Subsurface Investigation
&
Soil Remediation Report

Prepared for:

Everett Cleaners
Mr. Chong Lee
1130 North Broadway
Everett, Washington

Date:

December 30, 1999

Prepared By:

Assessment and Remediation Consulting Services (ARCS)
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Eric K. Chapman, CHMM
Principal / Environmental Scientist

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EXECUTIVE SUMMARY

This report documents the investigation activities and subsequent treatment conducted at Everett Cleaners in Everett, Washington. Assessment and Remediation Consulting Services (ARCS) conducted this work on behalf of the property owner, Mr. Chong Lee.

A dry cleaning business was formerly operated at this site from 1979 through 1998. During a previous investigation of the site (Wolfe 1998), soil samples, collected beneath the floor near the dry cleaning machines, were found to contain concentrations of dry cleaning chemicals. ARCS conducted additional investigation activities in June 1999 and verified the presence of dry cleaning chemicals at relatively high concentrations, in a limited area, near two former floor drains located adjacent to the dry cleaning machines.

In-place (in-situ) treatment of the contamination was selected as a cleanup alternative because of the location of the impacted soils and the limited migration of the contaminants. Oxygen Release Compound© (ORC) was injected through borings into subsurface soils around the release area. One hundred and fifty pounds of ORC were applied at the site in June 1999. An additional thirty pounds of ORC were applied in October 1999.

Analytical results of samples collected in October 1999 indicate that contaminant concentrations are decreasing, but still exceed Ecology cleanup levels. However, the material does not appear to pose an imminent threat to human health or the environment because it is located beneath a building and is not in contact with ground water or surface water.

1.0 INTRODUCTION

This report documents subsurface investigation and soil remediation activities conducted by ARCS at Everett Cleaners in Everett, WA. Presented in this report is a description of the methods used collect subsurface soil samples, remediation approach, a summary of laboratory analytical results, and conclusions and recommendations. Included as attachments to this report are site diagrams, ORC information, photographs, and laboratory data sheets.

1.1 Site Information

The subject site is Everett Cleaners, 1130 North Broadway in Everett, Washington (see Vicinity Map). This facility currently operates a self-service laundromat and pressing/tailoring shop. Dry cleaning is not currently conducted at the facility. The site contact and property owner is Mr. Chong Lee, (206) 762-8096.

The site is located in the north section of Everett, on a plateau that rises approximately 150 feet above the Snohomish River and Port Gardener. The surrounding topography is relatively flat, with a slight slope to the north/northeast. Bordering the site is a motel

(north), 12th Street and a restaurant parking area (south), Broadway (east), paved alley and residential properties (west).

The site is improved with a single building (approximately 5,000 SF) which houses the laundromat, pressing shop and vacant space (see Site Diagram). An asphalt-covered parking area is located on the east side of the building. The local municipality provides water and sewer services for the building.

Two dry cleaning machines were formerly located in the northwest portion of the building. The machines were operated from 1979 through the spring of 1999. Dry cleaning solvents with tetrachloroethene (PCE or "Perk") were reportedly used in the machines. The current owner, Mr. Lee, and former owners, Mr. & Mrs. Ziebel reported no known releases of PCE.

1.2 Qualifications of Environmental Professional

Eric Chapman of ARCS conducted the site investigation and remediation activities and prepared this report. Mr. Chapman has over nine years of experience as an environmental consultant in the Puget Sound area. He is also the founder and President of ARCS. Additional qualifications are available upon request.

1.3 Previous Investigation Activities

A limited Phase II investigation was conducted at this property by Wolfe Environmental Consulting, Inc. in November 1998. (Wolfe 1998). A copy of Wolfe's report is included as an attachment. The scope of work included advancing three borings in the dry cleaning room and analyzing the samples for volatile organic compounds.

The findings of the investigation indicated the presence of dry cleaning solvents in soil samples collected from borings advanced near the dry cleaning machines. The borings terminated at two feet below ground surface and no additional information regarding the extent of the release was presented.

2.0 FIELD ACTIVITIES

2.1 Investigation Activities

ARCS arrived at the site on June 2, 1999 to conduct investigation and remediation activities. Island Concrete was retained to cut openings in the floor in the dry cleaning room. The openings were used to access soils near the floor drains where the release is believed to originate.

TEG Northwest was retained to advance soil borings outside of the building and in the former dry cleaning room. Borings advanced outside of the building were completed by a Strataprobe rig that uses direct-push techniques to advance a steel sampling probe

into subsurface soils. The interior borings were advanced using a roto-hammer that drives a probe similar to that used on the Strataprobe.

Following the completion of each soil boring, the sampler and all steel rods used for the boring were decontaminated using a solution of Alconox™ and water, followed by a thorough rinse with clean water. After sampling, the exterior temporary borings were filled with bentonite chips and topped with cold patch asphalt.

Soil borings were advanced at two locations outside of the building (B1 and B2) and three locations inside the building (B3 through B5), as indicated on the Site Diagram. Borings B1and B2 were advanced to 9 feet bsg and borings B3 through B5 were advanced to 7 feet bsg. Soils encountered in the borings were characterized as fill (loose sandy gravel) changing to moist dark brown clayey silt (native). Logs for each boring are presented in Attachment B.

At each location, soil samples were recovered from selected intervals of the boring. A portion of each sample interval was placed into a plastic bag for headspace screening and characterization. The remainder of the sample was placed into a laboratory-supplied glass container, labeled, and then placed in an ice-filled cooler. Laboratory analytical methods and results are discussed in a separate section of this report.

Headspace measurements of organic vapors in soil were recorded using a Photovac Microtip™ photo ionization detector (PID) calibrated to an isobutylene standard. The samples previously placed in plastic bags were allowed to warm for 10 to 15 minutes, and then the PID probe was inserted into the air space above the soil to measure the concentration of accumulated vapors. PID readings and soil characteristics were recorded on a field log and are presented on the boring logs.

Odors and elevated PID measurements were observed in soils recovered from borings B3 and B4 advanced near the two floor drains. None of the soils recovered from the other borings exhibited visual or olfactory indications of contamination or elevated PID measurements.

2.2 Sample Collection Procedures

Soil samples were collected from selected intervals of each boring during the phase II investigation and submitted for laboratory analysis. Each sample was collected directly from the Strataprobe or roto-hammer sampling device and placed into laboratory-supplied glass containers.

Discreet soil samples were collected from borings B1, B2, B3 and B5. Samples from boring B4 were not submitted for analysis due to poor recovery. Boring locations are indicated on the Site Diagram. Additional samples were collected in the location of boring B3 in July and September 1999. The additional samples were collected using a hand auger. Laboratory analytical methods and results are presented in Section 3.0.

2.3 Soil Remediation Activities

Based on the results of ARCS' phase II investigation, soil remediation activities were initiated on June 2, 1999. A material known as Oxygen Release Compound© (ORC) was injected through the soil borings inside the building. Additional information about the ORC is included in Attachment C.

The ORC material was mixed with water to form slurry and then poured into borings B3, B4 and B5. One hundred and fifty pounds of ORC was applied during the initial treatment. The slurry was allowed to infiltrate into the surrounding soil and then the borings were filled with the previously removed soil.

An additional ORC treatment was applied on October 13, 1999. Thirty pounds of ORC was applied to the area around the former floor drains. This time, all soils in the trench were removed to a depth of 5 feet bsg. The ORC slurry was then placed into the trench and soil was added in lifts until all of the ORC was used. The concrete slabs were replaced and the building was returned to pre-construction condition.

3.0 LABORATORY ANALYTICAL METHODS AND RESULTS

3.1 Laboratory Analytical Methods

Soil samples were transported in an ice-filled cooler under standard chain-of-custody protocol to TEG Northwest laboratories in Bellevue, Washington. Samples were analyzed for volatile organic compounds by EPA Method 8021B. Analytical results are summarized in the following section. Laboratory data sheets and chain-of-custody documentation are presented in Attachment E.

3.2 Analytical Results

Analytical results of the soil samples collected during the phase II investigation and remediation activities are summarized in Table 1.

Table 1
Soil Analytical Results – Everett Cleaners

Sample ID	Date	Detected Analytes (mg/kg)			
		1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	Xylenes
EC-B1-9	6/4/99	Nd[2]	nd	nd	nd
EC-B2-6	6/4/99	Nd	nd	nd	nd
EC-B5-6.5	6/4/99	Nd	.081	3.3	nd
EC-B3-6.5	6/4/99	300	1.8	2,400	0.13
EC-B3-5	7/26/99	Nd	76	26	nd
EC-B3-6	9/15/99	Nd	nd	1,400	nd
[redacted]					
Ecology Cleanup Level[1]		not listed[3]	0.5	0.5	20

Notes:
1 Model Toxics Control Act Method A Soil Cleanup Levels (Chapter 173-340-740(2)(a)(i) WAC).
2 nd = not detected at or above the laboratory method detection limits.
3 No cleanup level is listed for this compound in the Method A table.

The analytical results indicate that PCE is still present in soils beneath the building, at concentrations that greatly exceed the MTCA Method A soil cleanup levels. TCE, a degradation product of PCE, is also present at concentrations that exceed the MTCA Method A soil cleanup levels. Soils samples collected form boring advanced outside of the building (B1 and B2) did not contain detectable concentrations of target analytes.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This report documents the investigation activities and subsequent treatment conducted at a former dry cleaning business in Everett, Washington. Initial investigations conducted by others at the property identified the presence of dry cleaning chemicals in soiis beneath the former dry cleaning room. ARCS verified the presence of dry cleaning chemicals in borings advanced near two floor drains in the dry cleaning room. Concentrations of the dry cleaning chemicals decreased in a boring advanced east of the drains. Dry cleaning chemicals were not detected in borings advanced outside of the building, west of the dry cleaning room.

Based on the analysis of samples collected after the initial ORC treatment, the concentration of PCE has decreased by approximately 50%. However, the concentrations of PCE are still far above the Ecology Method A cleanup levels. We do not feel that this material poses a risk to human health of the environment for the following reasons:

- Ground water was not present in any of the boring completed at the site, and is reported to be more than 20 feet bsg in the surrounding area.

- The area surrounding the site is covered with impervious material (asphalt, concrete, buildings, etc.), reducing the infiltration of surface water around the contaminant area.

