

Release 536045

Starbucks

Seattle

**PRELIMINARY GROUNDWATER SAMPLING AND
TESTING**

Pacific Color, Inc. (Starbucks Site)
7100 East Green Lake Drive Northeast
Seattle, Washington

PACIFIC COLOR, INC.

entered
cm
4-23-03

ENVIRONMENTAL ASSOCIATES, INC.

2122 - 112th Avenue North East, Suite B-100
Bellevue, Washington 98004
(206) 399-6041 (206) 455-9025
FAX: (206) 455-2316

March 11, 1996

JN 3071-4

Pacific Color, Incorporated
c/o Mr. David Johansen
7101 Woodlawn Avenue Northeast
Seattle, Washington 98115

Subject: **PRELIMINARY GROUNDWATER SAMPLING AND TESTING**
Pacific Color Property (Starbucks Site)
7100 East Green Lake Drive Northeast
Seattle, Washington

Dear Mr. Johansen:

Environmental Associates, Inc. (EAI) has completed the construction of three (3) groundwater monitoring wells at the subject site located in Seattle, Washington, along with groundwater sampling and laboratory analysis of groundwater samples. This report, prepared in accordance with the terms of our proposal dated December 21, 1995, summarizes our approach to the project along with results and conclusions.

The contents of this report are confidential and are intended solely for your use and those of your representatives. Four copies of this report are being distributed to you. No other distribution or discussion of this report will take place without your prior approval. Additional copies are available for a small fee.

On December 29, 1995, three (3) groundwater monitoring wells (designated as MW-1, MW-2, and MW-3) were constructed at the subject site and, on January 2, 1996, we returned to the site to perform initial sampling of the three on-site groundwater monitoring wells. The main focus of this phase of work was to characterize groundwater quality at the site following an extensive soil cleanup effort performed in September of 1995 (Tank Closure/Site Characterization and Cleanup, Environmental Associates, Inc., November 2, 1995). The following is a summary of our findings based upon the results of laboratory testing of groundwater sampled from the three wells.

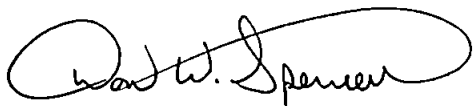


- Referring to Plate 4, it appears that groundwater in the vicinity of monitoring well MW-1 (up-gradient portion of subject site) is free of detectable concentrations of gasoline, diesel, and oil-range petroleum hydrocarbons, as well as gasoline-associated constituents benzene, toluene, and ethyl benzene. A trace concentration (well below Washington Department of Ecology or "WDOE" Method A cleanup thresholds) of xylene was detected in an MW-1 groundwater sample.
- Groundwater sampled and analyzed from monitoring well MW-2 and MW-3 (down-gradient margins of the subject site) was found to contain concentrations of gasoline-range petroleum hydrocarbons and associated BTEX constituents in excess of current WDOE Method A cleanup levels.
- Groundwater sampled from MW-2 and analyzed for total petroleum hydrocarbons in the diesel through heavy-oil range was found to contain concentrations of total petroleum hydrocarbons in excess of current WDOE Method A cleanup levels, however, the laboratory reports that the result for this test was "artificially" elevated due to relatively high residual concentrations of gasoline-range petroleum hydrocarbons in the sample.
- Analysis of groundwater sampled from MW-3 revealed that the sample contained no detectable concentrations of total petroleum hydrocarbons in the diesel through heavy oil range.

Based upon the findings of this study, as summarized above, it appears that shallow groundwater beneath the subject site surface in the vicinity of the down-gradient monitoring wells MW-2 and MW-3 has been, and continues to be affected by past releases of petroleum substances on the subject property. Comparison of these results with those of future periodic sampling events may provide the basis for future conclusions regarding overall stability of site conditions or possible decline in observed petroleum concentrations in groundwater over time.

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,
ENVIRONMENTAL ASSOCIATES, INC.



Don W. Spencer, M.Sc., P.G., R.E.A.
Principal


PRELIMINARY GROUNDWATER SAMPLING AND TESTING

**Pacific Color, Inc.
(Starbucks Site)
7100 East Green Lake Drive Northeast
Seattle, Washington**

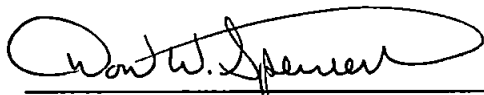
Prepared for:

**Mr. David Johansen
Pacific Color, Inc.
7101 Woodlawn Avenue Northwest
Seattle, Washington**

Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.


