



# **ENVIRONMENTAL TECHNICAL SERVICES**

AN ENVIRONMENTAL CONSULTING FIRM

(800) 200-4ETS

Alameda County

Environmental Health A REPORT DOCUMENTING A LIMITED SITE ASSESSMENT IN THE AREA OF A FORMER 500-GALLON GASOLINE -UNDERGROUND STORAGE TANK

Beneath the site at:

1115 21st STREET **OAKLAND, CALIFORNIA 94607** 

Assessment Performed On:

December 12, 2003

# **ENVIRONMENTAL TECHNICAL SERVICES**

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# A REPORT DOCUMENTING A LIMITED SITE ASSESSMENT IN THE AREA OF A FORMER 500-GALLON GASOLINE UNDERGROUND STORAGE TANK AND THE ASSOCIATED FUEL DISPENSER AND PRODUCT LINE

Beneath the site at:

1115 21st STREET OAKLAND, CALIFORNIA 94607

Helen Mawhimney

Environmental Specialist

Date

Date

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### 1.0 INTRODUCTION

The following report documents a limited site assessment in the area of one former 500-gallon gasoline underground storage tank (UST), located beneath the site at 1115 21<sup>st</sup> Street, Oakland, California. The report includes, but is not limited to, a description of the method of soil boring advancement, sample collection, analyses, analytical results, and recommendations and conclusions.

Work performed include the advancement of five soil borings in the area of the former tank pit excavation, it's associated fuel dispenser, and product line. Soil and groundwater samples were collected and analyzed.

The purpose of the investigation was to attempt to determine the lateral and vertical migration, if any, of known contaminants in soil and ground water.

# 1.1 Subject Property Setting

The subject property located in the western portion of the City of Oakland in the San Francisco Bay Area occupies a broad alluvial valley that slopes gently northward toward the San Francisco Bay and is flanked by alluvial fans deposited at the foot of the Diablo Range to the east and the Santa Cruz Mountains to the west.

The subject site is located approximately 1.25-miles west of Lake Merritt, a tidally influenced lake. Surface topography on and in the immediate vicinity of the subject property is almost flat.

# 1.2 Geologic and Soil Conditions

Materials underlying the site area are Quaternary-age sediments consisting of unconsolidated gravels, sands, and silts with interbeds of fine-grained floodplain clay deposits that form aquitards. Beneath these sediments, are older fine to coarse-grained sandy sediments (Lake Merritt Sand) deposited by erosion and alluvial deposition from the nearby upland surfaces. Bedrock at an estimated depth of less than 250-feet beneath the sediments consists of Jurassic-aged sedimentary rocks of the Franciscan Formation.

### 1.3 Groundwater Conditions

The subject site is located on the San Francisco Bay plain in the northernmost part of the Santa Clara Valley Groundwater Basin, (RWQCB, 1986), the surface of which slopes gently down toward the San Francisco Bay. The regional groundwater flow follows the topography, moving from areas of higher elevations to areas of lower elevation. The regional groundwater flow direction in the area of the subject property is estimated to be toward the west. Groundwater was encountered approximately 11.0' to 12.0' beneath the ground surface (bgs)

# 2.0 PREVIOUS ENVIRONMENTAL HISTORY

# 2.1 Removal of 500-Gallon Gasoline Underground Storage Tanks

One 500-gallon gasoline underground storage tank (UST) was removed from the subject site on November 11, 1993. A soil sample, designated as BP-1, was collected from beneath the former UST. The analytical results indicated Total Petroleum Hydrocarbons as gasoline (TPHg) at 630 mg/Kg, Benzene 600 ug/Kg, Toluene 770 ug/Kg, Ethyl Benzene 940 ug/Kg, Total Xylenes 2.5 ug/Kg and Lead 6.6 mg/Kg. Two samples, designated as SP-1 and SP-2, were collected from the stockpiled soil. Analytical results are presented in Table I.

TABLE I Original Removal of One 500-Gallon Gasoline UST November 23, 1993

Sample ID	TPHg (mg/Kg)	Benzene Toluene (µg/Kg) (µg/Kg)		Ethyl-Benzene (µg/Kg)	Total Xylenes (µg/Kg)	Lead (mg/Kg)	
BP-1	630	600	770	940	2500	6.6	
SP-1	ND	ND	ND	ND	ND	7.0	
SP-2	22	21	27	33	85	3.2	
Detection Limit	1.0	5.0		5.0	5.0	1.0	

ND = Non Detect for constituent analyzed.