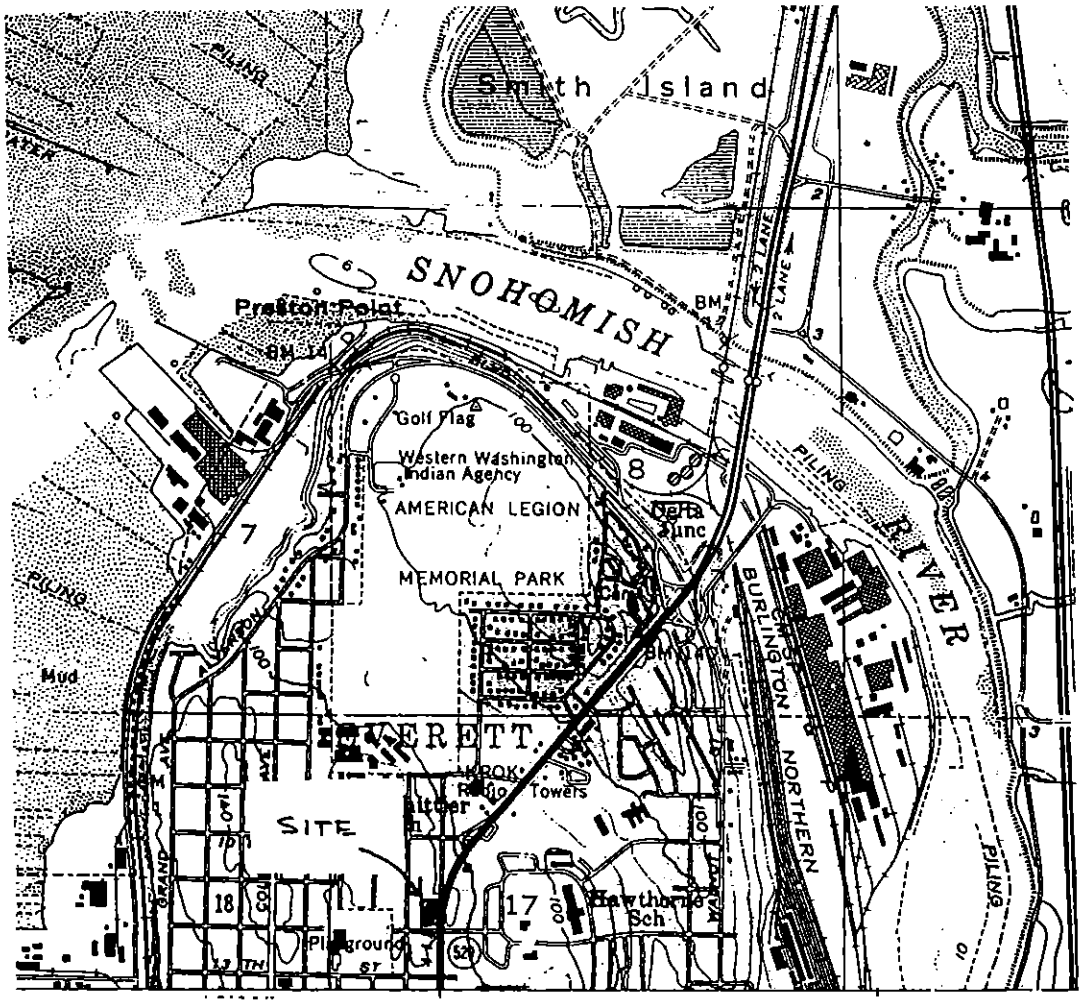
- Soils encountered in the borings were characterized as compact sandy silt (till). The borings completed inside the building were refused at 7 feet bsg due to the hard nature of the native soils. This material will likely inhibit the migration of contaminants.

It is our recommendations that the area be sampled in approximately 6 to 12 months to monitor the progress of the ORC and determine if additional treatment is necessary.

This release is regulated by the Department of Ecology under the Model Toxics Control Act (MTCA) (Chapter 173-340 WAC). In accordance with MTCA, owner or operators of properties with a release of hazardous materials are required to report the release with 90 days. A copy of this report should be submitted to Ecology's Northwest Regional Office.

5.0 STANDARD LIMITATIONS

The work completed by ARCS in support of this project was conducted in accordance with professional standards applicable in the industry today. ARCS is not responsible for the methods or means utilized by the site owner or contractor, and we assume no liability for existing conditions at the site. There is always the possibility of differing conditions outside of the areas investigated. The conclusions made in this report are based on the data collected at the time of the UST closures. This information should not be construed as legal advice.



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Date: December 15, 1999

Assessment and Remediation
Consulting Services

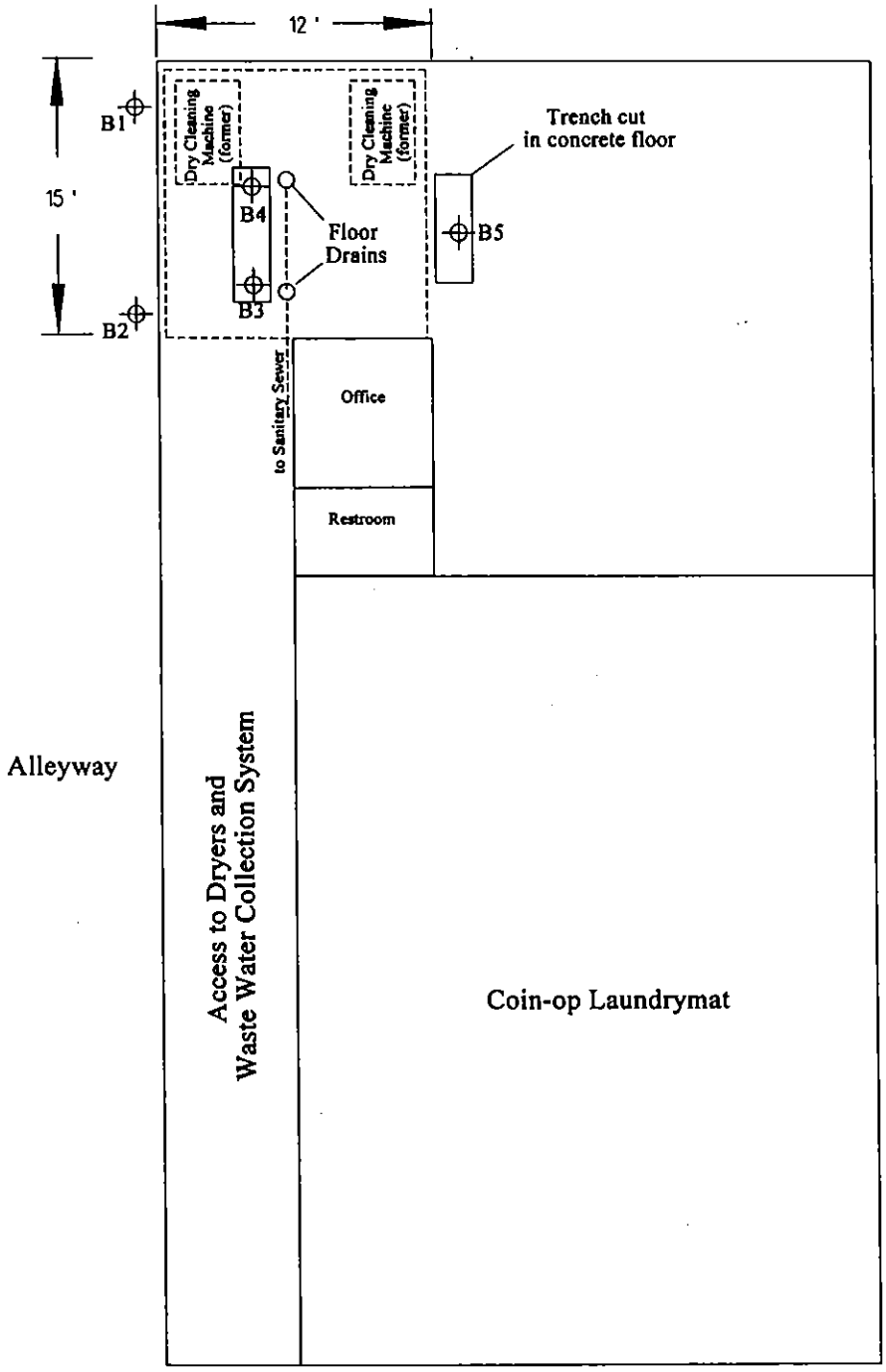
Vicinity Map

Everett Cleaners
1130 North Broadway
Everett, Washington

Source:

USGS 7.5 Minute Series
Topographic Map

Marysville, WA
1956 (Revised 1968 and 1973)



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Date: June 2, 1999

Assessment and Remediation Consulting Services (ARCS)

Site Diagram

Everett Cleaners
1130 North Broadway
Everett, Washington

ARCS Project No: 99-32

Legend:

B1 Soil sampling location

~ Not drawn to scale ~

ATTACHMENT A

WOLFE ENVIRONMENTAL CONSULTING, INC.

19729 43RD AVENUE SE

BOTHELL, WA 98012

TEL/FAX: (425) 483-6909

CELLULAR: (206) 769-7409

E-MAIL: JENNWOLFE@JUNO.COM

December 7, 1998
Project No. WECI-98012

Fortune Company
5936 6th Avenue South
Seattle, Washington 98108

Attention: Mr. Chong Lee

Subject: Limited Phase II Environmental Assessment
Everett Dry Cleaner & Laundry
1130 North Broadway
Everett, Washington

Dear Mr. Lee:

Wolfe Environmental Consulting, Inc (WECI) is pleased to present the results of our Limited Phase II Environmental Site Assessment for the above-referenced property. Authorization to render these services was provided by you in the form of a signed proposal dated November 23, 1998 (proposal number WECI-P98005). This report presents the findings of our limited subsurface exploration program, which included obtaining and analyzing subsurface soil samples collected from two test holes advanced beneath the dry cleaning room in the building on the subject property.

INTRODUCTION AND SCOPE OF SERVICES

The purpose of this investigation was to characterize the soil beneath a portion of the building on the subject property with regard to the possible presence of volatile organics.

