



HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
FAX 206.328.5581
206.324.9530

RECEIVED
JAN 10 1990

J-2486-03

DEPARTMENT OF ECOLOGY
NORTHWEST REGION

January 9, 1990

Mr. Joe Hickey
Northwest Regional Office
Washington State Department of Ecology
4350 150th Ave. NE
Redmond, Washington 98052-5301

Re: Observation of Site Remediation Activities and
Underground Storage Tank Closure Report
Seattle School District Building
810 Dexter Ave. N
Seattle, Washington

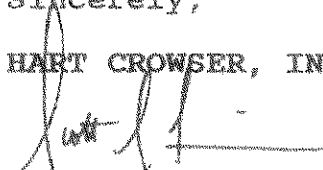
Dear Mr. Hickey:

Enclosed is a copy of our remediation and underground
storage tank report for the 810 Dexter Avenue Site.

Please call me if you have any questions.

Sincerely,

HART CROWSER, INC.


SCOTT S. FERRIS
Associate - Chemical Engineer

SSF:jlm
L248603B/JOBS

Attachment:
Underground Storage Tank Closure Report

cc: Melvin Smith, Seattle Public Schools



Hart Crowser Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699
FAX 206.328.5581
206.324.9530

Earth and Environmental Technologies

J-2486-03

January 8, 1990

Seattle Public Schools
4141 Fourth Avenue South
Seattle, Washington 98134

Attn: Mr. Melvin Smith

Re: Observation of Site Remediation Activities and
Underground Storage Tank Closure Report
Seattle School District Building
810 Dexter Avenue North
Seattle, Washington

Dear Mr. Smith:

This letter report summarizes our remediation activities at the 810 Dexter Avenue North site in Seattle, Washington (Figure 1). The purpose of our work was to perform site remediation and document its completion based on the chemical analysis of soil samples collected from the site excavations.



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SITE BACKGROUND

Petroleum-contaminated soil was discovered during the removal of six underground storage tanks (USTs) at the site. These tanks were formerly used for maintenance operations of the Seattle Public Schools.

Free-phased petroleum hydrocarbons were observed in the excavation during removal of two of the petroleum product tanks (unleaded and leaded gasoline). The Washington State Department of Ecology (Ecology) was notified by Seattle Public Schools. Additional site characterization and development of a conceptual remediation plan were completed in response to that notification.

The following is a summary of our key findings from the site characterization:

- o The primary sources of significant on-site contamination appear to be petroleum hydrocarbons. Previous analytical data and data from our study indicate that petroleum hydrocarbon constituents have leaked from previous on-site tanks or piping and some spillage has occurred;
- o Concentrations of benzene in soil samples from TP-2 and Test 3 (O'Sullivan Construction Company, OCC) exceed draft Ecology soil cleanup guidelines. Concentrations of total petroleum hydrocarbons in soil samples adjacent to and hydraulically downgradient from each of the



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previously removed underground storage tanks exceed draft Ecology soil cleanup guidelines;

- o Volatile organic compounds were detected in a groundwater sample from MW-4. MW-4 is hydraulically upgradient and may indicate a potential source for groundwater contamination;
- o Acetone and methylene chloride may be present in low concentrations in the on-site groundwater (MW-5, B-1). Confirmatory analysis would be required to determine if this is a concern;
- o Low levels of petroleum hydrocarbons were detected in a groundwater sample from MW-1 northeast of the former heating oil tank and from MW-4. These concentrations are below draft Ecology groundwater cleanup guidelines;
- o Barium was detected in a groundwater sample from MW-5 (B-1), at concentrations which meet existing drinking water standards; and
- o Data from the groundwater assessment indicate a low potential for groundwater contamination to be migrating off-site.

Based on these findings, the following was recommended (September 8, 1989):

- o Removal of the hydrocarbon sheen from unleaded and leaded gasoline tank excavation;



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- o Excavation of soil containing total petroleum hydrocarbon (TPH) concentrations in excess of 200 ppm, 0.66 ppm benzene, 143 ppm toluene, and 14 ppm total xylenes; and
- o Bioremediation of excavated soil containing petroleum hydrocarbons.

The following additional services were recommended in our letter dated November 6, 1989:

- o Installation of one groundwater monitoring well adjacent to the former waste oil tank location;
- o Completion of up to two soil borings inside the Maintenance Building, adjacent to the waste oil tank excavation;
- o Recommend, test, and observe backfilling of the underground storage tank excavations.

SOIL REMEDIATION

From October 5 through 19, 1989, about 650 yards of soil containing TPH concentrations exceeding 200 ppm and about 50 yards of soil containing benzene concentrations exceeding 0.66 ppm were removed from areas adjacent to the locations of six former USTs.



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January 8, 1990

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Soil containing petroleum hydrocarbon concentrations was transported to another Seattle Public School site. This soil is currently being dioremediated in order to reduce TPH and benzene concentrations to achieve Ecology cleanup guidelines.

Soil Excavation

Soil samples were collected from the 6 UST excavation side walls from October 7 through 23, 1989. Analytical results from soil samples collected on October 7, 1989, were used to assess locations for additional soil excavation. Soil was excavated in these locations until field screening techniques (visual, odor, and H-Nu photoionization measurements) indicated no petroleum hydrocarbons present. When this occurred, soil excavation stopped and a verification soil sample was collected.

CURRENT STATUS

Gasoline and Diesel Tank Excavation

No BTEX or TPH concentrations of in-place soils (Figure 2) exceed draft Ecology cleanup guidelines. Soil along the north wall of the excavation had TPH concentrations (as gasoline) of 2,000 ppm (EPA Method 8015 modified). Soil excavation along the north wall of the excavation was stopped due to the potential of undermining a retaining wall. Currently, Ecology does not have soil cleanup guidelines for TPH as gasoline.

1? 200 ppm, soon to be 100 ppm



Table 1 presents the analytical results of in-place soils for the former gasoline and diesel tanks excavation. Analytical certificates are in Appendix B.

Table 1 - Verification Soil Samples Analytical Results
Former Gasoline and Diesel Tanks Excavation

Analyte	Verification Soil Sample Number				
	GD/B-1A	GD/E-1	GD/NWW-1	GD/NW-1	TP-3
Benzene	18	ND(4.2)	ND(120)	ND(280)	ND(10)
Toluene	ND(.6)	ND(4.2)	ND(59)	ND(280)	ND(10)
Ethylbenzene	(ND(9.6)	ND(4.2)	ND(59)	280 est	ND(10)
Total Xylenes	6.5 est	ND(8.5)	440	21,000	ND(10)

Concentrations in ppb.

ND - Not Detected (detection limit).

est - estimated value (see laboratory certificates).

