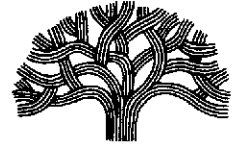




CITY OF OAKLAND



DALZIEL BUILDING • 250 FRANK H. OGAWA PLAZA, SUITE 5301 • OAKLAND, CALIFORNIA 94612-2034

Public Works Agency  
Environmental Services

FAX (510) 238-7286  
TDD (510) 238-7644

June 17, 2000

#3978

**Mr. Barney Chan**  
**Alameda County Environmental Health Services**  
**1131 Harbor Bay Parkway**  
**Alameda, California 94502-6577**

**Subject: Well Installation and Destruction Report**  
**City of Oakland Municipal Service Center**  
**7101 Edgewater Drive**  
**Oakland, California**

Dear Mr. Chan:

Enclosed is one copy of the subject report, prepared by our consultant, Cambria Environmental Technology Inc., for the City of Oakland Municipal Service Center at 7101 Edgewater Drive.

We are finalizing a Work Plan for installation of additional borings to: (1) better define the geology in specific areas of the site; (2) to delineate the extent of free-product identified in on-site wells (TBW-1, TBW-3, TBW-5, and MW-6); and (3) to investigate soil and groundwater quality in the vicinity of Building 5. We also anticipate installing one additional well (MW-18) between MW-6 and MW-16. We will send you the Work Plan for your review and approval by July 15, 2000.

Please call me at 238-6259, if you have any questions or require additional information.

Sincerely,

Joseph A. Cotton  
Environmental Program Specialist

cc: w/o encl.: Andrew Clark-Clough  
David Elias, Cambria Environmental Technology  
cc: w/encl.: Diane Heinz, Port of Oakland

# C A M B R I A

March 1, 2000

Joseph Cotton  
City of Oakland, Public Works Agency  
Environmental Services Division  
250 Frank H. Ogawa Plaza, Ste. 5301  
Oakland, California 94612-2034

Re: **Well Installation and Destruction Report**  
City of Oakland, Municipal Services Center  
7101 Edgewater Drive  
Oakland, California  
Cambria Project #153-1247

Dear Mr. Cotton:



As required by the Alameda County Health Care Services Agency (ACHCSA), Cambria Environmental Technology, Inc., (Cambria) has prepared this Well Installation and Destruction Report for the above-referenced site. The objectives of this investigation were to further define the extent of hydrocarbons in soil and groundwater, to better assess the groundwater flow direction in the northwestern portion of the site, and to initiate feasibility testing for possible future remediation. Please find below a site summary, investigation procedures, investigation results, and Cambria's recommendations and conclusions.

## SITE SUMMARY

**Site and Area Use:** The site is an approximately 17-acre corporation yard consisting of offices, shops, warehouse structures, and a vehicle maintenance and repair facility (Figure 2). Bordering the site to the west and to the north is the Martin Luther King Regional Shoreline park. Beyond the narrow strip of park lands lie San Leandro Bay to the west and Damon Slough to the north. Area use to the east and south is primarily light industrial.

**Environmental Investigations:** In 1989, an environmental site assessment was performed, and monitoring wells MW-1 through MW-4 were installed. In 1992, additional investigation was performed and monitoring wells MW-5 through MW-7 were installed. In 1993, thirty-four soil borings were advanced across the site, and groundwater samples were collected. In 1995, three shallow borings were advanced as part of a geotechnical investigation and soil samples were analyzed for petroleum hydrocarbons. In 1996, ten soil borings were advanced and temporary wells were installed outside the western and northern perimeters of the site along San Leandro Bay and Damon Slough. Three of the temporary well locations were converted to monitoring wells: MW-8 through MW-10 (Figure 2). Since installation, monitoring wells MW-1 through MW-10 have been regularly gauged and sampled. From September through December 1999, an approximately 2,650 lineal foot fuel transport and dispensing system was removed from the site. Soil samples from

Oakland, CA  
Sonoma, CA  
Portland, OR  
Seattle, WA

**Cambria  
Environmental  
Technology, Inc.**

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Suite B  
Oakland, CA 94608  
Tel (510) 420-0700  
Fax (510) 420-9170

beneath the former piping were collected at 20 ft intervals and analyzed for petroleum hydrocarbons and organic lead. In addition, eight underground storage tanks (USTs) and associated piping have been removed from the site (Figure 2).

**Site Hydrogeology:** The site is underlain by artificial fill that was emplaced during several phases since 1945. The fill material varies significantly in character across the site. The fill is underlain by clayey silt deposits, known as Bay Mud and coarse-grained sediments. Based on measured groundwater elevations, groundwater generally appears to flow towards Damon Slough in the northern part of the site, and toward San Leandro Bay in the southern part of the site. The heterogeneity of the artificial fill material and the low permeability of the Bay Mud used as fill at various site locations appear to influence local groundwater flow.

**Contaminant Distribution:** Petroleum hydrocarbons have been detected in soil and groundwater at multiple locations across the site. The distribution of contamination appears to be related to the former USTs and fuel dispensing systems. The contamination also may have been entrained in the fill material used to reclaim the wetland. The former USTs near TBW-1 and TBW-2, the former USTs east of MW-6, and the recently upgraded active USTs near MW-5 are likely to have been sources of contamination, in addition to the recently removed extensive fuel dispensing system (Figure 2). Low concentrations of petroleum hydrocarbons have been detected in off-site wells MW-8, MW-9, and MW-10 in the past. No petroleum hydrocarbons have ever been detected in off-site wells MW-3 and MW-4, which were recently destroyed.

## INVESTIGATION PROCEDURES

### Well Location Rationale

Cambria selected the recently installed monitoring well locations shown on Figure 2 to further define the extent of hydrocarbons in soil and groundwater and to better assess the groundwater flow direction in the northwestern portion of the site. Cambria also incorporated the analytic results from the recent piping removal to choose the locations. Specifically, our rationale for the selected monitoring well locations is as follows:

- To define the downgradient extent of the hydrocarbons detected historically in monitoring well MW-5, and to assess any possible impacts from former operations conducted in Building 5, Cambria installed monitoring well MW-11.
- Cambria installed monitoring well MW-12 west of TBW-6 to allow for a better assessment of the change in groundwater flow direction and to evaluate groundwater quality at the property boundary.
- During the piping removal, and recent sampling events, separate-phase hydrocarbons were detected in tank backfill will TBW-5. Cambria installed

monitoring well MW-13 downgradient of this area to assess the lateral extent of hydrocarbons in the area apparently downgradient of TBW-5.

- Due to a history of separate-phase hydrocarbons, we installed well MW-14 west of the former USTs, TBW-1, and TBW-2, located immediately north of the Municipal Service Center storage building . Groundwater samples collected from this well should detect any hydrocarbons migrating from the former tankpit towards the bay.
- Cambria installed wells MW-15 and MW-16 to: 1) provide complete perimeter assessment of hydrocarbons in groundwater, and to assess the extent of hydrocarbons detected in groundwater samples collected historically from well MW-6. Since separate-phase hydrocarbons were detected well MW-16, Cambria stepped downgradient and installed well MW-17. No separate-phase hydrocarbons were detected in this well.
- Cambria selected the remediation testing well (RW-1) location to be near a known hydrocarbon source (TBW-5), with separate-phase hydrocarbons.

The procedures for the well installation and well destruction are summarized below. Cambria's standard field procedures for monitoring wells, remediation wells, and well abandonment are included in Attachment A. The drilling and encroachment permits are included as Attachment B. Boring logs and well construction diagrams are presented as Attachment C. The analytic report is presented as Attachment D. Well Elevation Survey Data is presented as Attachment E, and the completed Department of Water Resources well completion forms are included as Attachment F. Soil and water disposal waste manifests are included as Attachment G.

**Investigation Results**

- Drilling Dates:* December 1,2,3, 1999.
- Personnel Present:* Cambria Geologist, John Riggi conducted the field activities under the supervision of Registered Geologist David C. Elias.
- Permits:* Alameda County Public Works Agency Drilling Permit No. 99WR631 and East Bay Regional Park District Encroachment Permit 067E-99-437 (Attachment B)
- Drilling Company:* V&W Drilling (V&W) of Rio Vista, California (C-57 License No. 720904).
- Drilling Method:* 8-inch diameter hollow -stem augers for wells MW-11 through MW-17 and 10-inch diameter augers for well RW-1.
- Number of Borings:* Eight (Figure 2).
- Boring Depths:* 25-30 ft (Attachment C).



- Monitoring Wells:* Seven completed (MW-11 through 17).
- Remediation Test Well:* One completed (RW-1).
- Well Materials:* Monitoring wells MW-11 through 17 were constructed of two-inch diameter, 0.010-inch slotted, schedule 40 PVC well screen and well casing, with Monterey #2/12 sand. Remediation test well RW-1 was constructed as a coaxial well. The outer casing was built with four inch diameter 0.010-inch slotted schedule 40 PVC well screen and the inner casing consisted of a one inch diameter 0.010-inch slotted schedule 40 PVC well screen and casing (Attachment C).
- Soil Sampling:* Soil samples were collected from all borings at five foot intervals and logged and classified according to the Unified Soil Classification System (Attachments A and C).
- Depth to Water:* Groundwater was encountered in the borings at depths of 5-10 ft below ground surface (bgs).
- Screened Interval:* The monitoring wells were screened from 5 ft bgs to the total depth of each well (25-30 ft bgs, Attachment C).
- Development Method:* V&W Drilling and Cambria developed each monitoring well using a surge block and a submersible pump prior to setting the well surface seal.
- Soil Disposal:* Soil cuttings generated during drilling were stored onsite in sealed and labeled 55-gallon drums. Denbeste Transportation of Windsor, California transported the drums to Forward Landfill, in Manteca, California. Disposal manifests are included as Attachment G.
- Rinsate and Development Water Disposal:* Drilling rinsate and purged well development water was transported by Onyx Industrial, of Benicia, California transported to Seaport Refinery in Redwood City, California.
- Well Surveying:* Virgil Chavez, licensed land surveyor, of Vallejo, California, surveyed the elevations of the well casings and vaults relative to mean sea level (msl). The survey instrument accuracy was 5 mm +/- 2 ppm. ?

**Well Destruction**

Monitoring wells MW-3 and MW-4 were approved for discontinued sampling in March 1998 due to the lack of significant data collected from these wells and the distant location from the source

~~monitoring wells on November 22, 1999 by pressure grouting. The well abandonment activities were conducted by V&W Drilling and supervised by Cambria Geologist Jacquelyn Jones.~~ Cambria's standard field procedures for Well Destruction are included as Attachment A. Department of Water Resources (DWR) well completion forms are included as Attachment F.

### Stratigraphy

The soils encountered during the well installations consisted primarily of fill composed of silts, sands, and gravels. The majority of the soils contained a relatively high percentage of clay, which relates directly to the relatively low permeability of most of the soils sampled. ~~However, wells MW-15, 16 and 17 contained little to no clay, and therefore the soils in this area are likely more permeable (Attachment C).~~

### Hydrocarbon Concentrations in Soil

Moderate TPHd and TPHmo concentrations were detected in the majority of the samples collected and analyzed. Hydrocarbon concentrations decreased with depth in wells MW-11, 12, and 17 and RW-1. However, hydrocarbon concentrations increased with depth in wells MW- 13, 14 and 15. The trend of hydrocarbons increasing in concentration below the water table could be caused by two scenarios: 1) The hydrocarbon source is from contaminated fill imported during the reclamation of the wetland, or 2) motor oil and diesel are migrating through preferential pathways beneath the water table. In addition, the laboratory report consistently shows a low TPHd concentration in association with a relatively higher TPHmo concentration. This trend may indicate that the TPHmo detected by the laboratory is actually very weathered diesel, or, that the TPHd detected is actually the lighter end of a motor oil. A discussion of the soil analytic results for each well is presented below in Table A.

**Table A - Analytic Results for Soil**


<u>Well Identification</u>	<u>Discussion</u>
MW-11	Although relatively low diesel and motor oil concentrations of 21 and 210 ppm were detected in the 11 ft sample, no hydrocarbons were detected in the deeper 15.5 and 19.5 ft samples. Therefore, it is unlikely that gasoline, diesel or motor oil from the upgradient active USTs or from previous Building 5 operations have migrated to this area.
MW-12	Up to 399 ppm TPHd and 5,200 ppm TPHmo were detected in the shallow 5.5 ft sample. However, these concentrations attenuated rapidly to <10 ppm TPHd and 140 ppm motor oil in the 14.5 ft sample. Therefore, diesel and motor oil concentrations in soil are defined vertically in this area.
MW-13	Maximum concentrations of 800 ppm TPHd and 13,000 ppm TPHmo were detected in the 25 ft sample. Hydrocarbon concentrations appeared to increase with depth in this well. Since we had auger refusal at 26 ft, we were unable to define the full vertical extent of hydrocarbons in soil. The downgradient extent of hydrocarbons in soil is not defined in this area.
MW-14	As in well MW-13, the maximum TPHd and TPHmo concentrations of 230 and 1,400 ppm, respectively, were detected in the deepest, 15 ft sample. The downgradient extent of diesel and motor oil is not defined in this area.
MW-15	In this well, TPHd concentrations decreased with depth, while TPHmo concentrations increased to 1,200 ppm. Therefore, TPHd concentrations are defined vertically in this area, while TPHd and TPHmo concentrations are not defined horizontally.
MW-16	Cambria analyzed only the 15 ft sample collected from this boring due to the likelihood of cross contamination from the separate-phase hydrocarbons encountered in the well. Concentrations of 830 ppm TPHg and 1,900 ppm TPHmo were detected. This hydrocarbon did not appear to be the same as the diesel and gasoline detected onsite, as it was darker and more viscous.
MW-17	Hydrocarbon concentrations decreased with depth in this well, and no separate-phase hydrocarbons were detected. The concentrations detected in the deepest 19-ft sample were 170 ppm TPHd and 1,900 ppm TPHmo.
RW-1	Cambria expected to detect elevated hydrocarbon concentrations in shallow soils collected from this remediation test well. The maximum concentrations of 1,800 ppm TPHg and 2,900 ppm TPHd attenuated to 0.1 ppm TPHg and <10 ppm in the 20.5 ft sample, thereby defining the vertical extent of gasoline and diesel in this area.

*Need to compare chromatograms*

### Hydrocarbon Concentrations in Groundwater

Cambria collected groundwater samples from the site wells during the first quarter 2000 sampling event. The analytic results, and recommendations for further work based on the results will be presented in the first quarter 2000 quarterly monitoring report.