The scope of work for this project consisted of:

- Coring through the foundation of the building and advancing two post-hole excavated test holes into the soil beneath the dry cleaning room in the building;
- Collecting three soil samples from each test hole at depths ranging from 14 inches to nearly 2.5 feet below the floor level;
- Submitting the soil samples to a certified laboratory for analysis of volatile organics by EPA method 8260;
- Preparation of this Limited Phase II Environmental Site Assessment Report.

This report has been prepared in accordance with generally accepted environmental assessment practices, for the exclusive use of the Fortune Company and their agents, for specific application to the subject property. No other warranty, express or implied, is made. In the event that there are any changes on the existing

property or nearby properties, the conclusions and recommendations contained in this report should be reviewed by our office.

SUBJECT PROPERTY BACKGROUND

The subject property consists of a single-story laundromat and dry cleaning facility located at 1130 North Broadway in Everett, Snohomish County, Washington. The property is located in a commercial neighborhood and is bordered by a motel to the north; 12th Street to the south, beyond which is a restaurant; an asphalt-paved alley to the west, beyond which are residential properties; and North Broadway to the east, beyond which is a motel.

The building on the subject property covers a footprint area of approximately 5,000 square feet. The remainder of the property is paved with asphalt, which provides customer parking along the east side of the building. The subject property and surrounding area are relatively flat. Due to the topography of the area, it is possible that near-surface groundwater may flow to the north or east toward the Snohomish River or to the west toward Possession Sound[1]. Depth?

Previous Studies

In November 1998, Northwest HydroGeo Consultants completed an *Environmental Site Assessment, Phase I* report for the subject property (November 5, 1998). Based on the results of that study, it was concluded that the subject property is classified as a Conditionally Exempt Small Quantity Generator of hazardous waste, and that hazardous wastes (dry cleaning solvents) are picked up regularly by a licensed hazardous waste contractor. Furthermore, the report concluded that the hazardous waste materials were being properly handled and stored on the subject property, and management practices at the dry cleaning facility were good. Based on observations made by Northwest HydroGeo Consultants, no further environmental investigation was recommended in their report. However, as part of due diligence for this property transaction, WECI was hired to sample and analyze the soil beneath the building.

SUBSURFACE EXPLORATION AND CONDITIONS

The exploration program consisted of observing as Cascade Concrete Sawing and Drilling cored through the concrete foundation in two locations within the dry cleaning room in the building. The criterion used for choosing the location of the test holes was based on finding easily accessible areas, which would, in our opinion, be most likely to exhibit potential indications of impacted soil in the event of spills or releases in the room. The two test holes were advanced in close proximity to two floor drains observed in the room. The approximate locations of the test holes are illustrated on the Site and Exploration Plan, Figure 1, appended to this report.

Soils encountered within the borings generally consisted of 5-10 inches of concrete foundation over a layer of 6-mil visqueen. Beneath the plastic, fill material consisted of moist, tan-brown sand, well graded with gravel. Native soil was encountered at approximately 1.5 feet below ground surface in both test holes. Native soil consisted of moist, dark brown silt with sand and some organics. The test holes were terminated at approximately two feet.

While no soil staining was observed in the field, at the time of sampling, strong odors believed to be indicative of the presence of dry cleaning solvents were noted.

1 *Environmental Site Assessment, Phase I* conducted by Northwest HydroGeo Consultants, November 5, 1998.

Sample Collection

Once the core plugs were removed, soil samples were obtained from each of the two test holes, as shown in the following table. The samples shaded in the table were selected for analysis:

Sample Number	Depth of Sample below ground surface/below floor level
TH1-1	9 inches/19 inches
TH1-2	15 inches/25 inches
TH1-3	19 inches/29 inches
TH2-1	9 inches/14 inches
TH2-2	15 inches/20 inches
TH2-3	19inches/24 inches

The samples were obtained utilizing a post-hole digger and sampling shovel. The samples were classified in the field and immediately transferred to glass jars, tightly sealed with a Teflon-lined threaded cap. Samples were stored and transported in a chilled ice chest. Selected soil samples were subsequently transferred to the chemical testing laboratory in accordance with strict chain of custody procedures.

Following sampling, the test holes were filled in with the remaining soil, and a new layer of 6-mil visqueen was placed over the dirt. Fresh concrete was then poured into the holes to restore the floor to its original condition.

ANALYTICAL RESULTS

One sample from each test hole was selected for analysis. The sample which exhibited the strongest odor (TH2-3) was chosen from test hole 2. Although sample TH1-3 exhibited the strongest odor in test hole 1, sample TH1-2 was chosen for analysis in an effort to provide additional information regarding the depth of contamination. Those samples were delivered to OnSite Environmental, Inc. with instructions to analyze the samples for volatile organics by EPA method 8260.

Results of the analysis indicated that both of the samples contained elevated concentrations of Tetrachloroethene, (a.k.a. PCE, a common cleaning solvent). The sample obtained from test hole TH-2 also revealed elevated concentrations of Trichloroethene and 1,2-Dichloroethene, (related compounds that often result from degradation of PCE) as shown in the following table:

Table 1:
ANALYTICAL RESULTS OF SAMPLES

Compound	Sample TH1-2	Sample TH2-3	Clean-up Level*
Dichlorodifluoromethane	ND	ND	NA
Chloromethane	ND	ND	NA
Vinyl Chloride	ND	ND	NA
Bromomethane	ND	ND	NA
Chloroethane	ND	ND	NA
Trichlorofluoromethane	ND	ND	NA
1,1-Dichloroethene	ND	ND	NA
Methylene Chloride	ND	ND	NA
(trans) 1,2-Dichloroethane	ND	ND	NA

Compound	Sample TH1-2	Sample TH2-3	Clean-up Level*
1,1-Dichloroethane	ND	ND	NA
2,2-Dichloropropane	ND	ND	NA
(cis) 1,2-Dichloroethene	ND	9.9 parts per million	**800 parts per million
Chloroform	ND	ND	NA
1,1,1-Trichloroethane	ND	ND	NA
Carbon Tetrachloride	ND	ND	NA
1,1-Dichloropropene	ND	ND	NA
1,2-Dichloroethane	ND	ND	NA
Trichloroethene	0.26 parts per million	75 parts per million	0.5 parts per million
1,2-Dichloropropane	ND	ND	NA
Dibromomethane	ND	ND	NA
Bromodichloromethane	ND	ND	NA
(cis) 1,3-Dichloropropene	ND	ND	NA
(trans) 1,3-Dichloropropene	ND	ND	NA
1,1,2-Trichloroethane	ND	ND	NA
Tetrachloroethene	5.7 parts per million	860 parts per million	NA
1,3-Dichloropropane	ND	ND	NA
Dibromochloromethane	ND	ND	

* Based on the Model Toxics Control Act (MTCA) Method A Cleanup Level.
** There is no Method A Cleanup Level for this compound, therefore, the cleanup level indicated in the table is based on the MTCA Method B Cleanup Level. It should be noted, however, that a Risk Based Assessment should be completed for the property before relying upon use of the Method B Cleanup Level.

A copy of the analytical laboratory report along with the chain-of-custody documents have been attached to this report as Appendix A.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the analytical results of the soil samples taken during this Limited Phase II ESA, it appears that the soils beneath the dry cleaning room on the subject property have been impacted by volatile organics, likely due to the presence and use of dry cleaning chemicals. The soil sample analysis indicates the soil contains PCE constituents in excess of the MTCA Method A Cleanup Levels. Based on a report by the Washington State Department of Ecology entitled *Reporting Releases of Hazardous Substances*, the release encountered at the Everett Dry Cleaner and Laundromat should be reported to Ecology by the owner of the property. As stated in Ecology's report: "New discharges of dangerous wastes or hazardous substances into the environment, including historic releases that continue to discharge to the environment" must be reported. A copy of Ecology's report has been appended to this report as Appendix B.

Based on the known presence of contamination with these soils, additional characterization including soil and groundwater analysis is recommended in order to further delineate the extent of the contamination. A proposal to conduct additional characterization will be sent under separate cover.

Limitations

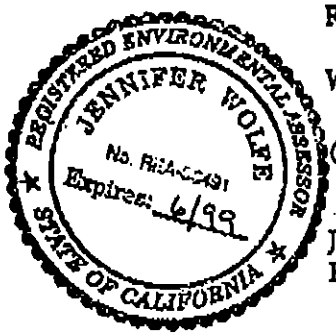
This report has been prepared for the Fortune Company in order to aid in the evaluation of this property with regard to the potential for hazardous substances at the time of this study. The information in this report is based on our field observations, explorations and laboratory analyses conducted for this study. The presented conclusions reflect our interpretation of the analytical laboratory test results, as well as our experience and observations during the project field study. The number, locations, and depths of the explorations, including the analytical testing scope, were completed within property constraints.

The conclusions in this report in part relies on the credibility of subcontracted analytical laboratory reports, and, therefore, an alteration in documentation or verbal information obtained may result in the redirection of the conclusions presented in this report. The conclusions are also based on visual field observations performed within the property boundaries at this specific point in time and, therefore, do not including SP the potential for the presence of hazardous substances within undocumented fills placed on the subject property or potential off-site sources of contamination.

We appreciate this opportunity to be of service to you and would be pleased to discuss the contents of this report or other aspects of the project with you at your convenience.