# 2.2 Attempt to Excavate Contaminated Soil

On May 6, 1994, Tank Protect Engineering attempted to remove soil impacted with TPHg and BTEX. Analytical results indicate the excavation was successful with the exception of the tank pit wall adjacent to 21st Street. The laboratory analyses reported Total Petroleum Hydrocarbons as gasoline (TPHg) at 290 mg/Kg, Benzene 2.8 mg/Kg, Toluene 5.8 mg/Kg, Ethyl Benzene 6.0 mg/Kg, and Total Xylenes 38 mg/Kg.

Analytical results are presented within Table II.

# 2.2.1 Analytical Results of Soil Samples Collected Subsequent to the Excavation of Contaminated Soil

# TABLE II Over Excavation of Tank Pit May 6, 1994

Sample ID	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl-Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Lead (mg/Kg)	
VSP-1 (10')	290	2.8	5.8	6.0	38.0	NA	
VSP-2 (10')	ND	ND	ND	ND	ND	NA NA	
VSP-3 (11')	ND	ND	ND	ND	ND		
VSP-4 (10')	ND	ND	ND	ND	ND	NA	
VSP-5 (10')	ND	ND	ND	ND	ND	NA	

ND = Non Detect for constituent analyzed.

### 3.0 SCOPE OF SERVICES

This report describes a limited site assessment performed in the area of one former 500-gallon gasoline underground storage tank (UST), and beneath its associated dispenser and product lines. This was accomplished by the advancement of five soil borings for the collection and analyses of soil and groundwater samples. The purpose of the assessment was to attempt to determine the lateral and vertical migration of contamination, if any, in soil and groundwater.

# 3.1 Site Investigation

Five soil borings were advanced as follows: one soil boring on the northern wall of the former tank pit excavation, designated as 2VSP1; one 9.0' north of 2VSP1, on 21<sup>st</sup> Street, designated as FB-1; one 23.0' west of the former tank pit within the sidewalk, designated as FB-2; one beneath the former dispenser, designated as DISP; and one beneath the former product line, PL. Soil borings 2VSP-1, FB-1, and FB-2 were advanced approximately 4.0' below first encountered groundwater. Soil borings DISP and PL were advanced to a total depth of 4.0' bgs.

### 3.1.1 Former Tank Pit

One exploratory soil boring (2VSP-1) was advanced in the north wall of the former tank pit (location of over excavation confirmatory sample VSP-1). Soil and groundwater samples were collected and analyzed. Soil and groundwater samples collected within soil borings FB-1 and FB-2 were placed on hold at North State Labs pending analytical results from boring 2VSP-1. Analytical results for soil and groundwater samples collected within boring 2VSP-1 were non-detect for all contaminants of concern. Therefore soil and groundwater samples collected within borings FB-1 and FB-2 were not analyzed.

### 3.1.2 Dispenser, Product Lines

One exploratory soil boring (DISP) was advanced beneath the former product dispenser, to a total depth of 4.0' below ground surface (bgs). An additional boring (PL) was advanced beneath the product line to a total depth of 4.0' bgs. Soil samples collected between the surface and 4.0' bgs were examined for indications of contamination, none were encountered.

# 3.2 Exploratory Soil Borings

Environmental Control Associates (ECA) of Aptos, California, performed field exploration using direct push Geoprobe ® equipment. Two-inch diameter soil probes were advanced using truck-mounted hydraulic equipment to push and/or hammer, the Geoprobe ®, sampler into undisturbed soil. Continuous core soil samples were retrieved in clear plastic liners, so as to allow continuous profiling of the lithologic column.

Soil borings 2VSP-1, FB-1, and FB-2 were advanced to approximately three-feet below first encountered groundwater, to allow for the collection of groundwater samples.

# 3.3 Collection of Soil Samples

Continuous core soil was collected within borings 2VSP-1, FB-1, and FB-2 and a 10.0' soil sample prepared for transport to a certified laboratory for analysis. Continuous core soil was also collected beneath the former dispenser and product line and a 4.0' sample prepared for laboratory analysis.