### CONCLUSIONS AND RECOMMENDATIONS



Based on the analytic results presented above, moderate diesel and motor oil concentrations exist in soil at the perimeter of the property, adjacent to the San Leandro Bay. However, the analytic results for groundwater, that will be presented in the forthcoming quarterly monitoring report, will show whether these concentrations in soil necessitate further investigation. Cambria will make additional recommendations once the analytic results for groundwater have been presented in that report.

Due to the separate-phase hydrocarbons detected in monitoring well MW-16, Cambria recommends advancing additional soil borings in the vicinity of the well to define the horizontal extent of separate-phase hydrocarbons in soil in this area. The analytic results will also be used to assess whether the source of the hydrocarbons exists on the City of Oakland Municipal Service Center property. In addition, Cambria recommends collecting a sample of the product to compare to the hydrocarbons detected beneath the Municipal Service Center.

ok



**CLOSING**

If you have any questions or comments regarding this letter-report or future site activities, please call John Riggi at (510) 420-3340, or David Elias at (510) 420-3307.

Sincerely,  
**Cambria Environmental Technology, Inc.**

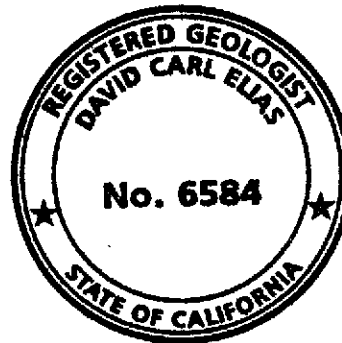


*John A. Riggi*

John A. Riggi  
Senior Staff Geologist

*David C. Elias*

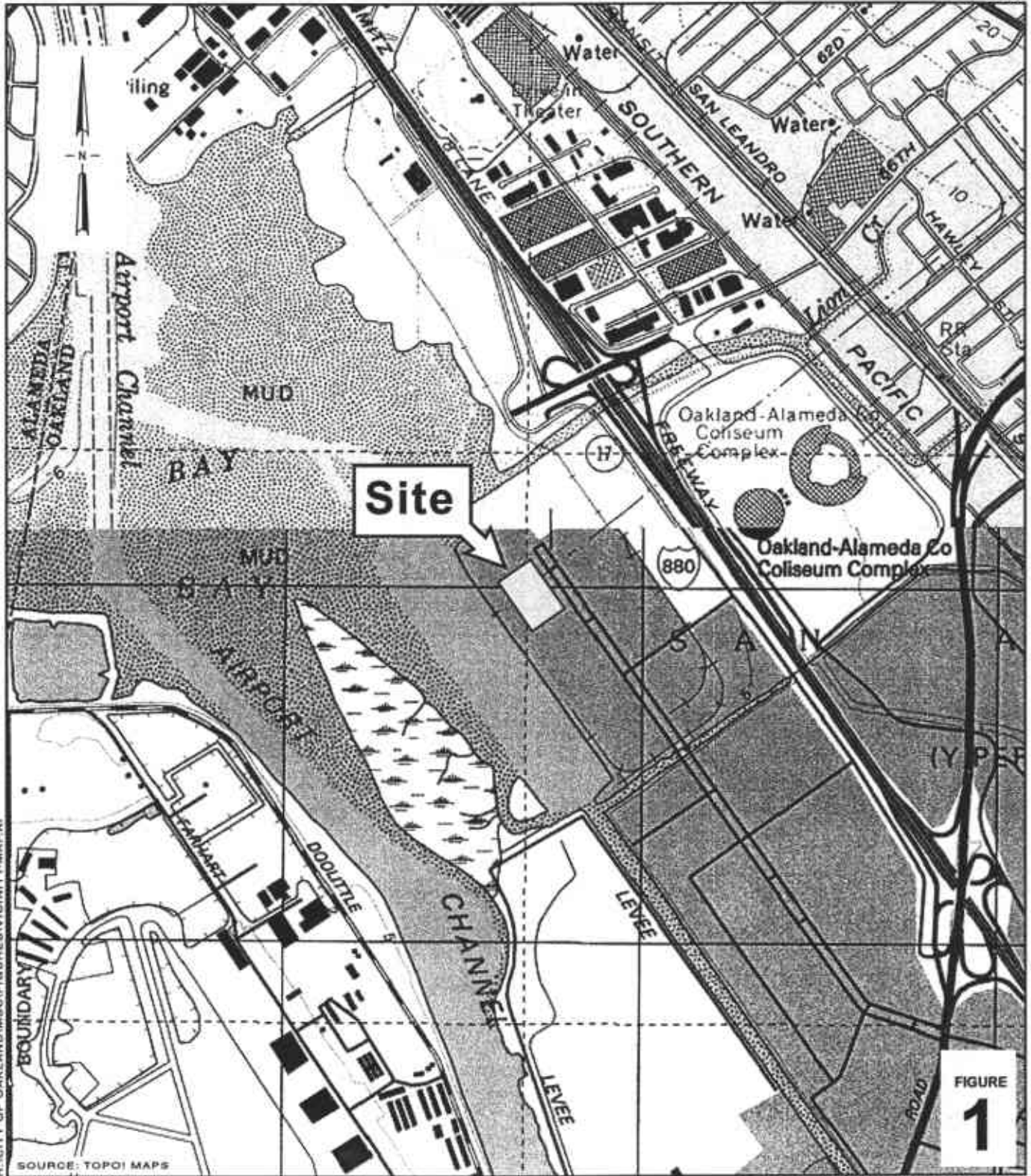
David C. Elias, R.G.  
Senior Geologist



Figures: 1 - Vicinity Map  
2 - Maximum Concentrations in Soil

Attachments: A - Standard Field Procedures  
B - Drilling and Encroachment Permits  
C - Soil Boring Logs and Well Construction Diagrams  
D - Analytic Report  
E - Well Elevation Survey Data  
F - Department of Water Resources Well Completion Forms  
G - Waste Manifests

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### Municipal Service Center

7101 Edgewater Drive  
Oakland, California



C A M B R I A

### Vicinity Map



# CAMBRIA

**Table 1. Soil Analytical Results for Fuel Hydrocarbons**

City of Oakland Municipal Service Center, Oakland, California

Sample ID	Date	TPHg	TPHd	TPHmo	TPHk	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE
COMPOSITE	12/02/99	<0.1	130	1,000	<20	<0.001	<0.001	<0.001	<0.001	<0.05
MW-11-6'	12/01/99	<0.1	<4.0	<20	<4.0	<0.001	<0.001	<0.001	<0.001	<0.05
MW-11-11'	12/01/99	<0.1	21	210	<4.0	<0.001	<0.001	<0.001	<0.001	<0.05
MW-11-15.5'	12/01/99	<0.1	<4.0	<20	<4.0	<0.001	<0.001	<0.001	<0.001	<0.05
MW-11-19.5	12/01/99	<0.1	<4.0	<50	<4.0	<0.001	<0.001	<0.001	<0.001	<0.05
<b>MW-12-5.5'</b>	12/01/99	1.4	399	<b>5,200</b>	68	<0.001	0.004	0.008	0.046	<0.05
MW-12-11'	12/01/99	1.1	37	100	<4.0	<0.001	<0.001	0.002	0.007	<0.125
MW-12-14.5	12/01/99	<0.1	<10	140	<10	<0.001	<0.001	<0.001	<0.001	<0.05
MW-13-10'	12/02/99	<0.1	20	240	<4.0	<0.001	<0.001	<0.001	<0.001	<0.05
<del>MW-13-20'</del>	12/02/99	<0.1	790	<b>11,000</b>	<10	<0.001	<0.001	<0.001	<0.001	<0.05
<b>MW-13-25'</b>	12/02/99	<0.1	800	<b>13,000</b>	<10	<0.001	<0.001	<0.001	<0.001	<0.05
MW-14-10'	12/02/99	<0.1	<10	400	<10	<0.001	<0.001	<0.001	<0.001	<0.05
<del>MW-14-15'</del>	12/02/99	0.31	230	<b>1,400</b>	<10	<0.001	<0.001	<0.001	<0.001	<0.05
MW-15-10'	12/02/99	<0.1	240	500	<10	<0.001	<0.001	<0.001	<0.001	<0.05
MW-15-15'	12/02/99	<0.1	63	450	<10	<0.001	<0.001	<0.001	<0.001	<0.05
<del>MW-15-19'</del>	12/02/99	<0.1	170	<b>1,200</b>	<10	<0.001	<0.001	<0.001	<0.001	<0.05
<b>MW-16-15'</b>	12/02/99	830	<40	<b>1,900</b>	340	1.3	<1.0	13	7.0	<50
<del>MW-17-11'</del>	12/02/99	<0.1	140	<b>2,900</b>	<20	<0.001	<0.001	<0.001	<0.001	<0.05
<del>MW-17-19'</del>	12/02/99	<0.1	170	<b>1,900</b>	<20	<0.001	<0.001	<0.001	<0.001	<0.05
<b>RW-1-5.5'</b>	12/01/99	1,800	<b>2,900</b>	<50	<10	<1.0	<1.0	13	31	<50

# CAMBRIA

**Table 1. Soil Analytical Results for Fuel Hydrocarbons**

City of Oakland Municipal Service Center, Oakland, California

Sample ID	Date	TPHg	TPHd	TPHmo	TPHk	Benzene	Toluene	Ethyl- benzene	Xylenes	MTBE
----- (mg/kg) ----->										
RW-1-10'	12/01/99	<0.1	22	200	<20	<0.001	<0.001	<0.001	<0.001	<0.05
RW-1-17.5'	12/01/99	0.11	26	800	<20	0.0019	<0.001	0.0011	0.0027	<0.05
RW-1-20.5	12/01/99	0.1	<10	90	<10	0.002	<0.001	<0.001	0.0012	<0.025

**Notes**

DUP = Duplicate sample.

All concentrations in milligrams per kilogram (mg/kg)

--- = not measured/analyzed

TPHd = Total Petroleum Hydrocarbons as diesel - analyzed by Modified EPA method 8015

TPHg = Total Petroleum Hydrocarbons as gasoline - analyzed by Modified EPA method 8015

MTBE = Methyl tert-butyl ether - analyzed by EPA Method 8020 or 8260

L = Concentration reported is less than Practical Quantitation Limit; value is estimated.

**ATTACHMENT A**

**Standard Field Procedures**

# CAMBRIA

## STANDARD FIELD PROCEDURES FOR MONITORING WELLS

This document presents 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 BORINGS

#### 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).

#### Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. 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 lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

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 labeled 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 volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

# CAMBRIA

## **Water Sampling**

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, 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.

## **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.

## **MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING**

### **Well Construction and Surveying**

Ground water monitoring 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.



# CAMBRIA

## **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.

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 labeled, 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.

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## **STANDARD FIELD PROCEDURES FOR REMEDIATION WELL INSTALLATION**

This document presents standard field methods for drilling and sampling soil borings and installing remediation 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 hollow-stem augers or push technologies such as the Geoprobe. 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 lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

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 labeled 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 field observations, odors, 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.

## **REMEDIATION WELL INSTALLATION**

### **Well Construction**

Remediation wells are installed for soil vapor extraction (SVE), ground water extraction (GWE), oxygenation, air sparging (AS) and for vapor monitoring (VM). Well depths and screen lengths will vary depending upon several factors including the intended use of the well, ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines.

Well casing and screen are typically one to four inch diameter 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 typically connected remediation piping set in traffic-rated vaults finished flush with the ground surface. Typical well screen intervals for each type of well are as follows:

**SVE Wells:** SVE wells are screened in the vadose zone targeting horizons with the highest hydrocarbon concentrations. SVE wells are also occasionally screened as concurrent soil vapor and ground water extraction wells with screen interval above and below the water table.

**GWE Wells:** Ground water extraction wells are typically screened ten to fifteen ft below the first water-bearing zone encountered. The well screen may or may not be screened above the water table depending upon whether the water bearing zone is unconfined or confined.

**Oxygenation Wells:** Oxygenation wells are installed above or below the water table to supply oxygen and enhance naturally occurring hydrocarbon biodegradation. Oxygenation wells installed in the vadose zone typically have well screens that are two to ten feet long and target horizons with the highest hydrocarbon concentrations. Oxygenation wells installed below the water table typically have a two foot screen interval set ten to fifteen ft below the water table.

**AS Wells:** Air sparging wells are installed below the water table and typically have a two foot screen interval set ten to fifteen ft below the water table.

**VM Wells:** Vapor monitoring wells are installed in the vadose zone to check for hydrocarbon vapor migration during air injection. The wells are typically constructed with short screens to target horizons through which hydrocarbon vapor migration could occur. These wells can also be constructed in borings drilled using push technologies such as the Geoprobe by using non-collapsible Teflon tubing set in small sand packed regions overlain by grout.

### **Well Development**

Ground water extraction 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.

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.

## **STANDARD FIELD PROCEDURES FOR ABANDONING MONITORING WELLS**

This document presents standard field methods for abandoning ground water monitoring wells. The objective of well abandonment is to destroy wells in a manner that is protective of potential water resources. The two procedures most commonly used are pressure grouting and drilling out the well. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

### **Pressure Grouting**

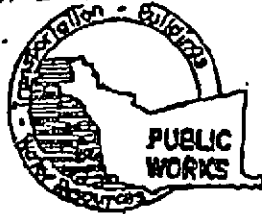
Pressure grouting consists of injecting neat Portland cement through a tremie pipe under pressure to the bottom of the well. The cement is composed of about five gallons of water to a 94 lb. sack of Portland I/II Cement. Once the well casing is full of grout, it remains pressurized by applying pressure with a grout pump. The well casing can also be pressurized by extending the well casing to the appropriate height and filling it with grout. In either case, the additional pressure allows the grout to be forced into the sand pack. After grouting the sand pack and casing, the well vault is removed and the area resurfaced or backfilled as required.

### **Well Drill Out**

When well drill out is required, a hollow-stem auger drilling rig is used to drill out the well casing and pack materials. First, drill rods are dropped down the well and used to guide the augers as they drill out the well. Once the well is drilled out, the boring is filled with Portland cement injected through the augers or a tremie pipe under pressure to the bottom of the boring. The well vault is removed and the area resurfaced or backfilled as required.