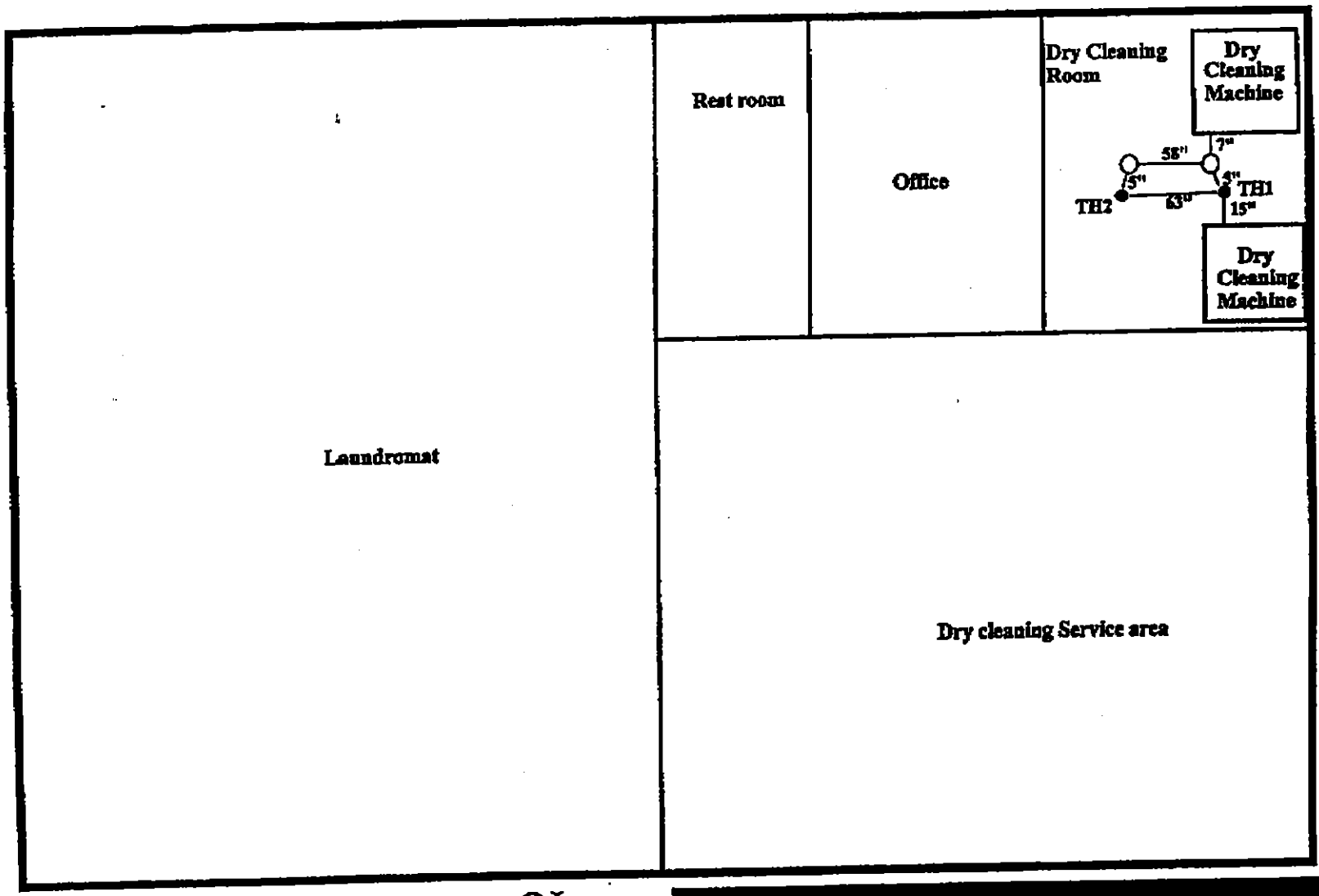
Respectfully submitted,

Wolfe Environmental Consulting, Inc.



Jennifer Wolfe, R.E.A.
Principal Environmental Assessor

Attachments:
Figure 1 – Site and Exploration Plan
Appendix A – Analytical Laboratory Reports and Chain of Custody Documents
Appendix B - Ecology's Reporting Releases of Hazardous Substances Report



KEY: ● TH1 - denotes approximate location of the test hole
○ - denotes approximate location of floor drains
——5"- denotes approximate distance in inches between two locations

Figure 1 - Site and Exploration Plan
Everett Dry Cleaning and Laundromat
Everett, Washinghton
Project No. WECI-98012
Not to Scale

APPENDIX A
ANALYTICAL LABORATORY REPORTS
AND
CHAIN OF CUSTODY DOCUMENTS

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B

Date Extracted:	12-2-98
Date Analyzed:	12-2-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	11-161-02
Client ID:	**TH1-2**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.055
Chloromethane	ND		0.055
Vinyl Chloride	ND		0.055
Bromomethane	ND		0.055
Chloroethane	ND		0.055
Trichlorofluoromethane	ND		0.055
1,1-Dichloroethene	ND		0.055
Methylene Chloride	ND		0.27
(trans) 1,2-Dichloroethene	ND		0.055
1,1-Dichloroethane	ND		0.055
2,2-Dichloropropane	ND		0.055
(cis) 1,2-Dichloroethene	ND		0.055
Chloroform	ND		0.055
1,1,1-Trichloroethane	ND		0.055
Carbon Tetrachloride	ND		0.27
1,1-Dichloropropene	ND		0.055
1,2-Dichloroethane	ND		0.055
Trichloroethene	0.26		0.055
1,2-Dichloropropane	ND		0.055
Dibromomethane	ND		0.055
Bromodichloromethane	ND		0.055
(cis) 1,3-Dichloropropene	ND		0.055
(trans) 1,3-Dichloropropene	ND		0.055
1,1,2-Trichloroethane	ND		0.055
Tetrachloroethene	5.7		0.055
1,3-Dichloropropane	ND		0.055
Dibromochloromethane	ND		0.055

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B
page 2 of 2

Lab ID: 11-161-02
Client ID: TH1-2

Compound	Results	Flags	PQL
1,2-Dibromoethane	ND		0.055
Chlorobenzene	ND		0.055
1,1,1,2-Tetrachloroethane	ND		0.055
Bromoform	ND		0.055
Bromobenzene	ND		0.055
1,1,2,2-Tetrachloroethane	ND		0.055
1,2,3-Trichloropropane	ND		0.27
2-Chlorotoluene	ND		0.055
4-Chlorotoluene	ND		0.055
1,3-Dichlorobenzene	ND		0.055
1,4-Dichlorobenzene	ND		0.055
1,2-Dichlorobenzene	ND		0.055
1,2-Dibromo-3-chloropropane	ND		0.27
1,2,4-Trichlorobenzene	ND		0.055
Hexachlorobutadiene	ND		0.27
1,2,3-Trichlorobenzene	ND		0.055

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	90	65-125
Toluene-d8	103	77-116
4-Bromofluorobenzene	107	67-133

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B
page 1 of 2

Date Extracted:	12-2-98
Date Analyzed:	12-4-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	11-161-06
Client ID:	**TH2-3**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		3.6
Chloromethane	ND		3.6
Vinyl Chloride	ND		3.6
Bromomethane	ND		3.6
Chloroethane	ND		3.6
Trichlorofluoromethane	ND		3.6
1,1-Dichloroethene	ND		3.6
Methylene Chloride	ND		18
(trans) 1,2-Dichloroethene	ND		3.6
1,1-Dichloroethane	ND		3.6
2,2-Dichloropropane	ND		3.6
(cis) 1,2-Dichloroethene	9.9		3.6
Chloroform	ND		3.6
1,1,1-Trichloroethane	ND		3.6
Carbon Tetrachloride	ND		18
1,1-Dichloropropene	ND		3.6
1,2-Dichloroethane	ND		3.6
Trichloroethene	75		3.6
1,2-Dichloropropane	ND		3.6
Dibromomethane	ND		3.6
Bromodichloromethane	ND		3.6
(cis) 1,3-Dichloropropene	ND		3.6
(trans) 1,3-Dichloropropene	ND		3.6
1,1,2-Trichloroethane	ND		3.6
Tetrachloroethene	860		3.6
1,3-Dichloropropane	ND		3.6
Dibromochloromethane	ND		3.6

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 11-161-06
Client ID: TH2-3

Compound	Results	Flags	PQL
1,2-Dibromoethane	ND		3.6
Chlorobenzene	ND		3.6
1,1,1,2-Tetrachloroethane	ND		3.6
Bromoform	ND		3.6
Bromobenzene	ND		3.6
1,1,2,2-Tetrachloroethane	ND		3.6
1,2,3-Trichloropropane	ND		18
2-Chlorotoluene	ND		3.6
4-Chlorotoluene	ND		3.6
1,3-Dichlorobenzene	ND		3.6
1,4-Dichlorobenzene	ND		3.6
1,2-Dichlorobenzene	ND		3.6
1,2-Dibromo-3-chloropropane	ND		18
1,2,4-Trichlorobenzene	ND		3.6
Hexachlorobutadiene	ND		18
1,2,3-Trichlorobenzene	ND		3.6

Surrogate	Percent Recovery		Control Limits
Dibromofluoromethane	---	S	65-125
Toluene-d8	---	S	77-116
4-Bromofluorobenzene	---	S	67-133

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
page 1 of 2

Date Extracted:	12-2-98
Date Analyzed:	12-2-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1202S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.050
Chloromethane	ND		0.050
Vinyl Chloride	ND		0.050
Bromomethane	ND		0.050
Chloroethane	ND		0.050
Trichlorofluoromethane	ND		0.050
1,1-Dichloroethene	ND		0.050
Methylene Chloride	ND		0.25
(trans) 1,2-Dichloroethene	ND		0.050
1,1-Dichloroethane	ND		0.050
2,2-Dichloropropane	ND		0.050
(cis) 1,2-Dichloroethene	ND		0.050
Chloroform	ND		0.050
1,1,1-Trichloroethane	ND		0.050
Carbon Tetrachloride	ND		0.25
1,1-Dichloropropene	ND		0.050
1,2-Dichloroethane	ND		0.050
Trichloroethene	ND		0.050
1,2-Dichloropropane	ND		0.050
Dibromomethane	ND		0.050
Bromodichloromethane	ND		0.050
(cis) 1,3-Dichloropropene	ND		0.050
(trans) 1,3-Dichloropropene	ND		0.050
1,1,2-Trichloroethane	ND		0.050
Tetrachloroethene	ND		0.050
1,3-Dichloropropane	ND		0.050
Dibromochloromethane			

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
page 2 of 2

Lab ID: MB1202S1

Compound	Results	Flags	PQL
1,2-Dibromoethane	ND		0.050
Chlorobenzene	ND		0.050
1,1,1,2-Tetrachloroethane	ND		0.050
Bromoform	ND		0.050
Bromobenzene	ND		0.050
1,1,2,2-Tetrachloroethane	ND		0.050
1,2,3-Trichloropropane	ND		0.25
2-Chlorotoluene	ND		0.050
4-Chlorotoluene	ND		0.050
1,3-Dichlorobenzene	ND		0.050
1,4-Dichlorobenzene	ND		0.050
1,2-Dichlorobenzene	ND		0.050
1,2-Dibromo-3-chloropropane	ND		0.25
1,2,4-Trichlorobenzene	ND		0.050
Hexachlorobutadiene	ND		0.250
1,2,3-Trichlorobenzene	ND		0.050

