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Conestoga-Rovers & Associates

8615 W. Bryn Mawr Avenue

Chicago, Illinois 60631

(773) 380-9933 Office (773) 380-6421 Fax

September 22, 1998

Reference No. 12570

Mr. Ronald Tim
State of Washington
Department of Ecology
Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, Washington 98008-5452

Dear Mr. Tim:

Re: Additional Information
Review of Independent Remedial Action
Acacia Memorial Park
149651 Bothell Way N.E.,
Seattle, Washington
TCP ID # NW0082

Pursuant to our earlier discussion, Conestoga-Rovers & Associates (CRA), herewith provides additional information and data collected at the above-referenced property (Site) to assist in your review of 1994 maintenance area underground storage tank (UST) closure activities. The requested information includes sample results from stockpiled petroleum-hydrocarbon impacted soil and information on the depth to groundwater at the Site.

With this letter, CRA provides laboratory analytical data for three soil samples collected from the stockpile of soil stockpiled during 1994 maintenance area UST closure activities. In addition, CRA has enclosed monitoring well stratigraphic and instrumentation logs well logs developed in April 1998 from the investigation of two additional heating oil USTs located adjacent to the on-Site mausoleum.

1994 UST Closure Related Soil Stockpile

During UST closure activities in 1994, approximately 220 cubic yards of gasoline impacted soil and 80 cubic yards of heavy oil impacted soil were stockpiled at the northwest corner of the Site. On April 28, 1998, facility personnel, under the direction of CRA, excavated a series of test pits into the stockpiled petroleum-hydrocarbon impacted soil.

According to information provided in the Underground Storage Tank Contaminated Soil Removal Project Summary Report (James P. Hurley Co., February 24, 1994), the stockpiled soils are arranged with the northern two thirds of the stockpile containing the gasoline contaminated soil and the southern third containing the heavy oil contaminated soils. CRA observed the stockpile to consist of numerous small piles of soil in an area measuring approximately 50 feet square. The stockpile is overgrown with vegetation and the protective polyethylene sheeting is

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ripped and in poor condition. CRA divided the stockpiles into thirds with the dividing lines extending east to west. A two point composite soil sample was collected from each third and submitted for laboratory analysis under chain of custody protocols.

The three composite soil samples were analyzed by North Creek Analytical of Bothell, Washington (NCA) for petroleum oil hydrocarbons (POH); total petroleum hydrocarbon-gasoline fraction (TPH-g); benzene, toluene, ethylbenzene and xylenes (BTEX); and lead. Lead was detected in all three soil samples at concentrations ranging from 2.27 mg/kg to 5.71 mg/kg. The Washington Method A Soil Cleanup Level for lead is 250 mg/kg. BTEX was not detected in any of the three soil samples. POH was detected in the soil sample collected from the southern third of the stockpile (sample MPT-006) at a concentration of 1,140 mg/kg. The POH concentration exceeds the Method A Cleanup Level of 200 mg/kg. Laboratory analytical data for the soil samples are summarized on Table A.1 in Attachment A. In addition, a copy of the NCA laboratory analytical data report is provided in Attachment A.

Stratigraphic and Depth to Groundwater Information from 1998 Investigation of Out-of-Service Heating Oil USTs Adjacent to the Mausoleum

The 1994 UST and Contaminated Soil Removal Project Report did not provide detailed information on the Site soil stratigraphy or depth to groundwater. References in the report indicate that groundwater was not encountered to depths of approximately 13 feet below grade in the completed excavation. CRA is able to provide information on soil stratigraphy and depth to groundwater collected during recent investigations at the on-Site mausoleum. The mausoleum is located approximately 200 feet southeast of the maintenance building.

On April 27, 1998, Tacoma Pump & Drilling of Tacoma, Washington (TPD), under the direction of CRA, advanced two soil borings (MW1-98 and BH2-98) adjacent to the out-of-service UST located along the east side of the original mausoleum, and two soil borings (MW3-98 and BH4-98) adjacent to the out-of-service UST located on the west side of the mausoleum. Soil borings MW1-98 and MW3-98 were completed as monitoring wells. The location of the Site is identified on Figure 1 in Attachment B. The location of the out-of-service USTs, soil borings and monitoring wells are identified on the General Site Plan (Figure 2) and Figures 3 and 4 in Attachment B.

The surface of the Site slopes to the southeast from the maintenance building. The elevation in the area of the former maintenance building USTs was observed by CRA to be approximately five feet higher than the surface over the UST on the west side of the mausoleum.

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TPD advanced the soil borings using a conventional drill rig with 6 1/4-inch inside-diameter hollow-stem augers. A two foot split spoon sampler was used to collect soil samples at 2.5-foot intervals from each soil boring. CRA field screened the collected soil samples for volatile organic compounds (VOCs) using a photoionization detector (PID), described the soil, and examined the soil samples for evidence of petroleum impact. CRA did not observe elevated PID readings or evidence of soil staining.

The stratigraphy in the soil borings was varied. The stratigraphy in soil boring MW1-98 consisted of a 1-foot thick layer of gravel fill underlain by interbedded native silty sand and silty sand tills to the bottom of the borehole at a depth of 18 feet below grade. Groundwater was encountered at a depth of 11 feet below grade in soil boring MW1-98. In soil boring BH2-98, a silty sand was observed underlying the layer of gravel fill. The silty sand extended to the bottom of the borehole at a depth of 14.5 feet below grade. Groundwater was encountered at approximately 12.5 feet below grade at BH2-98.

At soil boring location MW3-98, the stratigraphy encountered was a silty sand fill to 3 feet below grade overlying native interbedded silt and sandy silts to the bottom of the borehole at 19.3 feet below grade. At soil boring BH4-98, the stratigraphy encountered was a native silt to 5 feet below grade overlying sand and silt which extended to the base of the soil boring at a depth of 9.5 feet below grade. The surface grade elevation at BH4-98 was approximately 3 feet below the grade elevation at MW3-98. Groundwater was encountered in soil boring MW3-98 at a depth of approximately 10 feet below grade.

Soil borings MW1-98 and MW3-98 were advanced to depths of 18 and 20 feet below grade, respectively, and each completed as a monitoring well using a 10-foot length of No. 10 slot, 2-inch diameter PVC well screen connected to a 2-inch diameter flush threaded PVC riser pipe. A silica sand pack was placed around the well screen to approximately 2 feet above the top of the screen. Bentonite chips were then placed over the top of the sand pack to a depth of approximately 2 feet below grade. The monitoring wells were each completed with a flushmount road box set in concrete. Soil borings BH2-98 and BH4-98 were backfilled with bentonite chips, to grade at BH4-98 and to 1-foot below grade at BH2-98. The BH2-98 boring was sealed at the surface with 12 inches of concrete. The static water levels in monitoring wells MW1-98 and MW3-98 were measured at 14 feet below grade and 13 feet below grade, respectively. Copies of the stratigraphic and instrumentation logs for the soil borings and monitoring wells are provided in Attachment B. Drill cuttings were placed in 55-gallon drums and staged on Site pending proper disposition.

Two groundwater samples were collected, and analyzed by NCA. Sample MPT-001 was collected from MW1-98, and sample MPT-002 was collected from MW2-98. The samples were analyzed for POH, BTEX, and Polynuclear Aromatic Compounds. All results for the two

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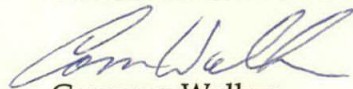
- 4 -

groundwater samples are non-detect. The laboratory analytical data report is provided in Attachment A.