**ATTACHMENT B**

**Drilling and Encroachments Permits**



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION  
951 TURNER COURT, SUITE 108, HAYWARD, CA 94545-2651  
PHONE (510) 670-3873 ANDREAS COFFREY FAX (510) 670-5262  
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7101 Edgewater Drive  
OAKLAND CA 94605  
MLK REGIONAL STORELINE

California Coordinates Source \_\_\_\_\_ ft. Accuracy ± \_\_\_\_\_ ft.  
CCN \_\_\_\_\_ ft. CCE \_\_\_\_\_ ft.  
APN 47-2902-70

CLIENT City of Oakland  
Name \_\_\_\_\_  
Address 7101 Edgewater Dr Phone \_\_\_\_\_  
City OAKLAND CA Zip 94605

APPLICANT CAMBRIA ENVR. TECH.  
Name \_\_\_\_\_  
Address 1144 65th Street Phone 510 420 9170  
City OAKLAND CA Zip 94608

TYPE OF PROJECT  
Well Construction  Geotechnical Investigation  
Cathodic Protection  General   
Water Supply  Contamination   
Monitoring  Well Destruction

PROPOSED WATER SUPPLY WELL USE  
New Domestic  Replacement Domestic   
Municipal  Irrigation   
Industrial  Other Monitoring/Extraction

DRILLING METHOD:  
Mud Rotary  Air Rotary  Auger   
Cable  Other

DRILLER'S LICENSE NO CS7-720904

WELL PROJECTS  
Drill Hole Diameter 8" in. Maximum Depth 25 ft.  
Casing Diameter 2" in. Number 5  
Surface Seal Depth \_\_\_\_\_ ft.

GEOTECHNICAL PROJECTS  
Number of Borings \_\_\_\_\_ Maximum Depth \_\_\_\_\_ ft.  
Hole Diameter \_\_\_\_\_ in.

ESTIMATED STARTING DATE 12/2/99  
ESTIMATED COMPLETION DATE 12/15/99

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

APPLICANT'S SIGNATURE Car A. Rigg DATE 10/27/99

FOR OFFICE USE

PERMIT NUMBER 94WR-1031  
WELL NUMBER \_\_\_\_\_  
APN \_\_\_\_\_

PERMIT CONDITIONS

Circled Permit Requirements Apply

- (A) GENERAL
  1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
  2. Submit to ACPWA 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 SUPPLY WELLS
  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 and irrigation wells unless a lesser depth is specially approved.
- (C) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
  1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
  2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.
- D. GEOTECHNICAL
 

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

Fill hole above anode zone with concrete placed by tremie.
- (F) WELL DESTRUCTION
 

See attached.
- G. SPECIAL CONDITIONS

APPROVED Frank L. Cobb DATE 10-27-

# REGIONAL PARKS

EAST BAY REGIONAL PARK DISTRICT



BOARD OF DIRECTORS

*Beverly Lane*  
President  
Ward 6

*Carol Severin*  
Vice-President  
Ward 3

*John Sutter*  
Treasurer  
Ward 2

*Ayn Wieskamp*  
Secretary  
Ward 5

*Ted Radke*  
Ward 7

*Doug Siden*  
Ward 4

*Jean Siri*  
Ward 1

*Pat O'Brien*  
General Manager

November 22, 1999

RE: Encroachment Permit No. 067E-99-437

Mr. John Riggi  
Cambria Environmental Technology, Inc.  
1144 65<sup>th</sup> Street  
Oakland, CA 94608

Subject: extension

Dear Mr. Riggi:

With this letter Encroachment Permit Number 067E-99-437 is extended through December 15, 1999. All conditions on this permit continue. Please remit the \$200 balance of your permit application fee. If you have any questions regarding this permit please call me at 510 544-2562.

Sincerely,

East Bay Regional Park District

  
Louie Gross  
Administrative Analyst

cc: Joan Suzio, Park Supervisor

510-702-8627





**ATTACHMENT C**

**Boring Logs and Well Construction Diagram**



Cambria Environmental Technology, Inc.  
 1144 - 65th St.  
 Oakland, CA 94608  
 Telephone: (510) 420-0700  
 Fax: (510) 420-9170

# BORING/WELL LOG

CLIENT NAME	City of Oakland	BORING/WELL NAME	RW-1
JOB/SITE NAME	Municipal Service Center	DRILLING STARTED	01-Dec-99
LOCATION	7101 Edgewater Drive, Oakland CA	DRILLING COMPLETED	01-Dec-99
PROJECT NUMBER	153-1247	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	V&W Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	9.92 ft above msl
BORING DIAMETER	10	SCREENED INTERVAL	NA
LOGGED BY	J. Riggi	DEPTH TO WATER (First Encountered)	7.0 ft (01-Dec-99)
REVIEWED BY	D. Elias, RG	DEPTH TO WATER (Static)	NA
REMARKS	Located 17' east of TBW-5. Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
1800	3 6 7	RW-1@5.5	5	GM		<b>Silty sandy GRAVEL (FILL)</b> ; (GM); brown; damp; 10% clay, 20% silt, 20% fine to coarse grained sand, 40% fine to coarse gravel; very high estimated permeability.	3.0	<ul style="list-style-type: none"> <li>Portland Type I/II</li> <li>Bentonite Seal</li> <li>Monterey Sand #2/12</li> <li>4"-diam., 0.010" Slotted Schedule 40 PVC</li> <li>Bentonite Seal</li> <li>Monterey Sand #2/12</li> <li>1"-diam., 0.010" Slotted Bottom of Boring @ 22 ft</li> </ul>
				GC		<b>Clayey GRAVEL (FILL)</b> (GC); brown; damp; 25% clay, 10% silt, 10% sand, 55% fine to coarse gravel; low plasticity, low estimated permeability.	5.0	
				ML		<b>Clayey SILT with gravel</b> ; (ML); grey; damp; 25% clay, 50% silt, 10% fine grained sand, 15% gravel; low to medium plasticity, very low estimated permeability.	8.0	
<0.1	4 4 8	RW-1@ 10'	10	ML		<b>Sandy SILT</b> ; (ML); black to grey, wet, 10% clay, 55% silt, 30% sand, 5% gravel; slight plasticity, low estimated permeability.		
				GM		<b>Silty sandy GRAVEL</b> ; (GM); black, wet, 10% clay, 20% silt, 20% sand, 50% fine to coarse gravel; no plasticity, very high estimated permeability.	14.0	
0.11	7 7 7	RW-1@ 15'	15	GM			19.0	
0.1	3 3 4	RW-1-20.5	20	ML		<b>Sandy SILT</b> ; (ML); brown, wet, 10% clay, 60% silt, 30% fine grained sand; slight plasticity; very low estimated permeability.	22.0	

WELL LOG (TPH-G) H:\CITYOF-2\GINT\OAKLAND.GPJ DEFAULT.GDT 2/17/00



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 Oakland, CA 94608  
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 Fax: (510) 420-9170

# BORING/WELL LOG

CLIENT NAME	City of Oakland	BORING/WELL NAME	MW-11
JOB/SITE NAME	Municipal Service Center	DRILLING STARTED	01-Dec-99
LOCATION	7101 Edgewater Drive, Oakland CA	DRILLING COMPLETED	01-Dec-99
PROJECT NUMBER	153-1247	WELL DEVELOPMENT DATE (YIELD)	01-Dec-99 (24 gallons)
DRILLER	V&W Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	NA
BORING DIAMETER	8"	SCREENED INTERVAL	3 to 20 ft bgs
LOGGED BY	J. Riggi	DEPTH TO WATER (First Encountered)	6.0 ft (01-Dec-99)
REVIEWED BY	D. Elias, RG	DEPTH TO WATER (Static)	7.08 ft (01-Dec-99)
REMARKS	Located 152' southwest of MW-5. Hand Augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
<0.1	20 21 13	MW-11@ 6'		5	GC		<b>Sandy Silty Clayey GRAVEL; (GC);</b> mottled green to brown; dry; 20% clay, 20% silt, 20% sand, 40% fine to coarse grained gravel; low plasticity; very low estimated permeability; fill.	5.0	<p>Portland Type I/II            Bentonite Seal            Monterey Sand #2/12</p> <p>2"-diam., 0.010" Slotted Schedule 40 PVC</p> <p>Bottom of Boring @ 20 ft</p>
<0.1	10 14 16	MW-11@ 11'		10	GC		<b>Clayey Silty Sandy GRAVEL; (GC);</b> mottled green to brown; damp to wet; 20% clay, 20% silt, 20% sand, 40% fine to coarse grained gravel; low plasticity; very low estimated permeability.	9.0	
<0.1	10 12 12	MW-11@ 15.5'		10	PT		<b>PEAT; (PT);</b> black; damp; 50% clay, 30% silt, 20% fine grained sand; high plasticity; very low estimated permeability; high organic content.	13.0	
<0.1	16 17 15	MW-11@ 19.5'		15	SP		<b>SAND; (SP);</b> grey to black; wet; 10% silt, 90% fine grained sand; very high estimated permeability	19.0	
<0.1				20	ML		<b>Clayey SILT; (ML);</b> brown; wet; 35% clay, 40% silt, 25% fine grained sand; medium plasticity; very low estimated permeability.	20.0	

WELL LOG (TPH-G) H:\CITYOF-2\GINT\OAKLAND.GPJ DEFAULT.GDT 3/1/00



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# BORING/WELL LOG

<b>CLIENT NAME</b>	City of Oakland	<b>BORING/WELL NAME</b>	MW-12
<b>JOB/SITE NAME</b>	Municipal Service Center	<b>DRILLING STARTED</b>	01-Dec-99
<b>LOCATION</b>	7101 Edgewater Drive, Oakland CA	<b>DRILLING COMPLETED</b>	01-Dec-99
<b>PROJECT NUMBER</b>	153-1247	<b>WELL DEVELOPMENT DATE (YIELD)</b>	01-Dec-99 (13 gallons)
<b>DRILLER</b>	V&W Drilling	<b>GROUND SURFACE ELEVATION</b>	Not Surveyed
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	NA
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	3 to 15 ft bgs
<b>LOGGED BY</b>	J. Riggi	<b>DEPTH TO WATER (First Encountered)</b>	10.0 ft (01-Dec-99) ▽
<b>REVIEWED BY</b>	D. Elias, RG	<b>DEPTH TO WATER (Static)</b>	8.11 ft (01-Dec-99) ▽
<b>REMARKS</b>	Located 83' southwest of TBW-6. Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
1.4	7 7 8	MW-12@ 5.5'		5	GC		<b>Silty Clayey Gravel with SAND;</b> (GC); 20% clay, 30% silt, 15% sand, 35% gravel; low plasticity; very low estimated permeability.	6.0	<p>Portland Type I/II          Bentonite Seal          Monterey Sand #2/12          2"-diam., 0.010" Slotted Schedule 40 PVC          Bottom of Boring @ 15 ft</p>
1.1	9 10 11	MW-12@ 11'		10	ML		<b>Clayey SILT with SAND;</b> (ML); grey; damp; 30% clay, 55% silt, 15% fine grained sand; low plasticity; very low estimated permeability.	9.0	
<0.1	7 7 9	MW-12@ 14.5'		15	SP		<b>SAND;</b> (SP); brown; wet; 10% silt, 90% fine grained sand; very high estimated permeability.	14.0	
					ML		@ 14'- medium grained sand. <b>Clayey Sandy SILT;</b> black to grey; wet; 20% clay, 50% silt, 30% sand; low plasticity; low estimated permeability.	15.0	

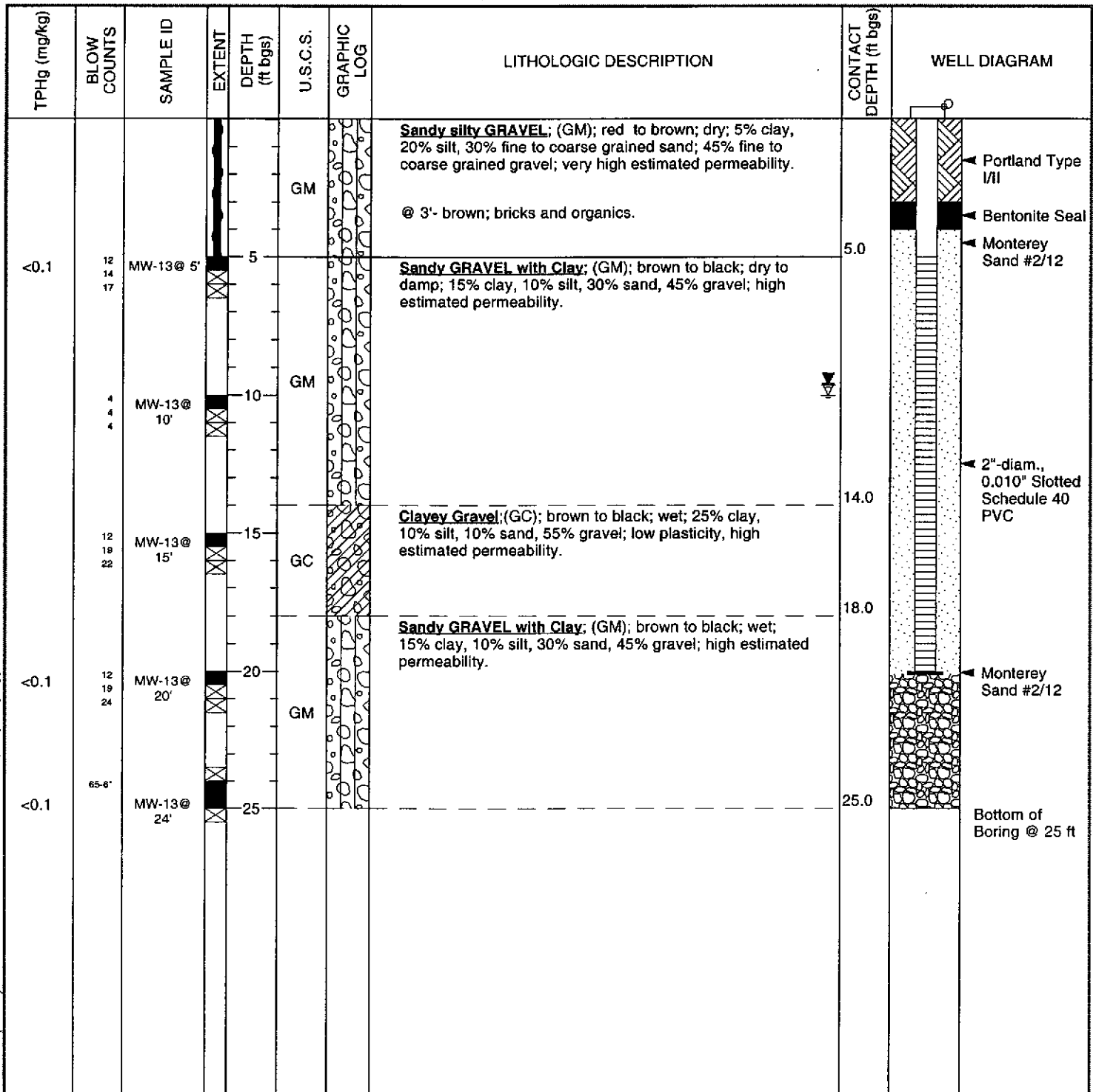
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# BORING/WELL LOG

CLIENT NAME	City of Oakland	BORING/WELL NAME	MW-13
JOB/SITE NAME	Municipal Service Center	DRILLING STARTED	02-Dec-99
LOCATION	7101 Edgewater Drive, Oakland CA	DRILLING COMPLETED	02-Dec-99
PROJECT NUMBER	153-1247	WELL DEVELOPMENT DATE (YIELD)	02-Dec-99 (17 gallons)
DRILLER	V&W Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	11.34 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	5 to 20 ft bgs
LOGGED BY	J. Riggi	DEPTH TO WATER (First Encountered)	10.0 ft (02-Dec-99)
REVIEWED BY	D. Elias, RG	DEPTH TO WATER (Static)	9.63 ft (02-Dec-99)
REMARKS	Located 225' north of MW-14. Hand augered to 5' bgs. Refusal at 26' bgs.		