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	96	65-125
Toluene-d8	104	77-116
4-Bromofluorobenzene	102	67-133

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

HALOGENATED VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 11-30-98
Date Analyzed: 11-30-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 11-152-02

Compound	Spike Amount	MS	Percent Recovery		MSD	Percent Recovery	RPD
1,1-Dichloroethene	2.50	1.83	73		1.90	76	4.0
Benzene	2.50	2.83	113	**	2.66	106	6.3
Trichloroethene	2.50	2.51	100		2.04	82	20 *
Toluene	2.50	2.14	85		2.04	81	4.8
Chlorobenzene	2.50	1.96	78		1.85	74	5.4

** Compound outside control limits.
* RPD outside control limits.

Date of Report: December 9, 1998
Samples Submitted: November 30, 1998
Lab Traveler: 11-161
Project: WEC1-98012

Date Analyzed: 12-2-98

% MOISTURE

Client ID	Lab ID	% Moisture
TH1-2	11-161-02	9.0
TH2-3	11-161-06	31

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

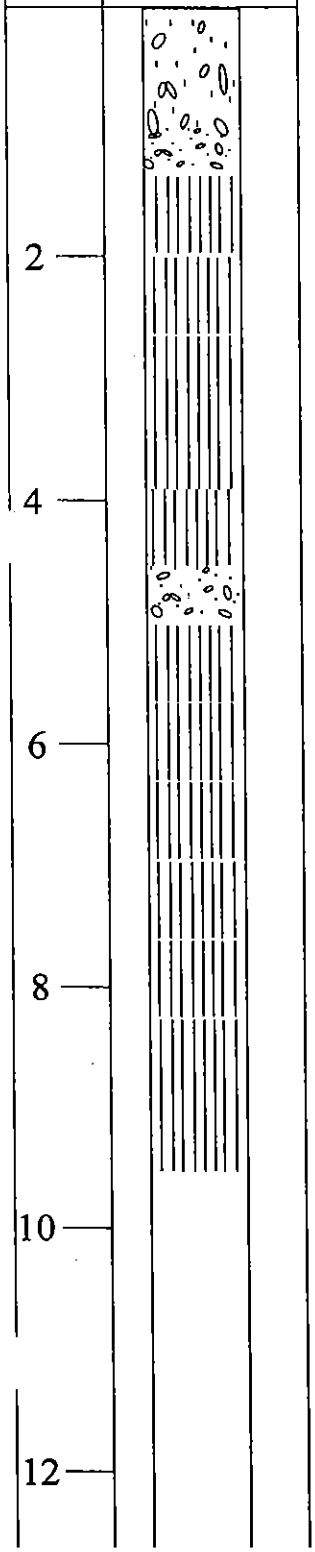
APPENDIX B
ECOLOGY'S REPORTING RELEASES OF HAZARDOUS SUBSTANCES REPORT

ATTACHMENT B

Borehole Log and Well Construction Diagram

Boring/Well Number:
B-1

Client: Everett Cleaners	Project Number: 99-32
Drilling Contractor: TEG Northwest	
Drilling Method: Strataprobe	
Logged By: Eric Chapman	Company: ARCS
Date: 6-2-99	
Page: 1 of 1	

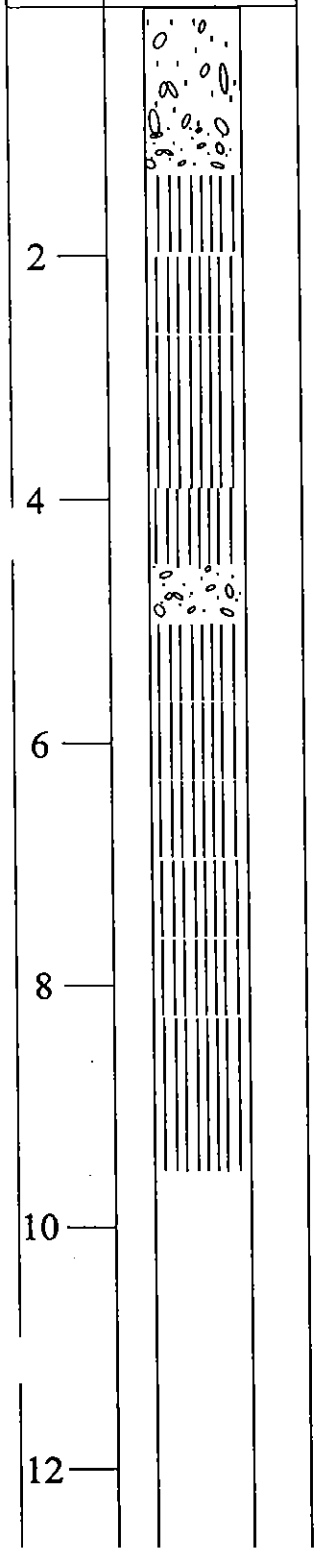


Recovery (inches)	USGS Soil Type	Description	PID Reading	Sample Name
18"	SP	Asphalt, followed by coarse gravelly sands with little fines, changing to dense sandy silt at bottom of interval.. Dry. No odors.	0.00	Not sampled
30"	SM/ML	Sandy silt, dense, compact, changing to fine sand with gravels at 5 feet, back to sandy silt at 5.5 feet. Dry. No Odor.	0.00	Not sampled
26"	SM/ML	Dense, compact, sandy silt with few gravels. Moist. No odors.	0.00	EC-B1-9'

Borehole Log and Well Construction Diagram

Boring/Well Number:
B-2

Client: Everett Cleaners	Project Number: 99-32
Drilling Contractor: TEG Northwest	
Drilling Method: Strataprobe	
Logged By: Eric Chapman	Company: ARCS
Date: 6-2-99	
Page: 1 of 1	

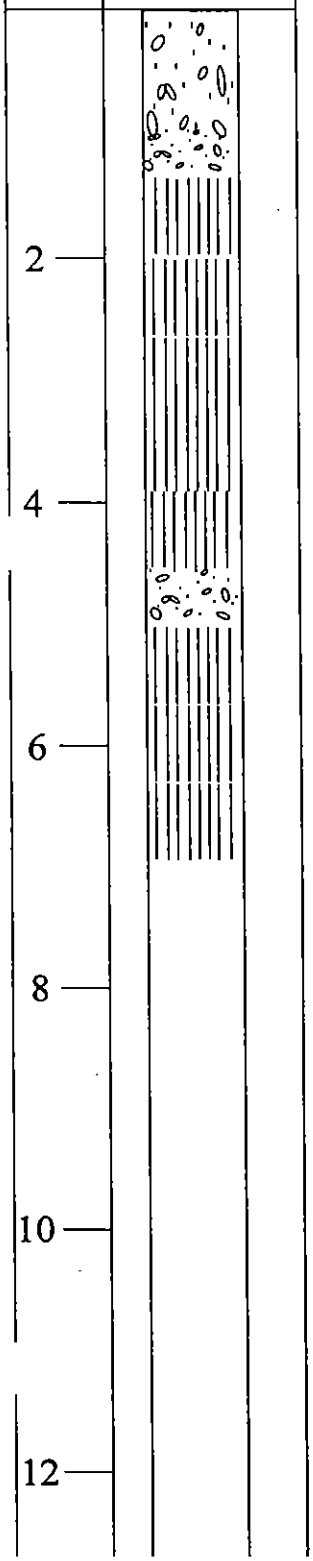


Recovery (inches)	USGS Soil Type	Description	PID Reading	Sample Name
24"	SP	Asphalt, followed by coarse gravelly sands with little fines, changing to dense sandy silt at bottom of interval.. Dry. No odors.	0.00	Not sampled
28"	SM/ML	Sandy silt, dense, compact, changing to fine sand with gravels at 5 feet, back to sandy silt at 5.5 feet. Dry. No Odor.	0.00	EC-B2-6'
4"	SM/ML	Poor recovery. Dense, compact, sandy silt with few gravels. Moist. No odors.	0.00	

Borehole Log and Well Construction Diagram

Boring/Well Number:
B-3

Client: Everett Cleaners	Project Number: 99-32
Drilling Contractor: TEG Northwest	
Drilling Method: Roto-Hammer	
Logged By: Eric Chapman	Company: ARCS
Date: 6-2-99	
Page: 1 of 1	

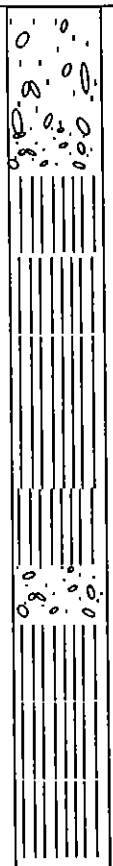


Recovery (inches)	USGS Soil Type	Description	PID Reading	Sample Name
8"	SM/ML	Course sandy soil with gravel (fill) followed by sandy silt with no gravels. Dry. No odors.	0.00	Not sampled
14"	SM/ML	Sandy silt, dense, compact. Dry. Slight odor at bottom of interval.	420	Not sampled
18"	SM/ML	Sandy silt, dense, compact. Moist. Strong odors and discoloration.	>1,000	Not sampled
4"	SM/ML	Poor recovery. Dense, compact, sandy silt. Moist. Strong odors. Refusal at 7.0 feet.	>1,000	EC-B3-6.5'

Borehole Log and Well Construction Diagram

Boring/Well Number:
B-5

Client: Everett Cleaners	Project Number: 99-32
Drilling Contractor: TEG Northwest	
Drilling Method: Roto-Hammer	
Logged By: Eric Chapman	Company: ARCS
Date: 6-2-99	
Page: 1 of 1	

Depth (feet)	Graphic Symbol	Recovery (inches)	USGS Soil Type	Description	PID Reading	Sample Name
2		10"	SM/ML	Course sandy soil with gravel (fill) followed by sandy silt with no gravels. Dry. No odors.	0.00	Not sampled
4		22"	SM/ML	Sandy silt, dense, compact. Dry. No odor.	0.00	Not sampled
6		15"	SM/ML	Sandy silt, dense, compact. Moist. No odors.	0.00	Not sampled
8		6"	SM/ML	Poor recovery. Dense, compact, sandy silt. Moist. No odors. Refusal at 7.0 feet.	0.00	EC-B5-6.5'
10						
12						