Fuel Oil Tank Excavation

No TPH concentrations of in-place soils (Figure 2) exceed draft Ecology cleanup guidelines.

Table 2 presents the analytical results of in-place soils for the former fuel oil tank excavation. Analytical certificates are in Appendix B.



Table 2 - Verification Soil Samples Analytical Results
Former Fuel Oil Tank Excavation

	Verification Soil Sample Number					
	FO/B-1A	FO/E-1A	FO/NWW-1	FO/NE-1A	FO/SE-1A	FO/SW-1
TPH	ND(10)	ND(10)	12	ND(10)	ND(10)	ND(10)

Concentrations in ppm.

ND - Not Detected (detection limit).

Waste Oil Tank Excavation

No TPH concentrations of in-place soils (Figure 2) exceed draft Ecology cleanup guidelines with the exception of the west wall (1,700 ppm) of the excavation. Soil excavation was stopped in this area in order to avoid possible damage to the buildings footings and concrete slab floor.

Table 3 presents analytical results of in-place soil for the former waste oil tank excavation. Analytical certificates are in Appendix B.



Table 3 - Verification Soil Samples Analytical Results
Former Waste Oil Tank Excavation

	Verification Soil Sample Number				
	WO/B-1A	WO/E-1A	WO/NWW-1	WO/N-1A	WO/SW-1
TPH	ND(10)	ND(10)	1,700	ND(10)	180

Concentrations in ppm.

ND - Not Detected (detection limit).

Unleaded and Leaded Gasoline Tanks Excavation

No BTEX or TPH concentrations of in-place soils (Figure 2) exceed draft Ecology cleanup guidelines.

Table 4 presents the analytical results of in-place soils for the former unleaded and leaded gasoline tanks excavation. Analytical certificates are in Appendix B.



Table 4 - Verification Soil Samples Analytical Results
Former Unleaded and Leaded Gasoline Tanks Excavation

	Verification Soil Sample Number					
	CX/ N-1A	CX/ NE-1A	CX/ SE-1A	CX/ SW-1A	CX/ SSE-1A	CX/ B-1A/-2A
Benzene	NA	NA	NA	ND(1.2)	ND(1.3)	NA
Toluene	NA	NA	NA	ND(1.2)	0.4 est	NA
Ethylbenzene	NA	NA	NA	ND(1.2)	ND(1.3)	NA
Total Xylenes	NA	NA	NA	0.6 est	1.0 est	NA
TPH(8015 mod.)	NA	NA	NA	ND(25)	ND(25)	NA
TPH(418.1)	ND(10)	ND(10)	ND(10)	NA	NA	ND(10)/180

Concentrations in ppb except TPH concentrations in ppm.
NA - Not analyzed.
ND - Not detected (detection limit).
est - estimated value (see laboratory certificates).

Soil Borings

Two soil borings were completed on December 1, 1989, to assess the lateral extent of petroleum hydrocarbons underneath the buildings and adjacent to the excavation. Soil collected from boring B-1A (10-1/2 feet below ground surface) of the excavation located 5 feet from the west wall had a TPH concentration of 800 ppm. Soil collected from B-2A (10 feet below ground surface) located 15 feet from the west wall of the excavation had a TPH concentration (12 ppm) below draft Ecology cleanup guidelines.

Field methods and boring logs are presented in Appendix A.



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January 8, 1990

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Groundwater Monitoring Well

A groundwater monitoring well MW-5 (Figure 2) was installed on December 1, 1989. This well is intended to be used to monitor the water quality adjacent to the excavation well. Installation data are presented in Appendix A.

Water Sample

A groundwaer sample was collected from the excavation on November 1, 1989. No BTEX or TPH concentrations were detected. Analytical certificates are presented in Appendix B.

Backfill

After completion of soil removal, clean fill was brought in and compacted to project requirements in the excavation.

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices related to the nature of the work completed, in the same or similar localities, at the time the services were performed. It is intended for the exclusive use of Seattle Public Schools for specific application to the referenced property. No other warranty, express or implied is made.



Seattle Public Schools
January 8, 1990

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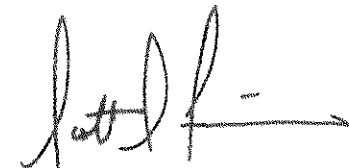
Any questions regarding the field work and this letter report, the presentation of the information, and the interpretation of the data are welcome and should be referred to Scott Ferris at 324-9530.

We trust that this report meets your needs.

Sincerely,

HART CROWSER, INC.


JERRY L. MASSENGILL
Staff Geologist

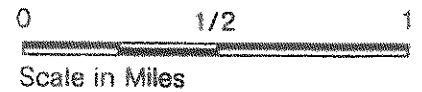
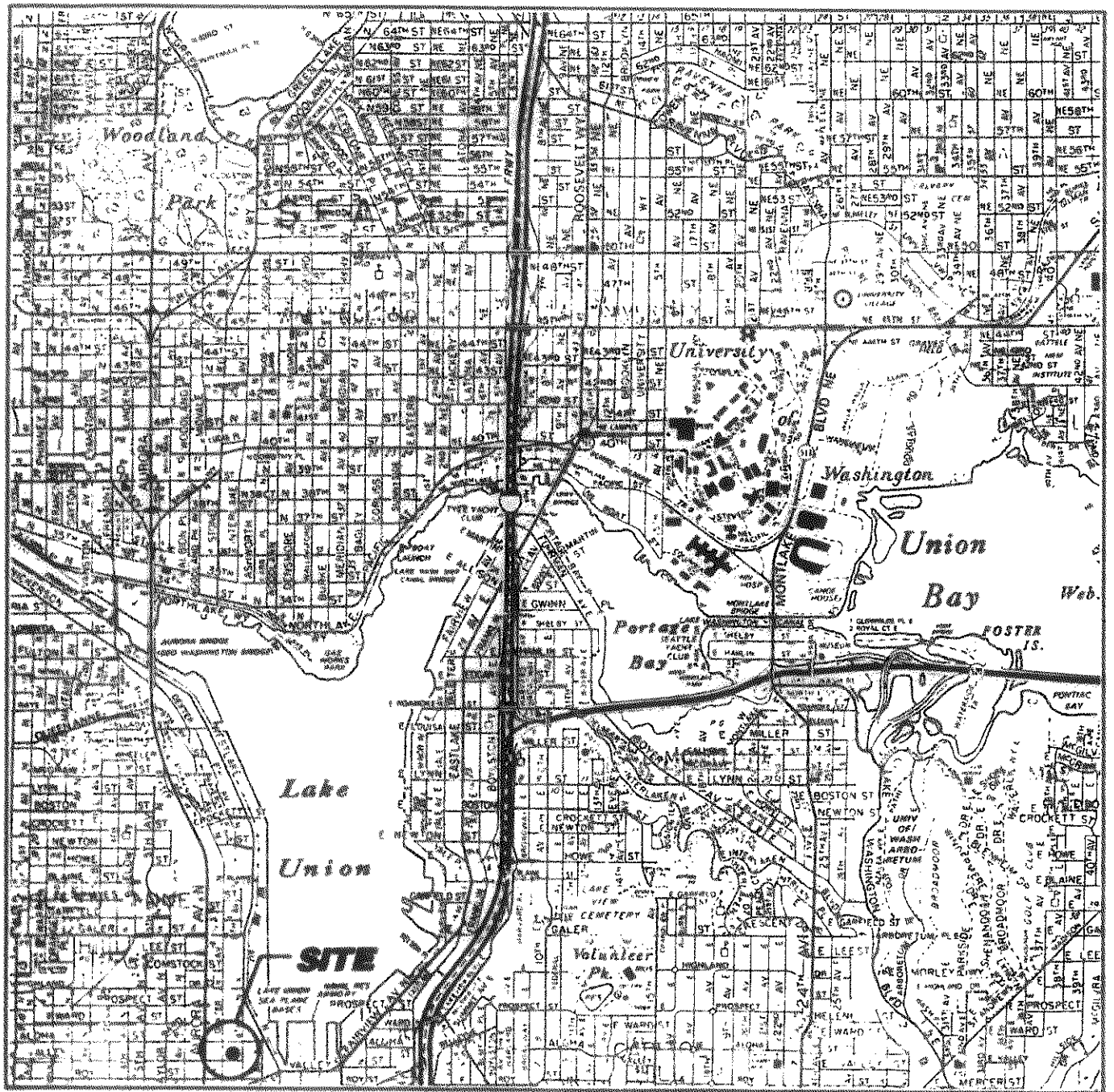