To prepare the soil samples for transport to a certified laboratory for analysis the clear plastic liner was cut to a six-inch length, using a clean cutting tool designed specifically for this purpose. Each end of the tube was covered with a clean Teflon sheet and tightly fitting plastic caps, then labeled with the site project number, date, and time of collection, depth interval, company and sampler ID. Pertinent data was entered on the chain of custody (COC) document. The sample was placed in a clean cooler, with ice in a plastic container, pending transport to an analytical laboratory.

### 3.4 Field Monitoring

Soil was field monitored for odor and discoloration, and hydrocarbon vapor using a Gastech Model 1314, calibrated with hexane for gasoline vapor detection. No indications of hydrocarbons were present.

# 3.5 Collection of Groundwater Samples

Groundwater samples were collected within borings 2VSP-1, FB-1, and FB-2 by lowering a clean 1/2-inch stainless steel bailer into the hole, and retrieving a groundwater sample. This process was repeated and the bailer decanted into two one-liter amber glass bottles and two 40-ml volatile analysis vials (VOAs), to a positive meniscus eliminating headspace.

### 3.6 Decontamination

Prior to arriving on site the drill rig and all parts that approach the borings were decontaminated using a hot pressure wash. All sampling equipment was decontaminated between samples using an Alconox wash, and two tap water rinses

# 3.7 Analyses

Soil samples were transported to North State Labs of South San Francisco, California, a state certified hazardous materials analytical laboratory, under chain of custody.

Selected soil samples and all groundwater samples, were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPHg), Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX) and MTBE and Fuel Oxygenates, using EPA Modified Method 8015/8020/602.

# 3.7.1 Analytical Results of Soil and Groundwater Samples Collected During a Limited Site Assessment

# TABLE II Limited Site Assessment Soil Analytical Results December 12, 2003

Sample ID	TPHg (µg/Kg)	Benzene (µg /Kg)	Toluene (µg/Kg)	Ethyl-Benzene (µg /Kg)	Total Xylenes (µg /Kg)	8260 (µg /Kg)	
2VSP-1 (10')	ND	ND	ND	ND	ND	ND	
FB-1 (10')	ND	ND	ND	ND	ND	ND	
FB-2 (10')	ND	ND	ND	ND	ND	ND	
DISP (4')	ND	ND	ND	ND	ND	ND	
PL (4')	ND	ND	ND	ND	ND	ND	

ND = Non Detect for constituent analyzed.

Analyses performed USA EPA Method 8260 included MTBE

# TABLE III Limited Site Assessment Groundwater Analytical Results December 12, 2003

Sample ID	TPHg (µg/L)	Benzene (µg /L)	Toluene (µg/L)	Ethyl-Benzene (μg /L)	Total Xylenes (µg /L)	8260 (µg /L)	
2VSP-1	ND	ND	ND	ND	ND	ND	
FB-1	ND	ND	ND	ND	ND	ND ND	
FB-2	ND	ND	ND	ND	ND		

ND = Non Detect for constituent analyzed.

Analyses performed USA EPA Method 8260 included MTBE

# 3.8 Health and Safety Plan

A site specific Health and Safety Plan was onsite to guide the field crew in safely handling potentially hazardous materials, to discuss potential site and work hazards, and to identify the nearest health care facilities. These issues were discussed in a tailgate safety meeting prior to the initiation of work.