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# BORING/WELL LOG

CLIENT NAME	City of Oakland	BORING/WELL NAME	MW-14
JOB/SITE NAME	Municipal Service Center	DRILLING STARTED	02-Dec-99
LOCATION	7101 Edgewater Drive, Oakland CA	DRILLING COMPLETED	02-Dec-99
PROJECT NUMBER	153-1247	WELL DEVELOPMENT DATE (YIELD)	02-Dec-99 (10 gallons)
DRILLER	V&W Drilling	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hollow-stem auger	TOP OF CASING ELEVATION	10.05 ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	5 to 15 ft bgs
LOGGED BY	J. Riggi	DEPTH TO WATER (First Encountered)	10.0 ft (02-Dec-99) ▽
REVIEWED BY	D. Elias, RG	DEPTH TO WATER (Static)	7.37 ft (02-Dec-99) ▽
REMARKS	Located 262' north of MW-9. Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
		MW-14 @ 5'		5	SP		<b>Gravelly SAND:</b> (SP); brown; dry; 10% silt, 60% medium grained sand, 30% gravel, very low estimated permeability; fill.	6.0	<p>Portland Type I/II            Bentonite Seal            Monterey Sand #2/12            2"-diam., 0.010" Slotted Schedule 40 PVC            Bottom of Boring @ 15 ft</p>
	7 7 15				GC		<b>Clayey Sandy GRAVEL:</b> (GC); brown; dry to damp; 30% clay, 10% silt, 20% sand; 40% fine to coarse gravel; low plasticity; low estimated permeability.	9.0	
<0.1	603	MW-14 @ 11'		10	GC		<b>Clayey GRAVEL:</b> (GC); brown; wet; 40% clay, 10% silt, 10% sand, 40% fine to coarse gravel; low to medium plasticity; low permeability.	13.0	
0.31	603	MW-14 @ 15'		15	GC		<b>Clayey GRAVEL:</b> (GC); brown; wet; 30% clay, 10% silt, 10% sand, 50% fine to coarse gravel; low to medium plasticity; very low permeability; fill; concrete debris.	15.0	

WELL LOG (TPH-G) H:\CITYOF-2\GINT\AKLAND.GPJ DEFAULT.GDT 2/17/00



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# BORING/WELL LOG

<b>CLIENT NAME</b>	City of Oakland	<b>BORING/WELL NAME</b>	MW-15
<b>JOB/SITE NAME</b>	Municipal Service Center	<b>DRILLING STARTED</b>	02-Dec-99
<b>LOCATION</b>	7101 Edgewater Drive, Oakland CA	<b>DRILLING COMPLETED</b>	02-Dec-99
<b>PROJECT NUMBER</b>	153-1247	<b>WELL DEVELOPMENT DATE (YIELD)</b>	02-Dec-99 (17.5 gallons)
<b>DRILLER</b>	V&W Drilling	<b>GROUND SURFACE ELEVATION</b>	Not Surveyed
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	12.36 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	5 to 20 ft bgs
<b>LOGGED BY</b>	J. Riggi	<b>DEPTH TO WATER (First Encountered)</b>	8.0 ft (02-Dec-99)
<b>REVIEWED BY</b>	D. Elias, RG	<b>DEPTH TO WATER (Static)</b>	10.56 ft (02-Dec-99)
<b>REMARKS</b>	Located 182' south of MW-9. Hand augered to 5' bgs.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
<0.1	8 13 14	MW-15@ 5'	0-5	SP		<b>Gravelly SAND; (SP);</b> brown; dry; 10% silt; 60% medium grained sand, 30% fine gravel; very high estimated permeability; rounded sand; angular gravel.	3.0	<ul style="list-style-type: none"> <li>Portland Type I/II</li> <li>Bentonite Seal</li> <li>Monterey Sand #2/12</li> <li>2"-diam., 0.010" Slotted Schedule 40 PVC</li> </ul>
			5-4			<b>FILL;</b> white; dry; 20% sand; 80% gravel; high estimated permeability.	4.0	
			4-5	ML		<b>Sandy SILT with Gravel; (ML);</b> grey; damp; 55% silt, 30% sand, 15% fine gravel; low plasticity; low estimated permeability; angular gravel to 0.5".	8.0	
			5-10			<b>Gravelly SAND; (SP);</b> black; wet; 5% silt, 75% medium grained sand, 20% gravel; very high estimated permeability; gravel to 1".	10.0	
<0.1	9 15 14	MW-15@ 10'	10-15	SP				
<0.1	11 7 8	MW-15@ 15'	15-19					
<0.1	11 12 18	MW-15@ 19'	19-20	GC		<b>Clayey Sandy Gravel; (GC);</b> brown; wet; 30% clay, 10% silt, 20% fine to coarse grained sand, 40% gravel; low plasticity; low estimated permeability; angular gravel to 1".	19.0 20.0	Bottom of Boring @ 20 ft

WELL LOG (TPH-G) H:\CITYOF-2\GINT\OAKLAND.GPJ DEFAULT.GDT 3/1/00



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# BORING/WELL LOG

<b>CLIENT NAME</b>	City of Oakland	<b>BORING/WELL NAME</b>	MW-16
<b>JOB/SITE NAME</b>	Municipal Service Center	<b>DRILLING STARTED</b>	02-Dec-99
<b>LOCATION</b>	7101 Edgewater Drive, Oakland CA	<b>DRILLING COMPLETED</b>	02-Dec-99
<b>PROJECT NUMBER</b>	153-1247	<b>WELL DEVELOPMENT DATE (YIELD)</b>	02-Dec-99 (12 gallons)
<b>DRILLER</b>	V&W Drilling	<b>GROUND SURFACE ELEVATION</b>	Not Surveyed
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	13.57 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	5 to 15 ft bgs
<b>LOGGED BY</b>	J. Riggi	<b>DEPTH TO WATER (First Encountered)</b>	9.0 ft (02-Dec-99)
<b>REVIEWED BY</b>	D. Elias, RG	<b>DEPTH TO WATER (Static)</b>	10.22 ft (02-Dec-99)
<b>REMARKS</b>	Located 258' north of MW-8.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SP		<b>Gravelly SAND:</b> (SP); brown; dry; 10% silt, 60% fine grained sand, 30% fine to coarse gravel; very high estimated permeability.	3.0	<p>Portland Type I/II            Bentonite Seal            Monterey Sand #2/12            2"-diam., 0.010" Slotted Schedule 40 PVC            Bottom of Boring @ 15.5 ft</p>
							<b>FILL:</b> concrete.	4.0	
		MW-16 @ 5'		5	SP		<b>Gravelly SAND:</b> (SP); brown; dry; 10% silt, 50% medium grained sand, 40% fine to coarse gravel; very high estimated permeability.	5.0	
					SC		<b>Clayey SAND with Gravel:</b> (SC); brown; damp; 30% clay, 10% silt, 45% sand, 15% gravel; low plasticity; low estimated permeability.	9.0	
		MW-16 @ 10'		10	SP		<b>Gravelly SAND:</b> black; wet; 10% silt, 55% sand, 35% fine gravel; organics.	9.0	
830	3 25 50-8"	MW-16 @ 15'		15			@ 13.5'- 10% silt, 50% fine to medium grained sand, 40 % fine to coarse gravel; very high estimated permeability.	15.0	

WELL LOG (TPH-G) H:\CITYOF-2\GINT\OAKLAND.GPJ DEFAULT.GOT 2/17/00

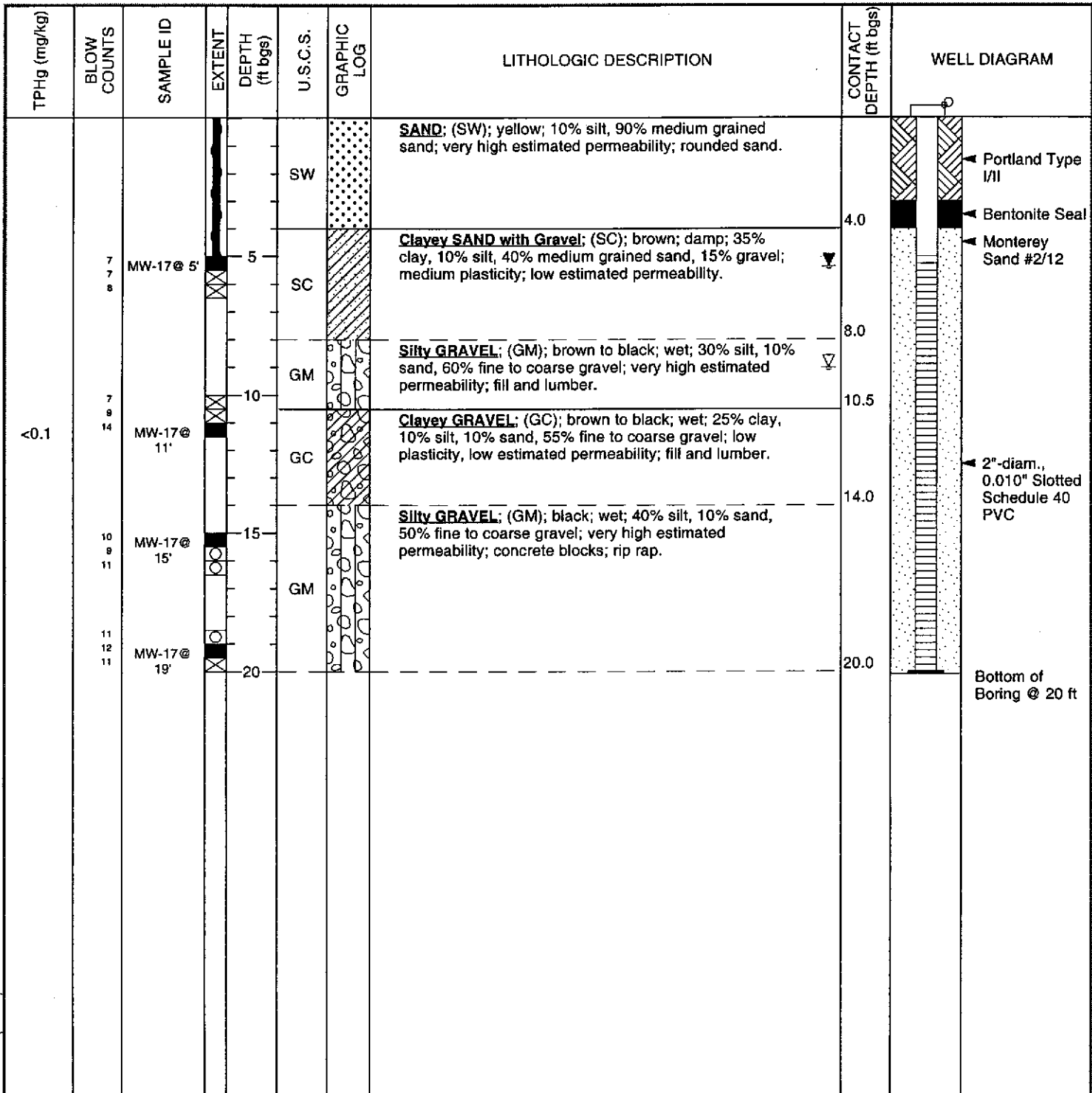




Cambria Environmental Technology, Inc.  
 1144 - 65th St.  
 Oakland, CA 94608  
 Telephone: (510) 420-0700  
 Fax: (510) 420-9170

# BORING/WELL LOG

<b>CLIENT NAME</b>	City of Oakland	<b>BORING/WELL NAME</b>	MW-17
<b>JOB/SITE NAME</b>	Municipal Service Center	<b>DRILLING STARTED</b>	02-Dec-99
<b>LOCATION</b>	7101 Edgewater Drive, Oakland CA	<b>DRILLING COMPLETED</b>	02-Dec-99
<b>PROJECT NUMBER</b>	153-1247	<b>WELL DEVELOPMENT DATE (YIELD)</b>	02-Dec-99 (17 gallons)
<b>DRILLER</b>	V&W Drilling	<b>GROUND SURFACE ELEVATION</b>	Not Surveyed
<b>DRILLING METHOD</b>	Hollow-stem auger	<b>TOP OF CASING ELEVATION</b>	9.86 ft above msl
<b>BORING DIAMETER</b>	8"	<b>SCREENED INTERVAL</b>	5 to 20 ft bgs
<b>LOGGED BY</b>	J. Riggi	<b>DEPTH TO WATER (First Encountered)</b>	9.0 ft (02-Dec-99)
<b>REVIEWED BY</b>	D. Elias, RG	<b>DEPTH TO WATER (Static)</b>	5.35 ft (02-Dec-99)
<b>REMARKS</b>	Located 40' west of MW-16. Hand augered to 5' bgs.		



