northeast Technical Services, Inc.

315 Chestnut Street, P.O. BOX 1142, VIRGINIA, MINNESOTA 55792, (218) 741-4290

Analytical Report

Lab Number: 97-4736 Date Collected: 05/15/97
Sample Description P 8 Date Received: 05/16/97
Foth & Van Dyke Date VOC Analyzed: 05/28/97
Date TPH FO Analyzed: 05/25/97

NTS Project #: 4153.11
Matrix: Water

Parameter	Units	DF	Result	RL	MDL
Naphthalene	ug/L	1.0	1.1 JR	2.0	0.5
Styrene	ug/L	1.0	< 0.3	1.0	0.3
Tetrahydrofuran	ug/L	1.0	< 0.5	2.0	0.5
Toluene	ug/L	1.0	< 0.2	1.0	0.2
1,2,4-Trimethylbenzene	ug/L	1.0	< 0.3	1.0	0.3
1,3,5-Trimethylbenzene	ug/L	1.0	< 0.2	1.0	0.2
m-Xylene & p-Xylene	ug/L	1.0	< 0.5	1.5	0.5
o-Xylene	ug/L	1.0	< 0.3	1.0	0.3
Fluorobenzene (Surrogate Recovery)	%		98		
2-Bromo-1-Chloropropane (Surrogate Recovery)	%		110		
Total Petroleum Hydrocarbons as Fuel Oil	mg/L	1.0	< 0.02	0.06	0.02

TPH as Fuel Oil analyzed according to EPA SW-846 5030/8015B Modified.

VOCs analyzed in accordance to Minnesota Department of Health Method 465E (modified EPA 8021).

MDL = Method Detection Limit

RL = Reporting Limit (Practical quantitation limit)

JR = Value reported is above the MDL but below the RL

DF = Dilution Factor

Report approved by:



Analytical Chemist

Northeast Technical Services, Inc., makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties, either expressed or implied.

"Solutions for Technical Concerns"



To: Foth & Van Dyke

MN Environmental Lab No:
#027-137-157

NTS Project #: 4153.11
LAB NO DESCRIPTION

97- 4729 P-3
97- 4732 P-5
97- 4734 P-6
97- 4735 P-7
97- 4736 P-8

Date Collected: 05/15/97
Date Received: 05/16/97
Date Reported: 06/06/97

Lead

<1.0 ug/L
<1.0 ug/L
<1.0 ug/L
<1.0 ug/L
<1.0 ug/L

Report approved by: *[Signature]*
JOHN H. SEURER
ANALYTICAL SERVICES

Analyses were performed by methods approved by the U.S. Environmental Protection Agency and the Minnesota Department of Health.

Northeast Technical Services, Inc. makes no warranty except that the analysis has been made upon the samples received in accordance with generally accepted testing laboratory principles and practices. The results of the analysis may not be characteristic of the whole from which the sample was taken. This warranty is in lieu of all other warranties, either expressed or implied.

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M



315 CHESTNUT STREET • P.O. BOX 1142
VIRGINIA, MINNESOTA 55792
218-741-4290 * FAX 218-741-4291

Northeast Technical Services, Inc.