SCOTT S. FERRIS
Associate
Chemical Engineer

JLM/SSF:cmr/kcp/sde
LR248603/JOBS

Attachments:

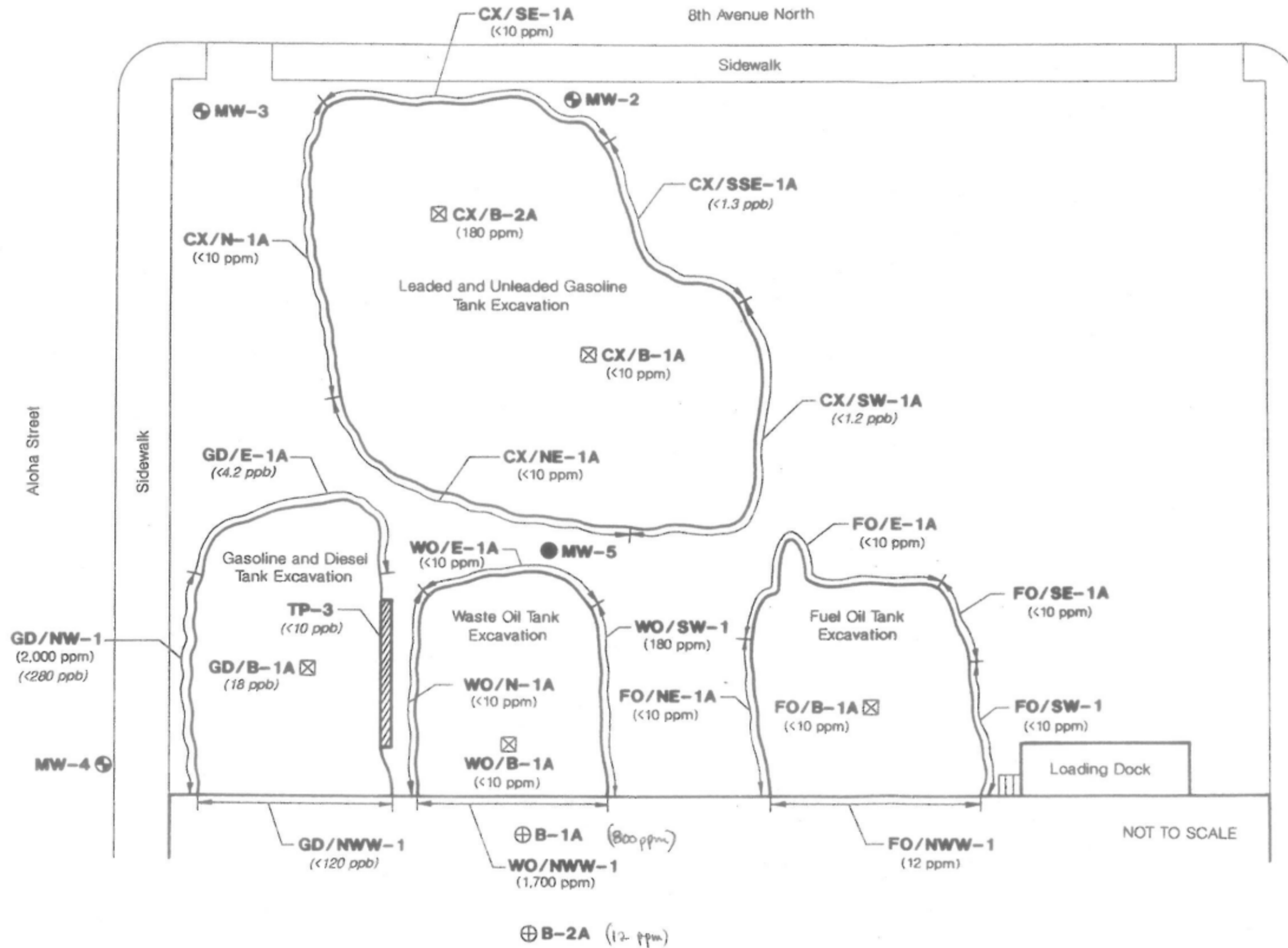
- Figure 1 - Vicinity Map
- Figure 2 - Site Excavation and Verification Sampling Location Plan
- Appendix A - Field Methods
- Appendix B - Certificates of Analysis
Analytical Resources, Inc.

Vicinity Map



H
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Figure 1

Site Excavation and Verification Sampling Location Plan



Exploration Location and Number

- MW-5 Monitoring Well (New)
- ⊕ MW-2 Monitoring Well (Existing)
- ⊕ B-1A Boring
- ▨ TP-3 Test Pit

Verification Soil Sample

- ⊗ FO/B-1A Excavation Bottom
- ⌞ GD/NW-1 Excavation Side Wall
- (2,000 ppm) TPH Concentration in ppm
- (<280 ppb) Benzene Concentration in ppb



NOT TO SCALE

Hart Crowder
J-2466-01

APPENDIX A
FIELD NOTES

APPENDIX A FIELD METHODS

EXCAVATIONS

Soil samples were obtained from the side walls and bottom of the excavations to document in-place soil quality conditions. The depth of the samples was determined by the water table at about ten feet below grade. The soil above the water was sampled to give an accurate determination of the extent of contamination.