WELL LOG (TPH-G) H:\CITYOF-2\GINT\OAKLAND.GPJ DEFAULT.GDT 3/1/00

**ATTACHMENT D**

**Analytical Report**



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CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

LAB ORDER No.: 9912-288  
Page 1 of 13

REPORT of ANALYTICAL RESULTS

Report Date: 23 DEC 1999  
Received Date: 02 DEC 1999

Client: David Elias  
Cambria  
1144 65th Street, Suite C  
Oakland, CA 94608

Project: 153-1247 CITY OF OAKLAND

Sampled by: JOHN RIGGI

<u>Lab Number</u>	<u>Sample Identification</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>
9912288-1	MW-11-6'	SOIL	01 DEC 99 08:04
9912288-2	MW-11-11'	SOIL	01 DEC 99 08:09
9912288-3	MW-11-15.5'	SOIL	01 DEC 99 08:15
9912288-4	MW-11-19.5'	SOIL	01 DEC 99 08:20
9912288-5	MW-12-5.5'	SOIL	01 DEC 99 10:00
9912288-6	MW-12-11'	SOIL	01 DEC 99 10:07
9912288-7	MW-12-14.5'	SOIL	01 DEC 99 10:18
9912288-8	RW-1-5.5'	SOIL	01 DEC 99 12:33
9912288-9	RW-1-10'	SOIL	01 DEC 99 12:38
9912288-10	RW-1-17.5'	SOIL	01 DEC 99 12:43
9912288-11	RW-1-20.5'	SOIL	01 DEC 99 12:51

Todd M. Albertson  
Project Manager

Christine Horn  
Laboratory Director

CALTEST authorizes this report to be reproduced only in its entirety.  
Results are specific to the sample as submitted and only to the parameters reported.  
All analyses performed by EPA Methods or Standard Methods (SM) 18th Ed. except where noted.  
Results of 'ND' mean not detected at or above the listed Reporting Limit (R.L.).  
'D.F.' means Dilution Factor and has been used to adjust the listed Reporting Limit (R.L.).  
Acceptance Criteria for all Surrogate recoveries are defined in the QC Spike Data Reports.



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ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-1							
SAMPLE ID: MW-11-6'							
SAMPLED: 01 DEC 99 08:04							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.10.99	T990294TPH	1,2,3
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	ND	20.	mg/Kg				
Surrogate o-Terphenyl	93.		%				
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912288-1 (continued)  
SAMPLE ID: MW-11-6'  
SAMPLED: 01 DEC 99 08:04  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	2,4
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	128.		%				
Surrogate 4-Bromofluorobenzene [PID]	118.		%				

LAB NUMBER: 9912288-2  
SAMPLE ID: MW-11-11'  
SAMPLED: 01 DEC 99 08:09  
METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.10.99	T990294TPH	123567
---	--	--	--	---	----------	------------	--------

- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample Preparation on 12-09-99 using EPA 5030
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 6) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 7) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.



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9912-288

ORGANIC ANALYTICAL RESULTS

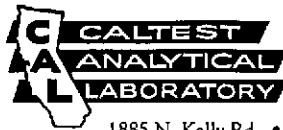
Page 3 of 13

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-2 (continued)							
SAMPLE ID: MW-11-11'							
SAMPLED: 01 DEC 99 08:09							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS (continued)				1	12.10.99	T990294TPH	
TPH-Extractable, quantitated as diesel	21.	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	210.	50.	mg/Kg				
Surrogate o-Terphenyl	93.		%				
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912288-2 (continued)							
SAMPLE ID: MW-11-11'							
SAMPLED: 01 DEC 99 08:09							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	1,2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	128.		%				
Surrogate 4-Bromofluorobenzene [PID]	118.		%				

LAB NUMBER: 9912288-3							
SAMPLE ID: MW-11-15.5'							
SAMPLED: 01 DEC 99 08:15							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.10.99	T990294TPH	2,3,4
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	ND	20.	mg/Kg				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) Sample Preparation on 12-07-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.



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LAB ORDER No.:

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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-3 (continued)							
SAMPLE ID: MW-11-15.5'							
SAMPLED: 01 DEC 99 08:15							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS (continued)					1 12.10.99	T990294TPH	
Surrogate o-Terphenyl	90.		%				
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912288-3 (continued)							
SAMPLE ID: MW-11-15.5'							
SAMPLED: 01 DEC 99 08:15							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	1.2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	125.		%				
Surrogate 4-Bromofluorobenzene [PID]	115.		%				

LAB NUMBER: 9912288-4							
SAMPLE ID: MW-11-19.5							
SAMPLED: 01 DEC 99 08:20							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.10.99	T990294TPH	2.3.4.5
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	ND	50.	mg/Kg				
Surrogate o-Terphenyl	91.		%				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) Sample Preparation on 12-07-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).



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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-4 (continued)							
SAMPLE ID: MW-11-19.5							
SAMPLED: 01 DEC 99 08:20							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS (continued)					1 12.10.99	T990294TPH	
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912288-4 (continued)  
SAMPLE ID: MW-11-19.5  
SAMPLED: 01 DEC 99 08:20  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	1,2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	132.		%				
Surrogate 4-Bromofluorobenzene [PID]	122.		%				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.



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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-5							
SAMPLE ID: MW-12-5.5'							
SAMPLED: 01 DEC 99 10:00							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						T990294TPH	2-9
TPH-Extractable, quantitated as diesel	399.	20.	mg/Kg	1	12.10.99		
TPH-Extractable, quantitated as Motor Oil	5200.	100.	mg/Kg	5	12.13.99		
Surrogate o-Terphenyl	100.		%	1	12.10.99		
Kerosene	68.	20.	mg/Kg	1	12.21.99		

LAB NUMBER: 9912288-5 (continued)

SAMPLE ID: MW-12-5.5'

SAMPLED: 01 DEC 99 10:00

METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1	12.10.99	V990126G9A	1.2.3.4
TPH-Purgeable, quantitated as gasoline	1.4	0.100	mg/kg					
Benzene	ND	0.001	mg/kg					
Toluene	0.0040	0.001	mg/kg					
Ethylbenzene	0.0080	0.001	mg/kg					
Xylenes (Total)	0.046	0.001	mg/kg					
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg					
Surrogate 4-Bromofluorobenzene [FID]	215.		%					

- 3) Sample Preparation on 12-07-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 6) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 8) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 9) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate conc. has been calculated based on Kerosene standards.
- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) Due to matrix interferences present in the sample, surrogate recoveries failed to meet the QA/QC acceptance criteria.
- 4) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.





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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-5 (continued)							
SAMPLE ID: MW-12-5.5'							
SAMPLED: 01 DEC 99 10:00							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)					1 12.10.99	V990126G9A	
Surrogate 4-Bromofluorobenzene [PID]	138.		%				

LAB NUMBER: 9912288-6							
SAMPLE ID: MW-12-11'							
SAMPLED: 01 DEC 99 10:07							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.10.99	T990294TPH	1-5
TPH-Extractable, quantitated as diesel	37.	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	100.	20.	mg/Kg				
Surrogate o-Terphenyl	96.		%				
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912288-6 (continued)							
SAMPLE ID: MW-12-11'							
SAMPLED: 01 DEC 99 10:07							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	2,6,7,8
TPH-Purgeable, quantitated as gasoline	1.1	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				

- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 5) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 6) Sample Preparation on 12-09-99 using EPA 5030
- 7) Due to matrix interferences present in the sample, surrogate recoveries failed to meet the QA/QC acceptance criteria.
- 8) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.



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ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-6 (continued)							
SAMPLE ID: MW-12-11'							
SAMPLED: 01 DEC 99 10:07							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)					1 12.10.99	V990126G9A	
Toluene	ND	0.001	mg/kg				
Ethylbenzene	0.002	0.001	mg/kg				
Xylenes (Total)	0.0070	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.125	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	150.		%				
Surrogate 4-Bromofluorobenzene [PID]	128.		%				
LAB NUMBER: 9912288-7							
SAMPLE ID: MW-12-14.5							
SAMPLED: 01 DEC 99 10:18							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.10.99	T990294TPH	1-5
TPH-Extractable, quantitated as diesel	ND	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	140.	50.	mg/Kg				
Surrogate o-Terphenyl	96.		%				
Kerosene	ND	10.	mg/Kg				
LAB NUMBER: 9912288-7 (continued)							
SAMPLE ID: MW-12-14.5							
SAMPLED: 01 DEC 99 10:18							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	2,6
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				

- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 6) Sample Preparation on 12-09-99 using EPA 5030



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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-7 (continued)							
SAMPLE ID: MW-12-14.5							
SAMPLED: 01 DEC 99 10:18							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)					1 12.10.99	V99012669A	
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	132.		%				
Surrogate 4-Bromofluorobenzene [PID]	118.		%				

LAB NUMBER: 9912288-8  
 SAMPLE ID: RW-1-5.5'  
 SAMPLED: 01 DEC 99 12:33  
 METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						T990294TPH	1-6
TPH-Extractable, quantitated as diesel	2900.	100.	mg/Kg	10	12.13.99		
TPH-Extractable, quantitated as Motor Oil	ND	50.	mg/Kg	1	12.11.99		
Surrogate o-Terphenyl	63.		%	1	12.11.99		
Kerosene	ND	10.	mg/Kg	1	12.11.99		

- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 6) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.



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ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-8 (continued)							
SAMPLE ID: RW-1-5.5'							
SAMPLED: 01 DEC 99 12:33							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				2000	12.14.99	V990128G9A	2.5,7,8
TPH-Purgeable, quantitated as gasoline	1800.	100.	mg/kg				
Benzene	ND	1.0	mg/kg				
Toluene	ND	1.0	mg/kg				
Ethylbenzene	13.	1.0	mg/kg				
Xylenes (Total)	31.	1.0	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	50.	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	133.		%				
Surrogate 4-Bromofluorobenzene [PID]	102.		%				

LAB NUMBER: 9912288-9  
 SAMPLE ID: RW-1-10'  
 SAMPLED: 01 DEC 99 12:38  
 METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.11.99	T990294TPH	1-6
TPH-Extractable, quantitated as diesel	22.	20.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	200.	100.	mg/Kg				
Surrogate o-Terphenyl	94.		%				
Kerosene	ND	20.	mg/Kg				

- 7) Sample Preparation on 12-13-99 using EPA 5030
- 8) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.
- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 6) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.



1885 N. Kelly Rd. • Napa, California 94558

CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

(707) 258-4000 • Fax: (707) 226-1001

LAB ORDER No.:

9912-288

Page 11 of 13

ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-9 (continued)							
SAMPLE ID: RW-1-10'							
SAMPLED: 01 DEC 99 12:38							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990125G9A	1.2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	132.		%				
Surrogate 4-Bromofluorobenzene [PID]	120.		%				

LAB NUMBER: 9912288-10  
 SAMPLE ID: RW-1-17.5'  
 SAMPLED: 01 DEC 99 12:43  
 METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.11.99	T990294TPH	2-7
TPH-Extractable, quantitated as diesel	26.	20.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	800.	100.	mg/Kg				
Surrogate o-Terphenyl	96.		%				
Kerosene	ND	20.	mg/Kg				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) Sample Preparation on 12-07-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 6) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 7) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.



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LAB ORDER No.:

9912-288  
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ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912288-10 (continued)							
SAMPLE ID: RW-1-17.5'							
SAMPLED: 01 DEC 99 12:43							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	1,2,8
TPH-Purgeable, quantitated as gasoline	0.11	0.100	mg/kg				
Benzene	0.0019	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	0.0011	0.001	mg/kg				
Xylenes (Total)	0.0027	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	130.		%				
Surrogate 4-Bromofluorobenzene [PID]	118.		%				

LAB NUMBER: 9912288-11  
SAMPLE ID: RW-1-20.5  
SAMPLED: 01 DEC 99 12:51  
METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.11.99	T990294TPH	1-5
TPH-Extractable, quantitated as diesel	ND	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	90.	50.	mg/Kg				
Surrogate o-Terphenyl	91.		%				
Kerosene	ND	10.	mg/Kg				

8) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.

1) Sample Preparation on 12-07-99 using EPA 3550

2) Result expressed as wet weight of sample.

3) This sample was analyzed following Silica Gel Cleanup.

4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).

5) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.



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CALIFORNIA ELAP #1664

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LAB ORDER No.:

9912-288

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ORGANIC ANALYTICAL RESULTS

<u>ANALYTE</u>	<u>RESULT</u>	<u>R.L.</u>	<u>UNITS</u>	<u>D.F.</u>	<u>ANALYZED</u>	<u>QC BATCH</u>	<u>NOTES</u>
LAB NUMBER: 9912288-11 (continued)							
SAMPLE ID: RW-1-20.5							
SAMPLED: 01 DEC 99 12:51							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1	12.10.99	V990126G9A 2,6,7
TPH-Purgeable, quantitated as gasoline	0.10	0.100	mg/kg				
Benzene	0.0020	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	0.0012	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.025	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	130.		%				
Surrogate 4-Bromofluorobenzene [PID]	118.		%				

6) Sample Preparation on 12-09-99 using EPA 5030

7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.



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CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

LAB ORDER No.: 9912-288  
Page 1 of 4

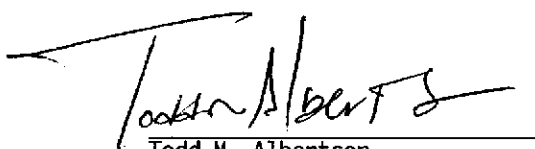
SUPPLEMENTAL QUALITY CONTROL (QC) DATA REPORT

Report Date: 23 DEC 1999  
Received Date: 02 DEC 1999

Client: David Elias  
Cambria  
1144 65th Street, Suite C  
Oakland, CA 94608

Project: 153-1247 CITY OF OAKLAND

<u>QC Batch ID</u>	<u>Method</u>	<u>Matrix</u>
T990294TPH	8015M	SOIL
V990125G9A	8015/8020A	SOIL
V990126G9A	8015/8020A	SOIL
V990128G9A	8015/8020A	SOIL

  
Todd M. Albertson  
Project Manager

  
Christine Horn  
Laboratory Director

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Results are specific to the sample as submitted and only to the parameters reported.  
All analyses performed by EPA Methods or Standard Methods (SM) 18th Ed. except where noted.  
Results of 'ND' mean not detected at or above the listed Reporting Limit (R.L.).  
Analyte Spike Amounts reported as 'NS' mean not spiked and will not have recoveries reported.  
'RPD' means Relative Percent Difference and RPD Acceptance Criteria is stated as a maximum.  
'NC' means not calculated for RPD or Spike Recoveries.