ATTACHMENT C

MATERIAL SAFETY DATA SHEET

Last Revised : July 1, 1997

****

SECTION 1 - MATERIAL IDENTIFICATION

****

SUPPLIER:

REGENESIS Bioremediation Products
27130A Paseo Espada, Suite 1407
San Juan Capistrano, CA 92675
949-443-3136 phone
949-443-3140 fax

CHEMICAL DESCRIPTION:

A mixture of Magnesium Peroxide [MgO_2], Magnesium Oxide [MgO], and Magnesium Hydroxide [$Mg(OH)_2$]

CHEMICAL FAMILY:

Inorganic Chemicals

PRODUCT NAME:

Oxygen Release Compound (ORC®)

PRODUCT USE:

Used for environmental remediation of contaminated soil and groundwater

****

SECTION 2 - CHEMICAL IDENTIFICATION

****

CHEMICAL CHARACTERIZATION

Magnesium Peroxide [MgO_2]	CAS Reg. No.	14452-57-4	
Magnesium Oxide [MgO]:	CAS Reg. No.	1309-48-4	
Magnesium Hydroxide ($(Mg(OH)_2$):	CAS Reg. No.	1309-42-8	
FORM:	powder		
COLOR:	white		
ODOR:	odorless		
ASSAY:	25 - 35% Magnesium Peroxide (MgO_2)		

****

SECTION 3 - PHYSICAL AND TECHNICAL SAFETY DATA

****

MELTING POINT:	Not Determined
BOILING POINT:	Not Determined
DENSITY:	.6 - .8 g/cc
BULK DENSITY:	---
VAPOR PRESSURE:	Data not available
VISCOSITY:	---
SOLUBILITY:	Reacts with water. Soluble in acid

pH VALUE:	Approx. 10 in saturated solution
FLASH POINT:	Not applicable
SELF-IGNITION TEMPERATURE:	Not applicable
EXPLOSION LIMITS % BY VOLUME:	---
THERMAL DECOMPOSITION:	Spontaneous decomposition possible about 150° C
HAZARDOUS DECOMPOSITION PRODUCTS:	Not known
HAZARDOUS REACTIONS:	Hazardous polymerization will not occur
FURTHER INFORMATION:	Non-combustible, but will support combustion

****

SECTION 4 - REACTIVITY DATA

****

STABILITY:	Product is stable unless heated above 150°C. Magnesium Peroxide reacts with water to slowly release oxygen. React by product is magnesium hydroxide
CONDITIONS TO AVOID:	Heat above 150°C. Open flames
INCOMPATIBILITY:	Strong Acids Strong chemical agents
HAZARDOUS POLYMERIZATION:	None known

****

SECTION 5 - REGULATIONS

****

PERMISSIBLE EXPOSURE LIMITS IN AIR:	Not established. Should be treated as a nuisance dust.

****

SECTION 6 - PROTECTIVE MEASURES, STORAGE, AND HANDLING

****

TECHNICAL PROTECTIVE MEASURES

STORAGE:	Keep container tightly closed. Keep away from combustible material
HANDLING:	Use only in well-ventilated areas

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION:	Recommended (HEPA Filters)
HAND PROTECTION:	Wear suitable gloves
EYE PROTECTION:	Use chemical safety goggles
OTHER:	---
INDUSTRIAL HYGIENE:	Avoid contact with skin and eyes
PROTECTION AGAINST FIRE AND EXPLOSION:	---
DISPOSAL:	Dispose via sanitary landfill per state/local authority
FURTHER INFORMATION:	Not flammable, but may intensify fire

****

SECTION 7 - MEASURES IN CASE OF ACCIDENTS AND FIRE

****

AFTER SPILLAGE/LEAKAGE/GAS LEAKAGE: Collect in suitable containers. Wash remainder with copious quantities of water.

EXTINGUISHING MEDIA

SUITABLE: Carbon dioxide, dry chemicals, foam

NOT TO BE USED: ---

FURTHER INFORMATION: Self contained breathing apparatus or approved gas mask should be worn due to small particle size. Use extinguishing media appropriate for surrounding fire.

FIRST AID: After contact with skin, wash immediately with plenty of water and soap. In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.

FURTHER INFORMATION: ---

****

SECTION 8 - INFORMATION ON TOXICOLOGY

****

TOXICITY DATA: Data not available

****

SECTION 9 - INFORMATION ON ECOLOGY

****

WATER POLLUTION HAZARD RATING (WGK): 0

****

SECTION 10 - FURTHER INFORMATION

****

After the reaction of magnesium peroxide to form oxygen the resulting material, magnesium hydroxide is mildly basic. The amounts of magnesium oxide (magnesia) and magnesium hydroxide in the initial product have an effect similar to lime, but with lower alkalinity.

The information contained in this document is the best available to the supplier at the time of writing, but is provided without warranty of any kind. Some possible hazards have been determined by analogy to similar classes of material. The items in this document are subject to change and clarification as more information becomes available.

REGENESIS

DIRECTIONS FOR ORC® SLURRY MIXING

1. OPEN 5 GALLON BUCKET, AND REMOVE PRE-MEASURED BAG OF ORC.

2. MEASURE AND POUR WATER INTO THE 5-GALLON BUCKET ACCORDING TO THE FOLLOWING DESIRED CONSISTENCY:

65% solids slurry	Mix .63 gallons of water per 10 pounds of ORC powder. Example: Mix 20 pounds of ORC with 1.26 gallons of water. Mix 30 pounds of ORC with 1.89 gallons of water.
60% solids slurry	Mix .79 gallons of water per 10 pounds of ORC powder. Example: Mix 20 pounds of ORC with 1.58 gallons of water. Mix 30 pounds of ORC with 2.37 gallons of water.
50% solids slurry	Mix 1.19 gallons of water per 10 pounds of ORC powder. Example: Mix 20 pounds of ORC with 2.38 gallons of water. Mix 30 pounds of ORC with 3.57 gallons of water.
25% solids slurry	Mix 3.57 gallons of water per 10 pounds of ORC powder. Example: Mix 10 pounds of ORC with 3.57 gallons of water.

3. ADD THE APPROPRIATE ORC QUANTITY TO THE WATER . Check weight of each bucket (see label). The 5 gallon shipping bucket weighs 2 pounds. An additional 4 pounds of ORC would require one additional quart of water, at the 65% solids level.

4. USE AN APPROPRIATE MIXING DEVICE TO THOROUGHLY MIX ORC AND WATER. A hand held drill with a "jiffy mixer" or a stucco mixer on it may be used in conjunction with a small paddle to scrape the bottom and sides of the container. Standard environmental slurry mixers may also be used, following the equipment instructions for operation. For small quantities a usable slurry can be mixed by hand, if care is taken to blend all lumps into the mixture thoroughly.

CAUTION: ORC MAY SETTLE OUT OF SLURRY IF LEFT STANDING. ALSO, ORC EVENTUALLY HARDENS INTO A CEMENT-LIKE COMPOUND, AND CANNOT BE RE-MIXED AFTER THAT HAS HAPPENED. THEREFORE:
Mix immediately before using. Do not let stand more than 30 minutes, and re-mix immediately before use, to be sure the mixture has not settled out. If a mechanical slurry mixer attached to a pump is being used, the material may be cycled back through the mixer to maintain slurry suspension and consistency.

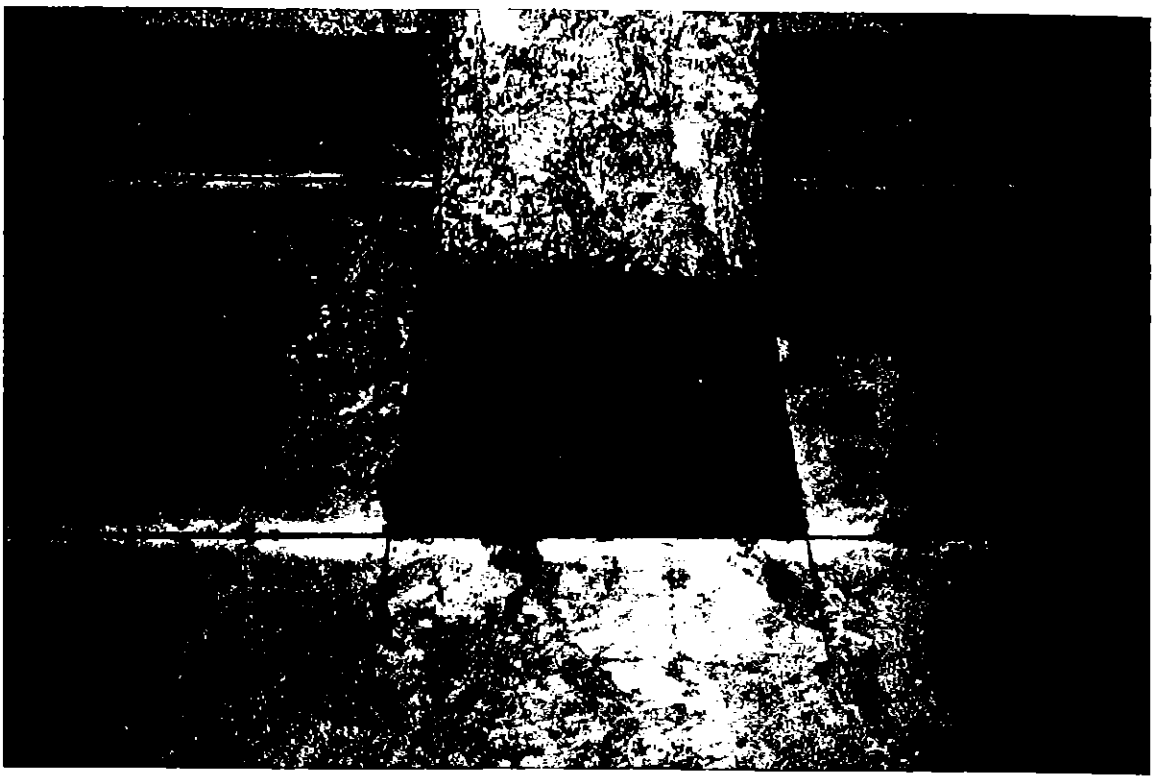
5. CHECK SLURRY CONSISTENCY FOR POURABILITY. ADD WATER IF NECESSARY (IN 1 CUP INCREMENTS) TO ACHIEVE THE CORRECT CONSISTENCY .

