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SUBSURFACE INVESTIGATION REPORT

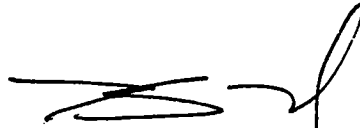
for:

**Former Exxon Service Station
3055 35th Avenue
Oakland, California**

prepared by:

Cambria Environmental Technology, Inc.
1144 65th Street, Suite C
Oakland, California 94608
Cambria Project #20-105-20

All work performed by Cambria Environmental Technology, Inc. for the project at 3055 35th Avenue, Oakland, California was conducted under my supervision. To the best of my knowledge, the data contained herein are true and accurate and satisfy the scope of work prescribed by the client for this project. The data, findings, recommendations, specifications or professional opinions presented herein were prepared in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied.



N. Scott MacLeod, R.G. #1747
Principal Geologist

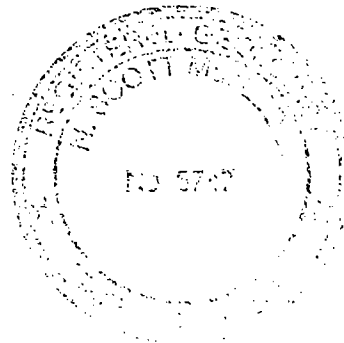


TABLE OF CONTENTS

EXECUTIVE SUMMARY iii

INTRODUCTION 1

 Objectives 1

 Site Background 1

 Previous Investigations 2

INVESTIGATION RESULTS 3

 Soil Borings 3

 Well Construction 4

 Hydrocarbon Distribution in Soil 5

 Hydrocarbon Distribution in Ground Water 5

REFERENCES 7

FIGURES

1. Site Location Map
2. Soil Boring and Well Locations
3. Ground Water Elevations - May 17, 1994
4. TPHg Concentrations in Soil at 15 ft Depth
5. TPHg Concentrations in Ground Water - May 1994
6. Benzene Concentrations in Ground Water - May 1994

TABLES

1. Soil Analytic Data
2. Ground Water Elevation and Analytic Data

APPENDICES

- A. Well Permits
- B. Boring and Well Construction Logs
- C. Analytic Results for Soil and Ground Water

EXECUTIVE SUMMARY

This report presents the results of the subsurface investigation conducted by Cambria Environmental Technology, Inc. (Cambria) at the former Exxon service station at 3055 35th Avenue in Oakland, California (Figure 1). The site is located in a mixed commercial and residential area and is downgradient of one former and one active service station.

Between May 5 and 9, 1994, Cambria drilled seven soil borings and installed three ground water monitoring wells at the site. Total petroleum hydrocarbons as gasoline (TPHg) were detected in soil samples from six of the seven borings, at concentrations up to 2,900 parts per million (ppm). TPHg and benzene, ethylbenzene, toluene and xylenes (BETX) were detected in ground water samples from all borings, at up to 130,000 parts per billion (ppb) TPHg and 22,000 ppb benzene. In addition, a hydrocarbon sheen was observed on several soil samples and on water in two of the three wells. Ground water is about 15 ft below grade and flows westward.

Based on the distribution of hydrocarbons in soil and ground water and the ground water flow direction, hydrocarbons appear to extend offsite in several directions including to the west, which is downgradient of the site. Since boring SB-A is upgradient of the potential onsite hydrocarbon sources and no significant hydrocarbon concentrations were detected in unsaturated soil, the hydrocarbons detected in soil and ground water from this boring may originate from the former Texaco station that is upgradient of the site.

INTRODUCTION

OBJECTIVES

This report presents the results of the subsurface investigation conducted by Cambria Environmental Technology (Cambria) at the former Exxon Service Station at 3055 35th Avenue in Oakland, California. The objectives of this investigation were to summarize the available site history and previous environmental investigations, assess the extent of hydrocarbons in soil and ground water beneath the property, and to determine whether hydrocarbons are migrating onto the site from upgradient sources.

SITE BACKGROUND

Site Location: The site is located at the northeast corner of 35th Avenue and School Street in Oakland, California (Figure 1). Topography in the area slopes generally westward. The nearest surface water is Peralta Creek, which is about 0.1 miles north of the site and flows westward.

Adjacent Hydrocarbon Sources: Two active or former gasoline service stations are located within one block of the site. A British Petroleum (BP) site is on 35th Avenue one block east (upgradient) of the site and appears to have a remediation system installed. We could not determine whether the remediation system was operating at the time of this investigation. A former Texaco station is located across School Street immediately east (upgradient) of the former Exxon site. According to discussions with the current owner of the former Texaco property, the underground storage tanks were removed by Texaco about 15 years ago. Apparently, no soil samples were collected during the tank removal and no investigation has been conducted at the former Texaco site.

PREVIOUS INVESTIGATIONS

October 1990 Geotechnical Investigation: In October 1990, Geotechnical Engineering of Fremont, California drilled two soil borings at the site for an engineering analysis. Although a variety of geotechnical tests were performed on soil samples collected from the borings, no chemical analyses were performed.

January 1991 Tank Removal: In January 1991, Pacific Excavators removed four underground gasoline storage tanks and one 500-gallon waste oil tank from the site. The former gasoline tanks appear to have capacities between 4,000 and 6,000 gallons. According to a September 24, 1992 workplan prepared by Consolidated Technologies of San Jose, California (CT), soil samples were collected during the tank removal, but were not analyzed or reported by Pacific Excavators (CT, 1992).

November 1991 Subsurface Investigation: In November 1991, CT drilled twelve soil borings to depths of up to 35 ft (Figure 2). Total petroleum hydrocarbons as gasoline (TPHg) were detected in soil samples collected from 11 of the 12 soil borings, at up to 2,100 parts per million (ppm). No total petroleum hydrocarbons as diesel (TPHd) or oil and grease (O&G) were detected in boring B-7, which is immediately downgradient of the former waste oil tank.

INVESTIGATION RESULTS

The results of Cambria's May 1994 subsurface investigation are summarized below. Copies of monitoring well permits are presented in Appendix A. Boring log and well construction diagrams are presented in Appendix B. Analytic results for soil and ground water are presented in Tables 1 and 2, respectively, and the analytic reports are presented in Appendix C.

SOIL BORINGS

- Permits:** No permits required for soil borings. Monitoring well permits are presented in Appendix A.
- Drilling Dates:** May 5 to 9, 1994.
- Drilling Methods:** Solid flight augers for borings used only for soil and grab water sampling and hollow-stem augers for borings converted to wells.
- Number of Borings:** Seven (Figure 2).
- Boring Depths:** 20 to 26.5 ft below grade (Appendix B).
- Sediment Lithology:** The site is underlain by gravelly silts to about 12 ft depth, and by interbedded silty sands and clayey silts to the total depth explored of 26.5 ft depth (Appendix B).
- Soil Analyses:** Selected soil samples were analyzed for:
- TPHg by modified EPA Method 8015,
 - TPHd by modified EPA Method 8015,
 - TPH as motor oil (TPHmo) by modified EPA Method 8015, and
 - Benzene, ethylbenzene, toluene and xylenes (BETX) by EPA Method 8020.
- Waste Disposal:** Soil cuttings were stockpiled on and covered with plastic sheeting. Soil will be disposed at a later date.

WELL CONSTRUCTION

Wells MW-1 and MW-2 were installed west of the tanks and southernmost pump island, respectively, to monitor water quality downgradient of these possible hydrocarbon source areas (Figure 3). Well MW-3 was installed along the downgradient property line to determine whether hydrocarbons were migrating offsite and for triangulation. Well MW-3 was installed in boring SB-C because a hydrocarbon sheen was observed on soil samples from the capillary fringe in this boring.

Well Materials: Wells MW-1 and MW-2 were constructed using four-inch diameter, 0.010-inch slotted Schedule 40 PVC well screen and well casing. Well MW-3 was constructed using two-inch diameter, 0.010-inch slotted Schedule 40 PVC well screen and well casing.

Screened Interval: Ground water stabilized in the soil borings at 15 ft depth and a hydrocarbon sheen was observed on soil samples collected near the water table from several borings. Therefore, we constructed all three wells to screen between five ft above and ten ft below the water table (Appendix B).

Development Method: Wells were developed using surge block agitation and purged using submersible electric pumps.

Ground Water Analyses: Ground water samples from the borings and wells were analyzed for:

- TPHg by modified EPA Method 8015,
- TPHd by modified EPA Method 8015,
- TPHmo by modified EPA Method 8015, and
- BETX by EPA Method 8020.

Gradient and Flow Direction: Ground water flows westward at about 0.013 ft/ft (Figure 3).

Waste Disposal: Purge water from the borings and wells and steam clean rinseate were stored in D.O.T. approved 55-gallon drums pending disposal. Water is scheduled for transport and recycling to the Gibson recycling facility in Redwood City, California.

HYDROCARBON DISTRIBUTION IN SOIL

The highest hydrocarbon concentrations are located near the water table at about 15 ft depth near the former underground gasoline storage tanks and the southernmost pump island (Figure 4, Table 1). A hydrocarbon sheen was observed on soil samples collected near the water table from several borings including the boring for downgradient well MW-3. Well MW-3 was installed in boring SB-C because a hydrocarbon sheen was observed on soil samples collected near the water table in this boring. No sheen was observed on the other downgradient borings.

Gasoline-range hydrocarbons were detected in six of the seven borings drilled for this investigation and in all but one boring drilled during the previous investigation. The extent of hydrocarbons in soil is defined to the northwest by borings SB-D and B-8 (Figure 4, Table 1). The southeastern extent of hydrocarbons is nearly defined by boring SB-A. Based on the hydrocarbon concentrations detected in soil samples collected from the downgradient borings, hydrocarbons are likely in soil downgradient of the site.

Although TPHd were detected in most of the soil samples, the analytic laboratory indicated that all of the positive TPHd results were due to hydrocarbons that are lighter than diesel. Therefore, the TPHd detected is likely due to the gasoline-range hydrocarbons.

HYDROCARBON DISTRIBUTION IN GROUND WATER

Hydrocarbon concentrations in ground water are highest downgradient of the former underground gasoline tanks and the southernmost pump island (Figures 5 and 6, Table 2). A hydrocarbon sheen was observed in two of the three wells during sampling and TPHg/BETX concentrations detected in ground water are near the saturation concentrations of these compounds in ground water. Based on the ground water flow direction and hydrocarbon concentrations at the downgradient property line, it appears that aqueous-phase hydrocarbons are migrating offsite to the west.

Up to 1,600 ppm TPHg were detected in soil from upgradient boring SB-A and 7,000 parts per billion (ppb) TPHg were detected in grab ground water samples from the boring. The hydrocarbons detected in this boring could either have migrated in soil and/or ground water from onsite source areas or, alternately, could have originated from the upgradient former Texaco station.

REFERENCES

- GEI, 1990, Soil Investigation Report, 3055 35th Avenue, Oakland, California, Consultant's letter-report prepared for Lynn Worthington, November 19, 1990, 10 pages plus attachments.
- CT, 1991, Workplan for Preliminary Subsurface Site Investigation, 3055 35th Avenue, Oakland, California, Consultant's workplan prepared for Lynn Worthington, not dated, 19 pages plus attachments.
- CT, 1991, Results for Preliminary Subsurface Site Investigation, 3055 35th Avenue, Oakland, California, Consultant's report prepared for Lynn Worthington, not dated, 9 pages plus attachments.
- CT, 1992, Workplan for a Subsurface Petroleum Hydrocarbon Contamination Assessment, 3055 35th Avenue, Oakland, California, Consultant's workplan prepared for Lynn Worthington, September 24, 1992, 5 pages plus attachments.
- CT, 1993, Addendum to Workplan for a Subsurface Petroleum Hydrocarbon Contamination Assessment, 3055 35th Avenue, Oakland, California, Consultant's workplan prepared for Lynn Worthington, September 24, 1993, 4 pages.