James R. Ruef
Environmental Geologist

Registered UST Site Assessor
Washington Department of Ecology


Don W. Spencer, M.Sc., P.G., R.E.A.
Principal

Registered Site Assessor/Licensed UST Supervisor
Washington Department of Ecology
State Certification # 949458636

License: W000010 (Washington)
License: 11464 (Oregon)
License: 876 (California)

Reference Job Number: JN 3071-4

March 11, 1996

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PROJECT DESCRIPTION

PROJECT BACKGROUND

In August and September of 1995, EAI, working in a collaborative effort with other environmental consultants, completed closure by removal of five underground storage tanks (USTs) along with excavation of contaminated soil (and off-site disposal) at the subject property located in Seattle, Washington. The approximate location of the site is shown on the Vicinity Map, Plate 1, appended herewith. Photographs depicting the site during drilling/well installation are included with this report as Plate 2, Site Photographs. The subject site and surrounding properties and streets are depicted on Plate 3, Site Plan. A total of approximately 1,300 cubic yards (1,975 tons) of petroleum-contaminated soil were over-excavated by Glacier Environmental Services, Inc. and, at the request of Mr. David Johansen of Pacific Color, Inc., the excavated soils were transported directly by truck to Regional Disposal Company's South Seattle Transfer Station, and were ultimately disposed of at the Roosevelt Regional Landfill in Roosevelt, Washington.

Following removal of the contaminated soils, soil sampled from excavation floor and sidewall areas and laboratory analyzed revealed that soils remaining in excavation floor areas contained petroleum-contaminant concentrations far below WDOE (MTCA Method A) cleanup levels, however several excavation sidewall soil samples contained petroleum-contaminant concentrations above current WDOE cleanup thresholds. The sidewall areas where petroleum contaminants were found to remain were specifically areas along the surrounding sidewalks and in close proximity to the Pacific Color building where excavation of soils was not practicable without compromising (possibly undermining) the integrity of the sidewalks/streets and building.

During cleanup of soils, a groundwater seep was observed flowing into the excavation at the interpreted up-gradient (northeast-to-east) corner of the excavation, and appeared to be perched atop a clay layer present in this area of the site at approximately 12 feet in depth. In an effort to evaluate groundwater quality at the site after the soil cleanup effort, the following scope of work was performed:

- Three soil borings were made at the site, and a groundwater monitoring well was installed in each of the three borings.
- Groundwater was sampled from each of the three monitoring wells.
- Groundwater samples were submitted to the project laboratory for testing to determine concentration levels of gasoline/BTEX, diesel, and oil-range petroleum products.

- Laboratory data was analyzed and a written report documenting methods and findings, along with conclusions and recommendations, was prepared.

MONITORING WELL INSTALLATION

Three (3) soil borings were made on December 29, 1995, at the locations shown on Plate 4, Site Exploration Map, as MW-1, MW-2, and MW-3. A B-61 truck-mounted drilling unit equipped with 4-inch inner diameter hollow stem augers was employed to accomplish the drilling of the borings. The EAI field sampling program followed directives as outlined in the following paragraphs.

Soil Sampling

The drilling/sampling technique consisted of advancing each boring with the auger string to the desired sampling depth. Next the split spoon sampler and connecting rods were lowered through the hollow-stem augers. The sampler and rods were then driven eighteen inches into native soils beyond the tip of the auger string using a 140 pound hammer in general accordance with ASTM procedure D-1586. The sampler was then withdrawn and the soil sample transferred to laboratory-prepared glassware with teflon-sealed lids.

During drilling and sampling, a field log was made by the field hydrogeologist for each boring. Information recorded versus corresponding depth on each log included soil type, (Unified Soil Classification System), color, texture, moisture characteristics, estimated relative density, plasticity, and other observable qualities. In addition, a portion of each sample was subjected to "head space" analysis using a Gastech GT201 volatile organic vapor detector to assess potential hydrocarbon vapor concentrations in soils. The results of head space analysis were recorded adjacent to the corresponding depth for each sample on the boring logs made in the field. Samples were stored in an iced chest maintained at or below 4 degrees centigrade during field sampling and transfer to the project laboratory in an effort to preserve sample integrity. Each sample was clearly identified with respect to boring number, sample depth, date, time, sampling personnel, etc. EPA-recommended sample management protocol, including maintenance of chain of custody documentation was observed at each step of the project.

Monitoring Well Construction

Monitoring well design and construction methods conformed to requirements and specifications outlined in Chapter 173-360 of the Washington Administrative Code (WAC). The well screen in each installation was positioned in an effort to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling of water/petroleum hydrocarbons at any time during the year. The annulus of each well casing was packed with sand to two feet above the well screen; a bentonite seal was placed above the sand

and carried to within one foot of the ground surface to prevent infiltration of surface contamination along the well casing. A non-shrinking cement grout was used to stabilize the upper section of each well. A flush-mounted steel protective monument with provisions for limiting access to each wellhead was also provided (see Plate 8, Typical Well Design).

GROUNDWATER SAMPLING

Prior to sampling, a hand bailer was used to develop each well, and well-purging by removing at least three (3) well volumes of water was performed. This procedure was followed to assure that samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following development and purging of each well, a sterilized PTFE (teflon) bailer was used to extract groundwater samples from each well. Samples were carefully poured into preconditioned and preserved, labeled glassware (VOA vials with teflon septa and glass amber jars with teflon lined lids) furnished by the project laboratory. After sampling, sample jars were placed in zip-lock plastic bags, stored in an iced chest at or below 4 degrees centigrade, and transported to the project laboratory in this condition in an effort to preserve sample integrity. EPA recommended sample management protocol, including maintenance of chain-of-custody records, was observed at all times throughout the project.