CHAIN OF CUSTODY RECORD

Client Name, Address, Phone Foth + Van Dyke Rochester Stacey Larsen			Verbal Results To:								Type/# of Containers					Comments: Samples marked "M.L." were originally for mobile lab, but client wanted in house analysis too.		
Samplers:			Report To:								V O C	G E N E R A L	M E T A L S	N U T R I E N T S	G R O / P /		O C B T E X	D R O
Samples Shipped/Received By: ___ Air ___ In Person ___ Fed. Ex. ___ Other			Copy of Report To:															
Project #/Department # 4153.11																		
Log-In #	Sample #	Sample Description	Collection		Sample Matrix		Type		Field Filtered		Analysis/Remarks							
			Date	Time	Liq.	Sol.	Grab	Comp	Yes	No								
4725		P1 16-19'	5/15/97			X								1		No GRO, just BETX/TPH as F.a. xxx		
4726		P2 16-12'	5/14/97			X								1				
4727		P2 24-26'	5/14/97			X								1				
		P3	5/14/97		X									1		analyzed in mobile lab. Do not run		
4728		P3	5/14/97			X								1		MTBE also		
		P3	5/15/97		X									1		xxx		
4729		P3	5/15/97		X							3	1	2		MTBE also + GRO xxx		
4730		P4	5/14/97			X								1		MTBE also + GRO xxx		
4731		P5	5/15/97			X								1		MTBE also		
Relinquished By:		Date	Time	Received By:		Relinquished By:		Date	Time	Received By:								
Relinquished By:		Date	Time	Received By:		Relinquished By:		Date	Time	Received By:								
Relinquished By:		Date	Time	Received For Laboratory By:		Date	Time	Temperature upon receipt:										
				T. Zylgajlik		5-16-97	0930	Rec'd in lab.										

White Copy - Client

Canary Copy - Laboratory

Appendix C

Methodologies and Procedures

Soil Boring Installation Procedures

Soil Probes were completed by Northeast Technical Services, Inc. (NTS) of Virginia, Minnesota using Geoprobe Systems® Model 5400 direct push sampling technology mounted in a Ford F250 4x4 pickup. A 1½-inch diameter, four-foot long, core sampler was utilized. Soil samples were collected continuously or up to a five foot interval. All soils were logged and classified in the field by a Foth & Van Dyke geologist using ASTM D 2488-84, "Standard Practices for Description and Identification of Soils." Munsell color notation was used to describe the color.

Organic Vapor Screening

Organic vapor screening of soils followed the MPCA field screening procedures dated April 1996, using a photoionization detector (PID). The PID is equipped with a 10.6 eV lamp and was calibrated prior to use at the site using isobutylene gas at a concentration of 100 parts per million (ppm). PID readings are listed on the boring logs

Soil Samples

Soil samples were collected by Foth & Van Dyke personnel and analyzed on site by NTS and split for submittal to NTS's fixed laboratory. The soils submitted to the fixed laboratory were transferred into appropriate laboratory prepared sample jars, placed on ice and delivered to NTS under chain-of-custody procedures for analysis. The soil samples were analyzed on-site for Benzene, Toluene, Ethylbenzene and Xylene (BTEX); Gasoline Range Organics (GROs) and Total Petroleum hydrocarbons as Fuel Oil (TPH as FO). The fixed laboratory analytes include BTEX, Methyl tert-butyl ether (MTBE) and TPH as FO.

Water Samples

Water samples were collected by NTS from the five of the soil probes and analyzed on-site by NTS. The water samples were analyzed on-site for BTEX GRO and TPH as FO. Additional samples were collected, preserved, placed on ice and transported under chain-of-custody procedures to NTS's fixed laboratory for analysis. The fixed laboratory analytes include Volatile Organic Compound (MDH 465E list) TPH as FO and Lead.

Hydraulic Conductivity

The hydraulic conductivity was estimated. A value of 5×10^{-6} cm/sec was used. This value was obtained from *Groundwater* by R.A. Freeze and J.A. Cherry, 1979. Based on our experience in fine-grained material, this value is a reasonable estimate for the fine-grained material encountered at this site.

Appendix D

Geologic Logs

FOTH & VAN DYKE

LOG OF BORING P-1

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/14/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *19 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	VALUES	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0					concrete surface.	FL	FILL - poorly graded sand.	
5	SC-1		25		wet.			
10	SC-2		27		br (10YR 5/3) CLAYEY SAND, m sand, some gravel, massive, v soft, wet.	SC		
15	SC-3		0.0		br (10YR 5/3) SILTY SAND, mostly m sand, some gravel, massive, wet.	SM		
19	SC-4		0.0		alternating sand/silt/clay, wet.	CL		
20					br (10YR 5/3) CLAY till, w/ sand, massive, v stiff, moist. End of boring @ 19'			