FIGURES



Figure 1. Site Location Map - 3055 35th Avenue, Oakland, California

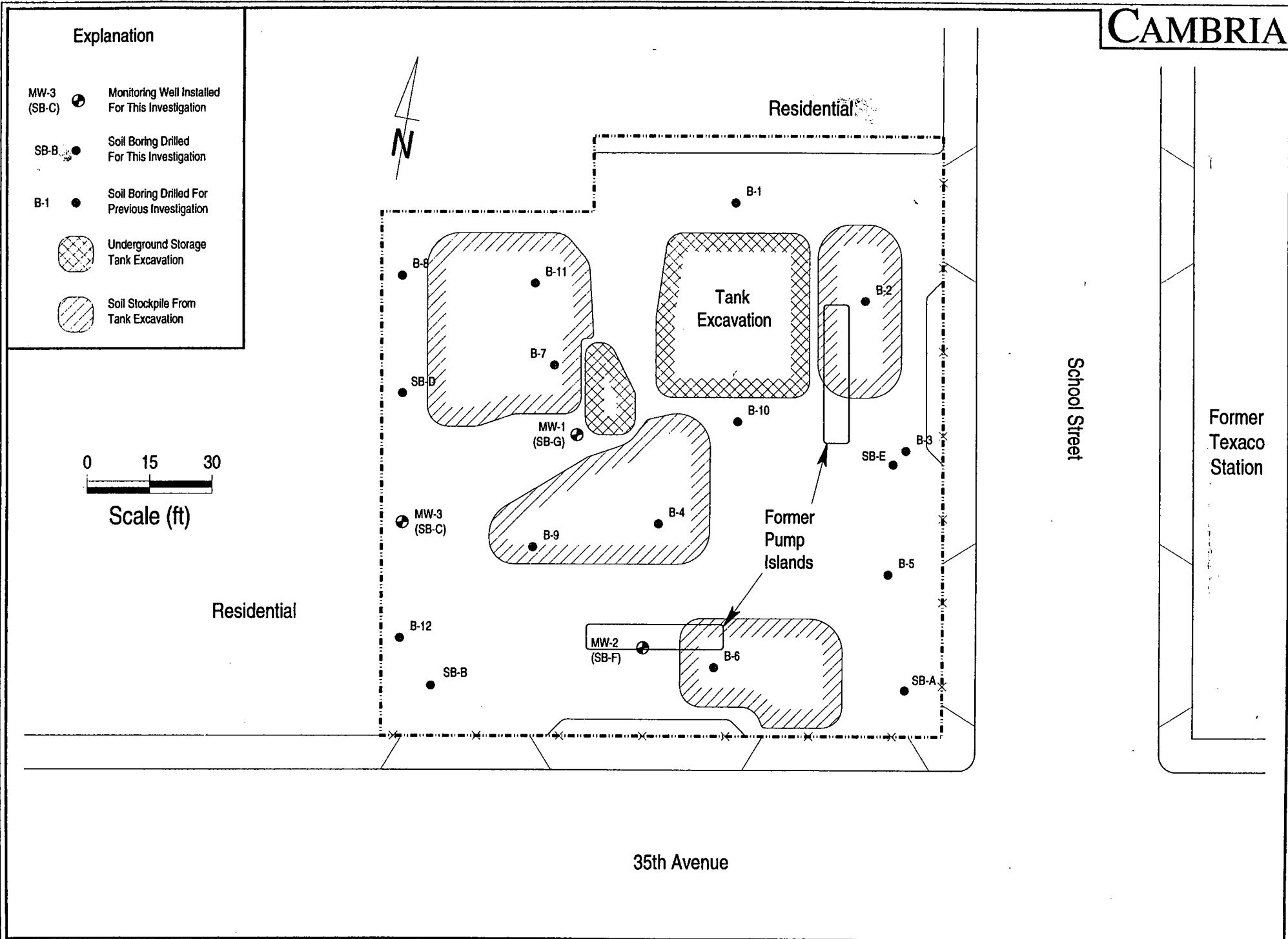


Figure 2. Soil Boring and Well Locations - 3055 35th Avenue, Oakland, California

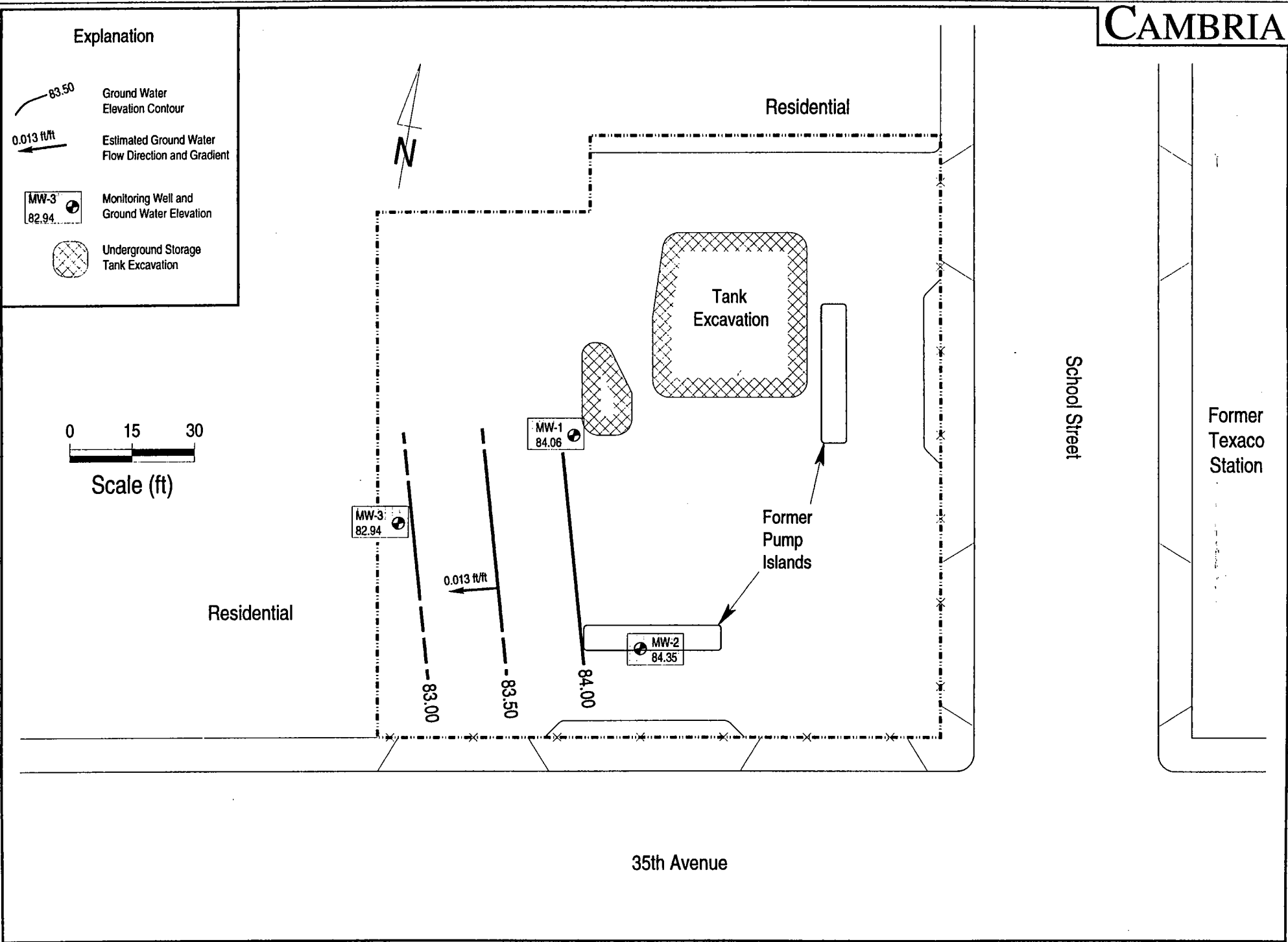


Figure 3. Ground Water Elevations - May 17, 1994 - 3055 35th Avenue, Oakland, California

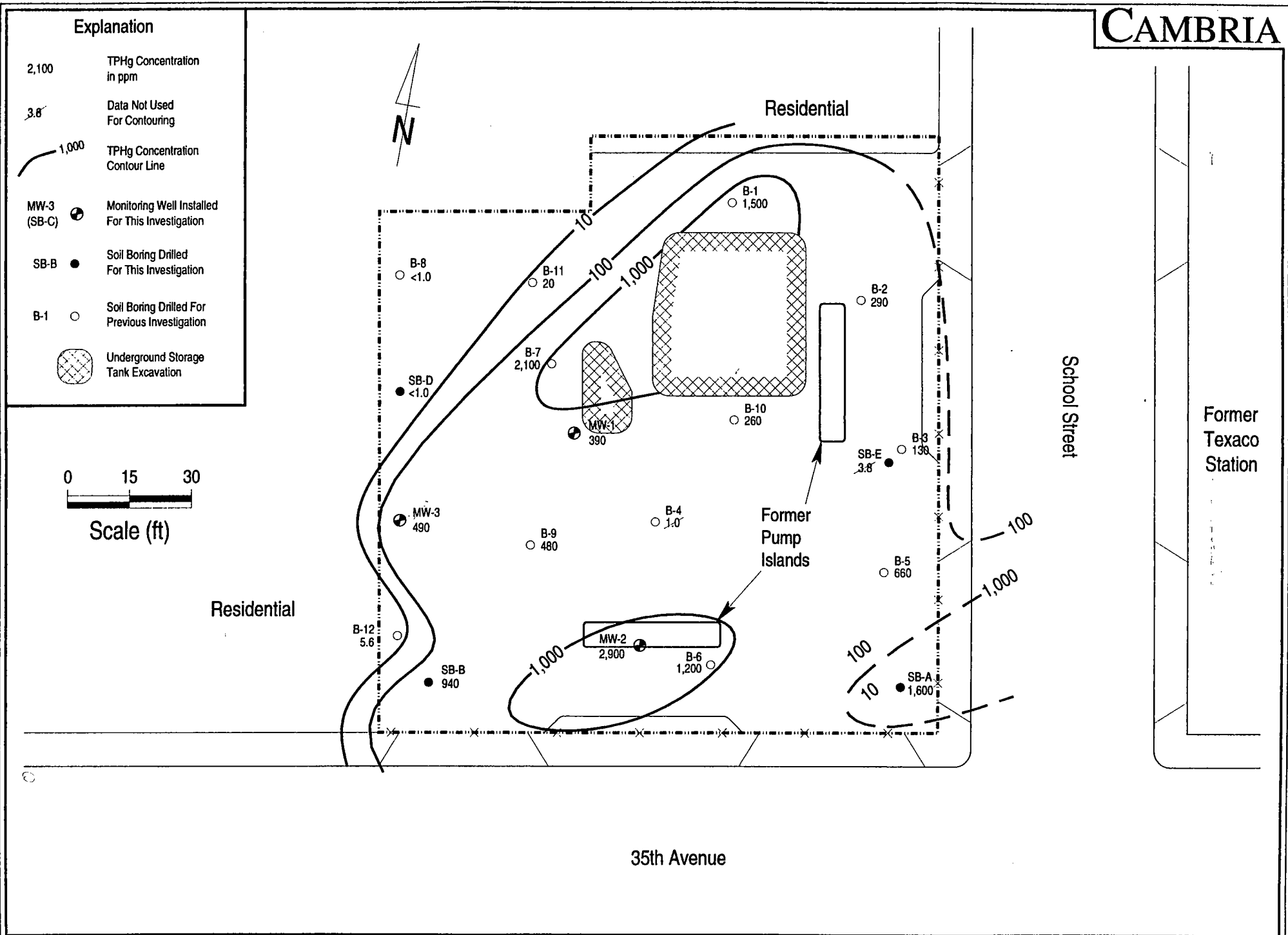


Figure 4. Maximum TPHg Concentrations (ppm) in Soil at 15 ft Depth - 3055 35th Avenue, Oakland, California

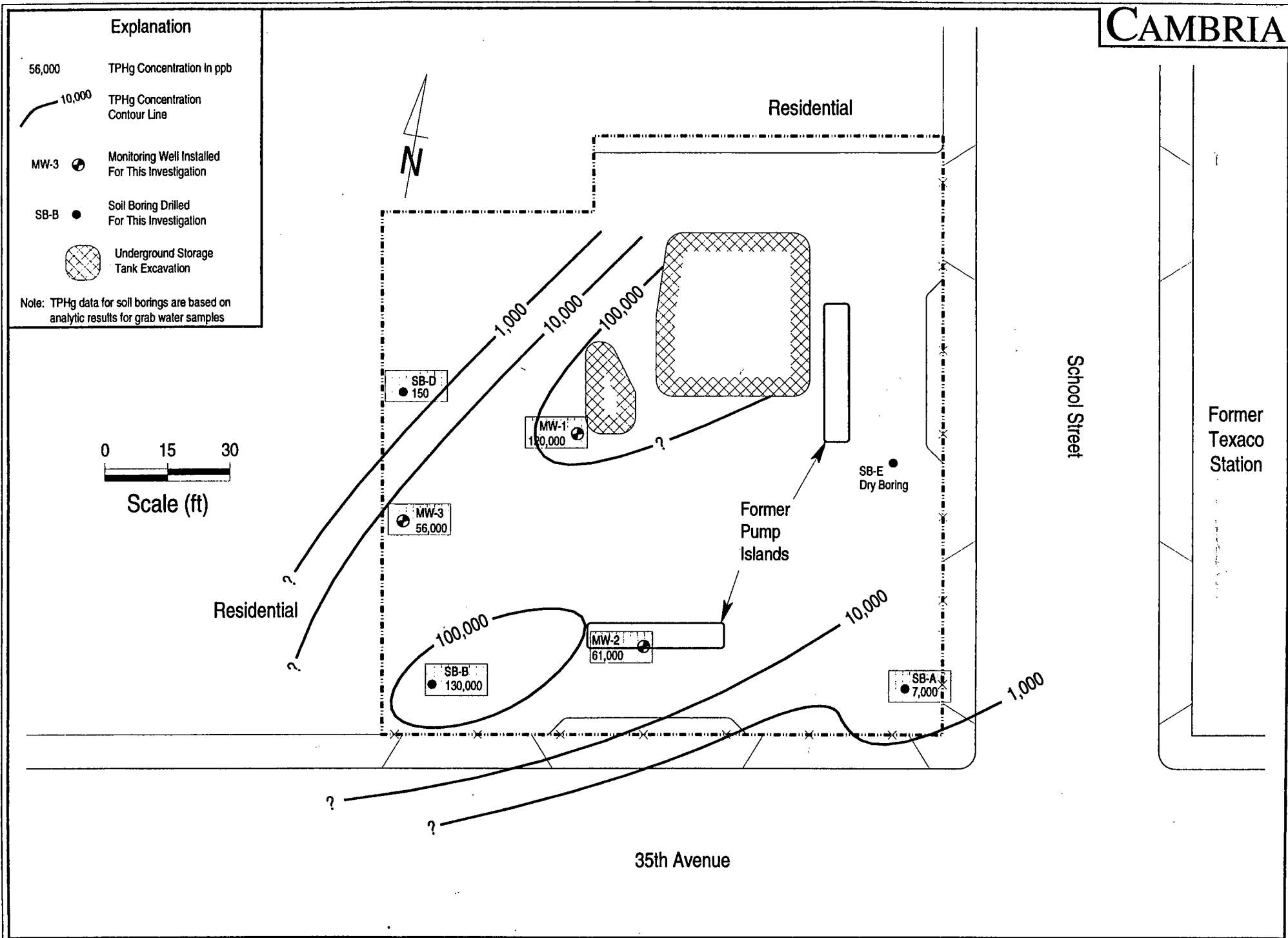


Figure 5. TPHg Concentrations in Ground Water (ppb) - May 1994 - 3055 35th Avenue, Oakland, California