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CALIFORNIA ELAP #1664

LAB ORDER No.:

9912-288

Page 2 of 4

METHOD BLANK ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	ANALYZED	NOTES
QC BATCH: T990294TPH					
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				12.08.99	1
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg		
TPH-Extractable, quantitated as Motor Oil	ND	20.	mg/Kg		
Surrogate o-Terphenyl	90.		%		
Kerosene	ND	4.	mg/Kg		
QC BATCH: V990126G9A					
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				12.10.99	
Total Petroleum Hydrocarbons - Gasoline	ND	0.100	mg/kg		
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg		
Benzene	ND	0.001	mg/kg		
Toluene	ND	0.001	mg/kg		
Ethylbenzene	ND	0.001	mg/kg		
Xylenes (Total)	ND	0.001	mg/kg		
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg		
Surrogate 4-Bromofluorobenzene [FID]	140.		%		
Surrogate 4-Bromofluorobenzene [PID]	130.		%		
QC BATCH: V990128G9A					
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				12.14.99	
Total Petroleum Hydrocarbons - Gasoline	ND	5.	mg/kg		
TPH-Purgeable, quantitated as gasoline	ND	5.	mg/kg		
Benzene	ND	0.05	mg/kg		
Toluene	ND	0.05	mg/kg		
Ethylbenzene	ND	0.05	mg/kg		
Xylenes (Total)	ND	0.05	mg/kg		
Methyl tert-Butyl Ether (MTBE)	ND	2.5	mg/kg		
Surrogate 4-Bromofluorobenzene [FID]	105.		%		
Surrogate 4-Bromofluorobenzene [PID]	88.		%		

1) This sample was analyzed following Silica Gel Cleanup.



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CALIFORNIA ELAP #1664

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LAB ORDER No.:

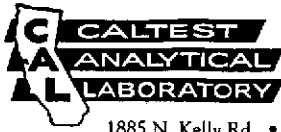
9912-288

LABORATORY CONTROL SAMPLE ANALYTICAL RESULTS

Page 3 of 4

ANALYTE	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF	ANALYZED	NOTES
QC BATCH: T990294TPH							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						12.08.99	1
TPH-Extractable, quantitated as diesel Surrogate o-Terphenyl	66.7	61.1\	92\	40-140\			
	6.7	6.6\	99\	40-140\			
QC BATCH: V990126G9A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.10.99	
Total Petroleum Hydrocarbons - Gasoline	1.10	0.995\	90\	60-140\			
Benzene	0.0132	0.0120\	91\	60-140\			
Toluene	0.0780	0.0800\	103\	60-140\			
Surrogate 4-Bromofluorobenzene [FID]	0.04	0.043\	108\	60-140\			
Surrogate 4-Bromofluorobenzene [PID]	0.04	0.0480\	120\	60-140\			
QC BATCH: V990128G9A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.14.99	
Total Petroleum Hydrocarbons - Gasoline	55.0	53.7\	98\	60-140\			
Benzene	0.606	0.606\	100\	60-140\			
Toluene	3.881	3.88\	100\	60-140\			
Surrogate 4-Bromofluorobenzene [FID]	2.00	1.96\	98\	60-140\			
Surrogate 4-Bromofluorobenzene [PID]	2.00	1.85\	92\	60-140\			

1) This sample was analyzed following Silica Gel Cleanup.



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CALIFORNIA ELAP #1664

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LAB ORDER No. :

9912-288

MATRIX SPIKE ANALYTICAL RESULTS

Page 4 of 4

ANALYTE	ORIGINAL RESULT	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF	ANALYZED	NOTES
QC BATCH: T990294TPH								
QC SAMPLE LAB NUMBER: 9912288-1								
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS							12.08.99	1
TPH-Extractable, quantitated as diesel	ND	66.7	64.2\67.4	96\101	40-140\25	4.9		
Surrogate o-Terphenyl	93.%	6.7	6.7\6.8	100\101	40-140\			

QC BATCH: V990128G9A								
QC SAMPLE LAB NUMBER: 9912128-9								
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS							12.14.99	
TPH-Purgeable, quantitated as gasoline	830.	1100.	1661.\1691.	76\78	60-140\25	1.8		
Benzene	1.27	13.38	14.78\14.7	101\100	60-140\25	0.5		
Toluene	ND	78.00	79.36\80.2	102\103	60-140\25	1.1		
Surrogate 4-Bromofluorobenzene [FID]	119.%	40.0	39.5\39.2	99\98	60-140\25			
Surrogate 4-Bromofluorobenzene [PID]	90.%	40.0	36.3\37.6	91\94	60-140\25			

1) This sample was analyzed following Silica Gel Cleanup.



### SAMPLE CHAIN OF CUSTODY

PROJECT #/PROJECT NAME  
153-1247- City of OAKLAND

P.O. #

CLIENT: CAMBRIA ENVIR TELM

CONTACT NAME: DAVE C. ELIAS

#### ANALYSES REQUESTED

ADDRESS: 1141 65th ST CITY: OAKLAND CA

STATE: ZIP: 94608

BILLING ADDRESS:

PHONE #: 510 420 3807

FAX PHONE: 510 420 9170

SAMPLER (PRINT & SIGN NAME): JOHN RIGGI

TRIS  
BTEX-MTBE 8015  
TPHD w/ SILICA GEL 8020  
\* MTBE 8260

TURN-AROUND TIME  
 STANDARD  
 RUSH

DUE DATE:

CALTEST #	DATE SAMPLED	TIME SAMPLED	MATRIX	CONTAINER AMOUNT/TYPE	PRESERVATIVE	SAMPLE IDENTIFICATION SITE	CLIENT LAB #	COMP OR GRAB	REMARKS
-1	12-7-99	804	SOIL	TUBE	FE	MW-11-6'		GRAB	
-2		809				MW-11-11'			* Confirm
-3		815				MW-11-15.5'			MTBE 8020
-4		820				MW-11-19.5' *			detections
-5		1000				MW-12-5.5'			w/ 8260
-6		1007				MW-12-11'			
-7		1018				MW-12-14.5'			* TPHD w/ silica gel
-8		1233				RW-1-5.5'			
-9		1238				RW-1-10'			
-10	✓	1243	✓	✓	✓	RW-1-17.5'		✓	

By submission of sample(s), client agrees to abide by the Terms and Conditions set forth on the reverse of this document.

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	RECEIVED BY
	12-1-99	Wier	Wier	12-2-99 11:15	WC
	12/2/99 11:33	CA (lost)		12-2-99 19:37	

Samples: WC \_\_\_\_\_ MICRO \_\_\_\_\_ BIO \_\_\_\_\_ AA \_\_\_\_\_ pH? Y/N \_\_\_\_\_ TEMP: 3.7 \_\_\_\_\_ SEALED: Y/N \_\_\_\_\_ INTACT: Y/N \_\_\_\_\_

BD: BIO \_\_\_\_\_ WC \_\_\_\_\_ AA \_\_\_\_\_

CC: AA \_\_\_\_\_ SV \_\_\_\_\_ VOA \_\_\_\_\_

SIL: HP \_\_\_\_\_ PT \_\_\_\_\_ QT \_\_\_\_\_ VOA \_\_\_\_\_

WHNO<sub>3</sub> \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> \_\_\_\_\_ NaOH \_\_\_\_\_

PIL: HNO<sub>3</sub> \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> \_\_\_\_\_ NaOH \_\_\_\_\_ HCL \_\_\_\_\_

MATRIX: AQ = Aqueous Nondrinking Water, Digested Metals;  
FE = Low R.L.s, Aqueous Nondrinking Water, Digested Metals;  
DW = Drinking Water; SL = Soil, Sludge, Solid; FP = Free Product

CONTAINER TYPES: AL = Amber Liter; AQL = 250 mL Amber; PT = Pint (Plastic); QT = Quart (Plastic); HG = Half Gallon (Plastic); SJ = Soil Jar; B4 = 4 oz. BACT; BT = Brass Tube; VOA = 40 mL VOA; OTC = Other Type Container

FOR LAB USE ONLY



SAMPLE CHAIN OF CUSTODY

PROJECT #/PROJECT NAME

153-1247 - City of Oakland

P.O. #

CLIENT: CAMBRIA ENVIR. TEL#

CONTACT NAME: DAVE C. ELIAS

ANALYSES REQUESTED

ADDRESS: 1144 65th ST CITY: OAKLAND CA

STATE: ZIP: 94608

BILLING ADDRESS:

PHONE #: 510 420 3807

FAX PHONE: 510 420 9170

SAMPLER (PRINT & SIGN NAME): JILL W. RIGGI [Signature]

TURN-AROUND TIME
STANDARD
RUSH
DUE DATE
IRTK
DTEX
TRADW/SILICATE
MTRAE 2020
MTRAE 250

Table with columns: CALTEST #, DATE SAMPLED, TIME SAMPLED, MATRIX, CONTAINER AMOUNT/TYPE, PRESERVATIVE, SAMPLE IDENTIFICATION SITE, CLIENT LAB #, COMP or GRAB, REMARKS. Row 1: 11, 12/5, RW-1-20.5

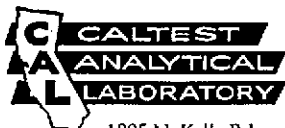
By submittal of sample(s), client agrees to abide by the Terms and Conditions set forth on the reverse of this document.

Table with columns: RELINQUISHED BY, DATE/TIME, RECEIVED BY, RELINQUISHED BY, DATE/TIME, RECEIVED BY. Includes signatures and dates like 12/1/99 and 12/2/99.

FOR LAB USE ONLY
Samples: WC MICRO BIO AA PH? Y/N TEMP: 5.1 SEALED: Y/N INTACT: Y/N
BD: BIO WC AA
CC: AA SV VOA
SIL: HP PT QT VOA
WHNO3 H2SO4 NaOH
PIL: HNO3 H2SO4 NaOH HCL

MATRIX: AQ = Aqueous Nondrinking Water, Digested Metals
FE = Low P.L.s, Aqueous Nondrinking Water, Digested Metals;
DW = Drinking Water; SL = Soil, Sludge, Solid; FP = Free Produc
CONTAINER TYPES: AL = Amber Liter; AQL = 250 mL
Amber; PT = Pint (Plastic); QT=Quart (Plastic); HG = Half Gallon
(Plastic); SJ = Soil Jar; B4 = 4 oz. BACT; BT = Brass Tube; VOA
40 mL VOA; OTC = Other Type Container

12/2/99



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CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

(707) 258-4000 • Fax: (707) 226-1001

LAB ORDER No.:

9912-128

Page 1 of 13

REPORT of ANALYTICAL RESULTS

Report Date:

23 DEC 1999

Received Date:

03 DEC 1999

Client: David Elias  
Cambria  
1144 65th Street, Suite C  
Oakland, CA 94608

Project: 153-1247 CITY OF OAKLAND

Sampled by:

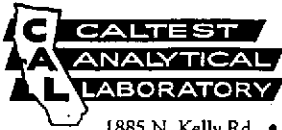
J.RIGGI

<u>Lab Number</u>	<u>Sample Identification</u>	<u>Matrix</u>	<u>Sampled Date/Time</u>
9912128-1	MW-13-10'	SOIL	02 DEC 99 14:55
9912128-2	MW-13-20'	SOIL	02 DEC 99 15:10
9912128-3	MW-13-25'	SOIL	02 DEC 99 15:14
9912128-4	MW-14-10'	SOIL	02 DEC 99 13:19
9912128-5	MW-14-15'	SOIL	02 DEC 99 13:29
9912128-6	MW-15-10'	SOIL	02 DEC 99 11:10
9912128-7	MW-15-15'	SOIL	02 DEC 99 11:15
9912128-8	MW-15-19'	SOIL	02 DEC 99 11:22
9912128-9	MW-16-15'	SOIL	02 DEC 99 08:34
9912128-10	MW-17-11'	SOIL	02 DEC 99 08:01
9912128-11	MW-17-19	SOIL	02 DEC 99 08:17
9912128-12	COMPOSITE	SOIL	02 DEC 99 10:00

Todd M. Albertson  
Project Manager

Christine Horn  
Laboratory Director

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Results are specific to the sample as submitted and only to the parameters reported.  
All analyses performed by EPA Methods or Standard Methods (SM) 18th Ed. except where noted.  
Results of 'ND' mean not detected at or above the listed Reporting Limit (R.L.).  
'D.F.' means Dilution Factor and has been used to adjust the listed Reporting Limit (R.L.).  
Acceptance Criteria for all Surrogate recoveries are defined in the QC Spike Data Reports.



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LAB ORDER No.:

9912-128

ORGANIC ANALYTICAL RESULTS

Page 2 of 13

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-1							
SAMPLE ID: MW-13-10'							
SAMPLED: 02 DEC 99 14:55							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.11.99	T990294TPH	1-6
TPH-Extractable, quantitated as diesel	20.	4.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	240.	50.	mg/Kg				
Surrogate o-Terphenyl	94.		%				
Kerosene	ND	4.	mg/Kg				

LAB NUMBER: 9912128-1 (continued)  
SAMPLE ID: MW-13-10'  
SAMPLED: 02 DEC 99 14:55  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	2,7
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	110.		%				
Surrogate 4-Bromofluorobenzene [PID]	98.		%				

- 1) Sample Preparation on 12-07-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 6) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 7) Sample Preparation on 12-09-99 using EPA 5030



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LAB ORDER No.:

9912-128

ORGANIC ANALYTICAL RESULTS

Page 3 of 13

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-2							
SAMPLE ID: MW-13-20'							
SAMPLED: 02 DEC 99 15:10							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						T990297TPH	2345689
TPH-Extractable, quantitated as diesel	790.	10.	mg/Kg	1	12.14.99		
TPH-Extractable, quantitated as Motor Oil	11000.	200.	mg/Kg	10	12.15.99		
Surrogate o-Terphenyl	75.		%	1	12.14.99		
Kerosene	ND	10.	mg/Kg	1	12.14.99		

LAB NUMBER: 9912128-2 (continued)  
 SAMPLE ID: MW-13-20'  
 SAMPLED: 02 DEC 99 15:10  
 METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1	12.10.99	V990126G9A	1.2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg					
Benzene	ND	0.001	mg/kg					
Toluene	ND	0.001	mg/kg					
Ethylbenzene	ND	0.001	mg/kg					
Xylenes (Total)	ND	0.001	mg/kg					
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg					
Surrogate 4-Bromofluorobenzene [FID]	110.		%					
Surrogate 4-Bromofluorobenzene [PID]	100.		%					

- 8) Sample Preparation on 12-09-99 using EPA 3550
- 9) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.