Water-Table Survey

Information regarding direction of groundwater and hydraulic gradients is frequently useful in applications such as risk assessment or evaluation of possible alternative sources for water-borne contaminants. In an effort to determine relative water levels in each well, our field hydrogeologic staff used the following procedure:

- A self-leveling builders level was used to determine the relative elevation of the top of each steel well-head monument to an accuracy of 0.01 foot, a standard specified for such work by the U.S. Geological Survey. The assumed temporary survey datum was the top of the MW-1 well casing. This location was assumed to have an elevation of 175.00 feet.
- An electronic water-level indicator was used to determine the groundwater level to an accuracy of 0.01 foot from the top of the steel well-head monument at each well. By subtraction of the depth to water from the elevation of the top of the casing, the elevation of the water table in each well was determined.

- Through interpolation of plotted relative water-table elevations for each well on a scale map, approximate contours of equal elevation on the water table were obtained. As groundwater is known to flow from areas of higher potential toward areas of lower potential along lines "normal" (right angles) to such contours, the direction of flow and approximate gradient was inferred.

Results of our precision water-table survey are presented in the table below.

WATER-TABLE SURVEY DATA January 2, 1996			
WELL NUMBER	Elevation of Top of PVC Well Casing	Depth To Groundwater (below top of casing)	Water Table Elevation
MW-1	175.00 ft.	9.24 ft.	165.76 ft.
MW-2	169.75 ft.	4.61 ft.	165.14 ft.
MW-3	171.64 ft.	6.23 ft.	165.41 ft.
NOTE: Reference point for depth measurements was the top outer edge of each steel well-head monument.			

Based upon the results of our water-table survey, it appears that groundwater flow is generally from the east-northeast toward the west-southwest.

LABORATORY ANALYSIS

As laboratory testing performed on soil samples during our cleanup effort indicated the presence of gasoline, diesel, and oil-range petroleum contaminants only, laboratory analysis of groundwater samples was performed using gas chromatography by method WTPH-Gas/BTEX for gasoline-range petroleum hydrocarbons and associated benzene, toluene, ethyl benzene, and total xylenes, and by WTPH-Diesel Extended for total petroleum hydrocarbons in the diesel through heavy oil petroleum hydrocarbon range (C7 through C34).

RESULTS

GROUNDWATER TESTING

Results of laboratory testing of groundwater samples are summarized in the following table.

GROUNDWATER ANALYSIS ¹						
Sample Location	WTPH-Gas	Benzene	Toluene	Ethyl Benzene	Total Xylenes	WTPH-Diesel Extended (C7 through C34)
MW-1	ND ²	ND	ND	ND	3.2	ND
MW-2	13,000	120	268	410	860	2,700
MW-3	3,000	93	48	27	78	ND
Method Detection Limit	100	1.0	1.0	1.0	1.0	500
WDOE Cleanup Level ³	1,000	5	40	30	20	1,000
Notes: 1 - All results, limits and guidelines given in parts per billion (ppb). 2 - ND denotes analyte not detected at stated detection limit. 3 - Current Method A cleanup levels for groundwater published in the Model Toxics Control Act (MTCA), Chapter 173-340-720 WAC. 4 - Shading indicates concentration exceeds WDOE Method A cleanup levels.						

As discussed in the cover letter, results of laboratory testing, as summarized in the table above, clearly reveal that groundwater beneath the site in the vicinity of monitoring well MW-1 (up-gradient) contained no detectable concentrations of petroleum contaminants (as well as gasoline-associated BTEX constituents) in excess of current WDOE Method A groundwater cleanup levels.

Groundwater sampled from MW-2 and MW-3 and laboratory analyzed was found to contain concentrations of gasoline range petroleum hydrocarbons and BTEX constituents in excess of current WDOE Method A cleanup thresholds. MW-2 groundwater was also found to contain concentrations of diesel-range petroleum hydrocarbons exceeding the WDOE Method A cleanup level, however, the concentration reported by the project laboratory may be artificially high, due to the presence of a relatively high concentration of gasoline-range petroleum hydrocarbons causing interference in the sample analysis method.

CONCLUSIONS/RECOMMENDATIONS

Based upon results of sampling and laboratory testing, it appears that groundwater beneath the down-gradient margins of the subject site in the areas explored (MW-2 and MW-3) has been affected by past on-site releases of gasoline and diesel-range petroleum hydrocarbons, along with gasoline-associated BTEX constituents benzene, toluene, ethyl benzene, and total xylenes.