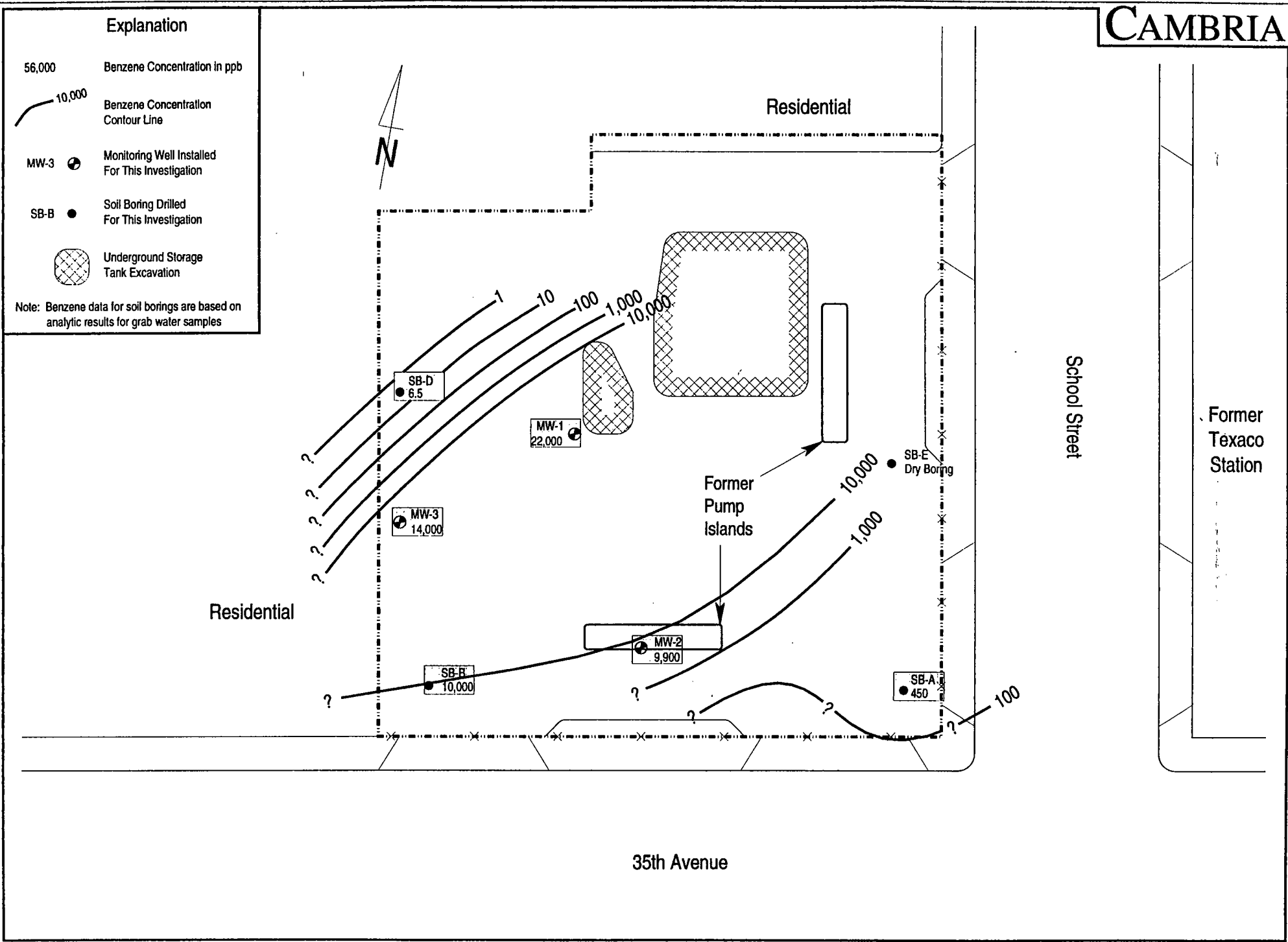


Figure 6. Benzene Concentrations in Ground Water (ppb) - May 1994 - 3055 35th Avenue, Oakland, California

TABLES

Table 1. Soil Analytic Data - 3055 35th Avenue, Oakland, California

Boring/ Well ID	Date Sampled	Sample Depth (ft)	GW Depth (ft)	TPHg	TPHd	TPHmo	(Concentration in mg/kg)				Notes
							B	T	E	X	
SB-A	5/5/94	11	14.5	3.4	4.2	<10	0.0072	0.0015	0.015	0.031	a
	5/5/94	16		1,600	620	<1,000	1.8	3.4	17	54	a
SB-B	5/6/94	11	15.0	170	52	<100	0.45	2.5	1.7	11	a
	5/6/94	16		940	120	<100	6.3	28	12	70	a
SB-C (MW-3)	5/6/94	11	13.9	25	6.7	<10	0.22	0.62	0.49	2.1	a
	5/6/94	16		490	280	<500	1.9	14	7.4	42	a
SB-D	5/6/94	11	19.5	<1	5.2	<10	<0.0025	<0.0025	<0.0025	<0.0025	
	5/6/94	16		<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	
SB-E	5/9/94	11	dry boring	220	56	<10	0.55	2.1	1.7	2.8	a
	5/9/94	16		3.8	1.4	<10	0.19	0.20	0.059	0.20	a
SB-F (MW-2)	5/9/94	11	13.3	370	57	<10	<0.25	<0.25	3.9	6.2	a
	5/9/94	15		2,900	450	<100	24	41	48	196	a
SB-G (MW-1)	5/9/94	11	14.5	20	18	<10	0.061	0.014	0.093	0.34	a
	5/9/94	15		390	52	<10	1.4	6.1	3.9	16	b

Abbreviations

GW = Ground water
 TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
 TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
 TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015

B = Benzene by EPA Method 8020
 E = Ethylbenzene by EPA Method 8020
 T = Toluene by EPA Method 8020
 X = Xylenes by EPA Method 8020

Notes

a = The positive TPHd response appears to be a lighter hydrocarbon than diesel
 b = The positive TPHd result has an atypical chromatographic pattern

Table 2. Ground Water Elevation and Analytic Data - 3055 35th Avenue, Oakland, California

Well/ Boring ID	Date	Casing Elevation (ft)	GW Depth (ft)	LPH (ft)	GW Elev. (ft)	TPHg	TPHd	TPHmo	(Concentration in µg/l)				Notes
									B	T	E	X	
Wells													
MW-1	5/25/94	100.85	16.79	Sheen	84.06	120,000	25,000	<50,000	22,000	17,000	2,800	16,000	a
MW-2	5/25/94	100.00	15.65	---	84.35	61,000	6,900	<5,000	9,900	7,400	960	4,600	a
MW-3	5/25/94	96.87	13.93	Sheen	82.94	56,000	14,000	<50,000	14,000	14,000	1,300	11,000	a
Borings													
SB-A	5/6/94	---	14.50	---	---	7,000	9,100	<25,000	450	75	180	330	
SB-B	5/6/94	---	15.00	---	---	130,000	3,800	<5,000	10,000	11,000	2,200	11,000	
SB-D	5/9/94	---	19.30	---	---	150	210	<500	6.5	10	2.9	12	
DTSC MCLs or State Action Level						NE	NE	NE	1	100	680	1,750	

Abbreviations

Casing Elevation = Top of casing elevation with respect to onsite benchmark
 GW = Ground water
 LPH = Liquid-phase hydrocarbons
 TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015
 TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015
 TPHmo = Total petroleum hydrocarbons as motor oil by modified EPA Method 8015

B = Benzene by EPA Method 8020
 E = Ethylbenzene by EPA Method 8020
 T = Toluene by EPA Method 8020
 X = Xylenes by EPA Method 8020
 DTSC MCLs = Department of Toxic Substances Control maximum contaminant level for drinking water
 NE = Not established

Notes

a = The positive TPHd result appears to be a hydrocarbon lighter than diesel

APPENDIX A

Well Permits



ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94566 (415) 484-2800

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

1) LOCATION OF PROJECT 3055 35th AVE OAKLAND, CA 94615

PERMIT NUMBER 94278 LOCATION NUMBER

2) CLIENT Name LYNN WORTHINGTON Address 5942 MARATHA ST Phone (510) 561-9600 City OAKLAND Zip 94605

PERMIT CONDITIONS

Circled Permit Requirements Apply

3) APPLICANT Name SCOTT MACLEOD CAMBRIA ENVIRONMENTAL Address 1144 65th ST Phone (510) 430-0200 City OAKLAND Zip 94608

A. GENERAL

- 1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date. 2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects. 3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS

- 1. Minimum surface seal thickness is two inches of cement grout placed by tremie. 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

4) DESCRIPTION OF PROJECT Water Well Construction X Geotechnical Investigation Cathodic Protection General Well Destruction Contamination

5) PROPOSED WATER WELL USE Domestic Industrial Irrigation Municipal Monitoring X Other

6) PROPOSED CONSTRUCTION Drilling Method: Mud Rotary Air Rotary Auger X Cable Other

DRILLER'S LICENSE NO. C52-582696

WELL PROJECTS Drill Hole Diameter 10 in. Maximum G casing Diameter 4 in. Depth 25 ft. Surface Seal Depth 18 ft. Number 3

GEOTECHNICAL PROJECTS Number of Borings Hole Diameter Maximum Depth

7) ESTIMATED STARTING DATE APRIL 28, 1994 ESTIMATED COMPLETION DATE 29

8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

Approved Wyman Hong Date 9 May 94

APPLICANT'S SIGNATURE [Signature] Date 4/21/94

APPENDIX B

Boring and Well Construction Logs

BORING LOG

Client: **Lynn Worthington**

Project No: **20-105-20**

Phase **4**

Task **4**

Boring ID

SB-A

Location **3055 35th Ave, Oakland**

Surface Elev. **N/A ft,**

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg. (ppm)	Graphic Log	Boring Completion Graphics	Depth Feet	Additional Comments
0	Ground Surface						0	
5	9 21 25		Silty GRAVEL Orange-brown; hard; damp; 5% clay, 30% silt, 20% sand, 45% angular gravel to 1" diam.; no to low plasticity; low estimated hydraulic conductivity.				5	
10	5 10 25		Sandy to Clayey SILT Brown with green mottling; hard; damp; 20% clay, 50% silt, 20% sand, 10% gravel; medium to high plasticity; very low to low estimated hydraulic conductivity. Strong weathered gasoline odor.	3			10	
15	6 9 10		Silty SAND Brownish green; very stiff; moist; <5% clay, 40% silt, 55% sand, <5% gravel; low plasticity; low estimated hydraulic conductivity. Very strong weathered gasoline odor.	1,600			15	
20	10 15 18		Clayey to Sandy SILT Dark green to brown; hard; damp; 15% clay, 45% silt, 30% sand, 10% gravel; medium plasticity, low estimated hydraulic conductivity. Slight to moderate weathered gasoline odor.				20	
25	11 18 20		No hydrocarbon odor				25	
30							30	Bottom of boring

Driller Soils Exploration	Drilling Started 5/5/94	Notes: _____
Logged By N. Scott MacLeod	Drilling Completed 5/5/94	_____
Water-Bearing Zones 12 to 18 ft	Grout Type Portland cement	_____

BORING LOG

Boring ID

SB-B

Client: **Lynn Worthington**

Location **3055 35th Ave, Oakland**

Project No: **20-105-20**

Phase **4**

Task **4**

Surface Elev. **N/A ft.**

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth Feet	Additional Comments
0	Ground Surface						0	
5			Sandy to gravelly SILT Brown with green mottled fractures; hard; damp; 5-10% clay, 50-55% silt, 15-20% sand, 10-20% angular gravel to 1.5" diam.; no to low plasticity; low to moderate estimated hydraulic conductivity. No hydrocarbon odor.				5	
6	15							
10			Strong weathered gasoline odor.	170			10	
15			Strong, fresh to slightly weathered gasoline odor.	940			15	
20			Silty SAND Brown; hard; wet; 40% silt, 50% sand, 10% gravel; no plasticity, moderate estimated hydraulic conductivity. Strong, fresh to slightly weathered gasoline odor				20	
25							25	
30							30	Bottom of boring

Driller Soils Exploration	Drilling Started 5/6/94	Notes: _____
Logged By N. Scott MacLeod	Drilling Completed 5/6/94	_____
Water-Bearing Zones 17 to 26.5 ft	Grout Type Portland cement	_____

BORING LOG

Client: **Lynn Worthington**

Project No: **20-105-20**

Phase **4**

Task **4**


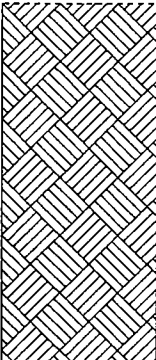

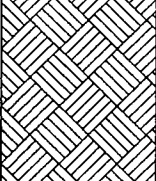

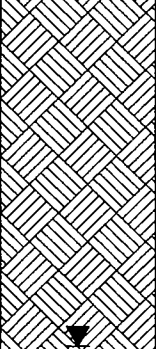


Boring ID

SB-D

Location **3055 35th Ave, Oakland**

Surface Elev. **N/A ft,**

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth Feet	Additional Comments
0	Ground Surface						0	
5	13 19 21	X	Silty GRAVEL Tan to brown; hard; damp; <5% clay, 40% silt, 20% sand, 40% angular gravel to 1" diam.; no plasticity; moderate estimated hydraulic conductivity. No hydrocarbon odor.				5	
10	11 21 31	X	Clayey to Silty SAND Light brown; hard; damp; 10-20% clay, 20-30% silt, 40% sand, 10% gravel; medium plasticity; low estimated hydraulic conductivity. No hydrocarbon odor.	< 1			10	
15	11 13 22	X	Silty SAND Brown; hard; moist; <5% clay, 40% silt, 55% sand, <5% gravel; low plasticity; low estimated hydraulic conductivity. Very strong weathered gasoline odor.	< 1			15	
20			Clayey to Sandy SILT Dark green to brown; hard; wet; 15% clay, 30% silt, 45% sand, 10% gravel; medium plasticity, low estimated hydraulic conductivity. No hydrocarbon odor.				20	Bottom of boring
25							25	
30							30	