FOTH & VAN DYKE

LOG OF BORING P-2

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/14/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *26 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	VALUES	PID (ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
				PROFILE					
0						40		concrete surface.	
5	SC-1	5.0					FL	FILL - poorly graded sand.	
10	SC-2	8.4					ML	lt. olive br (2.5Y 5/6) SILT w/ lt. olive gray (5Y 6/2) mottles, soft, moist.	
			4.3					as above.	
	SC-4	3.4						olive gray (5Y 4/2) SILT, some iron oxide staining, wet @ 12'.	
	SC-5	2.0							
15									
	SC-6	4.7					CL	lt. olive br (2.5Y 5/4) CLAY w/ sand, m sand, massive.	
20									

FOTH & VAN DYKE

LOG OF BORING P-2

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/14/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *26 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	PID (ppm)		SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE			
25	SC-7	2:1			CL	dk gray (5Y 4/1) CLAY till, w/ pebbles, some c sand, v stiff, massive.	
30							
35							
40							

FOTH & VAN DYKE

LOG OF BORING P-3

PROJECT: *Limited Site Investigation*

LOCATION: *Laidlaw Transit Rochester, MN*

DATE DRILLED: *05/14/97*

SURFACE ELEVATION: *Feet*

DRILLING METHOD: *push probe*

TOTAL DEPTH: *25.5 Feet*

DRILLING COMPANY: *Northeast Technical Services*

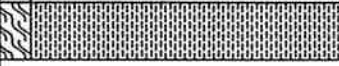

GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	VALUES	PID (ppm)	PROFILE	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
0								concrete surface.	
5	SC-1		5.2				FL	FILL - poorly graded sand.	
10	SC-2		5.4				ML	gray (5Y 5/1) SILT, w/ minor amounts of clay, some black (5Y 2/1) layers or patches, moist-wet.	
15	SC-3		2.8					olive (5Y 4/3) SILT, gray (5Y 5/1) mottles, some iron oxide staining, massive, moist-wet.	
20	SC-4		1.9					as above, w/o mottles.	
	SC-5		1.9					as above, wet.	

FOTH & VAN DYKE

LOG OF BORING P-3

PROJECT: *Limited Site Investigation*
 DATE DRILLED: *05/14/97*
 DRILLING METHOD: *push probe*
 DRILLING COMPANY: *Northeast Technical Services*
 LOCATION: *Laidlaw Transit Rochester, MN*
 SURFACE ELEVATION: *Feet*
 TOTAL DEPTH: *25.5 Feet*
 GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	PID (ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
0	SC-5					ML	olive br (10Yr 4/4) CLAY w/ sand, some gravel, massive, wet.	
25	SC-6	21				CL	dk gray (5Y 4/1) CLAY till, pebbles, v stiff, massive.	
25.5							End of boring @ 25.5'	

FOTH & VAN DYKE

LOG OF BORING P-4

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/14/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *22 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLER NUMBER	BLOWS/FT.	VALUES	PID (ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
				PROFILE					
0								asphalt surface.	
5	SC-1		22			[Stippled pattern]	FL	FILL - organics w/ sand.	
10	SC-2		0.9			[Wavy pattern]	ML	olive gray (5Y 5/2) SILT w/ greenish gray (5GY 6/1) mottles, massive, soft, moist-wet.	
15	SC-3		23			[Wavy pattern]		greenish br (2.5Y 5/2) SILT, soome iron oxide staining, massive, soft, wet.	
20									

FOTH & VAN DYKE

LOG OF BORING P-4

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/14/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *22 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	PID (ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
40	SC-4	21				ML	dk grayish br (2.5Y 4/2) CLAY till w/ pebbles, massive, stiff, moist.	
35								
30								
25								

End of boring @ 22'