27130A Paseo Espada, Suite 1407, San Juan Capistrano, CA 92675
Tel: (949) 443-3136 Fax: (949) 443-3140

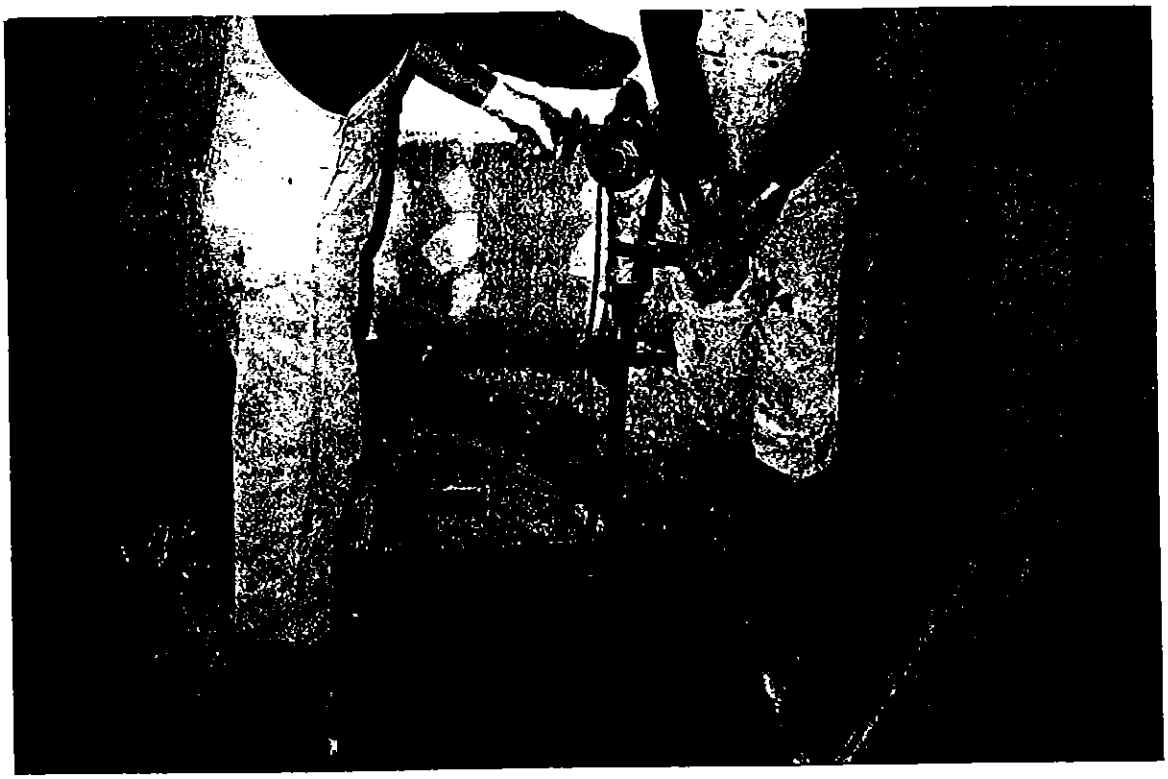
ATTACHMENT D

Photograph 1: View of Strataprobe setting up at soil boring location B2, on the west side of the building, looking southeast..

Photograph 2: A view of the former dry cleaning room inside of the building, looking west. Two trenches were cut in the concrete slab to access soils beneath the site..



Photograph 3: A close-up view of the soils beneath the concrete slab.



Photograph 4: A view of TEG personnel sampling using the Roto-hammer.

ATTACHMENT E

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: (360) 459-4670
Fax: (360) 459-3432

June 15, 1999

Eric Chapman
ARCS
Assessment and Remediation Construction
475 SE Sycamore Lane
Issaquah, WA 98027

Dear Mr. Chapman:

Please find enclosed the analytical data report for the Everett Cleaners Project in Everett, Washington. Soil samples were analyzed for Specific Halogenated Hydrocarbons and BTEX by Method 8021B on June 4, 1999.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ARCS for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Vice President

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^{o} C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number:	S90604-1
Client:	ARCS
Client Job Name:	Everett Cleaners
Client Job Number:	NA

Analytical Results

8021B, µg/kg		MTH BLK	LCS	EC-B1-9	EC-B2-6	EC-B3-6.5	EC-B5-6.5	EC-B5-6.5 MS
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99
Date analyzed	Limits	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99	06/04/99
Moisture, %						12%	17%	17%
Chloromethane	250	nd		nd	nd	nd	nd	
Bromomethane	250	nd		nd	nd	nd	nd	
Vinyl chloride	250	nd		nd	nd	nd	nd	
Chloroethane	250	nd		nd	nd	nd	nd	
cis-1,2-Dichloroethene	250	nd		nd	nd	300	nd	
1,1-Dichloroethene	250	nd	105%	nd	nd	nd	nd	74%
Methylene Chloride	250	nd		nd	nd	nd	nd	
trans-1,2-Dichloroethene	250	nd		nd	nd	nd	nd	
1,1-Dichloroethane	250	nd		nd	nd	nd	nd	
Chloroform	50	nd		nd	nd	nd	nd	
1,1,1-Trichloroethane	50	nd		nd	nd	nd	nd	
Carbontetrachloride	50	nd		nd	nd	nd	nd	
1,2-Dichloroethane	250	nd		nd	nd	nd	nd	
Trichloroethene	50	nd	122%	nd	nd	1,800	81	113%
1,2-Dichloropropane	250	nd		nd	nd	nd	nd	
Bromodichloromethane	250	nd		nd	nd	nd	nd	
cis-1,3-Dichloropropene	250	nd		nd	nd	nd	nd	
trans-1,3-Dichloropropene	250	nd		nd	nd	nd	nd	
Chlorobenzene	250	nd	130%	nd	nd	nd	nd	113%
1,1,2-Trichloroethane	50	nd		nd	nd	nd	nd	
Tetrachloroethene	50	nd		nd	nd	2,400,000	3,300	
Dibromochloromethane	250	nd		nd	nd	nd	nd	
Bromoform	250	nd		nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	250	nd		nd	nd	nd	nd	
1,1,1,2-Tetrachloroethane	250	nd		nd	nd	nd	nd	
Bromobenzene	250	nd		nd	nd	nd	nd	
1,2,3-Trichloropropane	250	nd		nd	nd	nd	nd	
Dibromomethane	250	nd		nd	nd	nd	nd	
m-Dichlorobenzene	50	nd		nd	nd	nd	nd	
p-Dichlorobenzene	50	nd		nd	nd	nd	nd	
o-Dichlorobenzene	50	nd		nd	nd	nd	nd	
Benzene	50	nd	106%	nd	nd	nd	nd	105%
Toluene	50	nd	101%	nd	nd	nd	nd	101%
Ethylbenzene	50	nd		nd	nd	nd	nd	
Xylenes	50	nd		nd	nd	130	nd	
Surrogate recoveries:								
Bromochloromethane		106%	108%	83%	90%	103%	91%	88%
1,4-Dichlorobutane		107%	106%	83%	92%	101%	97%	95%
Bromochloropropane		112%	113%	85%	87%	106%	91%	92%
Trifluorotoluene		86%	87%	89%	93%	82%	91%	91%
Bromofluorobenzene		88%	88%	91%	93%	85%	93%	91%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number:	S90604-1
Client:	ARCS
Client Job Name:	Everett Cleaners
Client Job Number:	NA

Analytical Results		MSD	RPD
8021B, µg/kg		EC-B5-6.5	EC-B5-6.5
Matrix	Soil	Soil	Soil
Date extracted	Reporting	06/04/99	06/04/99
Date analyzed	Limits	06/04/99	06/04/99
Moisture, %		17%	
Chloromethane	250		
Bromomethane	250		
Vinyl chloride	250		
Chloroethane	250		
cis-1,2-Dichloroethene	250		
1,1-Dichloroethene	250	82%	10%
Methylene Chloride	250		
trans-1,2-Dichloroethene	250		
1,1-Dichloroethane	250		
Chloroform	50		
1,1,1-Trichloroethane	50		
Carbontetrachloride	50		
1,2-Dichloroethane	250		
Trichloroethene	50	115%	2%
1,2-Dichloropropane	250		
Bromodichloromethane	250		
cis-1,3-Dichloropropene	250		
trans-1,3-Dichloropropene	250		
Chlorobenzene	250	122%	7%
1,1,2-Trichloroethane	50		
Tetrachloroethene	50		
Dibromochloromethane	250		
Bromoform	250		
1,1,2,2-Tetrachloroethane	250		
1,1,1,2-Tetrachloroethane	250		
Bromobenzene	250		
1,2,3-Trichloropropane	250		
Dibromomethane	250		
m-Dichlorobenzene	50		
p-Dichlorobenzene	50		
o-Dichlorobenzene	50		
Benzene	50	109%	4%
Toluene	50	107%	5%
Ethylbenzene	50		
Xylenes	50		

Surrogate recoveries:	
Bromochloromethane	89%
1,4-Dichlorobutane	97%
Bromochloropropane	90%
Trifluorotoluene	91%
Bromofluorobenzene	91%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

CHAIN-OF-CUSTODY F 'CORD

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES (teg)

S90604-1

:LIENT: ARCS

DATE: 6/4/99 PAGE 1 OF 1

.DDRESS: 475 SE SYCAMORE LN ISSAQUAH, WA

PROJECT NAME: Everett Cleaners

'HONE (425) 837-0220 FAX: SAME

LOCATION: Everett, WA

:LIENT PROJECT #: PROJECT MANAGER: Eric Chapman

COLLECTOR: Eric Chapman DATE OF COLLECTION 6/2

ample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH (8015 (diesel)	TPH 8015 (g & d)	PAH 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	8021B	FIELD NOTES	Total Number of Containers	Laboratory Note Number
~~[illegible]~~																							
:C-B1-9	9'	930	S	4oz Glass															X				
C-B2-6	6'	1000	S	↓															X				
C-B3-6.5	6.5'	1030	S	↓															X				
C-B5-6.5	6.5'	11:30	S	↓															X				

MAY

ELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	6/4/99 0920	[signature]	0924 6/4/99
ELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

5 Day T/A

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: (360) 459-4670
Fax: (360) 459-3432

August 6, 1999

Eric Chapman
ARCS
Assessment and Remediation Construction
475 SE Sycamore Lane
Issaquah, WA 98027

Dear Mr. Chapman:

Please find enclosed the analytical data report for the Everett Cleaners Project in Everett, Washington. One soil sample was analyzed for Specific Halogenated Hydrocarbons and BTEX by Method 8021B on July 28, 1999.