Driller **Soils Exploration**

Drilling Started **5/6/94**

Notes: **Boring did not recharge**

Logged By **N. Scott MacLeod**

Drilling Completed **5/6/94**

overnight

Water-Bearing Zones **N/A**

Grout Type **Portland cement**

BORING LOG

Boring ID

SB-E

Client: **Lynn Worthington**

Location **3055 35th Ave, Oakland**

Project No: **20-105-20**

Phase **4**

Task **4**

Surface Elev. **N/A ft,**

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Boring Completion Graphics	Depth Feet	Additional Comments
0							0	
			Gravelly SILT Greenish brown; hard; damp; 10% clay, 45% silt, 20% sand, 25% angular gravel to 1.2" diam.; medium plasticity; low to moderate estimated hydraulic conductivity. No hydrocarbon odor.					
5	10 15 23						5	
10	5 8 14		Clayey SILT Brown with orange and green mottling; very stiff; damp; 30% clay, 60% silt, 10% sand; high plasticity; very low estimated hydraulic conductivity. Moderate weathered gasoline odor, especially from green mottled areas.	220			10	
15	5 20 30		Slight weathered gasoline odor.	4			15	
20	3 7 9		Slight weathered gasoline odor.				20	
								Bottom of boring
25							25	
30							30	

Driller **Soils Exploration**
 Logged By **N. Scott MacLeod**
 Water-Bearing Zones **Dry boring**

Drilling Started **5/9/94**
 Drilling Completed **5/9/94**
 Grout Type **Portland cement**

Notes: **Dry boring**

DRILLING LOG

Boring ID **SB-G** Well ID **MW-1**

Client: **Lynn Worthington**

Location **3055 35th Ave, Oakland**

Project No: **20-105-20**

Phase **4**

Task **4**

Surface Elev. --- ft,

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Well Construction Graphics	Depth Feet	Well Construction Details
0	Ground Surface						0	T.O.C. Elev. 100.85
5			Sandy SILT Brown; hard; damp; 10% clay, 60% silt, 20% sand, 10% angular gravel to 1" diam.; low to medium plasticity; low to moderate estimated hydraulic conductivity. No hydrocarbon odor.				5	Locking well plug and above-grade steel stovepipe
10	10 20 32	X					10	
15	9 16 18	X	Strong weathered gasoline odor.				15	
20	5 9 15	X	Clayey SILT Brown; very stiff; damp to moist; 40% clay, 55% silt, 5% sand; high plasticity; very low estimated hydraulic conductivity. Moderate weathered gasoline odor.	20			20	
25	6 13 20	X	Moderate gasoline odor.	390			25	
30	5 7 12	X	Silty SAND Dark green; very stiff; moist; 30% clay, 60% silt, 10% sand; no plasticity; moderate to high estimated hydraulic conductivity. Moderate to strong weathered gasoline odor.				30	
			Clayey SILT Brown mottled green; very stiff; moist; 40% clay, 55% silt, 5% sand; high plasticity; very low estimated hydraulic conductivity. No odor to very slight weathered gasoline odor.					

Driller Soils Exploration	Development Yield N/A	Bentonite Seal 7.5 to 9.5 ft
Logged By N. Scott MacLeod	Well Casing 4 Dia. 0 to 10	Sand Pack Monterey sand
Drilling Started 5/9/94	Casing Type Schedule 40 PVC	Sand Pack Type #2/16
Drilling Completed 5/9/94	Well Screen 4 Dia. 10 to 25	Static Water Level 14.53 ft Depth
Construction Completed 5/9/94	Screen Type Schedule 40 PVC	Date 5/25/94
Development Completed 5/17/94	Slot Size 0.010-inch	Notes: _____
Water Bearing Zones 21 to 23.5 ft	Drilling Mud N/A	_____
	Grout Type Portland cement	_____

WELL 20105 6/27/94

DRILLING LOG

Client: **Lynn Worthington**

Project No: **20-105-20**

Phase **4**

Task **4**

Boring ID **SB-F**

Well ID

MW-2

Location **3055 35th Ave, Oakland**

Surface Elev. --- ft,

Page **1** of **1**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Well Construction Graphics	Depth Feet	Well Construction Details
0	Ground Surface						0	T.O.C. Elev. 100.00
5			Clayey to Sandy SILT Orange brown; hard; damp; 15% clay, 60% silt, 15% sand, 10% angular gravel to 1" diam.; medium plasticity; low to moderate estimated hydraulic conductivity. No hydrocarbon odor.				5	Locking well plug and above-grade steel stovepipe
8 15 27								
10			Sandy SILT Grey green; hard; damp; 5% clay, 55% silt, 30% sand, 10% gravel; no to low plasticity; moderate estimated hydraulic conductivity. Strong weathered gasoline odor.				10	
15			Silty SAND Brownish green; hard; wet; 30% silt, 50% sand, 10% angular gravel to 0.4"; no plasticity; moderate to high estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.	370			15	
20			Moderate gasoline odor.	2,900			20	
25			Clayey SILT Brown; very stiff; moist; 30% clay, 60% silt, 10% sand; high plasticity; very low estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.				25	
30			Silty SAND Brownish; hard; wet; 30% silt, 50% sand, 20% angular gravel to 1"; no plasticity; moderate to high estimated hydraulic conductivity. no hydrocarbon odor.				30	

Driller Soils Exploration	Development Yield N/A	Bentonite Seal 7.5 to 8.5 ft
Logged By N. Scott MacLeod	Well Casing 4 Dia. 0 to 10	Sand Pack Monterey sand
Drilling Started 5/9/94	Casing Type Schedule 40 PVC	Sand Pack Type #2/16
Drilling Completed 5/9/94	Well Screen 4 Dia. 10 to 25	Static Water Level 13.29 ft Depth
Construction Completed 5/9/94	Screen Type Schedule 40 PVC	Date 5/25/94
Development Completed 5/17/94	Slot Size 0.010-inch	Notes: _____
Water Bearing Zones 13 to 20.5 ft	Drilling Mud N/A	_____
	Grout Type Portland cement	_____

DRILLING LOG

Client: **Lynn Worthington**

Project No: **20-105-20**

Phase **4**

Task **4**

Boring ID **SB-C**

Well ID

MW-3

Location **3055 35th Ave, Oakland**

Surface Elev. --- ft.

Page **1** of **2**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Well Construction Graphics	Depth Feet	Well Construction Details
0	Ground Surface						0	T.O.C. Elev. 96.87
5	25 23 31	X	Silty GRAVEL Light brown; hard; damp; 5% clay, 40% silt, 15% sand, 40% angular gravel to 1" diam.; low to moderate plasticity; moderate estimated hydraulic conductivity. No hydrocarbon odor.				5	Locking well plug and above-grade steel stovepipe
10	11 18 35	X	Clayey to Gravelly SILT Rust brown with green mottling; hard; moist; 30% clay, 30% silt, 10% sand, 30% gravel; high plasticity; low estimated hydraulic conductivity. Moderate weathered gasoline odor.				10	
15	7 10 16	X	Silty SAND Brownish-green; hard; moist; <5% clay, 35% silt, 40% sand, 15% gravel; no plasticity; moderate estimated hydraulic conductivity. Very strong fresh to weathered gasoline odor.	25			15	
20	7 11 20	X	Sandy to Clayey SILT Brown; very stiff; wet; 20% clay, 50% silt, 20% sand, 10% gravel; medium to high plasticity; low estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.	490			20	
25	N/A	X	Silty SAND Brown; very stiff; wet; 5% clay, 35% silt, 60% sand, 10% gravel; no to low plasticity; moderate estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.				25	
30		X	Clayey SILT Brown; very stiff; wet; 25% clay, 60% silt, 15% sand; high plasticity; very low estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.				30	
			Silty SAND Brown; very stiff; wet; <5% clay, 20% silt, 60% sand, 20%					

Continued Next Page

Driller **Soils Exploration**
 Logged By **N. Scott MacLeod**
 Drilling Started **5/6/94**
 Drilling Completed **5/6/94**
 Construction Completed **5/9/94**
 Development Completed **5/17/94**
 Water Bearing Zones **20.5 to 26.5 ft**

Development Yield **N/A**
 Well Casing **2** Dia. **0** to **10**
 Casing Type **Schedule 40 PVC**
 Well Screen **2** Dia. **10** to **25**
 Screen Type **Schedule 40 PVC**
 Slot Size **0.010-inch**
 Drilling Mud **N/A**
 Grout Type **Portland cement**

Bentonite Seal **7 to 9 ft**
 Sand Pack **Monterey sand**
 Sand Pack Type **#2/16**
 Static Water Level **13.93** ft Depth
 Date **5/25/94**

Notes: _____

DRILLING LOG

Client: **Lynn Worthington**

Project No: **20-105-20**

Phase **4**

Task **4**

Boring ID **SB-C**

Well ID

MW-3

Location **3055 35th Ave, Oakland**

Surface Elev. --- ft,

Page **2** of **2**

Depth Feet	Blow Count	Sample Interval	Lithologic Description	TPHg (ppm)	Graphic Log	Well Construction Graphics	Depth Feet	Well Construction Details
30			Continued from previous page				30	
35			gravel; no plasticity; moderate to high estimated hydraulic conductivity. Very strong fresh gasoline odor. Hydrocarbon sheen on soil samples.				35	
40							40	
45							45	
50							50	
55							55	
60							60	
65							65	
70							70	

APPENDIX C

Analytic Results for Soil and Ground Water



NATIONAL
ENVIRONMENTAL
TESTING, INC.®

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Scott Macleod
Cambria
1144 65th Street
Suite C
Oakland, CA 94608

Date: 05/25/1994
NET Client Acct. No: 98900
NET Pacific Job No: 94.01914
Received: 05/06/1994

Client Reference Information

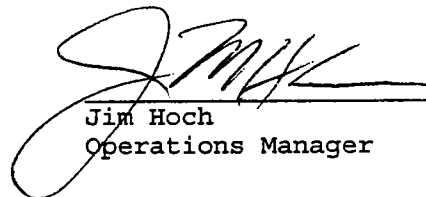
35th Ave., Oakland

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:



Judy Ridley
Project Coordinator



Jim Hoch
Operations Manager

Enclosure (s)





Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01914

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 2

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-A 11'
 Date Taken: 05/05/1994
 Time Taken: 15:15
 NET Sample No: 193713

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/18/1994
DILUTION FACTOR*	1						05/18/1994
as Gasoline	3.4		1	mg/kg	5030		05/18/1994
METHOD 8020 (GC,Solid)	--						05/18/1994
Benzene	7.2		2.5	ug/kg	8020		05/18/1994
Toluene	1.5		2.5	ug/kg	8020		05/18/1994
Ethylbenzene	15		2.5	ug/kg	8020		05/18/1994
Xylenes (Total)	31		2.5	ug/kg	8020		05/18/1994
SURROGATE RESULTS	--						05/18/1994
Bromofluorobenzene (SURR)	96			% Rec.	5030		05/18/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/19/1994
as Diesel	4.2	DL	1	mg/kg	3550		05/19/1994
as Motor Oil	ND		10	mg/kg	3550		05/19/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01914

Date: 05/25/1994
ELAP Certificate: 1386
Page: 3

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-A 16'
Date Taken: 05/05/1994
Time Taken: 15:50
NET Sample No: 193714

Parameter	Results	Flags	Reporting			Date	Date
			Limit	Units	Method	Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	200						05/19/1994
as Gasoline	1,600		200	mg/kg	5030		05/19/1994
METHOD 8020 (GC,Solid)	--						05/19/1994
Benzene	1,800		500	ug/kg	8020		05/19/1994
Toluene	3,400		500	ug/kg	8020		05/19/1994
Ethylbenzene	17,000		500	ug/kg	8020		05/19/1994
Xylenes (Total)	54,000		500	ug/kg	8020		05/19/1994
SURROGATE RESULTS	--						05/19/1994
Bromofluorobenzene (SURR)	77			% Rec.	5030		05/19/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	100						05/19/1994
as Diesel	620	DL	100	mg/kg	3550		05/19/1994
as Motor Oil	ND		1000	mg/kg	3550		05/19/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01914

Date: 05/25/1994
ELAP Certificate: 1386
Page: 4

Ref: 35th Ave., Oakland

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV	CCV	CCV	Units	Date Analyzed	Analyst Initials
	Standard % Recovery	Standard Amount Found	Standard Amount Expected			
TPH (Gas/BTXE,Solid)						
as Gasoline	102.0	5.10	5.00	mg/kg	05/18/1994	pbg
Benzene	93.2	23.3	25.0	ug/kg	05/18/1994	pbg
Toluene	94.8	23.7	25.0	ug/kg	05/18/1994	pbg
Ethylbenzene	93.2	23.3	25.0	ug/kg	05/18/1994	pbg
Xylenes (Total)	93.5	70.1	75.0	ug/kg	05/18/1994	pbg
Bromofluorobenzene (SURR)	89.0	89	100	% Rec.	05/18/1994	pbg
TPH (Gas/BTXE,Solid)						
as Gasoline	106.8	5.34	5.00	mg/kg	05/19/1994	pbg
Benzene	100.0	25.0	25.0	ug/kg	05/19/1994	pbg
Toluene	101.2	25.3	25.0	ug/kg	05/19/1994	pbg
Ethylbenzene	98.4	24.6	25.0	ug/kg	05/19/1994	pbg
Xylenes (Total)	98.4	73.8	75.0	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	910.0	910	100	% Rec.	05/19/1994	pbg
METHOD 3550/M8015						
as Diesel	112.9	1129	1000	mg/kg	05/19/1994	fyh
as Motor Oil	103.2	1032	1000	mg/kg	05/19/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01914