In areas of the excavations that needed additional contaminated soil removed, verification samples were taken to assess the progress of the remediation.

Excavation Soil Samples

Samples were obtained from the excavations to determine petroleum hydrocarbon concentrations remaining in the soil. The side wall was scraped and a sample collected with the excavator bucket or stainless-steel trowel attached to a pole. Each wall was sampled in this manner at several locations, and then composited by mixing in a stainless-steel pan. Composited samples were placed in laboratory-prepared glass jars with teflon-lined lids and stored temporarily in a chilled cooler for transport to the testing laboratory. Chain of custody records were maintained recording sample collection and handling information.

Equipment Decontamination

Sampling equipment was decontaminated between each sampling event. Equipment was thoroughly scrubbed with a stiff-bristle brush using a laboratory-grade detergent and tap water, then thoroughly rinsed with deionized water, and allowed to air dry.

Field Screening

Field screening consisted of portable photoionization detector sample jar headspace vapor measurements of the soil samples collected for this project. The purpose of the field tests was to quantify the relative magnitudes of volatiles residual hydrocarbon constituents in the excavation. Aluminum foil was placed over

the top of the field test sample jar prior to screwing on the jar lid, and the sample placed in the back of a field vehicle and allowed to site for about one-quarter to one-half hour in preparation for the field tests. We then removed the jar lids and punctured the aluminum foil with the detector probe. The maximum reading of vapors in the sample jar headspace above the soil was recorded.

Organic Vapor Detection

Organic vapors were measured for soil samples during the field investigation using a model PI 101 H-Nu portable photoionization analyzer. The H-Nu consists of a sealed ultraviolet light source which emits photons which ionize trace organics but which do not ionize the major components of air. Which organic vapors are detected and to what degree of accuracy depends on the photoionization potential for the particularly compounds and the calibration and lamp voltage of the instrument. For instance, some organic vapors, such as methane, cannot be detected by the H-Nu.

The operation range of the H-Nu is from the detection limit, 0.1 to 2,000 in air. However, the response is linear from 0.1 to 600. For the field investigation, the H-Nu was equipped with a 10.2 eV lamp and calibrated to benzene which has the lowest human exposure threshold in air of the volatile organic compounds commonly found in gasoline. The organic vapor concentrations measured by the H-Nu are not indicative of actual soil concentrations, but may correlate to the total volatile compounds in a given sample is, therefore, a useful screening test. The H-Nu values are also used for environmental monitoring as health and safety measure.

MONITORING WELL INSTALLATION AND SOIL BORINGS

Monitoring well MW-5 and soil borings B-1 and B-2 were completed December 1, 1989, by Hart Crowser and their subcontractors. Geoboring and Development, Inc. under subcontract to Hart Crowser, completed the installation of monitoring well MW-5. Pearson Drilling, Inc., under subcontract to Hart Crowser, completed borings B-1 and B-2 inside the maintenance building.

The monitoring well and boring locations are shown on Figure 1. Locations were established by hand taping from existing physical features.

Monitoring Well Installation

Drilling for monitoring well MW-5 was completed with truck-mounted rig using hollow-stem auger drilling methods. The well is of 2-inch inside diameter Schedule 40 PVC construction and has a 10-foot section with 0.020-inch slot size screen. The well was installed by lowering the casing through the hollow-stem auger after the drilling depth of 15 feet was reached. Silica sand (10/20) was used to backfill the annulus around the screen to a level 2 feet above the top of the screen. Bentonite chips were used to backfill and grout the borehole to a depth of 1 foot below the surface. A concrete surface seal and a flush-mounted, locking monument protects the well head. Well construction information is presented on Figure A-2.

Soil Borings

The two borings were completed using a Minute Man solid-stem auger portable drill. The borings were advanced to approximate groundwater depth and sample collected by driving a split-spoon sampler into the soil with a hand operated slide hammer attached to the drill rods and sampler. Borings were grouted with bentonite chips and a concrete surface seal. Boring logs are presented on Figures A-3 and A-4.

Soil Boring Samples

Soil samples were collected from each boring to determine the extent of petroleum hydrocarbon concentrations in the soil. Samples were placed in laboratory-prepared glass jars with teflon-lined lids and temporarily stored in a chilled cooler for transport to the testing laboratory. Chain of custody records were maintained recording sample collection and handling information. Laboratory certificates are presented in Appendix B.

Hart Crowder
7-2486-01

APPENDIX B
CERTIFICATE OF ANALYSIS
ANALYTICAL LABORATORY, INC.



**ANALYTICAL
RESOURCES
INCORPORATED**

Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

10 October, 1989

Scott Ferris
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Project ID: Seattle Public Schools, #2486.02; ARI Project No. 3805.

Dear Scott:

Please find the enclosed Rush TPH m.418.1 and 8015 and BETX for the above referenced Project.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer
Project Coordinator

cpg

enclosures

cc: file #03805



**ANALYTICAL
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INCORPORATED**

Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS by IR Scan
Modified EPA Method 418.1**

Matrix: Soils/Sediments

Project: #2486-02

Seattle Public Schools

QC Report No: 3805 - Hart Crowser

VTSP: 10/09/89

Data Release Authorized 
Data Prepared: 10/10/89 - MAC:C C.G.

Date of Analysis: 10/09/89

Date Prepared: 10/09/89

	Lab ID	Client Sample ID	Dilution Factor	TPH (ppm)
1	3805 MB	Method Blank	1	10 U
2	3805 A	WO/NW-1	1	410
3	3805 B	WO/NW-1	10	1700
4	3805 C	WO/SW-1	1	180
5	3805 D	WO/B-1	1	540
6	3805 E	FO/NW-1	4	1400
7	3805 F	FO/NW-1	1	12
8	3805 G	FO/SW-1	1	10 U
9	3805 H	FO/B-1	1	91

Values reported in ppm (mg/Kg) based on wet weight of sample

U Indicates compound was analyzed for but not detected at the given
detection limit.