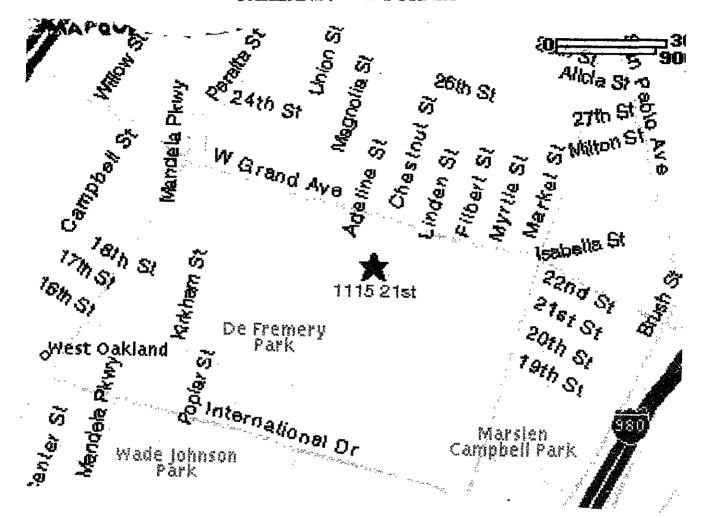
# 4.0 Recommendations and Conclusions

The soil and groundwater sample collected within exploratory boring 2VSP-1, 6" from the former 500-gallon gasoline tank pit, was analyzed for Total Petroleum Hydrocarbons as Gasoline (TPHg), Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), MTBE and Fuel Oxygenates and were reported as not detected at the lower detection limit for each contaminant of concern. Soil samples collected beneath the fuel dispenser (DISP), and product lines (PL) at a depth of 4.0' bgs were also reported as not detected for each contaminant of concern. Laboratory analytical results indicate that natural biodegradation of previously existing contaminants has occurred and the site is no adversely impacted. It is our recommendation that the site receive closure and no further work is required.

# **APPENDIX A - FIGURES**

- Figure 1. Site Location Map
- Figure 2. Location of Former 500-Gallon Gasoline UST
- Figure 3. Over Excavation of Tank Pit
- Figure 4. Soil Boring Locations