Date: 05/25/1994
ELAP Certificate: 1386
Page: 5

Ref: 35th Ave., Oakland

METHOD BLANK REPORT

<u>Parameter</u>	<u>Method Blank Amount Found</u>	<u>Reporting Limit</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Analyst Initials</u>
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/18/1994	pbg
Benzene	ND	2.5	ug/kg	05/18/1994	pbg
Toluene	ND	2.5	ug/kg	05/18/1994	pbg
Ethylbenzene	ND	2.5	ug/kg	05/18/1994	pbg
Xylenes (Total)	ND	2.5	ug/kg	05/18/1994	pbg
Bromofluorobenzene (SURR)	85		% Rec.	05/18/1994	pbg
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/19/1994	pbg
Benzene	ND	2.5	ug/kg	05/19/1994	pbg
Toluene	ND	2.5	ug/kg	05/19/1994	pbg
Ethylbenzene	ND	2.5	ug/kg	05/19/1994	pbg
Xylenes (Total)	ND	2.5	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	82		% Rec.	05/19/1994	pbg
METHOD 3550/M8015					
as Diesel	ND	1	mg/kg	05/18/1994	fyh
as Motor Oil	ND	10	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01914

Date: 05/25/1994
ELAP Certificate: 1386
Page: 6

Ref: 35th Ave., Oakland

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike		Units	Date Analyzed	Analyst Initials
	Matrix Spike % Rec.	Spike Dup % Rec.	RPD			Matrix Spike Conc.	Dup. Conc.			
TPH (Gas/BTXE,Solid)										
as Gasoline	90.2	90.4	0.2	6.04	ND	5.45	5.46	mg/kg dw	05/18/1994	pbg
Benzene	92.7	89.8	3.2	214	ND	198	192	ug/kg dw	05/18/1994	pbg
Toluene	92.1	89.9	2.4	611	ND	562	549	ug/kg dw	05/18/1994	pbg
TPH (Gas/BTXE,Solid)										
as Gasoline	57.4	55.8	2.8	5.00	ND	2.87	2.79	mg/kg dw	05/19/1994	pbg
Benzene	71.3	70.8	0.7	171	ND	122	121	ug/kg dw	05/19/1994	pbg
Toluene	67.5	66.9	0.9	493	ND	333	330	ug/kg dw	05/19/1994	pbg
METHOD 3550/M8015										
as Diesel	119.8	77.8	42.4	16.7	18	38	31	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01914

Date: 05/25/1994
ELAP Certificate: 1386
Page: 7

Ref: 35th Ave., Oakland

LABORATORY CONTROL SAMPLE REPORT

<u>Parameter</u>	<u>LCS</u> <u>% Recovery</u>	<u>RPD</u>	<u>LCS</u> <u>Amount</u> <u>Found</u>	<u>LCS</u> <u>Amount</u> <u>Expected</u>	<u>Units</u>	<u>Date</u> <u>Analyzed</u>	<u>Analyst</u> <u>Initials</u>
METHOD 3550/M8015 as Diesel	95.8		16.0	16.7	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. Do not multiply the reporting limits or reported values by the dilution factor.
- dw : Result expressed as dry weight.
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than the applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2] / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, Rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY CAMBRIA
 ADDRESS 1144 65th ST, SUITE C OAKLAND 94608
 PHONE (570) 420-0700 FAX (570) 420-9170
 PROJECT NAME/LOCATION 35th AVE, OAKLAND
 PROJECT NUMBER _____
 PROJECT MANAGER SCOTT MACLEOD

9196
 REPORT TO: SCOTT MACLEOD
 INVOICE TO: CAMBRIA
 P.O. NO. _____
 NET QUOTE NO. CALL

SAMPLED BY SCOTT MACLEOD
 (PRINT NAME)
 (PRINT NAME)

SIGNATURE _____
 SIGNATURE _____

ANALYSES									
(Hatched area)									

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED Y/N	ANALYSES										COMMENTS
5/5/94	14:55	SB-A 6'	X		1 TUBE	SOIL	N	(Hatched area)										HOLD - WILL CALL MONDAY
	15:15							(Hatched area)										
	15:50							(Hatched area)										
	16:25							(Hatched area)										
	16:32							(Hatched area)										
								(Hatched area)										Standard lat per Scott W to NP 5/9

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO _____
 FIELD FILTERED? YES / NO _____

COC SEALS PRESENT AND INTACT? YES / NO _____
 VOLATILES FREE OF HEADSPACE? YES / NO _____

TEMPERATURE UPON RECEIPT: 1.4°C

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____

RELINQUISHED BY: [Signature] DATE/TIME: 5/6/94 17:15
 RECEIVED BY: [Signature] DATE/TIME: 5/6/94 11:45

METHOD OF SHIPMENT _____ REMARKS: _____



NATIONAL
ENVIRONMENTAL
TESTING, INC.

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Scott Macleod
Cambria
1144 65th Street
Suite C
Oakland, CA 94608


Date: 05/25/1994
NET Client Acct. No: 98900
NET Pacific Job No: 94.01905
Received: 05/10/1994


Client Reference Information

35th Ave., Oakland

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:


Judy Ridley
Project Coordinator


Jim Hoch
Operations Manager

Enclosure(s)





Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01905

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 2

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-B 11'
 Date Taken: 05/06/1994
 Time Taken: 08:40
 NET Sample No: 193646

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/18/1994
DILUTION FACTOR*	50						05/18/1994
as Gasoline	170		50	mg/kg	5030		05/18/1994
METHOD 8020 (GC,Solid)	--						05/18/1994
Benzene	450		120	ug/kg	8020		05/18/1994
Toluene	2,500		120	ug/kg	8020		05/18/1994
Ethylbenzene	1,700		120	ug/kg	8020		05/18/1994
Xylenes (Total)	11,000		120	ug/kg	8020		05/18/1994
SURROGATE RESULTS	--						05/18/1994
Bromofluorobenzene (SURR)	87			% Rec.	5030		05/18/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	10						05/18/1994
as Diesel	52	DL	10	mg/kg	3550		05/18/1994
as Motor Oil	ND		100	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 3

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-B 16'
Date Taken: 05/06/1994
Time Taken: 08:50
NET Sample No: 193647

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE, Solid)							
METHOD 5030/M8015	--						05/18/1994
DILUTION FACTOR*	200						05/18/1994
as Gasoline	940		200	mg/kg	5030		05/18/1994
METHOD 8020 (GC, Solid)	--						05/18/1994
Benzene	6,300		500	ug/kg	8020		05/18/1994
Toluene	28,000		500	ug/kg	8020		05/18/1994
Ethylbenzene	12,000		500	ug/kg	8020		05/18/1994
Xylenes (Total)	70,000		500	ug/kg	8020		05/18/1994
SURROGATE RESULTS	--						05/18/1994
Bromofluorobenzene (SURR)	93			% Rec.	5030		05/18/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	10						05/19/1994
as Diesel	120	DL	10	mg/kg	3550		05/19/1994
as Motor Oil	ND		100	mg/kg	3550		05/19/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01905

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 4

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-C 11'
 Date Taken: 05/06/1994
 Time Taken: 10:00
 NET Sample No: 193648

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE, Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	10						05/19/1994
as Gasoline	25		10	mg/kg	5030		05/19/1994
METHOD 8020 (GC, Solid)	--						05/19/1994
Benzene	220		25	ug/kg	8020		05/19/1994
Toluene	620		25	ug/kg	8020		05/19/1994
Ethylbenzene	490		25	ug/kg	8020		05/19/1994
Xylenes (Total)	2,100		25	ug/kg	8020		05/19/1994
SURROGATE RESULTS	--						05/19/1994
Bromofluorobenzene (SURR)	84			‡ Rec.	5030		05/19/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/19/1994
as Diesel	6.7	NDL	1	mg/kg	3550		05/19/1994
as Motor Oil	ND		10	mg/kg	3550		05/19/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01905

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 5

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-C 16'
 Date Taken: 05/06/1994
 Time Taken: 10:15
 NET Sample No: 193649

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTEXE,Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	200						05/19/1994
as Gasoline	490		200	mg/kg	5030		05/19/1994
METHOD 8020 (GC,Solid)							
Benzene	1,900		500	ug/kg	8020		05/19/1994
Toluene	14,000		500	ug/kg	8020		05/19/1994
Ethylbenzene	7,400		500	ug/kg	8020		05/19/1994
Xylenes (Total)	42,000		500	ug/kg	8020		05/19/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	83			% Rec.	5030		05/19/1994
						05/17/1994	
METHOD 3550/M8015							
DILUTION FACTOR*	50						05/18/1994
as Diesel	280	DL	50	mg/kg	3550		05/18/1994
as Motor Oil	ND		500	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 6

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-D 11'
Date Taken: 05/06/1994
Time Taken: 11:55
NET Sample No: 193650

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/18/1994
DILUTION FACTOR*	1						05/18/1994
as Gasoline	ND		1	mg/kg	5030		05/18/1994
METHOD 8020 (GC,Solid)	--						05/18/1994
Benzene	ND		2.5	ug/kg	8020		05/18/1994
Toluene	ND		2.5	ug/kg	8020		05/18/1994
Ethylbenzene	ND		2.5	ug/kg	8020		05/18/1994
Xylenes (Total)	ND		2.5	ug/kg	8020		05/18/1994
SURROGATE RESULTS	--						05/18/1994
Bromofluorobenzene (SURR)	70			% Rec.	5030		05/18/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/19/1994
as Diesel	5.2		1	mg/kg	3550		05/19/1994
as Motor Oil	ND		10	mg/kg	3550		05/19/1994

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 7

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-D 16'
Date Taken: 05/06/1994
Time Taken: 12:20
NET Sample No: 193651

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/18/1994
DILUTION FACTOR*	1						05/18/1994
as Gasoline	ND		1	mg/kg	5030		05/18/1994
METHOD 8020 (GC,Solid)	--						05/18/1994
Benzene	ND		2.5	ug/kg	8020		05/18/1994
Toluene	ND		2.5	ug/kg	8020		05/18/1994
Ethylbenzene	ND		2.5	ug/kg	8020		05/18/1994
Xylenes (Total)	ND		2.5	ug/kg	8020		05/18/1994
SURROGATE RESULTS	--						05/18/1994
Bromofluorobenzene (SURR)	73			% Rec.	5030		05/18/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/19/1994
as Diesel	ND		1	mg/kg	3550		05/19/1994
as Motor Oil	ND		10	mg/kg	3550		05/19/1994

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 8

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-A GW
Date Taken: 05/06/1994
Time Taken: 08:20
NET Sample No: 193652

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTEX, Liquid)							
METHOD 5030/M8015	--						05/20/1994
DILUTION FACTOR*	50						05/20/1994
as Gasoline	7.0		2	mg/L	5030		05/20/1994
METHOD 8020 (GC, Liquid)	--						05/20/1994
Benzene	450		20	ug/L	8020		05/20/1994
Toluene	75		20	ug/L	8020		05/20/1994
Ethylbenzene	180		20	ug/L	8020		05/20/1994
Xylenes (Total)	330		20	ug/L	8020		05/20/1994
SURROGATE RESULTS	--						05/20/1994
Bromofluorobenzene (SURR)	101			% Rec.	5030		05/20/1994

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 9

Ref: 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-B GW
Date Taken: 05/06/1994
Time Taken: 11:30
NET Sample No: 193653

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE, Liquid)							
METHOD 5030/M8015	--						05/16/1994
DILUTION FACTOR*	100						05/16/1994
as Gasoline	130		5	mg/L	5030		05/16/1994
METHOD 8020 (GC, Liquid)	--						05/16/1994
Benzene	10,000	FI	50	ug/L	8020		05/16/1994
Toluene	11,000	FI	50	ug/L	8020		05/16/1994
Ethylbenzene	2,200		50	ug/L	8020		05/16/1994
Xylenes (Total)	11,000		50	ug/L	8020		05/16/1994
SURROGATE RESULTS	--						05/16/1994
Bromofluorobenzene (SURR)	170	MI		% Rec.	5030		05/16/1994

FI : Compound quantitated at a 1000X dilution factor.
MI : Matrix Interference Suspected

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 10

Ref: 35th Ave., Oakland

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)						
as Gasoline	86.0	0.86	1.00	mg/L	05/20/1994	aal
Benzene	99.6	4.98	5.00	ug/L	05/20/1994	aal
Toluene	95.8	4.79	5.00	ug/L	05/20/1994	aal
Ethylbenzene	93.4	4.67	5.00	ug/L	05/20/1994	aal
Xylenes (Total)	94.0	14.1	15.0	ug/L	05/20/1994	aal
Bromofluorobenzene (SURR)	96.0	96	100	% Rec.	05/20/1994	aal
TPH (Gas/BTXE,Liquid)						
as Gasoline	104.0	1.04	1.00	mg/L	05/20/1994	klh
Benzene	102.2	5.11	5.00	ug/L	05/20/1994	klh
Toluene	102.0	5.10	5.00	ug/L	05/20/1994	klh
Ethylbenzene	98.8	4.94	5.00	ug/L	05/20/1994	klh
Xylenes (Total)	104.7	15.7	15.0	ug/L	05/20/1994	klh
Bromofluorobenzene (SURR)	94.0	94	100	% Rec.	05/20/1994	klh
TPH (Gas/BTXE,Solid)						
as Gasoline	102.0	5.10	5.00	mg/kg	05/18/1994	pbg
Benzene	93.2	23.3	25.0	ug/kg	05/18/1994	pbg
Toluene	94.8	23.7	25.0	ug/kg	05/18/1994	pbg
Ethylbenzene	93.2	23.3	25.0	ug/kg	05/18/1994	pbg
Xylenes (Total)	93.5	70.1	75.0	ug/kg	05/18/1994	pbg
Bromofluorobenzene (SURR)	89.0	89	100	% Rec.	05/18/1994	pbg
TPH (Gas/BTXE,Solid)						
as Gasoline	106.8	5.34	5.00	mg/kg	05/19/1994	pbg
Benzene	100.0	25.0	25.0	ug/kg	05/19/1994	pbg
Toluene	101.2	25.3	25.0	ug/kg	05/19/1994	pbg
Ethylbenzene	98.4	24.6	25.0	ug/kg	05/19/1994	pbg
Xylenes (Total)	98.4	73.8	75.0	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	910.0	910	100	% Rec.	05/19/1994	pbg
METHOD 3550/M8015						
as Diesel	113.3	1133	1000	mg/kg	05/18/1994	fyh
as Motor Oil	101.0	1010	1000	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01905