It may be reasonable to conclude that, as the primary and the majority of the secondary sources of on-site contaminants (tanks and affected soil) have been removed, future improvement of groundwater quality might be anticipated in response to various natural processes including chemical "weathering" of hydrocarbons (decomposition), biological/microbial degradation of hydrocarbons, and hydrodynamic dispersion (i.e., normal groundwater flow).

To provide a basis for conclusions regarding groundwater at this property, at a minimum it would be our recommendation that quarterly sampling and laboratory analysis of water samples be conducted in the existing monitoring well array for a period of possibly one year. The results of that testing combined with the work summarized in this report would then permit the owner to draw defensible conclusions regarding overall stability of groundwater quality at this site. The results of such testing should, of course, be provided to the WDOE for inclusion in their files.

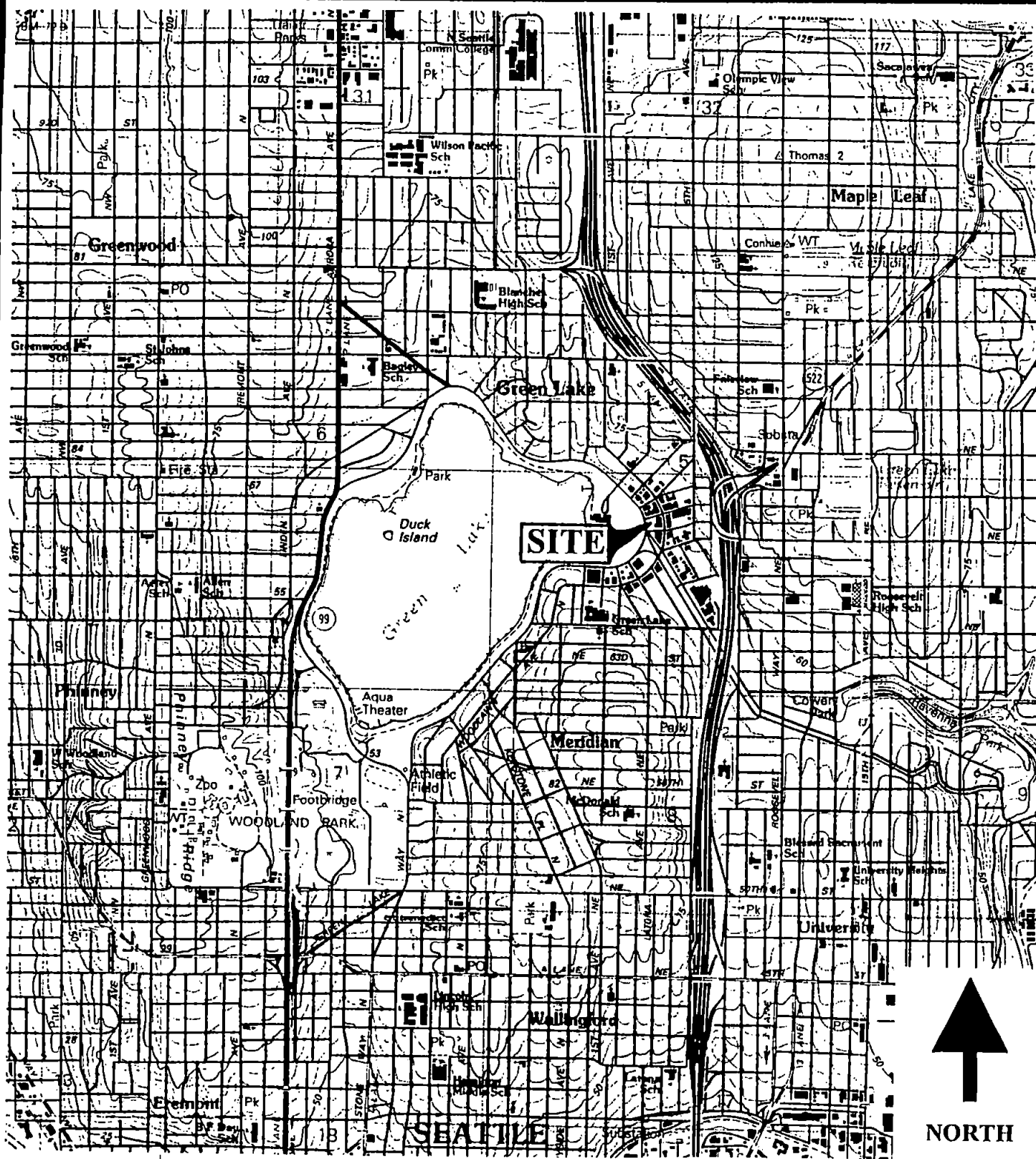
Finally, to achieve full regulatory compliance under the Model Toxics Control Act (MTCA), Chapter 173-340-300, paragraphs (2) and (4), it is our recommendation that the findings of this study be shared with the Washington Department of Ecology (WDOE), Northwest Regional Office, within 90 days.

LIMITATIONS

This report has been prepared for the exclusive use of Pacific Color, Inc. and their several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated December 21, 1995. No other warranty, expressed or implied, is made. If new information is developed in future site work which may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.