Please contact us if you have any questions or require anything further.

Yours truly,

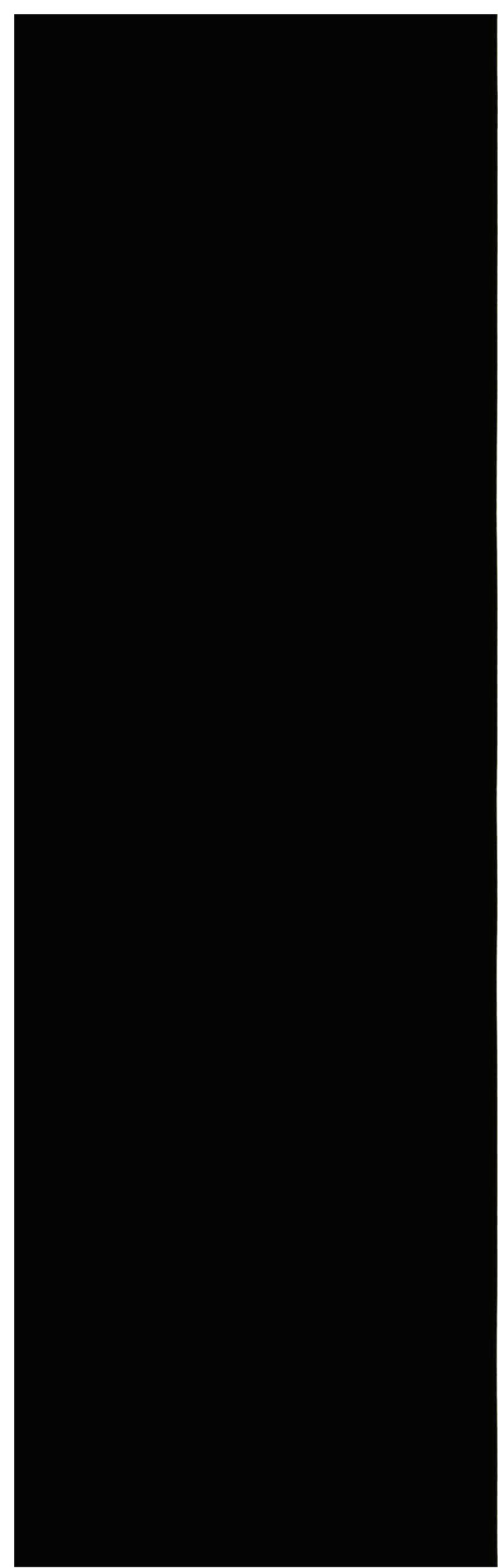
CONESTOGA-ROVERS & ASSOCIATES



Cameron Walker

CSW/mc/1
Attachments

c.c.: C. Kizina
S. Norton
R. Shepherd



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ATTACHMENT A
SUMMARY OF STOCKPILED SOIL ANALYTICAL DATA
AND
LABORATORY ANALYTICAL DATA REPORT

TABLE A.1

SUMMARY OF STOCKPILED SOIL ANALYTICAL DATA
 PHASE II ENVIRONMENTAL SITE ASSESSMENT
 ACACIA MEMORIAL PARK
 SEATTLE, WASHINGTON

<i>Sample ID</i>	<i>MPT-005</i>	<i>MPT-007</i>	<i>MPT-006</i>	
<i>Sample Location</i>	<i>Northern Third of</i>	<i>Central Third of</i>	<i>Southern Third of</i>	
<i>Sample Depth (ft bgs)</i>	<i>Stockpile</i>	<i>Stockpile</i>	<i>Stockpile</i>	<i>Washington</i>
<i>Sample Date</i>	<i>4/28/98</i>	<i>4/28/98</i>	<i>4/28/98</i>	<i>Soil Cleanup</i>
<i>Parameters</i>				<i>Levels</i> ¹
Petroleum Oil Hydrocarbons	ND (100)	ND (100)	1140	200
Gasoline Range Hydrocarbons	ND (5.00)	ND (5.00)	ND (5.00)	100
Benzene	ND (0.0500)	ND (0.0500)	ND (0.0500)	0.5
Toluene	ND (0.0500)	ND (0.0500)	ND (0.0500)	40
Ethylbenzene	ND (0.0500)	ND (0.0500)	ND (0.0500)	20
Xylenes (total)	ND (0.100)	ND (0.100)	ND (0.100)	20
Lead	3.50	2.27	5.71	250

¹ Washington State Cleanup Standards and Guidelines for Soil (Industrial Area)
 All results and standards are reported in mg/kg = parts per million (ppm)
 ND () Parameter shown in parentheses not detected above method detection limit
 Exceeds applicable criteria



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Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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ANALYTICAL REPORT FOR SAMPLES:

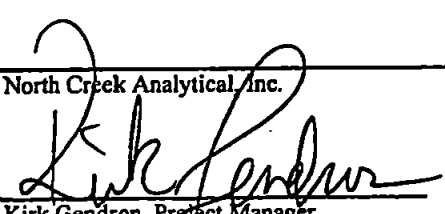
Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-042898-12273-MPT-005	B804607-01	Soil	4/28/98
S-042898-12273-MPT-006	B804607-02	Soil	4/28/98
S-042898-12273-MPT-007	B804607-03	Soil	4/28/98
W-042898-12273-MPT-001	B804607-04	Water	4/28/98
W-042898-12273-MPT-002	B804607-05	Water	4/28/98

Rec'd CRA
MAY 07 1998

CHECKED AGAINST
PRELIMINARY DATA
Date 7 May 98
Initials BT

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document.
This analytical report must be reproduced in its entirety.


Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508



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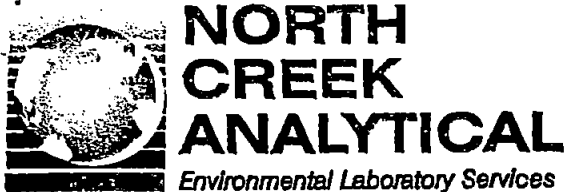
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Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
				<u>B804607-01</u>			<u>Soil</u>	
Gasoline Range Hydrocarbons	0480816	4/29/98	4/30/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		118	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		95.7	"	
				<u>B804607-02</u>			<u>Soil</u>	
Gasoline Range Hydrocarbons	0480816	4/29/98	4/30/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		121	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		97.5	"	
				<u>B804607-03</u>			<u>Soil</u>	
Gasoline Range Hydrocarbons	0480816	4/29/98	4/30/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		117	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		94.3	"	



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**Heavy Oil Range Hydrocarbons by WTPH-418.1
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>S-042898-12273-MPT-005</u> Petroleum Oil Hydrocarbons	0480866	4/30/98	4/30/98	<u>B804607-01</u> WTPH-418.1	100	ND	<u>Soil</u> mg/kg dry	
<u>S-042898-12273-MPT-006</u> Petroleum Oil Hydrocarbons	0480866	4/30/98	4/30/98	<u>B804607-02</u> WTPH-418.1	100	1140	<u>Soil</u> mg/kg dry	
<u>S-042898-12273-MPT-007</u> Petroleum Oil Hydrocarbons	0480866	4/30/98	4/30/98	<u>B804607-03</u> WTPH-418.1	100	ND	<u>Soil</u> mg/kg dry	
<u>W-042898-12273-MPT-001</u> Petroleum Oil Hydrocarbons	0480819	4/29/98	4/29/98	<u>B804607-04</u> WTPH-418.1	1.00	ND	<u>Water</u> mg/l	
<u>W-042898-12273-MPT-002</u> Petroleum Oil Hydrocarbons	0480819	4/29/98	4/29/98	<u>B804607-05</u> WTPH-418.1	1.00	ND	<u>Water</u> mg/l	

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*Refer to end of report for text of notes and definitions.