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 12

Ref: 35th Ave., Oakland

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike			Units	Date Analyzed	Analyst Initials
	Spike % Rec.	Dup % Rec.	RPD			Spike Conc.	Dup. Conc.	Conc.			
TPH (Gas/BTXE, Liquid)											
as Gasoline	87.0	85.0	2.3	1.00	ND	0.87	0.85	mg/L	05/20/1994	aal	
Benzene	100.8	98.2	2.5	39.0	ND	39.3	38.3	ug/L	05/20/1994	aal	
Toluene	101.2	98.1	3.0	100.5	ND	101.7	98.6	ug/L	05/20/1994	aal	
TPH (Gas/BTXE, Liquid)											
as Gasoline	104.0	87.0	17.7	1.00	ND	1.04	0.87	mg/L	05/20/1994	klh	
Benzene	102.1	91.2	11.2	33.1	ND	33.8	30.2	ug/L	05/20/1994	klh	
Toluene	98.6	90.5	8.6	80.9	ND	79.8	73.2	ug/L	05/20/1994	klh	
TPH (Gas/BTXE, Solid)											
as Gasoline	90.2	90.4	0.2	6.04	ND	5.45	5.46	mg/kg dw	05/18/1994	pbg	
Benzene	92.7	89.8	3.2	214	ND	198	192	ug/kg dw	05/18/1994	pbg	
Toluene	92.1	89.9	2.4	611	ND	562	549	ug/kg dw	05/18/1994	pbg	
TPH (Gas/BTXE, Solid)											
as Gasoline	57.4	55.8	2.8	5.00	ND	2.87	2.79	mg/kg dw	05/19/1994	pbg	
Benzene	71.3	70.8	0.7	171	ND	122	121	ug/kg dw	05/19/1994	pbg	
Toluene	67.5	66.9	0.9	493	ND	333	330	ug/kg dw	05/19/1994	pbg	
METHOD 3550/M8015											
as Diesel	119.8	77.8	42.4	16.7	18	38	31	mg/kg	05/18/1994	fyh	

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 11

Ref: 35th Ave., Oakland

METHOD BLANK REPORT

Parameter	Method	Reporting	Units	Date	Analyst
	Blank				
	Amount	Limit		Analyzed	Initials
	Found				
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	05/20/1994	aal
Benzene	ND	0.5	ug/L	05/20/1994	aal
Toluene	ND	0.5	ug/L	05/20/1994	aal
Ethylbenzene	ND	0.5	ug/L	05/20/1994	aal
Xylenes (Total)	ND	0.5	ug/L	05/20/1994	aal
Bromofluorobenzene (SURR)	93		% Rec.	05/20/1994	aal
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	05/20/1994	klh
Benzene	ND	0.5	ug/L	05/20/1994	klh
Toluene	ND	0.5	ug/L	05/20/1994	klh
Ethylbenzene	ND	0.5	ug/L	05/20/1994	klh
Xylenes (Total)	ND	0.5	ug/L	05/20/1994	klh
Bromofluorobenzene (SURR)	82		% Rec.	05/20/1994	klh
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/18/1994	pbg
Benzene	ND	2.5	ug/kg	05/18/1994	pbg
Toluene	ND	2.5	ug/kg	05/18/1994	pbg
Ethylbenzene	ND	2.5	ug/kg	05/18/1994	pbg
Xylenes (Total)	ND	2.5	ug/kg	05/18/1994	pbg
Bromofluorobenzene (SURR)	85		% Rec.	05/18/1994	pbg
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/19/1994	pbg
Benzene	ND	2.5	ug/kg	05/19/1994	pbg
Toluene	ND	2.5	ug/kg	05/19/1994	pbg
Ethylbenzene	ND	2.5	ug/kg	05/19/1994	pbg
Xylenes (Total)	ND	2.5	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	82		% Rec.	05/19/1994	pbg
METHOD 3550/M8015					
as Diesel	ND	1	mg/kg	05/18/1994	fyh
as Motor Oil	ND	10	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01905

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 12

Ref: 35th Ave., Oakland

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike		Units	Date Analyzed	Analyst Initials
	Matrix Spike % Rec.	Spike Dup % Rec.	RPD			Matrix Spike Conc.	Spike Dup Conc.			
TPH (Gas/BTXE, Liquid)										
as Gasoline	87.0	85.0	2.3	1.00	ND	0.87	0.85	mg/L	05/20/1994	aal
Benzene	100.8	98.2	2.5	39.0	ND	39.3	38.3	ug/L	05/20/1994	aal
Toluene	101.2	98.1	3.0	100.5	ND	101.7	98.6	ug/L	05/20/1994	aal
TPH (Gas/BTXE, Liquid)										
as Gasoline	104.0	87.0	17.7	1.00	ND	1.04	0.87	mg/L	05/20/1994	klh
Benzene	102.1	91.2	11.2	33.1	ND	33.8	30.2	ug/L	05/20/1994	klh
Toluene	98.6	90.5	8.6	80.9	ND	79.8	73.2	ug/L	05/20/1994	klh
TPH (Gas/BTXE, Solid)										
as Gasoline	90.2	90.4	0.2	6.04	ND	5.45	5.46	mg/kg dw	05/18/1994	pbg
Benzene	92.7	89.8	3.2	214	ND	198	192	ug/kg dw	05/18/1994	pbg
Toluene	92.1	89.9	2.4	611	ND	562	549	ug/kg dw	05/18/1994	pbg
TPH (Gas/BTXE, Solid)										
as Gasoline	57.4	55.8	2.8	5.00	ND	2.87	2.79	mg/kg dw	05/19/1994	pbg
Benzene	71.3	70.8	0.7	171	ND	122	121	ug/kg dw	05/19/1994	pbg
Toluene	67.5	66.9	0.9	493	ND	333	330	ug/kg dw	05/19/1994	pbg
METHOD 3550/M8015										
as Diesel	119.8	77.8	42.4	16.7	18	38	31	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01905

Date: 05/25/1994
ELAP Certificate: 1386
Page: 13

Ref: 35th Ave., Oakland

LABORATORY CONTROL SAMPLE REPORT

<u>Parameter</u>	<u>LCS</u>	<u>RPD</u>	<u>LCS</u>	<u>LCS</u>	<u>Units</u>	<u>Date</u>	<u>Analyst</u>
	<u>% Recovery</u>		<u>Amount</u>	<u>Amount</u>		<u>Analyzed</u>	<u>Initials</u>
			<u>Found</u>	<u>Expected</u>			
METHOD 3550/M8015							
as Diesel	95.8		16.0	16.7	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. Do not multiply the reporting limits or reported values by the dilution factor.
- dw : Result expressed as dry weight.
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than the applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2] / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, Rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

9244

COMPANY CAMERON
 ADDRESS 1144 6TH ST OAKLAND 94608
 PHONE (570) 420-0700 FAX 420-9170
 PROJECT NAME/LOCATION 3RD AVE, OAKLAND
 PROJECT NUMBER _____
 PROJECT MANAGER SCOTT MALLEN

REPORT TO: SCOTT MALLEN
 INVOICE TO: CAMERON
 P.O. NO. _____
 NET QUOTE NO. _____

SAMPLED BY SCOTT MALLEN
 (PRINT NAME)

 (PRINT NAME)

SIGNATURE _____
 SIGNATURE _____

ANALYSES

*TPH-C/16CTX
 TPH-D
 FOR FURTHER oil
 for BERTS
 5/10/94*

DATE	TIME	SAMPLE ID DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED VIN	ANALYSES			COMMENTS
5/4/94	8:30	S13-B 6'	X		1 TUBE	SOIL	N				HOLD
	8:40	11'						X	X	X	
	8:50	16'						X	X	X	
	9:05	21'									HOLD
	9:20	26'									HOLD
	9:45	S13-C 6'									HOLD
	10:00	11'						X	X	X	
	10:15	16'						X	X	X	
	10:30	21'									HOLD
	11:45	S13-D 6'									HOLD
	11:55	11'						X	X	X	
	12:20	16'						X	X	X	
5/7/94	8:30	S13-A GW	X		3/16" H:0		Y	X	X	X	
	11:30	S13-B GW	X		" "			X	X	X	

(CUSTODY SEALED)
 5/9/94
 @
 seal intact

only have vials - no ampers for diesel analysis need 25710

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
 FIELD FILTERED? YES / NO
 COC SEALS PRESENT AND INTACT? YES / NO
 VOLATILES FREE OF HEADSPACE? YES / NO
 TEMPERATURE UPON RECEIPT: 1.0°C

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS
 LOCKED IN SECURE STORAGE
 DATE _____

RELINQUISHED BY: <u>[Signature]</u>	DATE/TIME: <u>5/6/94 3:00pm</u>	RECEIVED BY: <u>[Signature]</u>	DATE/TIME: <u>5/9/94 16:45</u>	RECEIVED FOR NET BY: <u>[Signature]</u>
-------------------------------------	---------------------------------	---------------------------------	--------------------------------	---

METHOD OF SHIPMENT: * VIA NCS
 REMARKS: _____





NATIONAL
ENVIRONMENTAL
TESTING, INC.

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Scott Macleod
Cambria
1144 65th Street
Suite C
Oakland, CA 94608

Date: 05/25/1994
NET Client Acct. No: 98900
NET Pacific Job No: 94.01945
Received: 05/11/1994

Client Reference Information

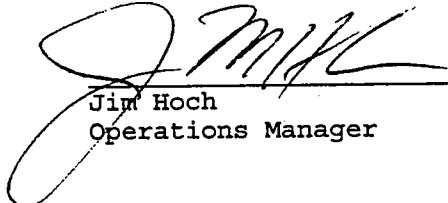
3055 35th Ave., Oakland

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:



Judy Ridley
Project Coordinator



Jim Hoch
Operations Manager

Enclosure(s)





Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 2

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-E 11'
Date Taken: 05/09/1994
Time Taken: 07:40
NET Sample No: 193983

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTEXE,Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	10						05/20/1994
as Gasoline	220		10	mg/kg	5030		05/20/1994
METHOD 8020 (GC,Solid)	--						05/20/1994
Benzene	550		25	ug/kg	8020		05/20/1994
Toluene	2,100		25	ug/kg	8020		05/20/1994
Ethylbenzene	1,700		25	ug/kg	8020		05/20/1994
Xylenes (Total)	2,800	FF	25	ug/kg	8020		05/23/1994
SURROGATE RESULTS	--						05/20/1994
Bromofluorobenzene (SURR)	98			% Rec.	5030		05/20/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/18/1994
as Diesel	56	DL	1	mg/kg	3550		05/18/1994
as Motor Oil	ND		10	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.
FF : Compound quantitated at a 100X dilution factor.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01945

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 3

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-E 16'
 Date Taken: 05/09/1994
 Time Taken: 07:45
 NET Sample No: 193984

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	1						05/19/1994
as Gasoline	3.8		1	mg/kg	5030		05/19/1994
METHOD 8020 (GC,Solid)							
Benzene	190	FC	2.5	ug/kg	8020		05/20/1994
Toluene	200	FC	2.5	ug/kg	8020		05/20/1994
Ethylbenzene	59		2.5	ug/kg	8020		05/19/1994
Xylenes (Total)	200		2.5	ug/kg	8020		05/19/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	97			‡ Rec.	5030		05/19/1994
METHOD 3550/M8015							
DILUTION FACTOR*	1					05/17/1994	
as Diesel	1.4	DL	1	mg/kg	3550		05/18/1994
as Motor Oil	ND		10	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.
 FC : Compound quantitated at a 10X dilution factor.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 4

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-F 11'
Date Taken: 05/09/1994
Time Taken: 08:35
NET Sample No: 193985

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTXE, Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	100						05/19/1994
as Gasoline	370		100	mg/kg	5030		05/19/1994
METHOD 8020 (GC, Solid)	--						05/19/1994
Benzene	ND		250	ug/kg	8020		05/19/1994
Toluene	ND		250	ug/kg	8020		05/19/1994
Ethylbenzene	3,900		250	ug/kg	8020		05/19/1994
Xylenes (Total)	6,200		250	ug/kg	8020		05/19/1994
SURROGATE RESULTS	--						05/19/1994
Bromofluorobenzene (SURR)	97			% Rec.	5030		05/19/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/18/1994
as Diesel	57	DL	1	mg/kg	3550		05/18/1994
as Motor Oil	ND		10	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01945

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 5

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-F 15'
 Date Taken: 05/09/1994
 Time Taken: 09:00
 NET Sample No: 193986

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/20/1994
DILUTION FACTOR*	1,000						05/20/1994
as Gasoline	2,900		1000	mg/kg	5030		05/20/1994
METHOD 8020 (GC,Solid)							
Benzene	24,000		2500	ug/kg	8020		05/20/1994
Toluene	41,000		2500	ug/kg	8020		05/20/1994
Ethylbenzene	48,000		2500	ug/kg	8020		05/20/1994
Xylenes (Total)	196,000		2500	ug/kg	8020		05/20/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	96			% Rec.	5030		05/20/1994
METHOD 3550/M8015							
DILUTION FACTOR*	10					05/17/1994	
as Diesel	450	DL	10	mg/kg	3550		05/18/1994
as Motor Oil	ND		100	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01945

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 6

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-G 11'
 Date Taken: 05/09/1994
 Time Taken: 11:00
 NET Sample No: 193987

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE,Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	1						05/19/1994
as Gasoline	20		1	mg/kg	5030		05/19/1994
METHOD 8020 (GC,Solid)	--						05/19/1994
Benzene	61		2.5	ug/kg	8020		05/19/1994
Toluene	14		2.5	ug/kg	8020		05/19/1994
Ethylbenzene	93		2.5	ug/kg	8020		05/19/1994
Xylenes (Total)	340	FC	2.5	ug/kg	8020		05/20/1994
SURROGATE RESULTS	--						05/19/1994
Bromofluorobenzene (SURR)	117			% Rec.	5030		05/19/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/18/1994
as Diesel	18	DL	1	mg/kg	3550		05/18/1994
as Motor Oil	ND		10	mg/kg	3550		05/18/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.
 FC : Compound quantitated at a 10X dilution factor.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01945