**ANALYTICAL
RESOURCES
INCORPORATED**

**ORGANICS ANALYSIS DATA SHEET - Method 602/8020
FOR BTEX**

Analytical
Chemists &
Consultants

Matrix: Sediments/Soils

QC Report No: 3805-Hart Crouser

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

Project No: 2486-02

Seattle Public Schools

Data Release Authorized: *[Signature]*

Date Received: 10/09/89

Report prepared: 10/10/89 - MAC:E

Instrument ID: GC/PID

Sample No.	Method Blank	GD/NW-1	GD/NWW-1	GD/SW-1
ARI ID	1009MB	3805I	3805J	3805K
Date Analyzed	10/09/89	10/09/89	10/09/89	10/09/89
Amt (Dry Wt)	0.0025 g(equv)	0.0022 g	0.085 g	0.0020 g
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg
71-43-2	Benzene	400U	4500U	120U
108-88-3	Toluene	200U	3000	59U
100-41-4	Ethylbenzene	200U	2500	59U
1330-20-7	Total Xylenes	400U	18000	440
	Bromobenzene	92.4%	103%	103%
	Surrogate Recovery			75.2%

CAS Number

Bromobenzene
Surrogate Recovery

Sample No.	GD/S-1
ARI ID	3805L
Date Analyzed	10/09/89
Amt (Dry Wt)	0.0021 g
Units	µg/Kg

CAS Number

Bromobenzene
Surrogate Recovery

71-43-2	Benzene	4800U
108-88-3	Toluene	1200
100-41-4	Ethylbenzene	840
1330-20-7	Total Xylenes	5900
	Bromobenzene	96.8%
	Surrogate Recovery	

Data Reporting Qualifiers

- | | | | |
|-------|--|---|---|
| Value | If the result is a value greater than or equal to the detection limit, report the value. | B | This flag is used when the analyte is found in the blank as well as the sample. Indicates possible/probable blank contamination |
| | Indicates compound was analyzed for but not detected at the given detection limit. | K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| NR | Analysis not required. | | |



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Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS BY GC/FID
Modified EPA Method 8015**

Matrix: Soils

Project No.: #2486-02

Seattle Public Schools

Data Release Authorized 

QC Report No: 3805 - Hart Crowser

Data Prepared: 10/10/89 - MAC/C C.G.

VTSR: 10/09/89

Date of Analysis: 10/09/89

	Lab ID	Client Sample ID	TPH (ppm)	Pattern ID
1	3805 MB	Method Blank	50 U	---
2	3805 I	GD/NW-1	2000	Gasoline
3	3805 J	GD/NW-1	50 U	---
4	3805 K	GD/SW-1	1100/800/1900	Gasoline/Diesel/Total
5	3805 L	GD/B-1	590/970/1600	Gasoline/Diesel/Total

U Indicates compound was analyzed for but not detected at the given detection limit.



Hart-Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3899

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PAGE 1 OF Z

DATE 10/9/89

Sample Custody Record

JOB NUMBER		LAB NUMBER		STATION		MATRIX		TESTING		OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS	
NO.	SAMPLE	TIME						NO. OF CONTAINERS			
	WO/NW-1					Soil					
	WO/NW-1									24 hour	
	WO/SW-1									turnaround	
	WO/B-1									if possible.	
	FO/NW-1										
	FO/NW-1										
	FO/SW-1									48 hr choice	
	FO/B-1										
	GD/NW-1										
	GD/NW-1										
	GD/SW-1										
	GD/B-1										
RELINQUISHED BY		DATE		RECEIVED BY		DATE		TOTAL NUMBER OF CONTAINERS		METHOD OF SHIPMENT	
J. Massengill		10/9/89		Terrie Hedger		10/9/89		12		Direct delivery	
Signature		TIME		Signature		TIME		SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS			
J. Massengill				Terrie Hedger		7:00					
Printed Name				Printed Name							
Hart-Crowser				Company							
Company				Company							
RELINQUISHED BY		DATE		RECEIVED BY		DATE					
Signature				Signature							
Printed Name				Printed Name							
Company				Company							

- DISTRIBUTION:
1. PROVIDE WHITE AND YELLOW COPIES TO LABORATORY
 2. RETURN PINK COPY TO PROJECT MANAGER
 3. LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT
 4. LABORATORY TO RETURN WHITE COPY TO HART-CROWSER



**ANALYTICAL
RESOURCES
INCORPORATED**

Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 821-6490

19 October, 1989

Scott Ferris
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Project ID: Seattle Public Schools; ARI Project No. 3805 II,III

Dear Scott:

Please find the enclosed BETX m.8240 data, with the requested lower detection limits required by the WDOE, for the above referenced Project.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer

Catherine P. Greer
Project Coordinator

cpg

enclosures

cc: file #03805 II,III



**ANALYTICAL
RESOURCES
INCORPORATED**

Analytical
Chemists &
Consultants

**ORGANICS ANALYSIS DATA SHEET - Method 624/8240
FOR BETX**

Matrix: Sediments/Soils

QC Report No: 3805-Hart Crowser
Project No: 2486-02
Seattle Public Schools

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

Data Release Authorized: *James V. [Signature]*
Report prepared: 10/12/89 - MAC:E

Date Received: 10/09/89

Instrument ID: FINN 1

Sample No.	Method Blank	GD/B-1
ARI ID	1012MB	3805L
Date Analyzed	10/12/89	10/12/89
Amt (Dry Wt)	0.021 g (equiv)	0.021 g
Units	µg/Kg	µg/Kg
CAS Number		
71-43-2	Benzene	240U
108-88-3	Toluene	240U
100-41-4	Ethylbenzene	240U
1330-20-7	Total Xylenes	480U
	<i>d8-Toluene</i>	99.2%
	<i>Bromofluorobenzene</i>	97.2%
	<i>d4-1,2-Dichloroethane</i>	93.8%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as the sample. Indicates possible/probable blank contamination
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
NR	Analysis not required.	J	Indicates an estimated value when result is less than the specified detection limit.



**ANALYTICAL
RESOURCES
INCORPORATED**

Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**ORGANICS ANALYSIS DATA SHEET
METHOD 624/8240**

Sample: GD/NW-1

Lab ID: 3805 I Reanalysis
Matrix: Soil/Sediment

QC Report No: 3805III-Hart Crowser
Project No: Seattle Public Schools
Date Received: 10/09/89
(In-House)

Data Release Authorized: [Signature]
Report prepared 10/19/89 - MAC:C C.P.G.

Instrument: FINN I
Date Analyzed: 10/18/89

Amount Analyzed: .0176 g (Dry Wt.)
Percent Moisture: 12.0%
pH: NA

CAS Number		µg/Kg
71-43-2	Benzene	280U
108-88-3	Toluene	280U
100-41-4	Ethylbenzene	210 M
1330-20-7	Total Xylenes	21000

1130

Surrogate Recoveries

d8-Toluene	99.7%
Bromofluorobenzene	99.7%
d4-1,2-Dichloroethane	98.1%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**ORGANICS ANALYSIS DATA SHEET
METHOD 624/8240**

Sample: Method Blank

Lab ID: 1016MB
Matrix: Soil/Sediment

QC Report No: 3805I-Harf Crowser
Project No: Seattle Public Schools
Date Received: 10/09/89
(In-House)

Data Release Authorized: *[Signature]*
Report prepared 10/17/89 - MAC:C C.P.G.