# 1115 21st STREET OAKLAND, CALIFORNIA

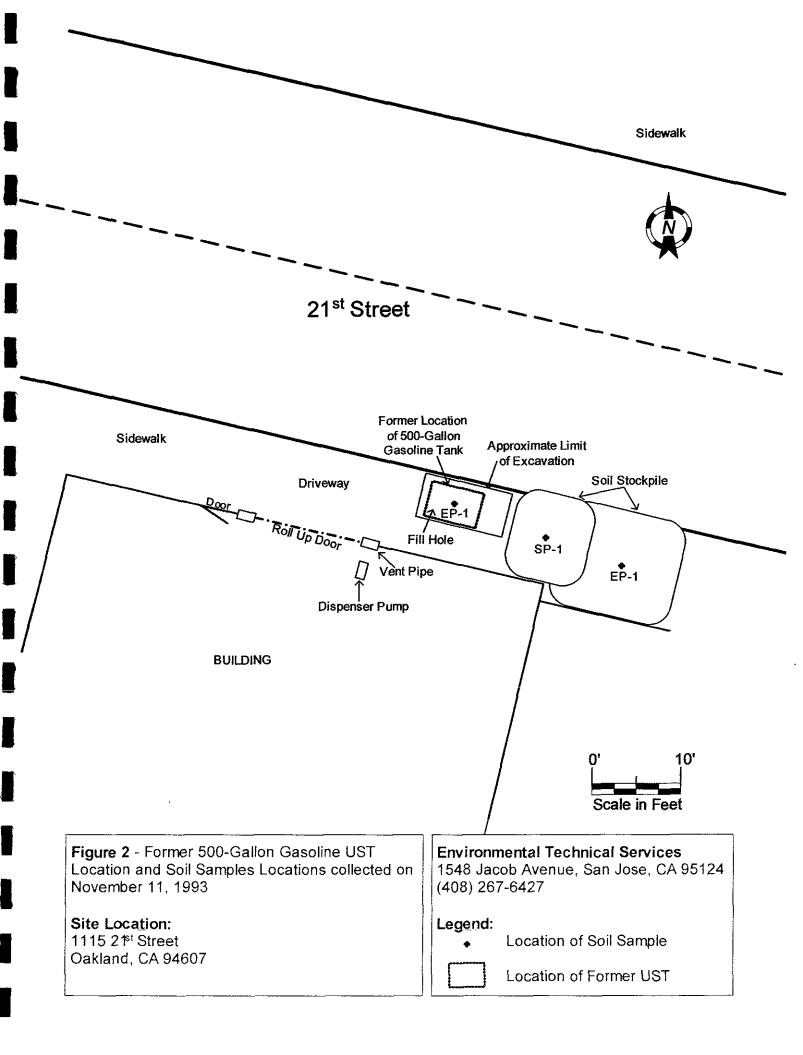


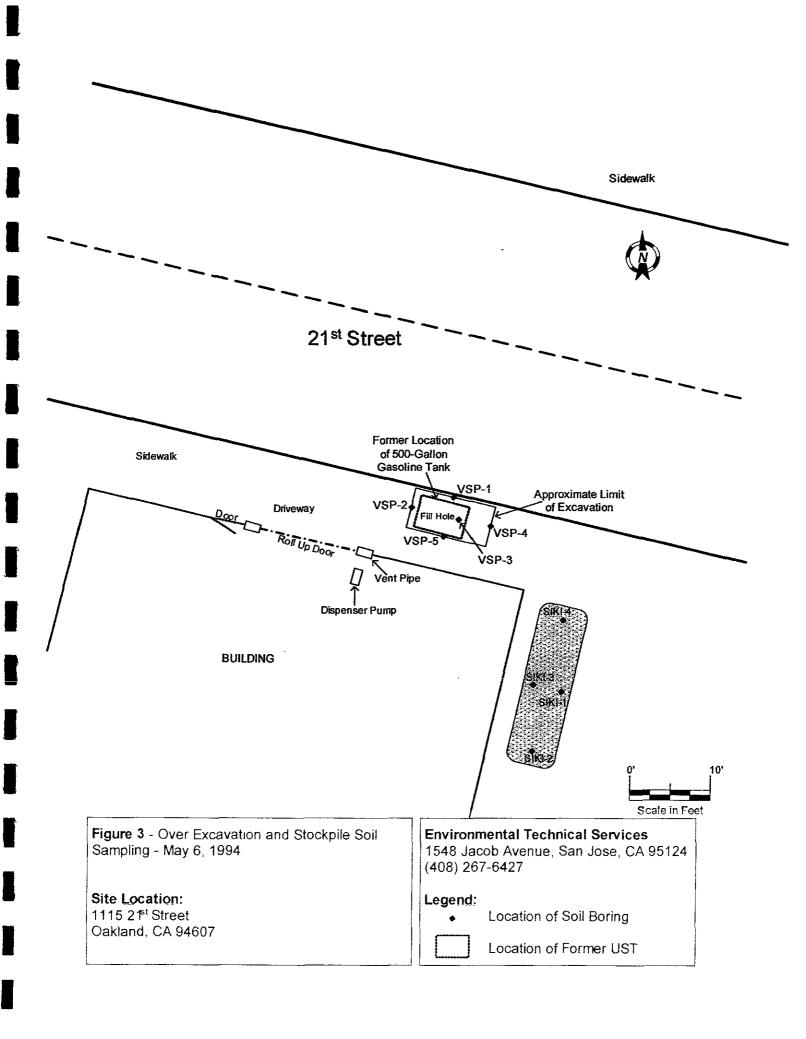
# Figure 1 - Site Location Map

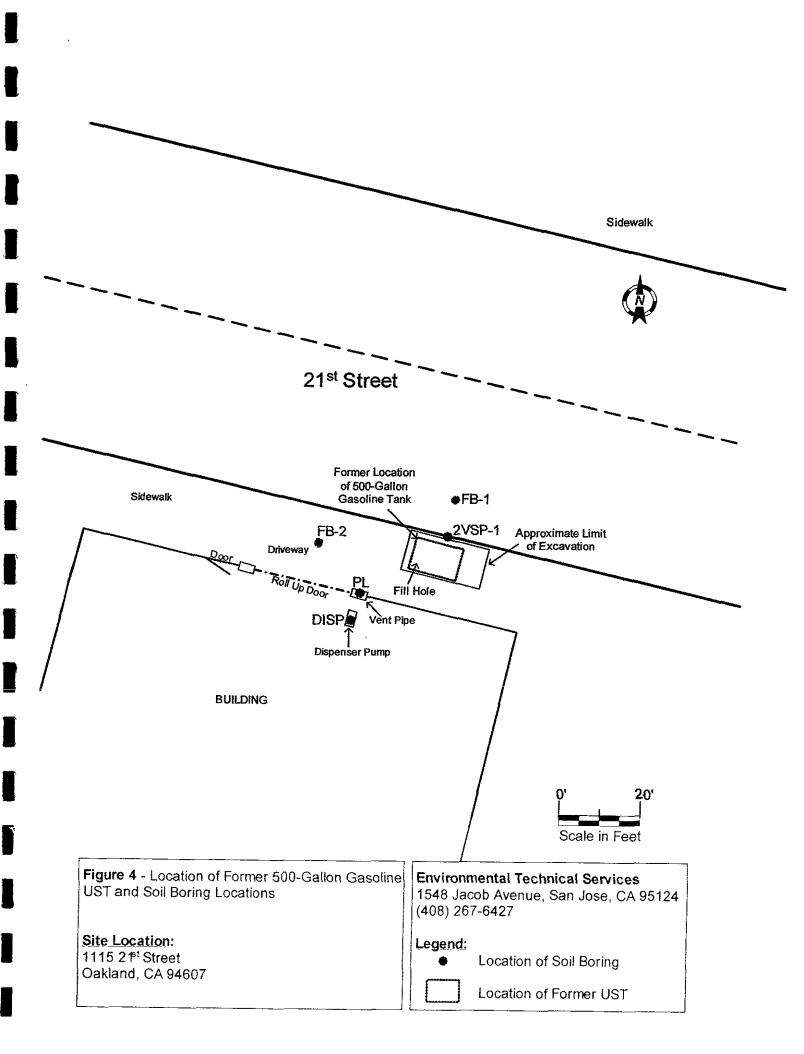
Site Location:

1115 2<sup>†t</sup> Street Oakland, CA 94607 **Environmental Technical Services** 

1548 Jacob Avenue, San Jose, CA 95124 (408) 267-6427

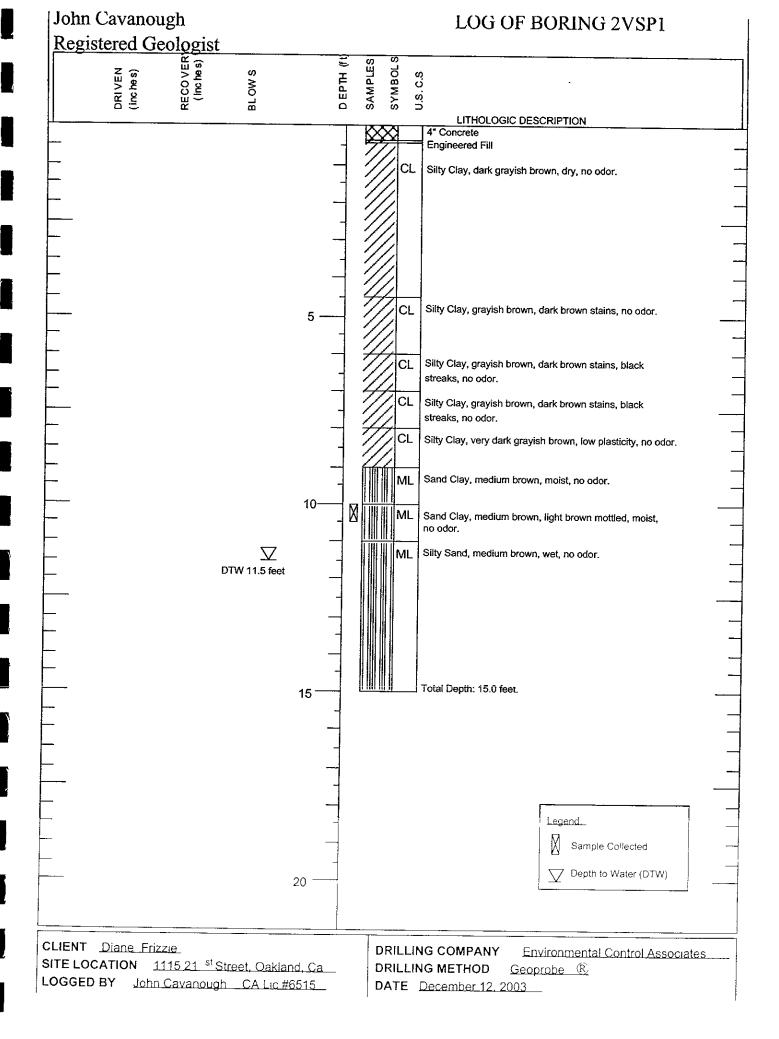






# APPENDIX B

LOG OF BORING 2VSP-1

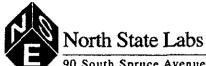


# **APPENDIX C**

# LABORATORY ANALYTICAL REPORT

And

CHAIN OF CUSTODY



# CERTIFICATE OF ANALYSIS

Lab Number:

03-1822

Client:

ETS

Project:

Date Reported: 12/16/2003

Gasoline and BTEX by Methods 8015M/8021B

Analyte	Method	Result	Unit Date Sampled	iDate Analyzed			
Sample: 03-1822-01 Clie	nt ID: 2VSP1		12/12/2003	SO			
Benzene	SW8020F	ND<5	UG/KG	12/15/2003			
Ethylbenzene	SW8020F	ND<5	UG/KG	12/15/2003			
Gasoline Range Organics	SW8020F	ND<500	UG/KG	12/15/2003			
Toluene	SW8020F	ND<5	UG/KG	12/15/2003			
Xylenes	SW8020F	ND<10	UG/KG	12/15/2003			
Sample: 03-1822-02 Clie	nt ID: PL		12/12/2003	so			
Benzene	SW8020F	ND<5	UG/KG	12/15/2003			
Ethylbenzene	SW8020F	ND<5	UG/KG	12/15/2003			
Gasoline Range Organics	SW8020F	ND<500	UG/KG	12/15/2003			
Toluene	SW8020F	ND<5	UG/KG	12/15/2003			
Xylenes	SW8020F	ND<10	UG/KG	12/15/2003			
Sample: 03-1822-03 Clien	nt ID: DISP		12/12/2003	SO			
Benzene	SW8020F	ND<5	UG/KG	12/15/2003			
Ethylbenzene	SW8020F	ND<5	UG/KG	12/15/2003			
Gasoline Range Organics	SW8020F	ND<500	UG/KG	12/15/2003			
Toluene	SW8020F	ND<5	UG/KG	12/15/2003			
Xylenes	SW8020F	ND<10	UG/KG	12/15/2003			



#### CERTIFICATE OF ANALYSIS

Lab Number:

03-1822

Client:

ETS

Project:

Date Reported: 12/16/2003

Gasoline and BTEX by Methods 8015M/8021B

Analyte	Method	Result	Unit Date Sampled	Date Analyzed
Sample: 03-1822-04 Clie	nt ID: 2VSP1		12/12/2003	W
Benzene	SW8020F	ND<0.5	UG/L	12/16/2003
Ethylbenzene	SW8020F	ND<0.5	UG/L	12/16/2003
Gasoline Range Organics	SW8020F	ND<50	UG/L	12/16/2003
Toluene	SW8020F	ND<0.5	UG/L	12/16/2003
Xylenes	SW8020F	ND<1.0	UG/L	12/16/2003



# CERTIFICATE OF ANALYSIS

Job Number: 03-1822

Client : ETS

Project :

Date Sampled : 12/12/2003

Date Analyzed: 12/15/2003

Date Reported: 12/16/2003

# Fuel Oxygenates by Method 8260B

Laboratory Number	03-1822-01	03-1822-02	03-1822-03
Client ID	2VSP1	PL	DISP
Matrix	SO	SO	SO
Analyte	UG/KG	UG/KG	UG/KG
Methyl-tert-butyl ether Ethyl tert-butyl ether tert-Amyl methyl ether Di-isopropyl ether (DIPE) tert-Butyl alcohol 1.2-Dichloroethane 1.2-Dibromoethane	ND<5	ND<5	ND<5
	ND<250	ND<250	ND<250
	ND<5	ND<5	ND<5
	ND<5	ND<5	ND<5
Ethanol SUR-Dibromofluoromethane SUR-Toluene-d8 SUR-4-Bromofluorobenzene	ND<500	ND<500	ND<500
	100	136	142
	80	86	85
	108	114	110



# CERTIFICATE OF ANALYSIS

Job Number: 03-1822

Client : ETS

Project :

Date Sampled : 12/12/2003

Date Analyzed: 12/15/2003

Date Reported: 12/16/2003

### Fuel Oxygenates by Method 8260B

03-1822-04 Laboratory Number Client ID 2VSP1 Matrix W Analyte UG/L Methyl-tert-butyl ether ND<0.5 Ethyl tert-butyl ether ND<1 tert-Amyl methyl ether ND<1 Di-isopropyl ether (DIPE) ND<0.5 tert-Butyl alcohol ND<10 1,2-Dichloroethane ND<1 1,2-Dibromoethane ND<0.5 Ethanol ND<100 SUR-Dibromofluoromethane 120 SUR-Toluene-d8 99 SUR-4-Bromofluorobenzene 110