Kirk Gendron, Project Manager



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Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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BTEX by EPA Method 8021B North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
W-042898-12273-MPT-001				B804607-04		Water		
Benzene	0480817	4/29/98	4/29/98		0.500	ND	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
<i>Surrogate: 4-BFB (PID)</i>	"	"	"	50.0-150		97.5	%	
W-042898-12273-MPT-002				B804607-05		Water		
Benzene	0480817	4/29/98	4/29/98		0.500	ND	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
<i>Surrogate: 4-BFB (PID)</i>	"	"	"	50.0-150		101	%	



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**Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>S-042898-12273-MPT-005</u> Lead	0480894	4/30/98	5/3/98	<u>B804607-01</u> EPA 6020	0.500	3.50	Soil mg/kg dry	
<u>S-042898-12273-MPT-006</u> Lead	0480894	4/30/98	5/3/98	<u>B804607-02</u> EPA 6020	0.500	5.71	Soil mg/kg dry	
<u>S-042898-12273-MPT-007</u> Lead	0480894	4/30/98	5/3/98	<u>B804607-03</u> EPA 6020	0.500	2.27	Soil mg/kg dry	

Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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**Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
W-042898-12273-MPT-001				B804607-04			Water	
Acenaphthene	0480860	4/30/98	5/1/98		0.100	ND	ug/l	
Acenaphthylene	"	"	"		0.100	ND	"	
Anthracene	"	"	"		0.100	ND	"	
Benzo (a) anthracene	"	"	"		0.100	ND	"	
Benzo (a) pyrene	"	"	"		0.100	ND	"	
Benzo (b) fluoranthene	"	"	"		0.100	ND	"	
Benzo (ghi) perylene	"	"	"		0.100	ND	"	
Benzo (k) fluoranthene	"	"	"		0.100	ND	"	
Chrysene	"	"	"		0.100	ND	"	
Dibenz (a,h) anthracene	"	"	"		0.100	ND	"	
Fluoranthene	"	"	"		0.300	ND	"	
Fluorene	"	"	"		0.100	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		0.100	ND	"	
Naphthalene	"	"	"		0.300	ND	"	
Phenanthrene	"	"	"		0.100	ND	"	
Pyrene	"	"	"		0.300	ND	"	
Surrogate: 2-FBP	"	"	"	30.0-150		57.6	%	
Surrogate: Nitrobenzene-d5	"	"	"	30.0-150		74.4	"	
Surrogate: p-Terphenyl-d14	"	"	"	30.0-150		62.1	"	
W-042898-12273-MPT-002				B804607-05			Water	
Acenaphthene	0480860	4/30/98	5/1/98		0.100	ND	ug/l	
Acenaphthylene	"	"	"		0.100	ND	"	
Anthracene	"	"	"		0.100	ND	"	
Benzo (a) anthracene	"	"	"		0.100	ND	"	
Benzo (a) pyrene	"	"	"		0.100	ND	"	
Benzo (b) fluoranthene	"	"	"		0.100	ND	"	
Benzo (ghi) perylene	"	"	"		0.100	ND	"	
Benzo (k) fluoranthene	"	"	"		0.100	ND	"	
Chrysene	"	"	"		0.100	ND	"	
Dibenz (a,h) anthracene	"	"	"		0.100	ND	"	
Fluoranthene	"	"	"		0.300	ND	"	
Fluorene	"	"	"		0.100	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		0.100	ND	"	
Naphthalene	"	"	"		0.300	ND	"	
Phenanthrene	"	"	"		0.100	ND	"	
Pyrene	"	"	"		0.300	ND	"	
Surrogate: 2-FBP	"	"	"	30.0-150		57.6	%	

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*Refer to end of report for text of notes and definitions.


Kirk Gendron, Project Manager



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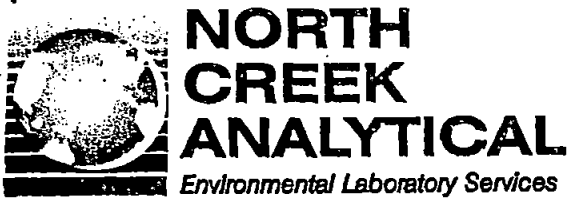
**Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
W-042898-12273-MPT-002 (continued)				B804607-05		Water		
Surrogate: Nitrobenzene-d5	0480860	4/30/98	5/1/98	30.0-150		71.3	%	
Surrogate: p-Terphenyl-d14	"	"	"	30.0-150		60.3	"	

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*Refer to end of report for text of notes and definitions.


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**Dry Weight Determination
North Creek Analytical - Bothell**

Sample Name	Lab ID	Matrix	Result	Units
S-042898-12273-MPT-005	B804607-01	Soil	74.7	%
S-042898-12273-MPT-006	B804607-02	Soil	72.4	%
S-042898-12273-MPT-007	B804607-03	Soil	73.6	%

North Creek Analytical, Inc.


Kirk Gendron, Project Manager



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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0480816		Date Prepared: 4/29/98		Extraction Method: EPA 5030B (P/T)						
Blank										
0480816-BLK1										
Gasoline Range Hydrocarbons	4/29/98			ND	mg/kg dry	5.00				
Benzene	"			ND	"	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	4.00		5.27	"	50.0-150	132			
Surrogate: 4-BFB (PID)	"	4.00		4.19	"	50.0-150	105			
LCS										
0480816-BS1										
Gasoline Range Hydrocarbons	4/29/98	25.0		28.7	mg/kg dry	75.0-125	115			
Surrogate: 4-BFB (FID)	"	4.00		5.27	"	50.0-150	132			
Duplicate										
0480816-DUP1 B804574-04										
Gasoline Range Hydrocarbons	4/29/98		ND	ND	mg/kg dry				50.0	
Surrogate: 4-BFB (FID)	"	6.45		6.77	"	50.0-150	105			
Duplicate										
0480816-DUP2 B804591-04										
Gasoline Range Hydrocarbons	4/29/98		ND	ND	mg/kg dry				50.0	
Surrogate: 4-BFB (FID)	"	5.54		6.20	"	50.0-150	112			
Matrix Spike										
0480816-MS1 B804607-02										
Benzene	4/29/98	0.691	ND	0.677	mg/kg dry	60.0-140	98.0			
Toluene	"	0.691	ND	0.651	"	60.0-140	94.2			
Ethylbenzene	"	0.691	ND	0.644	"	60.0-140	93.2			
Xylenes (total)	"	2.07	ND	1.95	"	60.0-140	94.2			
Surrogate: 4-BFB (PID)	"	5.53		5.02	"	50.0-150	90.8			
Matrix Spike Dup										
0480816-MSD1 B804607-02										
Benzene	4/29/98	0.691	ND	0.687	mg/kg dry	60.0-140	99.4	20.0	1.42	
Toluene	"	0.691	ND	0.695	"	60.0-140	101	20.0	6.97	
Ethylbenzene	"	0.691	ND	0.694	"	60.0-140	100	20.0	7.04	
Xylenes (total)	"	2.07	ND	2.12	"	60.0-140	102	20.0	7.95	
Surrogate: 4-BFB (PID)	"	5.53		5.35	"	50.0-150	96.7			