Instrument: FINN I
Date Analyzed: 10/16/89

Amount Analyzed: 0.005 g (equiv. dry wt.)
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
71-43-2	Benzene	1000 U
108-88-3	Toluene	1000 U
100-41-4	Ethylbenzene	1000 U
1330-20-7	Total Xylenes	2000 U

Surrogate Recoveries

d8-Toluene	99.0%
Bromofluorobenzene	97.0%
d4-1,2-Dichloroethane	93.0%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.



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**ORGANICS ANALYSIS DATA SHEET
METHOD 624/8240**

Sample: GD/NW-1

Lab ID: 38051
Matrix: Soil/Sediment

QC Report No: 38051-Hart Crowser
Project No: Seattle Public Schools
Date Received: 10/09/89
(In-House)

Data Release Authorized: [Signature]
Report prepared 10/17/89 - MAC:C C.P.G.

Instrument: FINN I
Date Analyzed: 10/16/89

Amount Analyzed: 0.005 g.
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
71-43-2	Benzene	1000U
108-88-3	Toluene	1000U
100-41-4	Ethylbenzene	1000U
1330-20-7	Total Xylenes	75000

Surrogate Recoveries

d8-Toluene	96.0%
Bromofluorobenzene	94.9%
d4-1,2-Dichloroethane	94.5%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.



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**ORGANICS ANALYSIS DATA SHEET
METHOD 624/8240**

Sample: GD/SW-1

Lab ID: 3805K
Matrix: Soil/Sediment

QC Report No: 3805II-Hart Crowser
Project No: Seattle Public Schools
Date Received: 10/09/89
(In-House)

Data Release Authorized: *[Signature]*
Report prepared 10/17/89 - MAC:C C.P.G.

Instrument: FINN I
Date Analyzed: 10/16/89

Amount Analyzed: .00125 g.
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
71-43-2	Benzene	4000U
108-88-3	Toluene	39000
100-41-4	Ethylbenzene	73000
1330-20-7	Total Xylenes	870000

Surrogate Recoveries

d8-Toluene	96.2%
Bromofluorobenzene	101%
d4-1,2-Dichloroethane	93.6%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.



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**ORGANICS ANALYSIS DATA SHEET
METHOD 624/8240**

Sample: Method Blank

Lab ID: 1018MB
Matrix: Soil/Sediment

QC Report No: 3805III-Hart Crowser
Project No: Seattle Public Schools
Date Received: 10/09/89
(In-House)

Data Release Authorized: [Signature]
Report prepared 10/19/89 - MAC:C C.P.G.

Instrument: FINN I
Date Analyzed: 10/18/89

Amount Analyzed: .02 g (equiv. dry wt.)
Percent Moisture: NA
pH: NA

CAS Number		µg/Kg
71-43-2	Benzene	250U
108-88-3	Toluene	250U
100-41-4	Ethylbenzene	250U
1330-20-7	Total Xylenes	500U

Surrogate Recoveries

d8-Toluene	98.2%
Bromofluorobenzene	97.2%
d4-1,2-Dichloroethane	96.2%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.

324-9530



Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699

HARTCROWSER

PAGE 1 OF 1

Sample Custody Record

DATE 12/1/89

JOB NUMBER 2496-03 LAB NUMBER ARI
PROJECT MANAGER Scott Ferns
PROJECT NAME Seattle Public Schools- 810 Dexter
SAMPLED BY: Seri Massengill

LAB NO.	SAMPLE	TIME	STATION	MATRIX	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS	METHOD OF SHIPMENT	TESTING		
								TOTAL NUMBER OF CONTAINERS	SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS	DISTRIBUTION:
B-1/51	12/1/89			SOIL	1	Hold for possible later analysis	direct delivery	3	Call Scott Ferns with verbal results	1. PROVIDE WHITE AND YELLOW COPIES TO LABORATORY 2. RETURN PINK COPY TO PROJECT MANAGER 3. LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT 4. LABORATORY TO RETURN WHITE COPY TO HART CROWSER
B-1/52	↓			↓	1					
B-2/51	↓			↓	1	RUSH 24 hour				

RELINQUISHED BY: Seri Massengill DATE: 12/1/89 RECEIVED BY: _____ DATE: _____
 Signature: _____ TIME: _____
 Printed Name: Seri Massengill
 Company: Hart Crowser

RELINQUISHED BY: Blair G. Vamberger DATE: 12/1/89 RECEIVED BY: _____ DATE: _____
 Signature: _____ TIME: _____
 Printed Name: Blair G. Vamberger
 Company: ARI



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

23 October, 1989

Jeri Massengill
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Seattle Public Schools #2486-02; ARI Project No. 03863

Dear Jeri:

Please find enclosed the original data for Rush BETX and TPH m. 418.1 analyses of soil samples for the above referenced Project.

The numbers I gave you this morning were tentative and with a closer look were in fact correct with a minor calculation adjustment.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer
Project Coordinator

cpg

enclosures
cc: file #3863



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(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS by IR Scan
Modified EPA Method 418.1**

Matrix: Soils

Project: #2486-02

Seattle Public Schools

QC Report No: 3863 - Hart Crowser

Data Release Authorized

VTSP: 10/20/89

Data Prepared: 10/23/89 - MAC:C C.G.

Date of Analysis: 10/20/89

Date Prepared: 10/20/89

	Lab ID	Client Sample ID	Dilution Factor	TPH (ppm)
1	3863 MB	Method Blank	1	10 U
2	3863 E	CX-B-1A	1	10 U
3	3863 F	CX-B-2A	1	180
4	3863 G	CX-N-1A	1	10 U
5	3863 H	CX-NE-1A	1	10 U
6	3863 I	CX-SE-1A	1	10 U
7	3863 J	WO-B-1A	1	10 U
8	3863 K	WO-E-1A	1	10 U
9	3863 L	FO-B-1A	1	10 U
10	3863 M	FO-E-1A	1	10 U
11	3863 N	FO-SE-1A	1	10 U
12	3863 O	FO-NE-1A	1	10 U

Values reported in ppm (mg/Kg) based on wet weight of sample

U Indicates compound was analyzed for but not detected at the given
detection limit.