FOTH & VAN DYKE

LOG OF BORING P-5

PROJECT: *Limited Site Investigation*

LOCATION: *Laidlaw Transit Rochester, MN*

DATE DRILLED: *05/15/97*

SURFACE ELEVATION: *Feet*

DRILLING METHOD: *push probe*

TOTAL DEPTH: *19 Feet*

DRILLING COMPANY: *Northeast Technical Services*

GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	PID (ppm)		SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE			
0						asphalt surface.	
4.3	SC-1		4.3		ML	olive gray (5Y 4/2) SILT w/ gray (5Y 5/1) mottles, minor clay, blocky structure, moist.	
10	SC-2		4.3			as above.	
15	SC-3		3.4			gray (5Y 5/1) SILT w/ lt. yellowish br (2.5Y 6/4) mottles, mottles decrease w/ depth, some iron oxide staining, moist-wet.	
19	SC-4		3.4		CL	lt. olive br (2.5Y 5/4) CLAY w/ sand, f-m sand, some sandier lenses, moist.	
20						End of boring @ 19'	

FOTH & VAN DYKE

LOG OF BORING P-6

PROJECT: *Limited Site Investigation* LOCATION: *Laidlaw Transit Rochester, MN*
 DATE DRILLED: *05/15/97* SURFACE ELEVATION: *Feet*
 DRILLING METHOD: *push probe* TOTAL DEPTH: *19 Feet*
 DRILLING COMPANY: *Northeast Technical Services* GEOLOGIST: *Stacey Larsen*

DEPTH feet	SAMPLE NUMBER	BLOWS/FT.	PTD (ppm)		GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	WELL DIAGRAM
			VALUES	PROFILE				
0					asphalt surface. FILL - sand.	FL		
5	SC-1		1.5					
10	SC-2		2.8					
15	SC-3		2.5		grayish br (2.5Y 5/2) SILT, w/ lt. olive br (2.5Y 5/4) mottles, some iron oxide staining, wet.	ML		
	SC-4		3.2		yellowish br (10YR 5/4) CLAY w/ pebbles and rocks, some silt, massive, moist-wet.	CL		
20					lt. olive br (2.5Y 5/4) poorly graded SAND, c. sand, w/ occ. clay layers, wet. End of boring @ 19'	SP		

Appendix E

**Well Construction Diagrams
Minnesota Department of Health Well Records**

No Well Construction Diagrams were completed because no groundwater monitoring wells were installed.

Appendix F

Water Supply Well Logs

No water supply wells were located within 500 feet of the site. No municipal or industrial wells were located within 1/2-mile of the site.

Appendix G

**Addresses within 500 feet
Confirmation of status of water supply**

Confirmation of Status of Water Supply

Property Address	Fee Owner	Mailing Address	Billed for City Water?
3111 19th Street NW	Medi Associates	Same	Yes
1928 32nd Avenue NW	Richard Kemple	2431 19th Avenue NW	Yes
2016 32nd Avenue NW	Quast Realty, Inc.	P.O. Box 7	Yes
2112 32nd Avenue NW	Stephen Lawrence	3154 N. Service NR	Yes
2021 32nd Avenue NW	Laidlaw Transit Co.	Same	Yes
2015 32nd Avenue NW	Dennis Barry	507 31st Street NW	Yes
2501 Valleyhigh Drive NW	Crenlo, Inc.	1600 4th Avenue NW	No
1903 32nd Avenue NW	Ron Hodge	1705 Elton Hills Drive NW	No
1911 32nd Avenue NW	Ron Hodge	1705 Elton Hills Drive NW	No
1919 32nd Avenue NW	Ron Hodge	1705 Elton Hills Drive NW	No
2001 32nd Avenue NW	The Excavators	1705 Elton Hills Drive NW	No
3212 22nd Street NW	Laidlaw Transit Co.	Same	Yes
3400 22nd Street NW	Rochester Methodist Hospital	201 West Center Street	Yes
3311 19th Street NW	Pepsi Cola Bottling	1904 14th Street NW	No
2719 19th Street NW	Loene Till	2715 19th Street NW	No
3431 19th Street NW	Idanna Peeler	Same	No
2240 32nd Avenue NW	Jay Clark	2444 19th Avenue NW	No
2222 32nd Avenue NW	Lutz Lloyd Enterprises	Same	Yes