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 7

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-G 15'
 Date Taken: 05/09/1994
 Time Taken: 11:00
 NET Sample No: 193988

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE, Solid)							
METHOD 5030/M8015	--						05/19/1994
DILUTION FACTOR*	100						05/19/1994
as Gasoline	390		100	mg/kg	5030		05/19/1994
METHOD 8020 (GC, Solid)	--						05/19/1994
Benzene	1,400		250	ug/kg	8020		05/19/1994
Toluene	6,100		250	ug/kg	8020		05/19/1994
Ethylbenzene	3,900		250	ug/kg	8020		05/19/1994
Xylenes (Total)	16,000		250	ug/kg	8020		05/19/1994
SURROGATE RESULTS	--						05/19/1994
Bromofluorobenzene (SURR)	98			% Rec.	5030		05/19/1994
METHOD 3550/M8015						05/17/1994	
DILUTION FACTOR*	1						05/18/1994
as Diesel	52	D-	1	mg/kg	3550		05/18/1994
as Motor Oil	ND		10	mg/kg	3550		05/18/1994

D- : The positive result has an atypical pattern for Diesel analysis.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 8

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-A GW
Date Taken: 05/09/1994
Time Taken: 07:20
NET Sample No: 193989

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
METHOD 3510/M8015							
DILUTION FACTOR*	50						
as Diesel	9.1		2.5	mg/L	3510		05/18/1994
as Motor Oil	ND		25	mg/L	3510		

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 9

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-B GW
Date Taken: 05/09/1994
Time Taken: 07:30
NET Sample No: 193990

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
METHOD 3510/M8015							
DILUTION FACTOR*	10						
as Diesel	3.8		0.5	mg/L	3510		05/18/1994
as Motor Oil	ND		5.0	mg/L	3510		

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 10

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: SB-D GW
Date Taken: 05/09/1994
Time Taken: 08:00
NET Sample No: 193991

Parameter	Results	Flags	Reporting Limit	Units	Method	Date Extracted	Date Analyzed
TPH (Gas/BTEXE,Liquid)							
METHOD 5030/M8015	--						05/23/1994
DILUTION FACTOR*	1						05/23/1994
as Gasoline	0.15		0.05	mg/L	5030		05/23/1994
METHOD 8020 (GC,Liquid)	--						05/23/1994
Benzene	6.5		0.5	ug/L	8020		05/23/1994
Toluene	10		0.5	ug/L	8020		05/23/1994
Ethylbenzene	2.9		0.5	ug/L	8020		05/23/1994
Xylenes (Total)	12		0.5	ug/L	8020		05/23/1994
SURROGATE RESULTS	--						05/23/1994
Bromofluorobenzene (SURR)	100			% Rec.	5030		05/23/1994
METHOD 3510/M8015							
DILUTION FACTOR*	1						
as Diesel	0.21		0.05	mg/L	3510		05/18/1994
as Motor Oil	ND		0.5	mg/L	3510		

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 11

Ref: 3055 35th Ave., Oakland

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV Standard % Recovery	CCV Standard Amount Found	CCV Standard Amount Expected	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)						
as Gasoline	85.0	0.85	1.00	mg/L	05/23/1994	aal
Benzene	103.4	5.17	5.00	ug/L	05/23/1994	aal
Toluene	100.0	5.00	5.00	ug/L	05/23/1994	aal
Ethylbenzene	95.4	4.77	5.00	ug/L	05/23/1994	aal
Xylenes (Total)	96.7	14.5	15.0	ug/L	05/23/1994	aal
Bromofluorobenzene (SURR)	96.7	96.7	100	% Rec.	05/23/1994	aal
METHOD 3510/M8015						
as Diesel	105.0	845	805	mg/L	05/17/1994	sub/port
TPH (Gas/BTXE,Solid)						
as Gasoline	112.2	5.61	5.00	mg/kg	05/19/1994	pbg
Benzene	85.2	21.3	25.0	ug/kg	05/19/1994	pbg
Toluene	94.4	23.6	25.0	ug/kg	05/19/1994	pbg
Ethylbenzene	91.6	22.9	25.0	ug/kg	05/19/1994	pbg
Xylenes (Total)	95.1	71.3	75.0	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	880.0	880	100	% Rec.	05/19/1994	pbg
TPH (Gas/BTXE,Solid)						
as Gasoline	114.4	5.72	5.00	mg/kg	05/20/1994	aal
Benzene	89.2	22.3	25.0	ug/kg	05/20/1994	aal
Toluene	98.4	24.6	25.0	ug/kg	05/20/1994	aal
Ethylbenzene	96.0	24.0	25.0	ug/kg	05/20/1994	aal
Xylenes (Total)	98.7	74.0	75.0	ug/kg	05/20/1994	aal
Bromofluorobenzene (SURR)	91.0	91	100	% Rec.	05/20/1994	aal
TPH (Gas/BTXE,Solid)						
as Gasoline	107.6	5.38	5.00	mg/kg	05/23/1994	lss
Benzene	98.8	24.7	25.0	ug/kg	05/23/1994	lss
Toluene	108.8	27.2	25.0	ug/kg	05/23/1994	lss
Ethylbenzene	106.8	26.7	25.0	ug/kg	05/23/1994	lss
Xylenes (Total)	109.6	82.2	75.0	ug/kg	05/23/1994	lss
Bromofluorobenzene (SURR)	100.0	100	100	% Rec.	05/23/1994	lss
METHOD 3550/M8015						
as Diesel	113.3	1133	1000	mg/kg	05/18/1994	fyh
as Motor Oil	101.0	1010	1000	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 12

Ref: 3055 35th Ave., Oakland

METHOD BLANK REPORT

Parameter	Method Blank Amount Found	Reporting Limit	Units	Date Analyzed	Analyst Initials
TPH (Gas/BTXE,Liquid)					
as Gasoline	ND	0.05	mg/L	05/23/1994	aal
Benzene	ND	0.5	ug/L	05/23/1994	aal
Toluene	ND	0.5	ug/L	05/23/1994	aal
Ethylbenzene	ND	0.5	ug/L	05/23/1994	aal
Xylenes (Total)	ND	0.5	ug/L	05/23/1994	aal
Bromofluorobenzene (SURR)	98		% Rec.	05/23/1994	aal
METHOD 3510/M8015					
as Diesel	ND	0.05	mg/L	05/17/1994	sub/port
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/19/1994	pbg
Benzene	ND	2.5	ug/kg	05/19/1994	pbg
Toluene	ND	2.5	ug/kg	05/19/1994	pbg
Ethylbenzene	ND	2.5	ug/kg	05/19/1994	pbg
Xylenes (Total)	ND	2.5	ug/kg	05/19/1994	pbg
Bromofluorobenzene (SURR)	99		% Rec.	05/19/1994	pbg
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/20/1994	aal
Benzene	ND	2.5	ug/kg	05/20/1994	aal
Toluene	ND	2.5	ug/kg	05/20/1994	aal
Ethylbenzene	ND	2.5	ug/kg	05/20/1994	aal
Xylenes (Total)	ND	2.5	ug/kg	05/20/1994	aal
Bromofluorobenzene (SURR)	92		% Rec.	05/20/1994	aal
TPH (Gas/BTXE,Solid)					
as Gasoline	ND	1	mg/kg	05/23/1994	lss
Benzene	ND	2.5	ug/kg	05/23/1994	lss
Toluene	ND	2.5	ug/kg	05/23/1994	lss
Ethylbenzene	ND	2.5	ug/kg	05/23/1994	lss
Xylenes (Total)	ND	2.5	ug/kg	05/23/1994	lss
Bromofluorobenzene (SURR)	89		% Rec.	05/23/1994	lss
METHOD 3550/M8015					
as Diesel	ND	1	mg/kg	05/18/1994	fyh
as Motor Oil	ND	10	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
 Client Name: Cambria
 NET Job No: 94.01945

Date: 05/25/1994
 ELAP Certificate: 1386
 Page: 13

Ref: 3055 35th Ave., Oakland

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike			Units	Date Analyzed	Analyst Initials
	% Rec.	% Rec.	RPD			Conc.	Dup. Conc.				
TPH (Gas/BTXE,Liquid)											
as Gasoline	88.0	89.0	1.1	1.00	0.15	1.03	1.04	mg/L	05/23/1994	aal	
Benzene	101.3	101.8	0.5	39.0	6.5	46.0	46.2	ug/L	05/23/1994	aal	
Toluene	100.0	100.2	0.2	101.3	10	111.3	111.5	ug/L	05/23/1994	aal	
METHOD 3510/M8015											
as Diesel			1.9**					mg/L	05/17/1994	sub/port	
TPH (Gas/BTXE,Solid)											
as Gasoline	107.4	100.0	7.1	5.00	ND	5.37	5.00	mg/kg	05/19/1994	pbg	
Benzene	98.9	97.8	1.1	183	ND	181	179	ug/kg	05/19/1994	pbg	
Toluene	99.8	101.8	2.00	507	2.7	508	498	ug/kg	05/19/1994	pbg	
TPH (Gas/BTXE,Solid)											
as Gasoline	100.6	104.0	3.3	5.00	ND	5.03	5.20	mg/kg	05/20/1994	aal	
Benzene	92.6	94.2	1.7	190	ND	176	179	ug/kg	05/20/1994	aal	
Toluene	95.0	95.4	0.4	517	ND	491	493	ug/kg	05/20/1994	aal	
TPH (Gas/BTXE,Solid)											
as Gasoline	94.0	94.4	0.4	5.00	ND	4.70	4.72	mg/kg	05/23/1994	lss	
Benzene	80.2	85.8	6.7	197	ND	158	169	ug/kg	05/23/1994	lss	
Toluene	87.2	90.2	3.4	523	ND	456	472	ug/kg	05/23/1994	lss	
METHOD 3550/M8015											
as Diesel	119.8	77.8	42.4	16.7	18	38	31	mg/kg	05/18/1994	fyh	

** Sample duplicates RPD.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria
NET Job No: 94.01945

Date: 05/25/1994
ELAP Certificate: 1386
Page: 14

Ref: 3055 35th Ave., Oakland

LABORATORY CONTROL SAMPLE REPORT

<u>Parameter</u>	<u>LCS</u> <u>% Recovery</u>	<u>RPD</u>	<u>LCS</u> <u>Amount</u> <u>Found</u>	<u>LCS</u> <u>Amount</u> <u>Expected</u>	<u>Units</u>	<u>Date</u> <u>Analyzed</u>	<u>Analyst</u> <u>Initials</u>
METHOD 3510/M8015 as Diesel	82.9		834	1006	mg/L	05/17/1994	sub/port
METHOD 3550/M8015 as Diesel	95.8		16.0	16.7	mg/kg	05/18/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. Do not multiply the reporting limits or reported values by the dilution factor.
- dw : Result expressed as dry weight.
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than the applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2] / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, Rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

9269

COMPANY CAMBIZIA ENVIRONMENTAL
 ADDRESS 1144 65th AVE OAKLAND 94608
 PHONE (510) 420-0700 FAX (510) 420-9170
 PROJECT NAME/LOCATION 3055 35th AVE, OAKLAND
 PROJECT NUMBER _____
 PROJECT MANAGER SCOTT MALLERD

REPORT TO: SCOTT MALLERD
 INVOICE TO: CAMBIZIA
 P.O. NO. _____
 NET QUOTE NO. _____

SAMPLED BY SCOTT MALLERD
 (PRINT NAME)
 (PRINT NAME)

SIGNATURE _____
 SIGNATURE _____

ANALYSES

*TPH-G/BTEX
TPH-D
metals
for
5/11*

COMMENTS

DATE	TIME	SAMPLE ID DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED Y/N	ANALYSES			COMMENTS
5/9/94	7:30	SB-E 6 A	X		1 USE	SOIL	N				HOLD
	7:40	↓ 11						X	X	X	
	7:45	↓ 16						X	X	X	
	7:50	↓ 21									HOLD
	8:20	SB-F 6									HOLD
	8:35	↓ 11						X	X	X	
	9:00	↓ 15						X	X	X	
	9:00	↓ 16									HOLD
	9:15	↓ 21									HOLD
	10:45	SB-G 6									HOLD
	11:00	↓ 11						X	X	X	
	11:10	↓ 15						X	X	X	
	11:25	↓ 21									HOLD

CUSTODY SEALED
 5/10/94
[Signature]
 seal intact

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO _____
 FIELD FILTERED? YES / NO _____
 COC SEALS PRESENT AND INTACT? YES / NO _____
 VOLATILES FREE OF HEADSPACE? YES / NO _____
 TEMPERATURE UPON RECEIPT: 0.9°C

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <i>[Signature]</i>	DATE/TIME: 5/9/94 14:20	RECEIVED BY: <i>[Signature]</i>	DATE/TIME: 5/10/94 09:50	RELINQUISHED BY: <i>[Signature]</i>	DATE/TIME: 5/10/94 16:00	RECEIVED FOR NET BY: <i>[Signature]</i>	DATE/TIME: 5/11/94 08:00
METHOD OF SHIPMENT: <u>via NCS</u>		REMARKS:					





NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY COMBUSTION ENVIRONMENTAL
 ADDRESS _____
 PHONE _____ FAX _____
 PROJECT NAME/LOCATION _____
 PROJECT NUMBER _____
 PROJECT MANAGER _____

9269

of per SM to 5/11/94

REPORT TO: SO
 INVOICE TO: _____
 P.O. NO. _____
 NET QUOTE NO. _____

SAMPLED BY

(PRINT NAME) _____
 (PRINT NAME) _____

SIGNATURE _____
 SIGNATURE _____

ANALYSES	
TPH-D / 2000	TPH-G / 1000

DATE	TIME	SAMPLE ID DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED Y/N	ANALYSES	COMMENTS
5/10/94	7:20	SB-A GW	Y		1 l H ₂ O		Y	X	
	7:20	↓	↓		1 l		N	X	
	7:20	↓	↓		3VVA		Y		HOLD
	7:30	SB-B GW	↓		1 l		Y	X	
	7:30	↓	↓		1 l		N	X	
	7:30	↓	↓		3VVA		Y		← Hold # 2 of 3 vials w/headspace AL 5/11
	8:20	SB-D GW	↓		1 l		Y	X	
	8:20	↓	↓		3VVA		Y	X	
									** IF POSSIBLE, ANALYZE SB-D GW SAMPLE IN 1 l BOTTLE FOR TPH-D.
									* 1 Lamber for SB-D GW rec'd preserved w/ H2SO4. AL 5/11

(CUSTODY SEALED)
 5/10/94
[Signature]

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO _____
 FIELD FILTERED? YES / NO _____
 COC SEALS PRESENT AND INTACT? YES / NO _____
 VOLATILES FREE OF HEADSPACE? YES / NO _____
 TEMPERATURE UPON RECEIPT: _____ 0.9°C
seal intact

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <i>[Signature]</i>	DATE/TIME: 5/10/94 14:20	RECEIVED BY: <i>[Signature]</i>	DATE/TIME: 5/10/94 09:50	RELINQUISHED BY: <i>[Signature]</i>	DATE/TIME: 5/10/94 16:00	RECEIVED FOR NET BY: <i>[Signature]</i>
METHOD OF SHIPMENT: <i>via ACS</i>		REMARKS: <i>* Sample 5/11/94 0800</i>				





NATIONAL
ENVIRONMENTAL
TESTING, INC.