NORTH CREEK ANALYTICAL

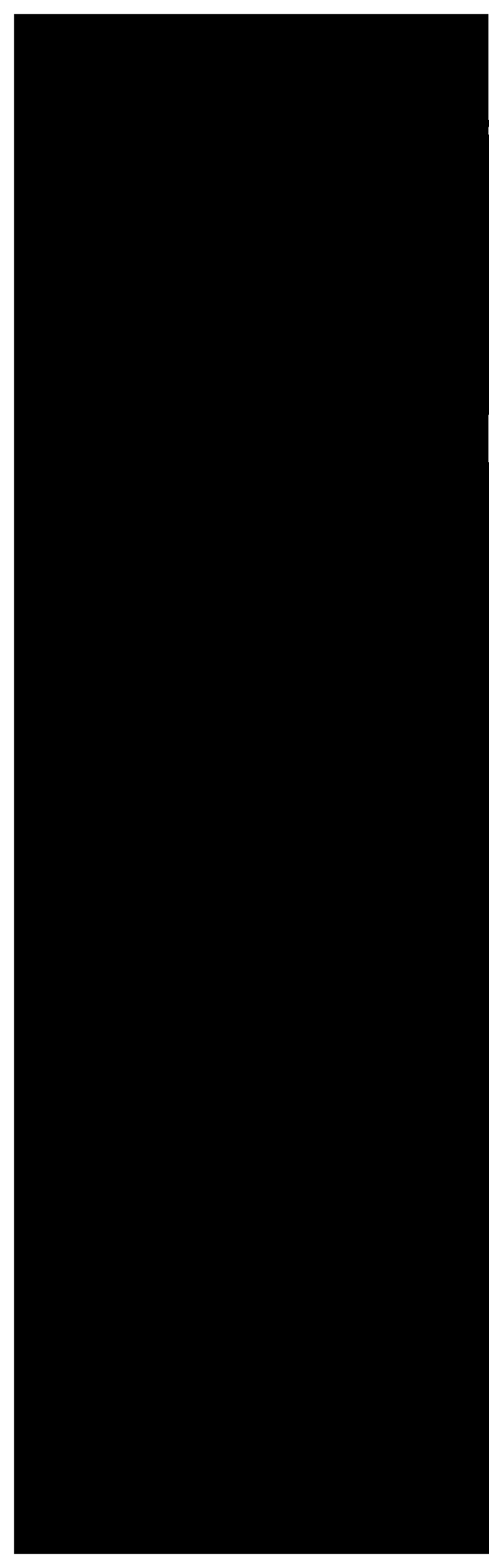
Environmental Laboratory Services

BOTHELL ☐ (425) 481-9200 ☐ FAX 485-2992
SPOKANE ☐ (509) 924-9200 ☐ FAX 924-9290
PORTLAND ☐ (503) 906-9200 ☐ FAX 906-9210

Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
---	---	---

Heavy Oil Range Hydrocarbons by WTPH-418.1/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0480819			Date Prepared: 4/29/98			Extraction Method: EPA 418.1				
Blank	0480819-BLK1									
Petroleum Oil Hydrocarbons	4/29/98			ND	mg/l	1.00				
LCS	0480819-BS1									
Petroleum Oil Hydrocarbons	4/29/98	4.00		2.89	mg/l	62.0-121	72.3			
LCS Dup	0480819-BSD1									
Petroleum Oil Hydrocarbons	4/29/98	4.00		3.04	mg/l	62.0-121	76.0	20.0	4.99	
Duplicate	0480819-DUP1		B804500-05							
Petroleum Oil Hydrocarbons	4/29/98		2.94	2.87	mg/l			45.0	2.41	
Batch: 0480866			Date Prepared: 4/30/98			Extraction Method: EPA 418.1				
Blank	0480866-BLK1									
Petroleum Oil Hydrocarbons	4/30/98			ND	mg/kg dry	100				
LCS	0480866-BS1									
Petroleum Oil Hydrocarbons	4/30/98	160		158	mg/kg dry	50.0-150	98.8			
Matrix Spike	0480866-MS1		B804607-03							
Petroleum Oil Hydrocarbons	4/30/98	217	ND	392	mg/kg dry	50.0-150	181			1
Matrix Spike Dup	0480866-MSD1		B804607-03							
Petroleum Oil Hydrocarbons	4/30/98	217	ND	448	mg/kg dry	50.0-150	NR	50.0	12.9	1



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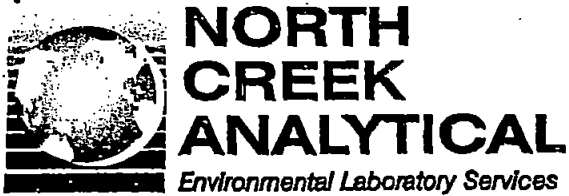
NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ☐ (509) 924-9200 ☐ FAX 924-9290
PORTLAND ☐ (503) 906-9200 ☐ FAX 906-9210

Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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BTEX by EPA Method 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0480817		Date Prepared: 4/29/98			Extraction Method: EPA 5030B (P/T)					
Blank		0480817-BLK1								
Benzene	4/29/98			ND	ug/l	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Surrogate: 4-BFB (PID)	"	48.0		46.7	"	50.0-150	97.3			
Matrix Spike		0480817-MS1	B804431-03							
Benzene	4/29/98	10.0	ND	9.46	ug/l	70.0-130	94.6			
Toluene	"	10.0	ND	9.51	"	70.0-130	95.1			
Ethylbenzene	"	10.0	ND	9.32	"	70.0-130	93.2			
Xylenes (total)	"	30.0	ND	26.8	"	70.0-130	89.3			
Surrogate: 4-BFB (PID)	"	48.0		47.6	"	50.0-150	99.2			
Matrix Spike Dup		0480817-MSD1	B804431-03							
Benzene	4/29/98	10.0	ND	9.95	ug/l	70.0-130	99.5	15.0	5.05	
Toluene	"	10.0	ND	9.98	"	70.0-130	99.8	15.0	4.82	
Ethylbenzene	"	10.0	ND	9.83	"	70.0-130	98.3	15.0	5.33	
Xylenes (total)	"	30.0	ND	28.1	"	70.0-130	93.7	15.0	4.81	
Surrogate: 4-BFB (PID)	"	48.0		48.2	"	50.0-150	100			



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 PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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**Total Metals by EPA 6000/7000 Series Methods/Quality Control
 North Creek Analytical - Bothell**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Recov. Limits %	RPD Limit	RPD %	Notes*
<u>Batch: 0480894</u>		<u>Date Prepared: 4/30/98</u>		<u>Extraction Method: EPA 3050B</u>					
<u>Blank</u>		<u>0480894-BLK1</u>							
Lead	5/3/98			ND	mg/kg dry	0.500			
<u>LCS</u>		<u>0480894-BS1</u>							
Lead	5/3/98	75.1		82.1	mg/kg dry	80.0-120	109		
<u>Duplicate</u>		<u>0480894-DUP1</u>		<u>B804626-06</u>					
Lead	5/3/98		38.5	54.0	mg/kg dry			20.0	33.5 2
<u>Matrix Spike</u>		<u>0480894-MS1</u>		<u>B804626-06</u>					
Lead	5/3/98	23.4	38.5	225	mg/kg dry	70.0-130	NR		3