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**ORGANICS ANALYSIS DATA SHEET - Method 8240
FOR BETX**

Analytical
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Matrix: Soil
Level: Low

QC Report No: 3863-Hart Crowser
Project No: 2486-02

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

Data Release Authorized: *[Signature]*
Report prepared: 10/23/89 - MAC:E

Date Received: 10/20/89

Instrument ID: FINN 5

Sample No.	Method Blk.	GD-B-1A	GD-E-1A	CX-SW-1A
ARI ID	1020MB	3863A	3863B	3863C
Date Analyzed	10/20/89	10/20/89	10/20/89	10/20/89
Amt Analyzed	5.0 g (equiv)	0.521 g (dry)	1.18 g (dry)	4.33 g (dry)
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg
CAS Number				
71-43-2 Benzene	1.0U	18	42U	1.2U
108-88-3 Toluene	1.0U	9.6U	42U	1.2U
100-41-4 Ethylbenzene	1.0U	9.6U	42U	1.2U
1330-20-7 Total Xylenes	2.0U	6.5J	8.5U	0.6 M

Surrogate Recoveries

d8-Toluene	99.3%	96.5%	99.3%	95.8%
Bromofluorobenzene	96.5%	97.5%	97.2%	92.2%
d4-1,2-Dichloroethane	107%	105%	107%	107%

Sample No.	CX-SSE-1A
ARI ID	3863D
Date Analyzed	10/20/89
Amt Analyzed	3.98 g (dry)
Units	µg/Kg

CAS Number

71-43-2 Benzene	1.3U
108-88-3 Toluene	0.4 M
100-41-4 Ethylbenzene	1.3U
1330-20-7 Total Xylenes	1.0J

Surrogate Recoveries

d8-Toluene	93.3%
Bromofluorobenzene	76.6%
d4-1,2-Dichloroethane	104%

Data Reporting Qualifiers

Value	If the result is a value greater than or equal to the detection limit, report the value.	B	This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination.
U	Indicates compound was analyzed for but not detected at the given detection limit.	K	This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run.
J	Indicates an estimated value when result is less than specified detection limit.	M	Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.



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**TOTAL PETROLEUM HYDROCARBONS BY GC/FID
Modified EPA Method 8015**

Matrix: Soils

Data Release Authorized

Data Prepared: 10/24/89 - MAC:C C.G.

Project No.: #2486-02

Seattle Public Schools

QC Report No: 3863 - Hart Crowser

VTSR: 10/20/89

Date of Analysis: 10/20/89

	Lab ID	Client Sample ID	TPH (ppm)	Pattern ID
1	3863 MB	Method Blank	25 U	---
2	3863 C	CX-SW-1A	25 U	---
3	3863 D	CX-SSE-1A	25 U	---

U Indicates compound was analyzed for but not detected at the given detection limit.



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DATE 10/20/89 PAGE 2 OF 3

Sample Custody Record

JOB NUMBER Z486-02 LAB NUMBER ARI
 PROJECT MANAGER Scott Ferris
 PROJECT NAME Seattle Public Schools
 SAMPLED BY: G. Tritt

TESTING		NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSING INSTRUCTIONS
DATE	TIME		
		1	<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> 29 hour turnaround </div>
		1	

LAB NO.	SAMPLE	STATION	MATRIX
FO-B-1A		3863 L	
FO-E-1A		M	
FO-SE-1A		N	
FO-NE-1A		O	

RELINQUISHED BY Signature: <u>Seri Massengill</u> Printed Name: <u>Hart Crowser</u> Company: _____		RECEIVED BY Signature: <u>Scott Ferris</u> Printed Name: <u>Scott Ferris</u> Company: _____		DATE <u>10/20/89</u>
RELINQUISHED BY Signature: _____ Printed Name: _____ Company: _____		RECEIVED BY Signature: _____ Printed Name: _____ Company: _____		DATE _____

TOTAL NUMBER OF CONTAINERS 2 of 3 METHOD OF SHIPMENT direct

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS

DISTRIBUTION:

- PROVIDE WHITE AND YELLOW COPIES TO LABORATORY
- RETURN PINK COPY TO PROJECT MANAGER
- LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT
- LABORATORY TO RETURN WHITE COPY TO HART CROWSER



Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699

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Sample Custody Record DATE 10/20/89 PAGE 1 OF 1

JOB NUMBER 2486-02 LAB NUMBER ARI

PROJECT MANAGER S. Ferns

PROJECT NAME Seattle Public Schools

SAMPLED BY: G. Triff

LAB NO.	SAMPLE	TIME	STATION	MATRIX
GD-B-1A			3863A	Spill
GD-E-1A			B	"
GD-A CX-SW-1A			C	"
CX-SE-1A			D	
CX-B-1A			E	
CX-B-2A			F	
CX-N-1A			G	
CX-NE-1A			H	
CX-SE-1A			I	
WO-B-1A			J	
WO-E-1A			K	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
<u>Janet Messing</u>	<u>10/20/89</u>	<u>Jan Felkins</u>	<u>10/20/89</u>
Signature	TIME	Signature	TIME
<u>Jan Messing</u>	<u>10:52</u>	<u>Jan Felkins</u>	<u>10:52</u>
Printed Name	TIME	Printed Name	TIME
<u>Hart Crowser</u>		<u>H.R.I.</u>	
Company		Company	

TESTING	NO. OF CONTAINERS	METHOD OF SHIPMENT
TPH 8020	X	direct
TPH 8015	X	
TPH 418.1	X	
	X	
	X	
	X	
	X	
	X	
	X	
	X	
	X	
TOTAL NUMBER OF CONTAINERS	11 of 13	
SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS		
DISTRIBUTION:		
1. PROVIDE WHITE AND YELLOW COPIES TO LABORATORY		
2. RETURN PINK COPY TO PROJECT MANAGER		
3. LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT		
4. LABORATORY TO RETURN WHITE COPY TO HART CROWSER		

SPLIT samples for
8020 + 8015 analysis

24 hrs

turnaround



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

25 October, 1989

Scott Ferris
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Project ID: Seattle Public Schools; ARI Project No. 3863 I,II

Dear Scott:

Please find the enclosed TPH m.418.1 and 8015 data for the above referenced Project.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer
Project Coordinator

cpg

enclosures

cc: file #03863 I,II



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(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS by IR Scan
Modified EPA Method 418.1**

Matrix: Soils

Project: #2486-02

Seattle Public Schools

QC Report No: 3863 II - Hart Crowser

VTSR: 10/23/89

Data Release Authorized *[Signature]*

Data Prepared: 10/25/89 - MAC:C C.G.

Date of Analysis: 10/25/89

Date Prepared: 10/25/89

	Lab ID	Client Sample ID	Dilution Factor	TPH (ppm)
1	3863 MB	Method Blank	1	10 U
2	3863 P	WO-N-1A	1	10 U

Values reported in ppm (mg/Kg) based on wet weight of sample

U Indicates compound was analyzed for but not detected at the given
detection limit.



Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699

HART CROWSER

DATE 12/23/89 PAGE 1 OF 1

Sample Custody Record

JOB NUMBER 248602 LAB NUMBER ARI
 PROJECT MANAGER S. Ferris
 PROJECT NAME Seattle Public Schools
 SAMPLED BY: J. Massengill

TESTING		NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
DATE	TIME		
		1	<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> 24 rush </div>

LAB NO.	SAMPLE	TIME	STATION	MATRIX
	WD-N-1A			SOIL

RELINQUISHED BY -	DATE	RECEIVED BY	DATE	TOTAL NUMBER OF CONTAINERS	METHOD OF SHIPMENT
<u>J. Massengill</u> Signature	<u>12/23/89</u> DATE	<u>J. Ferris</u> Signature	<u>12/23/89</u> DATE	1	direct delivery
<u>J. Massengill</u> Printed Name	<u>5:28</u> TIME	<u>J. Ferris</u> Printed Name	<u>15:28</u> TIME		
<u>Hart Crowser</u> Company		<u>Hart Crowser</u> Company			

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS

DISTRIBUTION:

1. PROVIDE WHITE AND YELLOW COPIES TO LABORATORY
2. RETURN PINK COPY TO PROJECT MANAGER
3. LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT
4. LABORATORY TO RETURN WHITE COPY TO HART CROWSER



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

07 November, 1989

Scott Ferris
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Project ID: 2486-02, Seattle Public Schools, BETX and TPH data; ARI Project Nos. 3947

Dear Scott:

Please find the enclosed data for the above referenced Project.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer
Project Coordinator

cpg

enclosures

cc: file #03947



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**ORGANICS ANALYSIS DATA SHEET - Method 602/8020
FOR BETX**

Matrix: Water
Level: Low

QC Report No: 3947-Hart Crowser
Project No: 2486-02
Seattle Public Schools

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

Data Release Authorized: Robert J. Ebe Date Received: 11/01/89
Report prepared: 11/03/89 - MAC:E

Instrument ID: GC/PID

Sample No.	Method Blk	CX/WS-1	Trip Blank
ARI ID	1102MB	3947A	3947B
Date Analyzed	11/02/89	11/02/89	11/02/89
Am't Analyzed	5.0 mls	5.0 mls	5.0 mls
Units	µg/L	µg/L	µg/L

CAS Number

71-43-2	Benzene	1.0U	1.0U	1.0U
108-88-3	Toluene	1.0U	1.0U	1.0U
100-41-4	Ethylbenzene	1.0U	1.0U	1.0U
1330-20-7	Total Xylenes	2.0U	2.0U	2.0U
	Bromobenzene	107%	102%	103%

Surrogate Recovery

- | | | | |
|-------|--|---|--|
| Value | If the result is a value greater than or equal to the detection limit, report the value. | B | This flag is used when the analyte is found in the blank as well as a sample. Indicates possible/probable blank contamination. |
| U | Indicates compound was analyzed for but not detected at the given detection limit. | K | This flag is used when quantitated value falls above the limit of the calibration curve and dilution should be run. |
| J | Indicates an estimated value when result is less than specified detection limit. | M | Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters. |
| NR | Analysis not required. | | |



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS BY GC/FID
Modified EPA Method 8015**

Matrix: Waters

Data Release Authorized 
Data Prepared: 11/03/89 - MAC:C C.G.

Project No.: #2486-02
Seattle Public Schools
QC Report No: 3947 - Hart Crowser
VTSR: 11/01/89

Date of Analysis: 11/03/89

	Lab ID	Client Sample ID	TPH (ppm)	Pattern ID
1	3947 MB	Method Blank	25 U	---
2	3947 A	CX-WS-1	25 U	---

U Indicates compound was analyzed for but not detected at the given detection limit.

32-9030

Crowser, Inc.
1910 Fairview Avenue East
Seattle, Washington 98102-3699



HARTCROWSER

Sample Custody Record DATE 11/1/89 PAGE 1 OF 1

JOB NUMBER 2486-02 LAB NUMBER ARI
PROJECT MANAGER Scott Ferris
PROJECT NAME Seattle Public Schools

SAMPLED BY: JAH

LAB NO. SAMPLE TIME STATION MATRIX
C2/051 11:00 water
~~0815 WOOD~~
~~8020~~

TESTING											NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS	

24-8ush

RELINQUISHED BY	DATE	RECEIVED BY	DATE
<i>James Hest</i> Signature	11/1/89 TIME	<i>James Hest</i> Signature	11/1/89 TIME
Printed Name Hart Crowser Company	11:30	Printed Name ARI Company	11:30
RELINQUISHED BY	DATE	RECEIVED BY	DATE
Signature		Signature	
Printed Name		Printed Name	
Company		Company	

TOTAL NUMBER OF CONTAINERS

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS

Call S. Ferris w/ results

- DISTRIBUTION:
1. PROVIDE WHITE AND YELLOW COPIES TO LABORATORY
 2. RETURN PINK COPY TO PROJECT MANAGER
 3. LABORATORY TO FILL IN SAMPLE NUMBER AND SIGN FOR RECEIPT
 4. LABORATORY TO RETURN WHITE COPY TO HART CROWSER



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333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

04 December, 1989

Scott Ferris
Hart Crowser
1910 Fairview Ave. E.
Seattle, WA 98102-3699

RE: Project ID: #J-2486-03, Seattle Public Schools; ARI Project No. 4135

Dear Scott:

Please find the enclosed data for the above referenced Project.

If you have any questions or need additional information, please feel free to call any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Catherine P. Greer
Project Coordinator

cpq

enclosures

cc: file #4135



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Analytical
Chemists &
Consultants

333 Ninth Ave. North
Seattle, Wa 98109-5187
(206) 621-6490

**TOTAL PETROLEUM HYDROCARBONS by IR Scan
Modified EPA Method 418.1**

Matrix: Soil

Project: 2486-03

Seattle Public Schools

Data Release Authorized

QC Report No: 4135-Hart Crowser

Data Prepared: 12/04/89 - MAC:C C.G.

VTSR: 12/01/89

Date of Analysis: 12/04/89

Date Prepared: 12/04/89

Lab ID	Client Sample ID	Dilution Factor	TPH (ppm)
4135 MB	Method Blank	1	10 U
4135 B	B-1/S-2	1	800
4135 C	B-2/S-1	1	12

Values reported in ppm (mg/Kg) based on wet weight of sample

U Indicates compound was analyzed for but not detected at the given
detection limit.