Santa Rosa Division
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Scott Macleod
Cambria Env. Technology
1144 65th Street
Suite C
Oakland, CA 94608

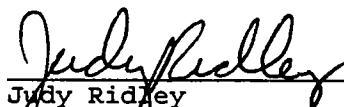
Date: 06/08/1994
NET Client Acct. No: 98900
NET Pacific Job No: 94.02247
Received: 05/28/1994

Client Reference Information

3055 35th Ave., Oakland

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:



Judy Ridley
Project Coordinator



Jim Hoch
Operations Manager

Enclosure(s)





Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 2

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: MW-1

Date Taken: 05/25/1994

Time Taken: 10:30

NET Sample No: 195737

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE, Liquid)							
METHOD 5030/M8015	--						06/02/1994
DILUTION FACTOR*	1,000						06/02/1994
as Gasoline	120		50	mg/L	5030		06/02/1994
METHOD 8020 (GC, Liquid)							
Benzene	22,000		500	ug/L	8020		06/02/1994
Toluene	17,000		500	ug/L	8020		06/02/1994
Ethylbenzene	2,800		500	ug/L	8020		06/02/1994
Xylenes (Total)	16,000		500	ug/L	8020		06/02/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	102			‡ Rec.	5030		06/02/1994
METHOD M8015 (EXT., Liquid)							
DILUTION FACTOR*	100					06/01/1994	06/03/1994
as Diesel	25	DL	5	mg/L	3510		06/03/1994
as Motor Oil	ND		50	mg/L	3510		06/03/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 3

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: MW-2

Date Taken: 05/25/1994

Time Taken: 11:30

NET Sample No: 195738

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE, Liquid)							
METHOD 5030/M8015	--						06/03/1994
DILUTION FACTOR*	1						06/03/1994
as Gasoline	61		0.05	mg/L	5030		06/03/1994
METHOD 8020 (GC, Liquid)							
Benzene	9,900		0.5	ug/L	8020		06/03/1994
Toluene	7,400		0.5	ug/L	8020		06/03/1994
Ethylbenzene	960		0.5	ug/L	8020		06/03/1994
Xylenes (Total)	4,600		0.5	ug/L	8020		06/03/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	103			% Rec.	5030		06/03/1994
METHOD M8015 (EXT., Liquid)							
DILUTION FACTOR*	10					06/01/1994	
as Diesel	6.9	DL	0.5	mg/L	3510		06/03/1994
as Motor Oil	ND		5	mg/L	3510		06/03/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 4

Ref: 3055 35th Ave., Oakland

SAMPLE DESCRIPTION: MW-3

Date Taken: 05/25/1994

Time Taken: 11:00

NET Sample No: 195739

Parameter	Results	Flags	Reporting		Method	Date	Date
			Limit	Units		Extracted	Analyzed
TPH (Gas/BTXE, Liquid)							
METHOD 5030/M8015	--						06/02/1994
DILUTION FACTOR*	1,000						06/02/1994
as Gasoline	56		50	mg/L	5030		06/02/1994
METHOD 8020 (GC, Liquid)							
Benzene	14,000		500	ug/L	8020		06/02/1994
Toluene	14,000		500	ug/L	8020		06/02/1994
Ethylbenzene	1,300		500	ug/L	8020		06/02/1994
Xylenes (Total)	11,000		500	ug/L	8020		06/02/1994
SURROGATE RESULTS							
Bromofluorobenzene (SURR)	70			% Rec.	5030		06/02/1994
METHOD M8015 (EXT., Liquid)							
DILUTION FACTOR*	100					06/01/1994	
as Diesel	14	DL	5	mg/L	3510		06/03/1994
as Motor Oil	ND		50	mg/L	3510		06/03/1994

DL : The positive result appears to be a lighter hydrocarbon than Diesel.

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900
Client Name: Cambria Env. Technology
NET Job No: 94.02247

Date: 06/08/1994
ELAP Certificate: 1386
Page: 5

Ref: 3055 35th Ave., Oakland

CONTINUING CALIBRATION VERIFICATION STANDARD REPORT

Parameter	CCV	CCV	CCV	Units	Date Analyzed	Analyst Initials
	Standard % Recovery	Standard Amount Found	Standard Amount Expected			
TPH (Gas/BTXE,Liquid)						
as Gasoline	94.0	0.94	1.00	mg/L	06/03/1994	aal
Benzene	114.4	5.72	5.00	ug/L	06/03/1994	aal
Toluene	107.6	5.38	5.00	ug/L	06/03/1994	aal
Ethylbenzene	105.8	5.29	5.00	ug/L	06/03/1994	aal
Xylenes (Total)	104.0	15.6	15.0	ug/L	06/03/1994	aal
Bromofluorobenzene (SURR)	100.0	100	100	% Rec.	06/03/1994	aal
TPH (Gas/BTXE,Liquid)						
as Gasoline	101.0	1.01	1.00	mg/L	06/02/1994	aal
Benzene	112.2	5.61	5.00	ug/L	06/02/1994	aal
Toluene	110.2	5.51	5.00	ug/L	06/02/1994	aal
Ethylbenzene	108.4	5.42	5.00	ug/L	06/02/1994	aal
Xylenes (Total)	107.3	16.1	15.0	ug/L	06/02/1994	aal
Bromofluorobenzene (SURR)	104.0	104	100	% Rec.	06/02/1994	aal
METHOD M8015 (EXT., Liquid)						
as Diesel	102.0	1020	1000	mg/L	06/03/1994	fyh
as Motor Oil	107.6	1076	1000	mg/L	06/03/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 6

Ref: 3055 35th Ave., Oakland

METHOD BLANK REPORT

<u>Parameter</u>	<u>Method Blank Amount Found</u>	<u>Reporting Limit</u>	<u>Units</u>	<u>Date Analyzed</u>	<u>Analyst Initials</u>
TPH (Gas/BTXE, Liquid)					
as Gasoline	ND	0.05	mg/L	06/03/1994	aal
Benzene	ND	0.5	ug/L	06/03/1994	aal
Toluene	ND	0.5	ug/L	06/03/1994	aal
Ethylbenzene	ND	0.5	ug/L	06/03/1994	aal
Xylenes (Total)	ND	0.5	ug/L	06/03/1994	aal
Bromofluorobenzene (SURR)	100		% Rec.	06/03/1994	aal
TPH (Gas/BTXE, Liquid)					
as Gasoline	ND	0.05	mg/L	06/02/1994	aal
Benzene	ND	0.5	ug/L	06/02/1994	aal
Toluene	ND	0.5	ug/L	06/02/1994	aal
Ethylbenzene	ND	0.5	ug/L	06/02/1994	aal
Xylenes (Total)	ND	0.5	ug/L	06/02/1994	aal
Bromofluorobenzene (SURR)	105		% Rec.	06/02/1994	aal
METHOD M8015 (EXT., Liquid)					
as Diesel	ND	0.05	mg/L	06/03/1994	fyh
as Motor Oil	ND	0.5	mg/L	06/03/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 7

Ref: 3055 35th Ave., Oakland

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Parameter	Matrix Spike			Spike Amount	Sample Conc.	Matrix Spike		Units	Date Analyzed	Analyst Initials
	Matrix Spike % Rec.	Spike Dup % Rec.	RPD			Matrix Spike Conc.	Spike Dup. Conc.			
TPH (Gas/BTXE,Liquid)										
as Gasoline	82.0	82.0	0.0	1.00	0.33	1.15	1.15	mg/L	06/02/1994	klh
Benzene	N/A	N/A	1.6	34.2	62	39.2	38.8	ug/L	06/03/1994	aal
Toluene	99.4	98.5	0.9	96.5	1.1	97.0	96.2	ug/L	06/02/1994	klh
TPH (Gas/BTXE,Liquid)										
as Gasoline	101.0	100.0	1.0	1.00	ND	1.01	1.00	mg/L	06/02/1994	aal
Benzene	102.6	101.2	1.4	34.5	ND	35.4	34.9	ug/L	06/02/1994	aal
Toluene	102.5	100.5	2.0	99.5	ND	102	100	ug/L	06/02/1994	aal
METHOD M8015 (EXT., Liquid)										
as Diesel	80.5	69.5	14.7	2.00	0.21	1.82	1.60	mg/L	06/03/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



Client Acct: 98900

Date: 06/08/1994

Client Name: Cambria Env. Technology

ELAP Certificate: 1386

NET Job No: 94.02247

Page: 8

Ref: 3055 35th Ave., Oakland

LABORATORY CONTROL SAMPLE REPORT

<u>Parameter</u>	<u>LCS</u>	<u>LCS</u>	<u>LCS</u>	<u>Date</u>	<u>Analyst</u>		
	<u>% Recovery</u>	<u>RPD</u>	<u>Amount</u>	<u>Amount</u>	<u>Initials</u>		
			<u>Found</u>	<u>Expected</u>	<u>Units</u>	<u>Analyzed</u>	
METHOD M8015 (EXT., Liquid)							
as Diesel	64.0		0.64	1.00	mg/L	06/03/1994	fyh

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.



KEY TO ABBREVIATIONS and METHOD REFERENCES

- < : Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
- * : Reporting Limits are a function of the dilution factor for any given sample. Actual reporting limits and results have been multiplied by the listed dilution factor. Do not multiply the reporting limits or reported values by the dilution factor.
- dw : Result expressed as dry weight.
- mean : Average; sum of measurements divided by number of measurements.
- mg/Kg (ppm) : Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
- mg/L : Concentration in units of milligrams of analyte per liter of sample.
- mL/L/hr : Milliliters per liter per hour.
- MPN/100 mL : Most probable number of bacteria per one hundred milliliters of sample.
- N/A : Not applicable.
- NA : Not analyzed.
- ND : Not detected; the analyte concentration is less than the applicable listed reporting limit.
- NTU : Nephelometric turbidity units.
- RPD : Relative percent difference, $100 \text{ [Value 1 - Value 2] / mean value}$.
- SNA : Standard not available.
- ug/Kg (ppb) : Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
- ug/L : Concentration in units of micrograms of analyte per liter of sample.
- umhos/cm : Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, Rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, Rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986., Rev. 1, December 1987.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

BLAINE TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

CONDUCT ANALYSIS TO DETECT

LAB

Net *(9581)*

DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

- EPA
- LIA
- OTHER

RWQCB REGION 2

CHAIN OF CUSTODY

940525F1

CLIENT

Cambria

SITE

3055 35TH Ave

OAKLAND CA.

C = COMPOSITE ALL CONTAINERS

TRHG - BTEX 8015/8020
TRHD & TPH MO modified 8015

SPECIAL INSTRUCTIONS

*Invoice & Report to:
Cambria Environmental*

SAMPLE I.D.	DATE	TIME	MATRIX S = SOIL W = H2O	CONTAINERS 40 mL VOA HCl 1 LTR Unfile	TOTAL	C = COMPOSITE ALL CONTAINERS		ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
						<i>TRHG</i>	<i>TRHD</i>				
<i>MW-1</i>	<i>5/25/94</i>	<i>1030</i>			<i>5</i>	<i>X</i>	<i>X</i>		<i>Routine</i>		
<i>MW-2</i>	<i>↓</i>	<i>1130</i>			<i>5</i>	<i>X</i>	<i>X</i>		<i>↓</i>		
<i>MW-3</i>	<i>↓</i>	<i>1100</i>			<i>5</i>	<i>X</i>	<i>X</i>		<i>↓</i>		

CUSTODY SEALED
5/27/94
[Signature]
real int...

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN	
	<i>5/25/94</i>	<i>1130</i>	<i>Tom Flocy</i>	<i>NORMAL TURNAROUND</i>	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	<i>5/27/94</i>	<i>10:00 AM</i>	<i>[Signature]</i>	<i>5/27/94</i>	<i>10:00</i>
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	<i>5/27/94</i>	<i>11:30</i>	<i>[Signature]</i>		
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
			<i>[Signature]</i>	<i>5/28/94</i>	<i>1000</i>
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	Temp Read: <i>9.1°C</i>	
<i>NCS</i>					

APPENDIX D

Standard Field Procedures

STANDARD FIELD PROCEDURES

This document describes standard field methods for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORING AND SAMPLING

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Soil borings are typically drilled using solid flight or hollow-stem augers. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using split-barrel samplers lined with steam-cleaned brass or stainless steel tubes that are driven through the hollow auger stem into undisturbed sediments at the bottom of the borehole. Samples are driven using a 140 pound hammer dropped 30 inches.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labelled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor

concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the stratigraphy and ground water depth to select soil samples for analysis.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe. If wells are completed in the borings, the well installation, development and sampling procedures summarized below are followed.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

CAMBRIA

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labelled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.