**NORTH
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PORTLAND ☐ (503) 906-9200 ☐ FAX 906-9210

Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0480860		Date Prepared: 4/30/98			Extraction Method: EPA 3520C/600 Series					
Blank		0480860-BLK1								
Acenaphthene	5/1/98			ND	ug/l	0.100				
Acenaphthylene	"			ND	"	0.100				
Anthracene	"			ND	"	0.100				
Benzo (a) anthracene	"			ND	"	0.100				
Benzo (a) pyrene	"			ND	"	0.100				
Benzo (b) fluoranthene	"			ND	"	0.100				
Benzo (ghi) perylene	"			ND	"	0.100				
Benzo (k) fluoranthene	"			ND	"	0.100				
Chrysene	"			ND	"	0.100				
Dibenz (a,h) anthracene	"			ND	"	0.100				
Fluoranthene	"			ND	"	0.300				
Fluorene	"			ND	"	0.100				
Indeno (1,2,3-cd) pyrene	"			ND	"	0.100				
Naphthalene	"			ND	"	0.300				
Phenanthrene	"			ND	"	0.100				
Pyrene	"			ND	"	0.300				
Surrogate: 2-FBP	"	50.0		28.0	"	30.0-150	56.0			
Surrogate: Nitrobenzene-d5	"	50.0		35.3	"	30.0-150	70.6			
Surrogate: p-Terphenyl-d14	"	50.0		33.3	"	30.0-150	66.6			
LCS		0480860-BS1								
Chrysene	5/1/98	2.00		1.10	ug/l	50.0-150	55.0			
Fluorene	"	2.00		1.04	"	50.0-150	52.0			
Indeno (1,2,3-cd) pyrene	"	2.00		1.26	"	50.0-150	63.0			
Surrogate: 2-FBP	"	50.0		27.6	"	30.0-150	55.2			
Surrogate: Nitrobenzene-d5	"	50.0		35.1	"	30.0-150	70.2			
Surrogate: p-Terphenyl-d14	"	50.0		31.6	"	30.0-150	63.2			
LCS Dup		0480860-BSD1								
Chrysene	5/1/98	2.00		1.18	ug/l	50.0-150	59.0	25.0	7.02	
Fluorene	"	2.00		1.16	"	50.0-150	58.0	25.0	10.9	
Indeno (1,2,3-cd) pyrene	"	2.00		1.32	"	50.0-150	66.0	25.0	4.65	
Surrogate: 2-FBP	"	50.0		30.0	"	30.0-150	60.0			
Surrogate: Nitrobenzene-d5	"	50.0		36.0	"	30.0-150	72.0			
Surrogate: p-Terphenyl-d14	"	50.0		32.1	"	30.0-150	64.2			



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Conestoga-Rovers and Associates - IL 8615 W. Bryn Mawr Avenue Chicago, IL 60631	Project: Ref. #12273 Project Number: none Project Manager: Michelle Tittley	Sampled: 4/28/98 Received: 4/28/98 Reported: 5/4/98
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Notes and Definitions

#	Note
---	------

- 1 The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
- 2 Visual evaluation indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
- 3 Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- Recov. Recovery
- RPD Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

CHAIN OF CUSTODY RECORD

CRA
CONESTOGA-ROVERS & ASSOCIATES
 651 Colby Drive
 Waterloo, Ont. N2V 1C2 (519)884-0510

SHIPPED TO (Laboratory Name):
Northbrook

REFERENCE NUMBER:
12273

SAMPLER'S SIGNATURE: M. Kelly PRINTED NAME: Michelle Tiffey

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. of CONTAINERS	PARAMETERS					REMARKS
						BTEX	Lead	TOXIC	ADIPIC ACID	PAHs	
	5/28		S-10042898-12273-MPT-005	Soil	1	✓	✓	✓	✓	✓	RUSH/A.
			↓ ↓	-006 Soil	1	✓	✓	✓	✓	✓	
			↓ ↓	-007 Soil	1	✓	✓	✓	✓	✓	
			W-012898-12273-MPT-001	Water	3	✓	✓	✓	✓	✓	COMPLETES SET BROUGHT IN EARLY TODAY PLEASE TAG TO Steve Day - Chicago P. Michelle Tiffey Vanco # 12 604 214-0525
			↓ ↓	-002 Water	3	✓	✓	✓	✓	✓	

TOTAL NUMBER OF CONTAINERS

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: M. Kelly

① _____ DATE: 04/28 TIME: 16:30

RELINQUISHED BY: _____ DATE: _____ TIME: _____

② _____ DATE: _____ TIME: _____

RELINQUISHED BY: _____ DATE: _____ TIME: _____

③ _____ DATE: _____ TIME: _____

RECEIVED BY: Cathy Nichols DATE: 4/28/93 TIME: 16:30

② _____ DATE: _____ TIME: _____

RECEIVED BY: _____ DATE: _____ TIME: _____

③ _____ DATE: _____ TIME: _____

RECEIVED BY: _____ DATE: _____ TIME: _____

④ _____ DATE: _____ TIME: _____

METHOD OF SHIPMENT: DROP OFF

WAY BILL No.:

White - Fully Executed Copy
 Yellow - Receiving Laboratory Copy
 Pink - Shipper Copy
 Goldenrod - Sampler Copy