REFERENCES

Environmental Associates, Inc., 1995, Tank Closure/Site Characterization and Cleanup Report, Pacific Color, Inc. Property, 7100 East Green Lake Drive Northeast, Seattle, Washington, 21 pages, 3 tables, 8 plates, 3 appendices.



ENVIRONMENTAL ASSOCIATES, INC.

2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

VICINITY MAP

Pacific Color Property
7100 E. Green Lake Dr. NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

Mar. 1996

Plate:

1



View looking northeast across East Green Lake Drive NE during drilling of Boring B-2/MW-2.



View looking northwest across NE 71st Street during drilling of Boring B-3/MW-3.



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2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

SITE PHOTOGRAPHS

**Pacific Color Property
7100 E. Green Lake Dr. NE
Seattle, Washington**

Job Number:

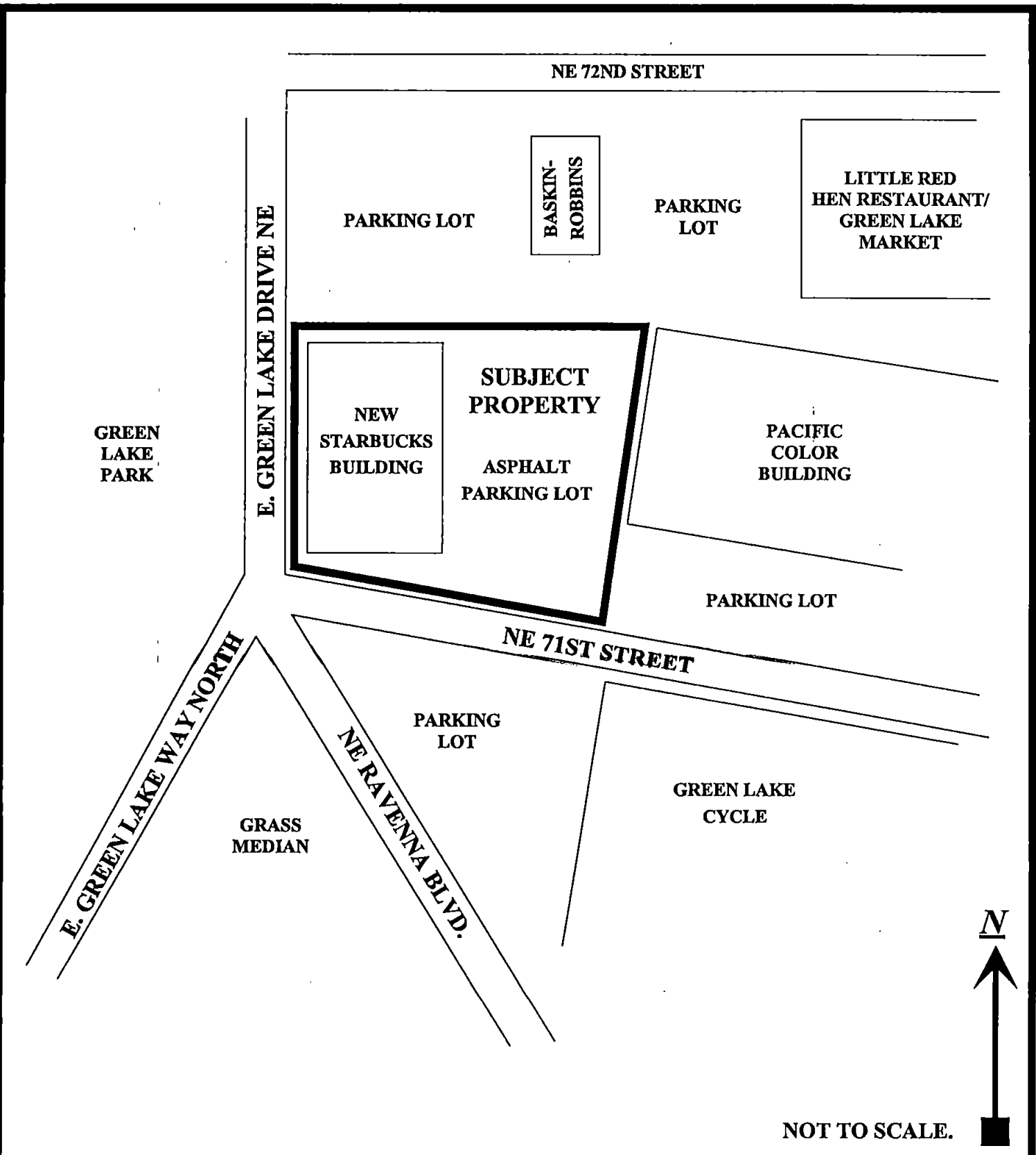
JN 3071-4

Date:

Mar. 1996

Plate:

2



**ENVIRONMENTAL
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2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

SITE PLAN

Pacific Color Property
7100 East Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

Mar. 1996

Plate:

3

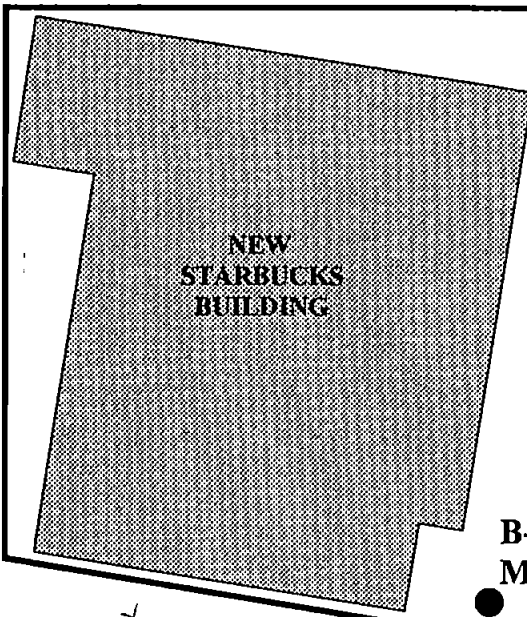
BASKIN-ROBBINS PARKING LOT



E. GREEN LAKE DRIVE NE

SIDEWALK

B-2/
MW-2



NEW
STARBUCKS
BUILDING

ASPHALT
PARKING LOT

B-3/
MW-3

SIDEWALK

PACIFIC
COLOR
BUILDING

PARKING LOT

NORTHEAST 71ST STREET



= Interpreted flow direction of shallow-seated groundwater.

B-1/
MW-1

= Approximate location of soil boring/monitoring well installed by EAI on 12-29-95.



SCALE: 1 inch =
approx. 20 feet.



**ENVIRONMENTAL
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2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

SITE EXPLORATION MAP

Pacific Color Property
7100 East Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4


Date:

Mar. 1996

Plate:

4

BORING B-1 (MW-1)

Depth/ Sample	Well Const.	Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0					Surface - bare soil (landscaped area)	
1	BLANK		12	FL	FILL - Gravelly Sand, brown, moist, medium dense.	0
5			16		FILL - Gravelly Sand, brown, moist, medium dense.	0
2	SLOTTED					
10			27	SW	Sand, fine-to-coarse grained, brown, wet, medium dense.	0
3						
15			39	CL	Clay with some sand, gray, very moist-to-wet, hard, medium plasticity.	0
4						

- * Boring terminated at 17.5 feet on December 29, 1995.
- * Monitoring well installed: 10 feet screen (0.020 slotted 2 inch PVC), 7 feet blank 2 inch PVC.
- * Depth to water below top of monument = 9.24 ft. on January 3, 1996.
- * HC headspace analysis measured using Gastech volatile organic gas monitor.



**ENVIRONMENTAL
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2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

TEST BORING LOG

Pacific Color Property
7100 E. Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

Mar. 1996

Logged by:

JRR

Plate:

5

BORING B-2 (MW-2)

Depth/ Sample	Well Const.	Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0					Surface - 5"-thick concrete sidewalk	
1	BLANK		5	FL	FILL - Silty Sand, dark gray, moist, medium dense, petroleum odors.	60
2	SLOTTED		2	CL	Clay, gray, wet, soft, medium plasticity, petroleum odors..	680
3			20	ML	Sandy-Gravelly-Silt, gray, wet, very stiff.	260

- * Boring terminated at 14 feet on December 29, 1995.
- * Monitoring well installed: 10 feet screen (0.020 slotted 2 inch PVC), 4 feet blank 2 inch PVC.
- * Depth to water below top of monument = 4.61 ft. on January 3, 1996.
- * HC headspace analysis measured using Gastech volatile organic gas monitor.



**ENVIRONMENTAL
ASSOCIATES, INC.**

2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

TEST BORING LOG

Pacific Color Property
7100 E. Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

Mar. 1996

Logged by:

JRR

Plate:

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BORING B-3 (MW-3)

Depth/ Sample	Well Const.	Water Table	Blows/ Foot	USCS	DESCRIPTION	H.C. Head-space Analysis (ppm)
0					Surface - 5"-thick concrete sidewalk	
1	BLANK		3	FL	FILL - Silty Sand, dark gray, moist, medium dense, petroleum odors.	60
5						
2	SLOTTED		18	ML	Sandy Silt, dark gray, wet, very stiff, petroleum odors..	160
10						
3			7	ML	Sandy-Silt, gray, very moist-to-wet, medium stiff.	0

- * Boring terminated at 14 feet on December 29, 1995.
- * Monitoring well installed: 10 feet screen (0.020 slotted 2 inch PVC), 4 feet blank 2 inch PVC.
- * Depth to water below top of monument = 6.23 ft. on January 3, 1996.
- * HC headspace analysis measured using Gastech volatile organic gas monitor.