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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-3 SAMPLE ID: MW-13-25' SAMPLED: 02 DEC 99 15:14 METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					12.15.99	T990297TPH	2-8
TPH-Extractable, quantitated as diesel	800.	200.	mg/Kg	10			
TPH-Extractable, quantitated as Motor Oil	13000.	800.	mg/Kg	10			
Surrogate o-Terphenyl	45.		%	10			
Kerosene	ND	10.	mg/Kg	1			

LAB NUMBER: 9912128-3 (continued)  
SAMPLE ID: MW-13-25'  
SAMPLED: 02 DEC 99 15:14  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	1.2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	108.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

- 3) Sample Preparation on 12-09-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 6) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 8) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.



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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-4							
SAMPLE ID: MW-14-10'							
SAMPLED: 02 DEC 99 13:19							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.15.99	T990297TPH	1-5
TPH-Extractable, quantitated as diesel	ND	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	400.	100.	mg/Kg				
Surrogate o-Terphenyl	84.		%				
Kerosene	ND	10.	mg/Kg				

LAB NUMBER: 9912128-4 (continued)  
SAMPLE ID: MW-14-10'  
SAMPLED: 02 DEC 99 13:19  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	2,6
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	110.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

LAB NUMBER: 9912128-5  
SAMPLE ID: MW-14-15'  
SAMPLED: 02 DEC 99 13:29  
METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.15.99	T990297TPH	123457
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- 1) Sample Preparation on 12-09-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 6) Sample Preparation on 12-09-99 using EPA 5030
- 7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.



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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-5 (continued)							
SAMPLE ID: MW-14-15'							
SAMPLED: 02 DEC 99 13:29							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS (continued)				1	12.15.99	T990297TPH	
TPH-Extractable, quantitated as diesel	230.	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	1400.	100.	mg/Kg				
Surrogate o-Terphenyl	90.		%				
Kerosene	ND	10.	mg/Kg				

LAB NUMBER: 9912128-5 (continued)  
 SAMPLE ID: MW-14-15'  
 SAMPLED: 02 DEC 99 13:29  
 METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	1,2,3
TPH-Purgeable, quantitated as gasoline	0.31	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	110.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.



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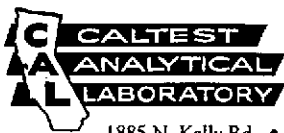
ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-6 SAMPLE ID: MW-15-10' SAMPLED: 02 DEC 99 11:10 METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS					1 12.15.99	T990297TPH	245678
TPH-Extractable, quantitated as diesel	240.	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	500.	100.	mg/Kg				
Surrogate o-Terphenyl	58.		%				
Kerosene	ND	10.	mg/Kg				

LAB NUMBER: 9912128-6 (continued)  
SAMPLE ID: MW-15-10'  
SAMPLED: 02 DEC 99 11:10  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1 12.10.99	V990126G9A	1,2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	108.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

- 4) Sample Preparation on 12-09-99 using EPA 3550
- 5) This sample was analyzed following Silica Gel Cleanup.
- 6) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 8) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.



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ORGANIC ANALYTICAL RESULTS

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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-7							
SAMPLE ID: MW-15-15'							
SAMPLED: 02 DEC 99 11:15							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.15.99	T990297TPH	1-6
TPH-Extractable, quantitated as diesel	63.	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	450.	40.	mg/Kg				
Surrogate o-Terphenyl	92.		%				
Kerosene	ND	10.	mg/Kg				

LAB NUMBER: 9912128-7 (continued)  
SAMPLE ID: MW-15-15'  
SAMPLED: 02 DEC 99 11:15  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	2.7
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	108.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

LAB NUMBER: 9912128-8  
SAMPLE ID: MW-15-19'  
SAMPLED: 02 DEC 99 11:22  
METHOD: EPA 8015M

TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.15.99	T990297TPH	1-6
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- 1) Sample Preparation on 12-09-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 6) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 7) Sample Preparation on 12-09-99 using EPA 5030



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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-8 (continued)							
SAMPLE ID: MW-15-19'							
SAMPLED: 02 DEC 99 11:22							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS (continued)				1	12.15.99	T990297TPH	
TPH-Extractable, quantitated as diesel	170.	10.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	1200.	40.	mg/Kg				
Surrogate o-Terphenyl	82.		%				
Kerosene	ND	10.	mg/Kg				

LAB NUMBER: 9912128-8 (continued)  
 SAMPLE ID: MW-15-19'  
 SAMPLED: 02 DEC 99 11:22  
 METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	1.2
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	115.		%				
Surrogate 4-Bromofluorobenzene [PID]	105.		%				

- 1) Sample Preparation on 12-09-99 using EPA 5030
- 2) Result expressed as wet weight of sample.



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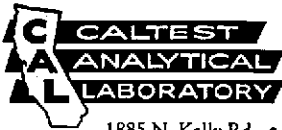
ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-9							
SAMPLE ID: MW-16-15'							
SAMPLED: 02 DEC 99 08:34							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				2	12.20.99	T990297TPH	2-8
TPH-Extractable, quantitated as diesel	ND	40.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	1900.	200.	mg/Kg				
Surrogate o-Terphenyl	76.		%				
Kerosene	340.	40.	mg/Kg				

LAB NUMBER: 9912128-9 (continued)  
 SAMPLE ID: MW-16-15'  
 SAMPLED: 02 DEC 99 08:34  
 METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				2000	12.14.99	V990128G9A	1,2,3,4
TPH-Purgeable, quantitated as gasoline	830.	100.	mg/kg				
Benzene	1.3	1.0	mg/kg				
Toluene	ND	1.0	mg/kg				
Ethylbenzene	13.	1.0	mg/kg				
Xylenes (Total)	7.0	1.0	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	50.	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	119.		%				
Surrogate 4-Bromofluorobenzene [PID]	90.		%				

- 3) Sample Preparation on 12-09-99 using EPA 3550
- 4) This sample was analyzed following Silica Gel Cleanup.
- 5) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 6) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 7) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 8) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate conc. has been calculated based on Kerosene standards.
- 1) Sample Preparation on 12-13-99 using EPA 5030
- 2) Result expressed as wet weight of sample.
- 3) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 4) A fuel pattern and it's constituents were found that did not identically match our standard.



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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-10							
SAMPLE ID: MW-17-11'							
SAMPLED: 02 DEC 99 08:01							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						T990297TPH	1-8
TPH-Extractable, quantitated as diesel	140.	20.	mg/Kg	1	12.15.99		
TPH-Extractable, quantitated as Motor Oil	2900.	100.	mg/Kg	5	12.21.99		
Surrogate o-Terphenyl	146.		%	1	12.15.99		
Kerosene	ND	20.	mg/Kg	1	12.15.99		

LAB NUMBER: 9912128-10 (continued)  
SAMPLE ID: MW-17-11'  
SAMPLED: 02 DEC 99 08:01  
METHOD: EPA 8015/8020A

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1	12.10.99	V990126G9A 2,9
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	110.		%				
Surrogate 4-Bromofluorobenzene [PID]	100.		%				

- 1) Sample Preparation on 12-09-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 6) Due to matrix interferences present in the sample, surrogate recoveries failed to meet the QA/QC acceptance criteria.
- 7) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 8) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 9) Sample Preparation on 12-09-99 using EPA 5030





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ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-11							
SAMPLE ID: MW-17-19							
SAMPLED: 02 DEC 99 08:17							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						T990297TPH	1-7
TPH-Extractable, quantitated as diesel	170.	20.	mg/Kg	1	12.15.99		
TPH-Extractable, quantitated as Motor Oil	1900.	40.	mg/Kg	2	12.21.99		
Surrogate o-Terphenyl	84.		%	1	12.15.99		
Kerosene	ND	20.	mg/Kg	1	12.15.99		

LAB NUMBER: 9912128-11 (continued)  
 SAMPLE ID: MW-17-19  
 SAMPLED: 02 DEC 99 08:17  
 METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					1	12.10.99	V990126G9A	2,8
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg					
Benzene	ND	0.001	mg/kg					
Toluene	ND	0.001	mg/kg					
Ethylbenzene	ND	0.001	mg/kg					
Xylenes (Total)	ND	0.001	mg/kg					
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg					
Surrogate 4-Bromofluorobenzene [FID]	108.		%					
Surrogate 4-Bromofluorobenzene [PID]	100.		%					

- 1) Sample Preparation on 12-09-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
- 6) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 7) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 8) Sample Preparation on 12-09-99 using EPA 5030



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ORGANIC ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: 9912128-12							
SAMPLE ID: COMPOSITE							
SAMPLED: 02 DEC 99 10:00							
METHOD: EPA 8015M							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				1	12.15.99	T990297TPH	1-6
TPH-Extractable, quantitated as diesel	130.	20.	mg/Kg				
TPH-Extractable, quantitated as Motor Oil	1000.	100.	mg/Kg				
Surrogate o-Terphenyl	84.		%				
Kerosene	ND	20.	mg/Kg				

LAB NUMBER: 9912128-12 (continued)  
SAMPLE ID: COMPOSITE  
SAMPLED: 02 DEC 99 10:00  
METHOD: EPA 8015/8020A

AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	12.10.99	V990126G9A	2.7
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg				
Benzene	ND	0.001	mg/kg				
Toluene	ND	0.001	mg/kg				
Ethylbenzene	ND	0.001	mg/kg				
Xylenes (Total)	ND	0.001	mg/kg				
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg				
Surrogate 4-Bromofluorobenzene [FID]	115.		%				
Surrogate 4-Bromofluorobenzene [PID]	105.		%				

- 1) Sample Preparation on 12-09-99 using EPA 3550
- 2) Result expressed as wet weight of sample.
- 3) This sample was analyzed following Silica Gel Cleanup.
- 4) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).
- 5) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
- 6) An unidentified petroleum hydrocarbon mixture was present in the sample. An approximate concentration has been calculated based on motor oil standards.
- 7) Sample Preparation on 12-09-99 using EPA 5030



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SUPPLEMENTAL QUALITY CONTROL (QC) DATA REPORT


Report Date: 23 DEC 1999  
Received Date: 03 DEC 1999

Client: David Elias  
Cambria  
1144 65th Street, Suite C  
Oakland, CA 94608

Project: 153-1247 CITY OF OAKLAND

<u>QC Batch ID</u>	<u>Method</u>	<u>Matrix</u>
T990294TPH	8015M	SOIL
T990297TPH	8015M	SOIL
V990126G9A	8015/8020A	SOIL
V990128G9A	8015/8020A	SOIL

  
Todd M. Albertson  
Project Manager

  
Christine Horn  
Laboratory Director

CALTEST authorizes this report to be reproduced only in its entirety.  
Results are specific to the sample as submitted and only to the parameters reported.  
All analyses performed by EPA Methods or Standard Methods (SM) 18th Ed. except where noted.  
Results of 'ND' mean not detected at or above the listed Reporting Limit (R.L.).  
Analyte Spike Amounts reported as 'NS' mean not spiked and will not have recoveries reported.  
'RPD' means Relative Percent Difference and RPD Acceptance Criteria is stated as a maximum.  
'NC' means not calculated for RPD or Spike Recoveries.



1885 N. Kelly Rd. • Napa, California 94558

CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

(707) 258-4000 • Fax: (707) 226-1001

LAB ORDER No.:

9912-128

Page 2 of 4

METHOD BLANK ANALYTICAL RESULTS

ANALYTE	RESULT	R.L.	UNITS	ANALYZED	NOTES
QC BATCH: T990294TPH					
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				12.08.99	1
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg		
TPH-Extractable, quantitated as Motor Oil	ND	20.	mg/Kg		
Surrogate o-Terphenyl	90.		%		
Kerosene	ND	4.	mg/Kg		
QC BATCH: T990297TPH					
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS				12.14.99	1
TPH-Extractable, quantitated as diesel	ND	4.	mg/Kg		
TPH-Extractable, quantitated as Motor Oil	ND	20.	mg/Kg		
Surrogate o-Terphenyl	84.		%		
Kerosene	ND	4.	mg/Kg		
QC BATCH: V990126G9A					
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				12.10.99	
Total Petroleum Hydrocarbons - Gasoline	ND	0.100	mg/kg		
TPH-Purgeable, quantitated as gasoline	ND	0.100	mg/kg		
Benzene	ND	0.001	mg/kg		
Toluene	ND	0.001	mg/kg		
Ethylbenzene	ND	0.001	mg/kg		
Xylenes (Total)	ND	0.001	mg/kg		
Methyl tert-Butyl Ether (MTBE)	ND	0.050	mg/kg		
Surrogate 4-Bromofluorobenzene [FID]	108.		%		
Surrogate 4-Bromofluorobenzene [PID]	95.		%		
QC BATCH: V990128G9A					
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				12.14.99	
Total Petroleum Hydrocarbons - Gasoline	ND	5.	mg/kg		
TPH-Purgeable, quantitated as gasoline	ND	5.	mg/kg		
Benzene	ND	0.05	mg/kg		
Toluene	ND	0.05	mg/kg		
Ethylbenzene	ND	0.05	mg/kg		
Xylenes (Total)	ND	0.05	mg/kg		
Methyl tert-Butyl Ether (MTBE)	ND	2.5	mg/kg		
Surrogate 4-Bromofluorobenzene [FID]	105.		%		
Surrogate 4-Bromofluorobenzene [PID]	88.		%		

1) This sample was analyzed following Silica Gel Cleanup.



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CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

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LAB ORDER No.:

9912-128

LABORATORY CONTROL SAMPLE ANALYTICAL RESULTS

Page 3 of 4

ANALYTE	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF	ANALYZED	NOTES
QC BATCH: T990294TPH							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						12.08.99	1
TPH-Extractable, quantitated as diesel Surrogate o-Terphenyl	66.7 6.7	61.1\ 6.6\ 	92\ 99\ 	40-140\ 40-140\ 			
QC BATCH: T990297TPH							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						12.14.99	1
TPH-Extractable, quantitated as diesel Surrogate o-Terphenyl	66.7 6.7	60.0\ 6.00\ 	90\ 90\ 	40-140\ 40-140\ 			
QC BATCH: V990126G9A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.10.99	
Total Petroleum Hydrocarbons - Gasoline	1.10	1.017\ 	93\ 	60-140\ 			
Benzene	0.0132	0.0130\ 	98\ 	60-140\ 			
Toluene	0.0780	0.0810\ 	104\ 	60-140\ 			
Surrogate 4-Bromofluorobenzene [FID]	0.04	0.042\ 	105\ 	60-140\ 			
Surrogate 4-Bromofluorobenzene [PID]	0.04	0.0450\ 	112\ 	60-140\ 			
QC BATCH: V990128G9A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.14.99	
Total Petroleum Hydrocarbons - Gasoline	55.0	53.7\ 	98\ 	60-140\ 			
Benzene	0.606	0.606\ 	100\ 	60-140\ 			
Toluene	3.881	3.88\ 	100\ 	60-140\ 			
Surrogate 4-Bromofluorobenzene [FID]	2.00	1.96\ 	98\ 	60-140\ 			
Surrogate 4-Bromofluorobenzene [PID]	2.00	1.85\ 	92\ 	60-140\ 			

1) This sample was analyzed following Silica Gel Cleanup.