SAMPLE TEAM:
Michelle Tiffey

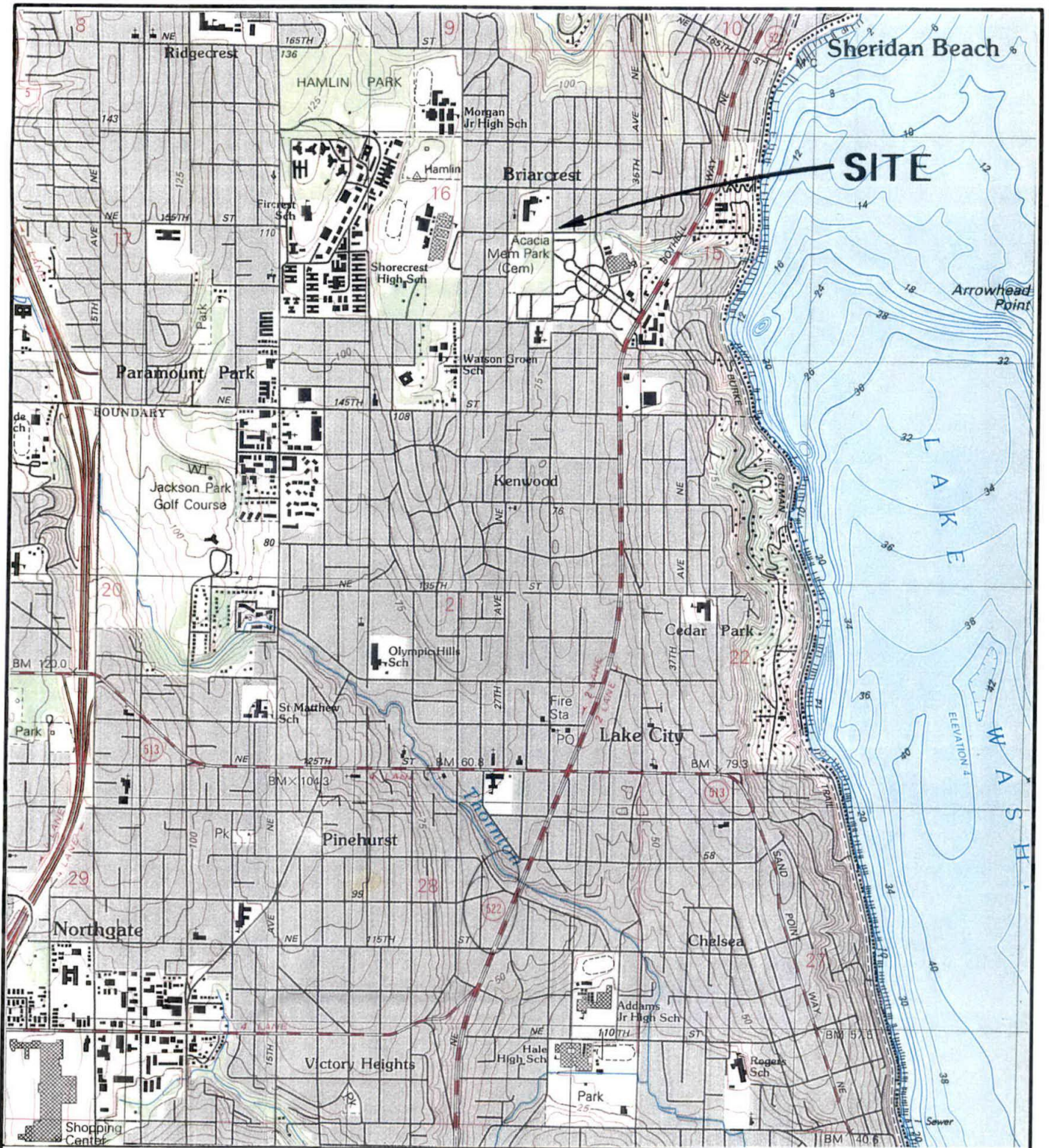
RECEIVED FOR LABORATORY BY: _____ DATE: _____ TIME: _____

5309

19-7

ATTACHMENT B

SITE LOCATION MAP,
GENERAL SITE PLAN, UST LOCATION FIGURES
AND
SOIL BORING AND MONITORING WELL
STRATIGRAPHIC AND INSTRUMENTATION LOGS



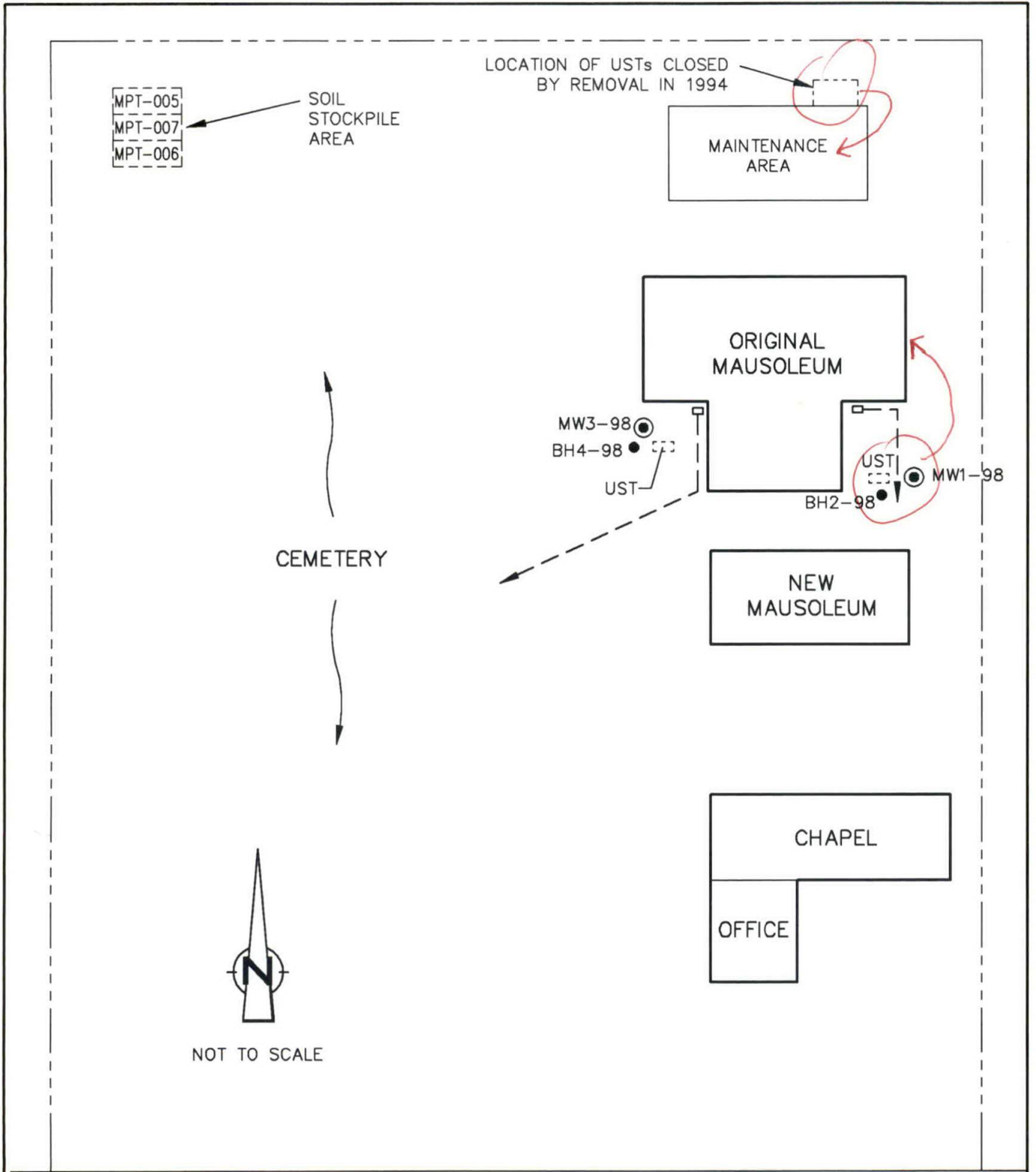
BASE SOURCE: USGS 7.5x15 TOPOGRAPHIC QUADRANGLE;
SEATTLE NORTH, WASHINGTON, 1983