# CERTIFICATE OF ANALYSIS

Quality Control/Quality Assurance

Lab Number:

03-1822

Client:

ETS

Project:

Date Reported: 12/16/2003

Gasoline and BTEX by Methods 8015M/8021B

Analyte	Method	Report Limit	ing Unit	Blank	Avg MS/MS Recovery	D RPD
Gasoline Range Organics	SW8020F	500	UG/KG	ND	124/125	1
Benzene	SW8020F	5	UG/KG	ND	123/122	1
Toluene	SW8020F	5	UG/KG	ND	117/117	0
Ethylbenzene	SW8020F	5	UG/KG	ND	108/108	0
Xylenes	SW8020F	10	UG/KG	ND	110/110	0
Gasoline Range Organics	SW8020F	50	UG/L	ND	129/130	1
Benzene	SW8020F	0.5	UG/L	ND	107/108	1
Toluene	SW8020F	0.5	UG/L	ND	110/113	3
Ethylbenzene	SW8020F	0.5	UG/L	ND	110/110	0
Xylenes	SW8020F	1.0	UG/L	ND	116/117	1

ELAP Certificate NO:1753 Reviewed and Approved

A.Mudphy(Daboratory Director

Page 3 of 3



# CERTIFICATE OF ANALYSIS

Job Number: 03-1822

Client : ETS

Project :

Date Sampled : 12/12/2003

3. 12/12/2003 3. 12/15/2003

Date Analyzed: 12/15/2003 Date Reported: 12/16/2003

## Fuel Oxygenates by Method 8260B Quality Control/Quality Assurance Summary

Laboratory Number Client ID Matrix	03-1822 Blank SO	MS/MSD Recovery SO	RPD	Recovery Limit	RPD Limit		
Analyte	Results UG/KG	%Recoveries					
Ethanol	ND<500			•			
Methyl-tert-butyl ether	ND<5						
Di-isopropyl ether (DIPE)	ND<5						
tert-Butyl alcohol	ND<250						
Ethyl tert-butyl ether	ND<5						
tert-Amyl methyl ether	ND<5						
1,2-Dichloroethane	ND<5						
1,2-Dibromoethane	ND<5						
1,1-Dichloroethene	ND<5	70/68	3	54-155	27		
Benzene	ND<5	112/110	2	· -	22		
Trichloroethene	ND<5	113/110	3		22 20		
Toluene	ND<5	102/100	2		20 21		
Chlorobenzene	ND<10	129/125	3		21 21		
SUR-Dibromofluoromethane	127	140/140	0				
SUR-Toluene-d8	92	86/86	0		23		
SUR-4-Bromofluorobenzene	128	99/112	12		14 18		

Reviewed and Approved

John A Murchy Laboratory Director



#### CERTIFICATE OF ANALYSIS

Job Number: 03-1822

Client : ETS

Project

Date Sampled: 12/12/2003

Date Analyzed: 12/15/2003

Date Reported: 12/16/2003

### Fuel Oxygenates by Method 8260B Quality Control/Quality Assurance Summary

Laboratory Number Client ID Matrix	03-1822 Blank W	MS/MSD Recovery W	RPD	Recovery Limit	RPD Limit
Analyte	Results UG/L	%Recoveries			
Ethanol Methyl-tert-butyl ether Di-isopropyl ether (DIPE) tert-butyl Alcohol Ethyl tert-butyl ether tert-Amyl methyl ether	ND<100 ND<0.5 ND<0.5 ND<10 ND<1				
1,1-Dichloroethene 1,2-Dichloroethane	ND<1 ND<0.5 ND<1	62/69	11	61-128	25
Benzene 1,2-Dibromoethane	ND<0.5 ND<0.5	90/93	3	74-135	21
Trichloroethene Toluene Chlorobenzene SUR-Dibromofluoromethane	ND<0.5 ND<0.5 ND<1	87/90 102/105 110/115	3 3 4	69-129 61-141 70-139	20 19 19
SUR-Toluene-d8 SUR-4-Bromofluorobenzene	113 104 121	117/119 98/97 109/110	2 1 1	72-119	21 16 19

Reviewed and Approved

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