**ENVIRONMENTAL
ASSOCIATES, INC.**

2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

TEST BORING LOG

Pacific Color Property
7100 E. Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

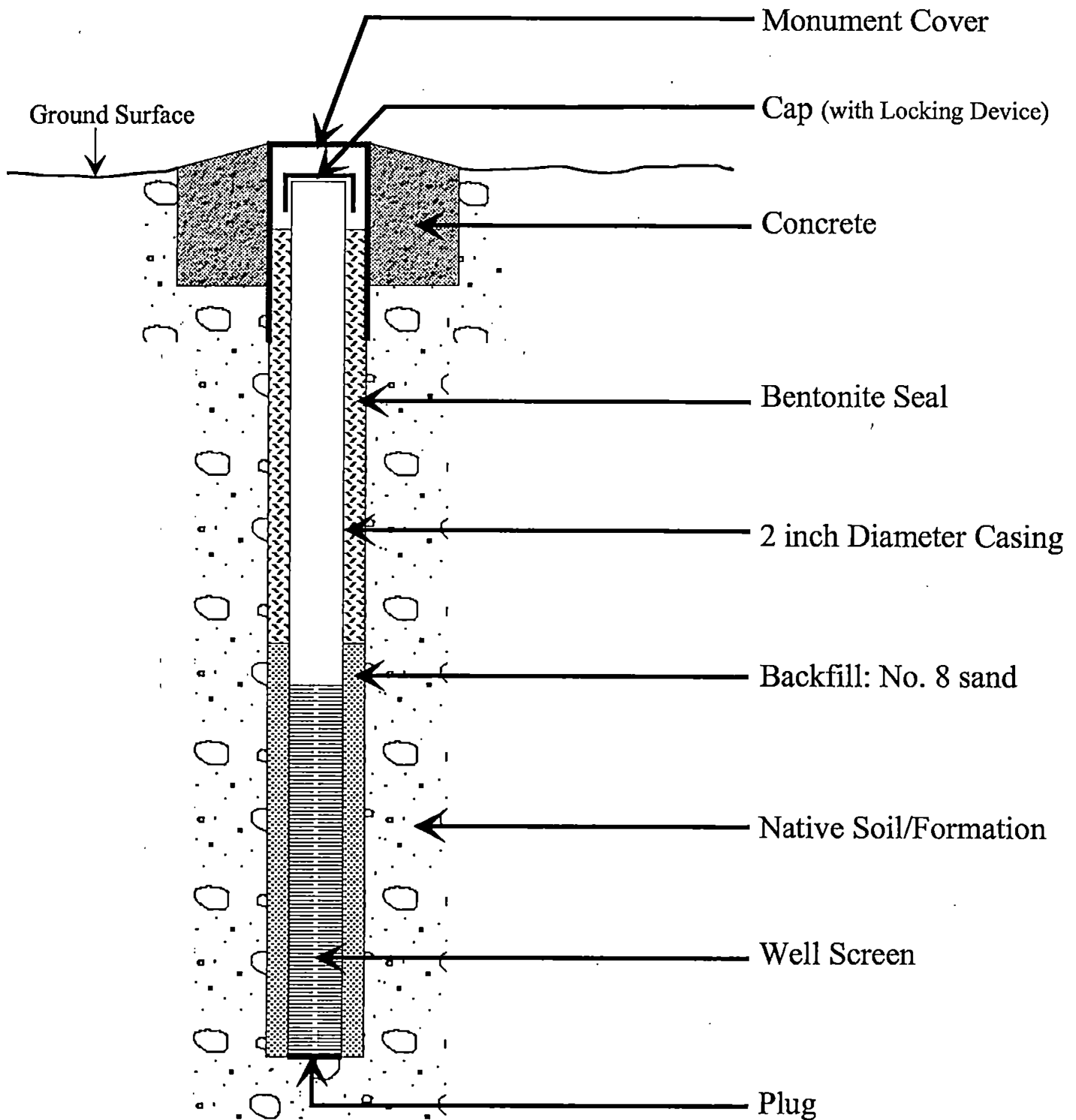
Mar. 1996

Logged by:

JRR

Plate:

7



NOTE: NOT TO SCALE.



**ENVIRONMENTAL
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2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

Typical Well Installation Design

Pacific Color Property
7100 E. Green Lake Drive NE
Seattle, Washington

Job Number:

JN 3071-4

Date:

Mar. 1996

Plate:

8

APPENDIX A
LABORATORY REPORTS



January 4, 1996

Jim Ruef
Environmental Associates, Inc.
2227 112th Avenue NE, Suite 120
Bellevue, WA 98004

Re: Analytical Data for Project JN 3071-4.
Laboratory Reference No. 9601-005

Dear Jim:

Enclosed are the results of the analyses, and associated quality control data, of samples submitted on January 2, 1996.

The standard policy of OnSite Environmental Inc., is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Wendy Linn McLeod".