0 1/4 1/2 mile

CRA

figure 1
SITE LOCATION
ACACIA MEMORIAL PARK
Seattle, Washington



LEGEND

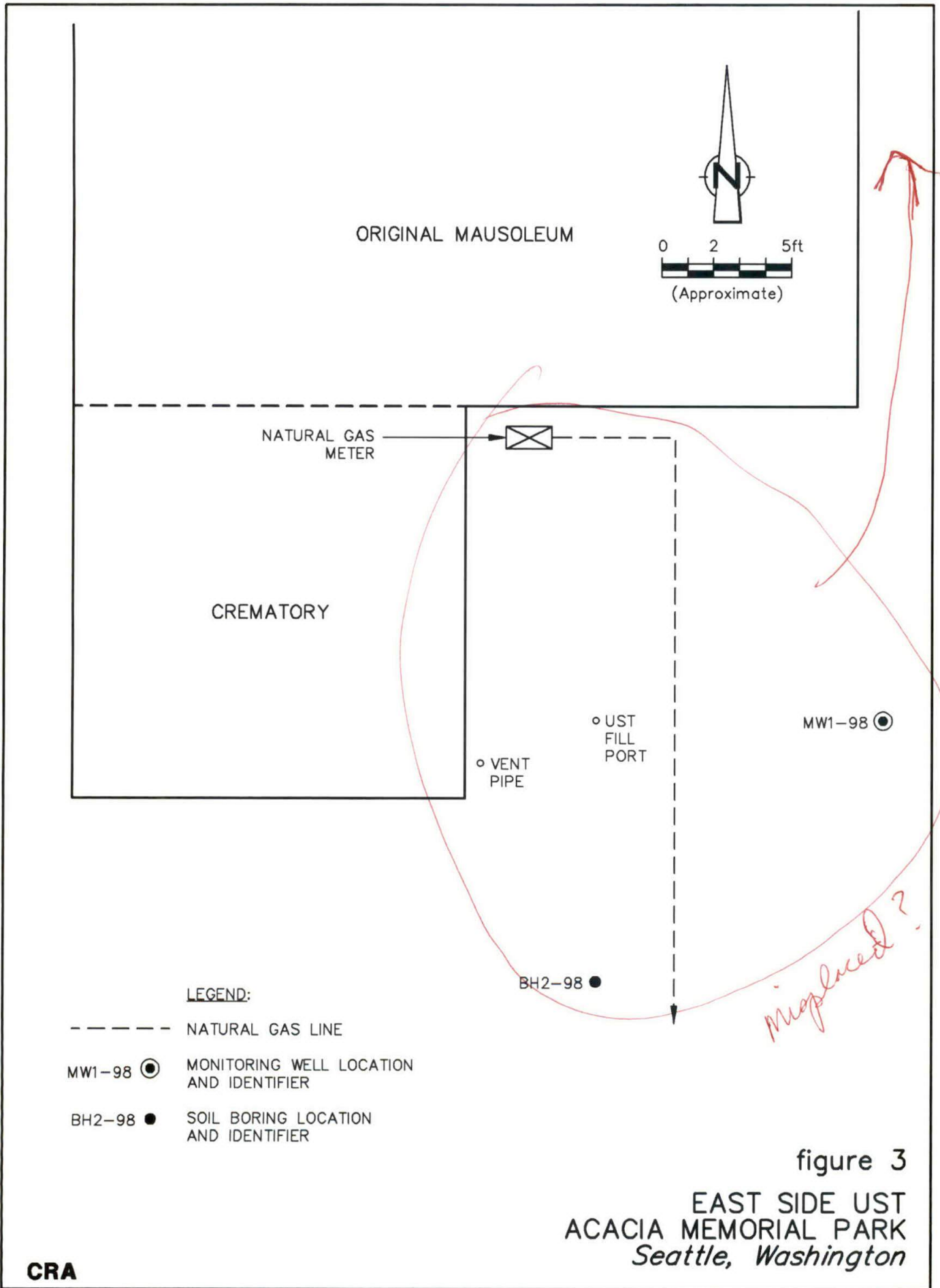
- PROPERTY LINE
- ←----- NATURAL GAS LINE
- MW1-96 ● MONITORING WELL LOCATION AND IDENTIFIER
- BH2-96 ● SOIL BORING LOCATION AND IDENTIFIER

BOTHELL WAY

figure 2

**GENERAL SITE PLAN
ACACIA MEMORIAL PARK
Seattle, Washington**

CRA



- LEGEND:**
- - - - - NATURAL GAS LINE
 - MW1-98 ● MONITORING WELL LOCATION AND IDENTIFIER
 - BH2-98 ● SOIL BORING LOCATION AND IDENTIFIER

figure 3
 EAST SIDE UST
 ACACIA MEMORIAL PARK
 Seattle, Washington

CRA

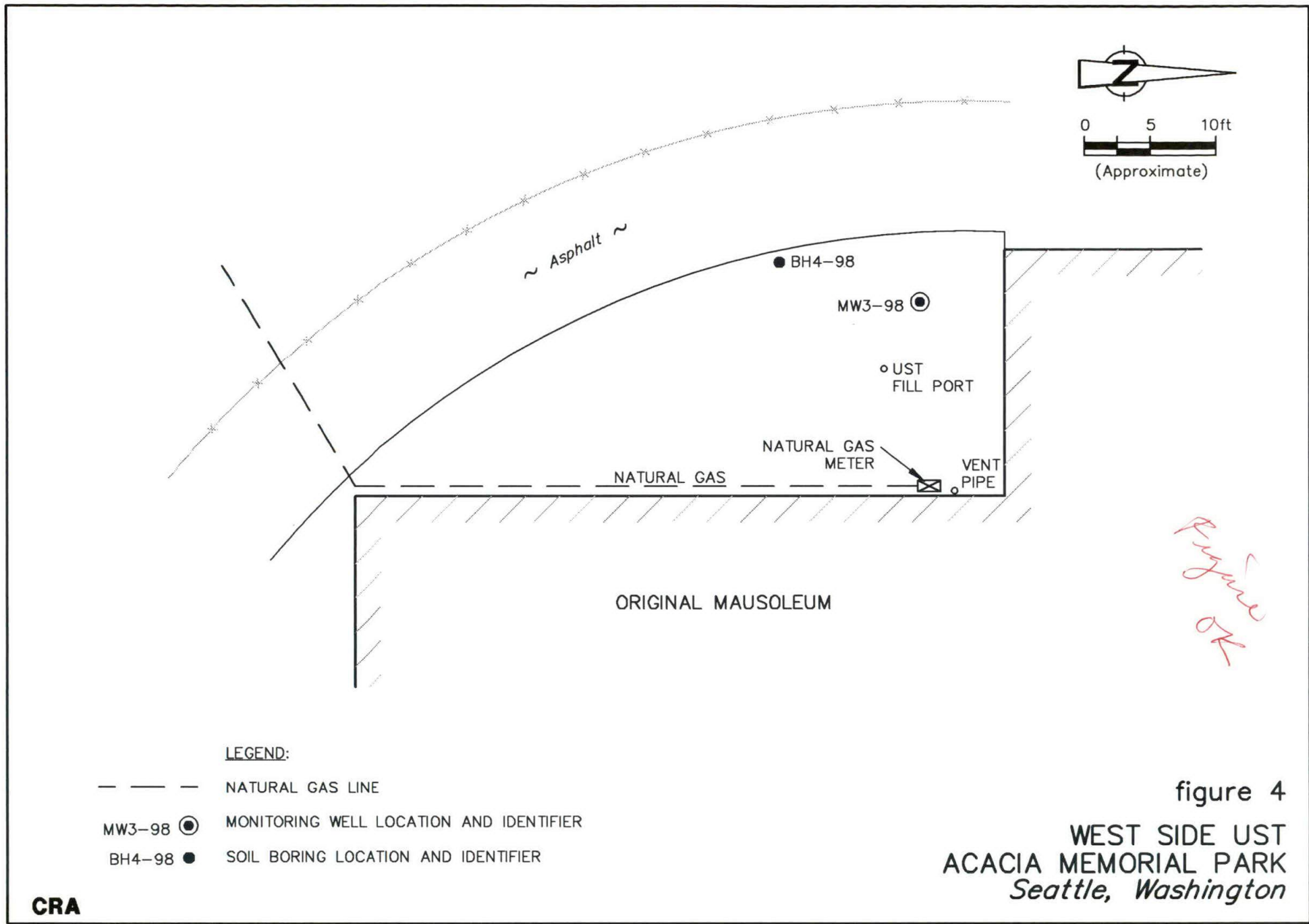


figure 4
 WEST SIDE UST
 ACACIA MEMORIAL PARK
 Seattle, Washington

CRA

STRATIGRAPHIC AND INSTRUMENTAL LOG (OVERBURDEN)