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CERTIFIED ENVIRONMENTAL SERVICES  
CALIFORNIA ELAP #1664

(707) 258-4000 • Fax: (707) 226-1001

LAB ORDER No.:

9912-128

MATRIX SPIKE ANALYTICAL RESULTS

Page 4 of 4

ANALYTE	ORIGINAL RESULT	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF ANALYZED	NOTES
QC BATCH: T990294TPH QC SAMPLE LAB NUMBER: 9912288-1							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						12.08.99	1
TPH-Extractable, quantitated as diesel	ND	66.7	64.2\67.4	96\101	40-140\25	4.9	
Surrogate o-Terphenyl	93.%	6.7	6.7\6.8	100\101	40-140\		
QC BATCH: T990297TPH QC SAMPLE LAB NUMBER: 9912128-11							
TOTAL SEMI-VOLATILE PETROLEUM HYDROCARBONS						12.14.99	1.2
TPH-Extractable, quantitated as diesel	166.	66.7	203.\210.	55\66	40-140\25	3.4	
Surrogate o-Terphenyl	84.%	6.7	6.10\6.10	91\91	40-140\		
QC BATCH: V990126G9A QC SAMPLE LAB NUMBER: 9912128-6							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.10.99	
Total Petroleum Hydrocarbons - Gasoline	ND	1.10	0.390\0.388	35\35	60-140\25	0.5	
Benzene	ND	0.0132	0.0070\0.0070	53\53	60-140\25	0.0	
Toluene	ND	0.0780	0.0300\0.0340	38\44	60-140\25	12.	
Surrogate 4-Bromofluorobenzene [FID]	108.%	0.04	0.046\0.043	115\108	60-140\25		
Surrogate 4-Bromofluorobenzene [PID]	100.%	0.04	0.043\0.0410	108\102	60-140\25		
QC BATCH: V990128G9A QC SAMPLE LAB NUMBER: 9912128-9							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						12.14.99	
TPH-Purgeable, quantitated as gasoline	830.	1100.	1661.\1691.	76\78	60-140\25	1.8	
Benzene	1.27	13.38	14.78\14.7	101\100	60-140\25	0.5	
Toluene	ND	78.00	79.36\80.2	102\103	60-140\25	1.1	
Surrogate 4-Bromofluorobenzene [FID]	119.%	40.0	39.5\39.2	99\98	60-140\25		
Surrogate 4-Bromofluorobenzene [PID]	90.%	40.0	36.3\37.6	91\94	60-140\25		

1) This sample was analyzed following Silica Gel Cleanup.

2) Sample volumes altered in prep in an effort to reduce matrix effects resulting in (a) higher reporting limit(s).



# SAMPLE CHAIN OF CUSTODY

PROJECT #/PROJECT NAME  
153-1247- City of OAKLAND

P.O. #

CLIENT: CAMBRIA ENVIRONMENTAL

CONTACT NAME: DAVE C. ELIAS

### ANALYSES REQUESTED

ADDRESS: 1144 65th ST CITY: OAKLAND CA

STATE: ZIP: 94608

TURN-AROUND TIME  
 STANDARD  
 RUSH  
DUE DATE

TPH 2015  
2015 BTEX MTR  
TPH BTEX w/ SILICA  
MTR 2200

PHONE #: 510 420 3307

FAX PHONE: 510 420 9170

SAMPLER (PRINT & SIGN NAME): JOHN RIGOI

CALTEST #	DATE SAMPLED	TIME SAMPLED	MATRIX	CONTAINER AMOUNT/TYPE	PRESERVATIVE	SAMPLE IDENTIFICATION SITE	CLIENT LAB #	COMP OR GRAB	REMARKS
	12.2.99	250	SOIL			MW-13-5'			
		255				MW-13-10'			Report
		300				MW-13-15'			confirmed MTR 9000 detections
		310				MW-13-20'			w/ 9260
		34				MW-13-25'			
		109				MW-14-5'			Talk w/ Silica
		119				MW-14-10'			gel clean up
		129				MW-14-15'			
		1105				MW-15-5'			MW-15-5'
		1110				MW-15-10'			

By submittal of sample(s), client agrees to abide by the Terms and Conditions set forth on the reverse of this document.

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	RECEIVED BY
	12/3/99 15:07				

Samples: WC \_\_\_\_\_ MICRO \_\_\_\_\_ BIO \_\_\_\_\_ AA \_\_\_\_\_ pH? Y/N \_\_\_\_\_ TEMP: \_\_\_\_\_ SEALED: Y/N \_\_\_\_\_ INTACT: Y/N \_\_\_\_\_

BD: BIO \_\_\_\_\_ WC \_\_\_\_\_ AA \_\_\_\_\_

CC: AA \_\_\_\_\_ SV \_\_\_\_\_ VOA \_\_\_\_\_

SIL: HP \_\_\_\_\_ PT \_\_\_\_\_ QT \_\_\_\_\_ VOA \_\_\_\_\_

W/HNO<sub>3</sub> \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> \_\_\_\_\_ NaOH \_\_\_\_\_

PH: \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ aOH \_\_\_\_\_ HCL \_\_\_\_\_

**MATRIX:** AQ = Aqueous Nondrinking Water, Digested Metals; FE = Low R.L.s, Aqueous Nondrinking Water, Digested Metals; DW = Drinking Water; SL = Soil, Sludge, Solid; FP = Free Product

**CONTAINER TYPES:** AL = Amber Liter; AQL = 250 mL Amber; PT = Pint (Plastic); QT = Quart (Plastic); HG = Half Gallon (Plastic); SJ = Soil Jar; B4 = 4 oz. BACT; BT = Brass Tube; VOA = 40 mL VOA; OTC = Other Type Container

FOR LAB USE ONLY



# SAMPLE CHAIN OF CUSTODY

PROJECT #/ PROJECT NAME  
153-1247 City of Oakland

CLIENT: CAMBIA ENVL. TECH-  
ADDRESS: 1144 65th St OAKLAND CA  
BILLING ADDRESS:

CONTACT NAME:  
STATE: ZIP: 94608

ANALYSES REQUESTED  
TURNAROUND TIME  
 STANDARD  
 RUSH  
DUE DATE

PHONE #: 510 420 3307 FAX PHONE: 510 420 9170  
SAMPLER (PRINT & SIGN NAME): John A. Rigot

CALTEST #	DATE SAMPLED	TIME SAMPLED	MATRIX	CONTAINER AMOUNT/TYPE	PRESERVATIVE	SAMPLE IDENTIFICATION SITE	CLIENT LAB #	COMP. OF GRAB	REMARKS
-7		1115	Soil	TUBE		MW-15-15			
-8		1122				MW-15-19			2nd Confirm MTRBE
		808			MW-16-5'		8020 detections		
		812			MW-16-10'		w/8260		
-9		834				MW-16-15'			
		750			MW-17-5'		* TPHd w/ slicer		
-10		801			MW-17-10'		opt clean up		
		810			MW-17-15'				
-11		819	↓	↓		MW-17-19			* Please include
-12		1800			4 TUBS		Composites		

By submittal of sample(s), client agrees to abide by the Terms and Conditions set forth on the reverse of this document.

\* include Mo. # kerosene tank 12/1/97

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	RECEIVED BY
<i>[Signature]</i>	12-3-04 15:07	<i>[Signature]</i>	<i>[Signature]</i>	12-3-04 19:01	<i>[Signature]</i>

FOR LAB USE ONLY

Sample: WC MICRO BIO

BD: BIO WC AA

CC: AA SV VOA

SIL: HP PT QT VOA

WHNO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub> NaOH

PHNO<sub>3</sub> H<sub>2</sub>SO<sub>4</sub> NaOH HCl

MATRIX: AQ = Aqueous Nondrinking Water, Digested Metals; FE = Low R.L.s., Aqueous Nondrinking Water, Digested Metals; DW = Drinking Water; SL = Soil, Sludge, Solid; FP = Free Product

CONTAINER TYPES: AL = Amber Liter; AQL = 250 mL Amber; PT = Pint (Plastic); QT = Quart (Plastic); HG = Half Gall (Plastic); SJ = Soil Jar; B4 = 4 oz. BACT; BT = Brass Tube; VOA = 40 mL VOA; OTC = Other Type Container



**ATTACHMENT E**

**Well Elevation Survey Data**

**Virgil Chavez Land Surveying**

312 Georgia Street, Suite 200  
Vallejo, California 94590-5907  
(707) 553-2476 • Fax (707) 553-8698

March 1, 2000  
Project No. 1703-49

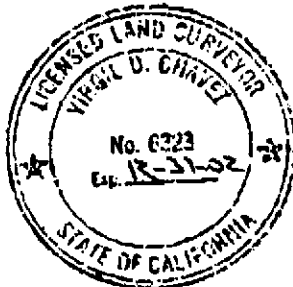
John Riggi  
Cambria Environmental  
1144 65th Street, Suite C  
Oakland, Ca. 94608

Subject: Monitoring Well Survey  
Municipal Service Center  
7101 Edgewater Drive  
Oakland, Ca.

Dear John:

This is to confirm that we have proceeded at your request to survey the monitoring wells located at the above referenced location. The survey was completed on February 24, 2000. The elevations for the survey are based on the data you provided. Measurements were taken at approximate north side of top of box and top of casings. Survey data accuracy: 5mm +/- 2ppm.

<u>Monitoring Well No.</u>	<u>Rim Elevation</u>	<u>TOC Elevation</u>
MW - 1	10.40'	10.05'
MW - 6	11.36'	10.98'
MW - 8	--	12.22'
MW - 9	11.50'	10.77'
MW -11	11.86'	11.60'
MW -12	10.64'	10.43'
MW -13	11.54'	11.34'
MW -14	10.52'	10.05'
MW -15	12.68'	12.36'
MW -16	13.97'	13.57'
MW -17	10.07'	9.86'
RW - 1	10.15'	9.92'
TBW - 3	10.21'	9.92'
TBW - 4	10.13'	9.88'
TBW - 5	10.48'	10.22'
TBW - 6	9.88'	9.49'



Sincerely,

  
Virgil D. Chavez, PLS 6323

**ATTACHMENT F**

**Department of Water Resources Well Completion Forms**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

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STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**



**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**



# NON-HAZARDOUS WASTE MANIFEST

WASTE TREATMENT AND DISPOSAL FACILITY

JOB ACCEPTANCE NO. **913-900**

TO BE COMPLETED BY THE GENERATOR

GENERATOR  
**City of Oakland - Municipal Service Center**  
MAILING ADDRESS  
**7101 Edgewater Drive**  
CITY, STATE, ZIP  
**Oakland, CA**  
PHONE

REQUIRED PERSONAL PROTECTIVE EQUIPMENT  
 GLOVES  GOGGLES  RESPIRATOR  HARD HAT  
 TY-VEK  OTHER

SPECIAL HANDLING PROCEDURES:

CONTACT PERSON  
SIGNATURE OF AUTHORIZED AGENT / TITLE  
DATE

WASTE TYPE  
 TREATMENT SOIL  
 DISPOSAL SOIL  
 CONSTRUCTION SOIL  
 SLUDGE  
 NON-FRIABLE ASBESTOS  
 WOOD  
 ASH  
 OTHER

RECEIVING FACILITY  
**FORWARD INC. LANDFILL**  
**9999 SOUTH AUSTIN ROAD**  
**MANTECA, CALIFORNIA 95336**  
**(209) 982-4298 PHONE**  
**(209) 982-1009 FAX**

GENERATING FACILITY  
**City of Oakland - Municipal Svc Center**  
**7101 Edgewater**  
**Oakland, Ca**

NAME  
**Don Berto Transporter**  
ADDRESS  
**930 Stebel Rd #44**  
CITY, STATE, ZIP  
**Orinda, Ca 94692**  
PHONE  
**907 838 1407**

NOTES: **CP32406**  
TRUCK NUMBER  
**16**

SIGNATURE OF AUTHORIZED AGENT OF DRIVER  
**\* Jim D. G.**  
DATE  
**1/24/00**

END DUMP  BOTTOM DUMP  TRANSFER   
ROLL-OFF(S)  FLAT-BED  VAN  DRUMS

**FORWARD INC. LANDFILL**  
Forward shall have no obligation to accept the waste if weather or other conditions impair the safe and effective disposal of the waste or if the waste impairs the safe and effective operation of the Landfill. Forward shall use reasonable efforts to promptly notify Disposer of its inability to accept the waste for any reason. If Forward's refusal to accept the waste is based on weather or other site conditions, Forward shall notify the Disposer when site conditions are expected to change such that Forward will be able to accept the waste.  
REMARKS  
FACILITY TICKET NUMBER  
SIGNATURE OF AUTHORIZED AGENT  
**\* [Signature]**  
DATE  
**1/24/00**

CUBIC YARDS: **10 DRUMS**

DISPOSAL METHOD	(TO BE COMPLETED BY FORWARD)	DISPOSE	BIO	AERATE	STOCKPILE	OTHER
<input checked="" type="checkbox"/> SOIL						
<input type="checkbox"/> SLUDGE						
<input type="checkbox"/> NON-FRIABLE ASBESTOS						
<input type="checkbox"/> WOOD						
<input type="checkbox"/> ASH						
<input type="checkbox"/> OTHER						

SCHEDULING MUST BE MADE PRIOR TO 4:00 P.M. THE DAY PRIOR TO EXPECTED ARRIVAL • ANY UNSCHEDULED LOADS ARE SUBJECT TO REFUSAL UPON ARRIVAL. ONGOING DAILY DELIVERIES MUST BE SCHEDULED WITH THE LANDFILL THE DAY BEFORE. TO SCHEDULE CALL (209) 982-4298

MANIFEST # C **9865**

FACILITY REQUIREMENTS

TRANSPORTER HAULER MUST COMPLETE

**ATTACHMENT G**

**Waste Manifests**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**

**CONFIDENTIAL**

STATE OF CALIFORNIA DWR  
WELL COMPLETION REPORT  
(WELL LOGS)

**REMOVED**