The results of these analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ARCS for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Vice President

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^{O} C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number:	S90727-2
Client:	ARCS
Client Job Name:	Everett Cleaners
Client Job Number:	NA

Analytical Results

8021B, µg/kg		MTH BLK	LCS	EC-B3-5
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	07/28/99	07/28/99	07/28/99
Date analyzed	Limits	07/28/99	07/28/99	07/28/99
Moisture, %				15%
Chloromethane	250	nd		nd
Bromomethane	250	nd		nd
Vinyl chloride	250	nd		nd
Chloroethane	250	nd		nd
cis-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethene	250	nd	112%	nd
Methylene Chloride	250	nd		nd
trans-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethane	250	nd		nd
Chloroform	50	nd		nd
1,1,1-Trichloroethane	50	nd		nd
Carbontetrachloride	50	nd		nd
1,2-Dichloroethane	250	nd		nd
Trichloroethene	50	nd	108%	76
1,2-Dichloropropane	250	nd		nd
Bromodichloromethane	250	nd		nd
cis-1,3-Dichloropropene	250	nd		nd
trans-1,3-Dichloropropene	250	nd		nd
Chlorobenzene	250	nd	118%	nd
1,1,2-Trichloroethane	50	nd		nd
Tetrachloroethene	50	nd		26,000
Dibromochloromethane	250	nd		nd
Bromoform	250	nd		nd
1,1,2,2-Tetrachloroethane	250	nd		nd
1,1,1,2-Tetrachloroethane	250	nd		nd
Bromobenzene	250	nd		nd
1,2,3-Trichloropropane	250	nd		nd
Dibromomethane	250	nd		nd
m-Dichlorobenzene	50	nd		nd
p-Dichlorobenzene	50	nd		nd
o-Dichlorobenzene	50	nd		nd
Benzene	50	nd	101%	nd
Toluene	50	nd	98%	nd
Ethylbenzene	50	nd		nd
Xylenes	50	nd		nd

Surrogate recoveries:			
Bromochloromethane	97%	93%	99%
1,4-Dichlorobutane	89%	86%	91%
Bromochloropropane	106%	102%	112%
Trifluorotoluene	89%	92%	87%
Bromofluorobenzene	95%	92%	95%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

teg TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES

S90721-3

CHAIN-OF-CUSTODY RECORD

CLIENT: ARCS

ADDRESS: 475 SE SYCAMORE LN ISSAQUAH, WA 98027

PHONE (425) 837-0220 FAX: - SAME -

CLIENT PROJECT #: PROJECT MANAGER: ERIC CHAPMAN

DATE: 7/27/99 PAGE 1 OF 1

PROJECT NAME: Everett Cleaners

LOCATION: Everett, WA

COLLECTOR: Eric Chapman DATE OF COLLECTION 7/26/99

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH (8015 (diesel)	TPH 8015 (g & d)	PAH 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS 9021B					FIELD NOTES	Total Number of Containers	Laboratory Note Number
C-B3-5	5'	830	S	4oz Glass															X							

RECEIVED MAY 7 2001 Health District

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	7/27/99 1310	Tod Bochsler	7/27/99
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Normal T/A

48 HR

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

800 Sleater-Kinney SE, PMB #262
Lacey, Washington 98503-1127

Mobile Environmental Laboratories
Environmental Sampling Services

Telephone: (360) 459-4670
Fax: (360) 459-3432

September 24, 1999

Eric Chapman
ARCS
Assessment and Remediation Construction
475 SE Sycamore Lane
Issaquah, WA 98027

Dear Mr. Chapman:

Please find enclosed the analytical data report for the Everett Cleaners Project in Everett, Washington. One water sample was analyzed for Specific Halogenated Hydrocarbons and BTEX by Method 8021B on September 15, 1999.

The results of these analyses are summarized in the attached table. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

TEG Northwest appreciates the opportunity to have provided analytical services to ARCS for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A. Korosec
President

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number: S90915-2
Client: ARCS
Client Job Name: EVERETT CLEANERS
Client Job Number: NA
Printed: 9/17/99 16:34

Analytical Results

8021B, µg/kg		MTH BLK	LCS	EC-83-6
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/99	09/15/99	09/15/99
Date analyzed	Limits	09/15/99	09/15/99	09/16/99
Moisture, %				14%
Chloromethane	250	nd		nd
Bromomethane	250	nd		nd
Vinyl chloride	250	nd		nd
Chloroethane	250	nd		nd
cis-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethene	250	nd		nd
Methylene Chloride	250	nd		nd
trans-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethane	250	nd	126%	nd
Chloroform	50	nd		nd
1,1,1-Trichloroethane	50	nd		nd
Carbontetrachloride	50	nd		nd
1,2-Dichloroethane	250	nd		nd
Trichloroethene	50	nd	83%	nd
1,2-Dichloropropane	250	nd		nd
Bromodichloromethane	250	nd		nd
cis-1,3-Dichloropropene	250	nd		nd
trans-1,3-Dichloropropene	250	nd		nd
Chlorobenzene	250	nd	89%	nd
1,1,2-Trichloroethene	50	nd		nd
Tetrachloroethene	50	nd		1,400,000
Dibromochloromethane	250	nd		nd
Bromoform	250	nd		nd
1,1,2,2-Tetrachloroethane	250	nd		nd
1,1,1,2-Tetrachloroethane	250	nd		nd
Bromobenzene	250	nd		nd
1,2,3-Trichloropropane	250	nd		nd
Dibromomethane	250	nd		nd
m-Dichlorobenzene	50	nd		nd
p-Dichlorobenzene	50	nd		nd
o-Dichlorobenzene	50	nd		nd
Benzene	50	nd	105%	nd
Toluene	50	nd	103%	nd
Ethylbenzene	50	nd		nd
Xylenes	50	nd		nd
Surrogate recoveries:				
Bromochloromethane		110%	103%	97%
1,4-Dichlorobutane		111%	100%	99%
Bromochloropropane		126%	98%	74%
Trifluorotoluene		92%	87%	88%
Bromofluorobenzene		105%	98%	102%

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

Post-it® Fax Note 7671	Date 9/17/99	# of pages ▶ 1
To Eric Chapman	From Valery Ivanov	
Co./Dept. ARCS	Co. TEG	
Phone #	Phone #	
Fax #	Fax #	

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/-accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

When analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4^{o} C.

ANALYTICAL METHODS

TEG Northwest Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Halocarbons
(Chlorinated Hydrocarbons, EPA 601/8021B)

A calibration standard is run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TEG NW SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

TEG Job Number: S90915-2
Client: ARCS
Client Job Name: EVERETT CLEANERS
Client Job Number: NA

Analytical Results

8021B, µg/kg		MTH BLK	LCS	EC-B3-6
Matrix	Soil	Soil	Soil	Soil
Date extracted	Reporting	09/15/99	09/15/99	09/15/99
Date analyzed	Limits	09/15/99	09/15/99	09/15/99
Moisture, %				14%
Chloromethane	250	nd		nd
Bromomethane	250	nd		nd
Vinyl chloride	250	nd		nd
Chloroethane	250	nd		nd
cis-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethene	250	nd		nd
Methylene Chloride	250	nd		nd
trans-1,2-Dichloroethene	250	nd		nd
1,1-Dichloroethane	250	nd	126%	nd
Chloroform	50	nd		nd
1,1,1-Trichloroethane	50	nd		nd
Carbontetrachloride	50	nd		nd
1,2-Dichloroethane	250	nd		nd
Trichloroethene	50	nd	83%	nd
1,2-Dichloropropane	250	nd		nd
Bromodichloromethane	250	nd		nd
cis-1,3-Dichloropropene	250	nd		nd
trans-1,3-Dichloropropene	250	nd		nd
Chlorobenzene	250	nd	89%	nd
1,1,2-Trichloroethane	50	nd		nd
Tetrachloroethene	50	nd		1,400,000
Dibromochloromethane	250	nd		nd
Bromoform	250	nd		nd
1,1,2,2-Tetrachloroethane	250	nd		nd
1,1,1,2-Tetrachloroethane	250	nd		nd
Bromobenzene	250	nd		nd
1,2,3-Trichloropropane	250	nd		nd
Dibromomethane	250	nd		nd
m-Dichlorobenzene	50	nd		nd
p-Dichlorobenzene	50	nd		nd
o-Dichlorobenzene	50	nd		nd
Benzene	50	nd	105%	nd
Toluene	50	nd	103%	nd
Ethylbenzene	50	nd		nd
Xylenes	50	nd		nd
Surrogate recoveries:				
Bromochloromethane		110%	103%	97%
1,4-Dichlorobutane		111%	100%	99%
Bromochloropropane		126%	98%	74%
Trifluorotoluene		92%	87%	88%
Bromofluorobenzene		105%	98%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES

510113-2

CHAIN-OF-CUSTODY F⁻CORD

CLIENT: ARCS

ADDRESS: 475 SE SYCAMORE LN ISSAQUAH, WA 98027

PHONE (425) 837-0220 FAX: SAME

CLIENT PROJECT #: ______ PROJECT MANAGER: ERIC CHAPMAN

DATE: 9-15-99 PAGE 1 OF 1

PROJECT NAME: Everett Cleaners

LOCATION: Everett, WA

COLLECTOR: ERIC CHAPMAN DATE OF COLLECTION 9/14/99

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH (8015 (diesel)	TPH 8015 (g & d)	PAH 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	8021B				FIELD NOTES	Total Number of Containers	Laboratory Note Number
EC-B3-6	6'	1700	S	4oz Glass															X							

RECEIVED MAY 7 2001

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
E. Ch[illegible]	9/15/99 1600	[signature]	9/15/99 16:00
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/NA

SEALS INTACT? Y/N/NA

RECEIVED GOOD COND./COLD

NOTES:

LABORATORY NOTES:

5 Days