(WL-01)
Page 1 of 1

PROJECT NAME: ACACIA MEMORIAL PARK
PROJECT NUMBER: 12273
CLIENT: THE LOEWEN GROUP INC.
LOCATION: SEATTLE, WA

HOLE DESIGNATION: MWI-98
DATE COMPLETED: APRIL 27, 1998
DRILLING METHOD: 4 X" ID HSA
CRA SUPERVISOR: M. TITTLLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	TN VALUE	P10 (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	0.00 0.00					
	ASPHALT	-2					
	GM-GRAVEL	-1.0					
-2.5	SM-SAND, little gravel, little silt, dense, medium grained, poorly graded, grey, wet at 2.5ft BGS		<p style="font-size: small;">CONCRETE SEAL BENTONITE HOLEPLUG 2" Ø PVC PIPE SAND PACK WELL SCREEN 8" Ø BOREHOLE</p>	16S	X	63	0
-5.0	- some gravel			25S	X	>150	0
-7.5	SM-SAND (TILL), some gravel, little silt, very dense, well graded, grey, moist	-7.5		38S	X	>100	0
-10.0				45S	X	>100	0
-12.5	SP-SAND, some gravel, little silt, medium grained, well graded, grey, wet	-11.0		55S	X	>100	0
-15.0	- little gravel, poorly graded			66S	X	>100	0
-17.5	- SM-SAND (TILL) dense, some silt, little gravel, very dense, grey, moist			75S	X	>100	0
	END OF HOLE @ 18.0ft BGS	-18.0					
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened Interval: 8.0 to 18.0ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
8.0 to 18.0ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ↓ STATIC WATER LEVEL ↓
CHEMICAL ANALYSIS ○

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: ACACIA MEMORIAL PARK
 PROJECT NUMBER: 12273
 CLIENT: THE LOEWEN GROUP INC.
 LOCATION: SEATTLE, WA

HOLE DESIGNATION: BH2-98
 DATE COMPLETED: APRIL 27, 1998
 DRILLING METHOD: 4 K" ID HSA
 CRA SUPERVISOR: M. TITLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	"N" VALUE	PID (ppm)
	GROUND SURFACE	0.00					
	ASPHALT	-2					
	GM-GRAVEL	-1.0					
-2.5	SM-SAND, some silt, little gravel, dense, medium grained, poorly graded, moist - some gravel, little silt, very dense, well graded, wet			185	X	55	0
-5.0				255	X	>100	0
-7.5	- little to some cobbles, very dense			365	X	>100	0
-10.0	- some silt, some cobbles, moist, till-like			485	X	>100	0
-12.5	- little silt, coarse grained, wet			555	X	>100	0
-15.0	END OF HOLE @ 14.5ft BGS	-14.5					
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

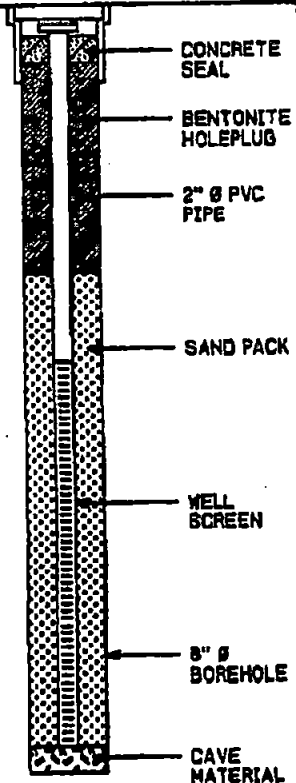
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
 WATER FOUND ∇ STATIC WATER LEVEL ∇
 CHEMICAL ANALYSIS \bigcirc

STRATIGRAPHIC AND INSTRUMENTAL LOG (OVERBURDEN)

(WL-03)
Page 1 of 1

PROJECT NAME: ACACIA MEMORIAL PARK
PROJECT NUMBER: 12273
CLIENT: THE LOEWEN GROUP INC.
LOCATION: SEATTLE, WA

HOLE DESIGNATION: MW3-98
DATE COMPLETED: APRIL 27, 1998
DRILLING METHOD: 4 1/2" ID HSA
CRA SUPERVISOR: M. TITLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	T _N VALUE	PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	0.00 0.00					
	GRASS and ORGANICS	-2					
-2.5	SM-SAND (FILL), some silt, trace gravel, dense, very fine grained, brown, moist, slightly oxidized throughout - little clay - some clay	-3.0		1SS	X	60	0
				2SS	X	66	0
-5.0	ML-SILT, some very fine sand, hard, brown, moist, oxidized throughout	-5.0		3SS	X	>100	0
-7.5	SM-SAND and SILT, trace clay, very fine grained, brown, moist, stratified, slight oxidation	-7.5		4SS	X	81	0
-10.0	ML-SILT and SAND, trace clay, dense, fine grained, brown, moist, stratified, oxidized - very moist to wet, dilatant			5SS	X	95	0
-12.5	- SM-SAND lense, very fine grained, very moist, dilatant			6SS	X	40	0
-15.0	- SM-SAND lense, very fine grained, very moist, dilatant	-15.0		7SS	X	26	0
-17.5	SP-SAND, little to trace silt, trace pyrite flecks, medium dense, very fine grained, grey, wet	-18.0		8SS	X	44	0
-20.0	ML-SILT and CLAY, trace sand, hard, grey, moist	-20.0					
-20.0	END OF HOLE @ 20.0ft BGS						
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened Interval:
9.3 to 19.3ft BGS
Length: 10.0ft
Diameter: 2"
Slot Size: #10
Material: PVC
Sand Pack:
7.0 to 19.3ft BGS
Material: Silica Sand

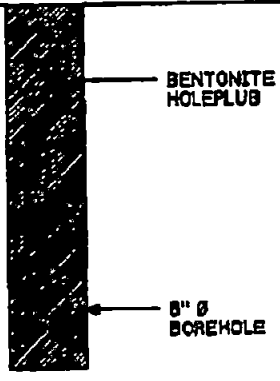
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇ STATIC WATER LEVEL ∇
CHEMICAL ANALYSIS \circ

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(NL-04)
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PROJECT NAME: ACACIA MEMORIAL PARK
PROJECT NUMBER: 12273
CLIENT: THE LOEWEN GROUP INC.
LOCATION: SEATTLE, WA

HOLE DESIGNATION: BH4-98
DATE COMPLETED: APRIL 27, 1998
DRILLING METHOD: 4 1/2" ID HSA
CRA SUPERVISOR: M. TITLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	"N" VALUE	PID (ppm)
	GROUND SURFACE	0.00					
-2.5	ML-SILT, little to some sand (thin lenses throughout), brown, moist, slightly oxidized - heavily oxidized throughout			158	X	18	0
-5.0	SM-SAND and SILT, very fine grained, brown, very moist, dilatant - trace pyrite	-5.0		268	X	37	0
-7.5				368	X	32	0
-10.0		-8.5		488	X	48	0
-10.0	END OF HOLE @ 8.6ft BGS						
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
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