Wendy Linn McLeod
Project Chemist

Enclosures

Date of Report: January 4, 1996
 Samples Submitted: January 2, 1996
 Lab Traveler: 01-005
 Project: JN 3071-4

EPA 602 & WTPH-G

Date Extracted: 1-2-96

Date Analyzed: 1-2-96

Matrix: Water

Units: ug/L (ppb)

Lab ID	01-005-1	01-005-2	01-005-3	
Client ID	MW-1	MW-2	MW-3	Method PQL
Dilution Factor	1	10	10	
Benzene	ND	120	93	1.00
Toluene	ND	260	48	1.00
Ethyl Benzene	ND	410	27	1.00
m,p-Xylene	3.2	610	57	1.00
o-Xylene	ND	250	21	1.00
TPH-Gas	ND	13000	3000	100
4-BFB				
Surrogate Recovery	71%	89%	74%	

Note: Sample PQL(practical quantitation limit)= Method PQL x dilution factor

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

**EPA 602 & WTPH-G
QUALITY CONTROL**

Date Extracted: 1-2-96
Date Analyzed: 1-2-96

Matrix: Water
Units: ug/L (ppb)

Lab ID MB0102W1

Blank

Dilution Factor 1

Benzene ND

Toluene ND

Ethyl Benzene ND

m,p-Xylene ND

o-Xylene ND

TPH-Gas ND

4-BFB

Surrogate Recovery 81%

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

**EPA 602 & WTPH-G
QUALITY CONTROL**

Date Extracted: 12-26-95
Date Analyzed: 12-26-95

Matrix: Water
Units: ug/L (ppb)

Lab ID	12-093-8	12-093-8	
	Original	Duplicate	RPD
Dilution Factor	1	1	
Benzene	1.7	1.7	NA
Toluene	2.0	1.9	NA
Ethyl Benzene	ND	ND	NA
m,p-Xylene	ND	ND	NA
o-Xylene	ND	ND	NA
TPH-Gas	ND	ND	NA
4-BFB			
Surrogate Recovery	84%	87%	

Date of Report: January 4, 1996
 Samples Submitted: January 2, 1996
 Lab Traveler: 01-005
 Project: JN 3071-4

**EPA 602 & WTPH-G
 QUALITY CONTROL**

Date Extracted: 12-26-95
 Date Analyzed: 12-26-95

Matrix: Water
 Units: ug/L (ppb)

Lab ID	12-093-8		12-093-8		
spiked @ 50 ppb	MS	Percent	MSD	Percent	
Dilution Factor	1	Recovery	1	Recovery	RPD
Benzene	47.0	91%	49.1	95%	4.6
Toluene	48.3	93%	50.3	97%	4.3
Ethyl Benzene	46.4	93%	48.1	96%	3.6
m,p-Xylene	47.2	94%	49.1	98%	4.1
o-Xylene	46.7	94%	48.9	98%	4.5
4-BFB					
Surrogate Recovery	88%		95%		

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

WTPH-D

Date Extracted: 1-02-96

Date Analyzed: 1-02-96

Matrix: Water

Units: mg/L (ppm)

Client ID	Lab ID	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
MW-1	01-005-1	0.02	ND	72%	L	0.50
MW-2	01-005-2	0.02	2.7	65%	L,M	0.50
MW-3	01-005-3	0.02	ND	78%	L	0.50

L-Quantitated from C7-C34 as diesel fuel #2.

M-Predominantly gas range hydrocarbons present in the sample.

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

WTPH-D
METHOD BLANK QUALITY CONTROL

Date Extracted: 1-02-96
Date Analyzed: 1-02-96

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB0102W1

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
Method Blank	0.02	ND	68%		0.50

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

WTPH-D
DUPLICATE QUALITY CONTROL

Date Extracted: 12-22-95
Date Analyzed: 12-22-95

Matrix: Water
Units: mg/L (ppm)

Lab ID: 12-089-1

	Dilution Factor	Total Petroleum Hydrocarbons	Surrogate Recovery	Flags	MRL
Sample	0.02	ND	78%		0.50
Duplicate	0.02	ND	84%		0.50
RPD		NA			

Date of Report: January 4, 1996
Samples Submitted: January 2, 1996
Lab Traveler: 01-005
Project: JN 3071-4

WTPH-D
SPIKE BLANK QUALITY CONTROL

Date Extracted: 1-02-96
Date Analyzed: 1-02-96

Matrix: Water
Units: mg/L (ppm)

Lab ID: SB0102W1

	Dilution Factor	Total Petroleum Hydrocarbons	Percent Recovery	Surrogate Recovery	Flags	MRL
Spike @ 2 ppm	0.02	1.71	85%	86%		0.50



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Cham Co. Customs

Company:	Environmental Assoc's., Inc. (EAI)
Project No:	JN 3071-4
Project Name:	Green Lake
Project Manager:	Jim RUEF

[illegible]

RELINQUISHED BY <i>James Ruff</i>	DATE <i>1-2-96</i>	RECEIVED BY <i>W. J. Peterson</i>	DATE <i>1-2-96</i>
FIRM <i>EAI</i>	TIME <i>1400</i>	FIRM <i>JS.</i>	TIME <i>1400</i>
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS: