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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

3978

AUG 14 2001

August 9, 2001

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

Subject: **Second Quarter 2001 Monitoring Report -**
City of Oakland Municipal Service Center
7101 Edgewater Drive Oakland, California

Dear Mr. Chan:

Enclosed are copies of the *Second Quarter 2001 Monitoring Report* prepared by our consultant, Cambria Environmental Technology Inc. for the City of Oakland Municipal Service Center at 7101 Edgewater Drive.

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

Sincerely,

Joseph A. Cotton
Environmental Program Specialist

cc: Diane Heinz, Port of Oakland, 530 Water St., Oakland, CA 94604
Xinggang Tong, URS Corporation, 500 12th St., Suite 200, Oakland, CA 94607

CAMBRIA

June 18, 2001

AUG 14 2001

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

Re: **Second Quarter 2001 Monitoring Report**
City of Oakland, Municipal Services Center
7101 Edgewater Drive
Oakland, California
Cambria Project #153-1653-012

Dear Mr. Cotton:

As required by the Alameda County Health Care Services Agency (ACHCSA), Cambria Environmental Technology, Inc. (Cambria) has prepared this second quarter 2001 groundwater monitoring report for the above-referenced site. Presented in the report are the second quarter 2001 activities, conclusions, recommendations and the anticipated third quarter 2001 activities.

Cambria understands that the City of Oakland will forward a copy of this report to the ACHCSA. If you have any questions or comments regarding this report, please call me at (510) 420-3303.

Sincerely,
Cambria Environmental Technology, Inc.

Bob Clark-Riddell

Bob Clark-Riddell, P.E.
Principal Engineer

Attachments: Second Quarter 2001 Monitoring Report

Oakland, CA
San Ramon, CA
Sonoma, CA
Portland, OR

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

CAMBRIA

SECOND QUARTER 2001 MONITORING REPORT

City of Oakland, Municipal Services Center
7101 Edgewater Drive
Oakland, California
Cambria Project #153-1653-012

June 18, 2001

Prepared for:

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

Prepared by:

Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, California 94608

Thomas Howard
Project Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

CAMBRIA

SECOND QUARTER 2001 MONITORING REPORT

City of Oakland, Municipal Services Center
7101 Edgewater Drive
Oakland, California
Cambria Project #153-1653-012

June 18, 2001

INTRODUCTION

As required by the Alameda County Health Care Services Agency (ACHCSA), Cambria Environmental Technology, Inc. (Cambria) has prepared this second quarter 2001 groundwater monitoring report for the above-referenced site. Described below are the second quarter 2001 activities, monitoring results, contaminant distribution in groundwater, corrective action activities, conclusions, recommendations, and the anticipated third quarter 2001 activities.

SECOND QUARTER 2001 ACTIVITIES

Monitoring Activities

Field Activities: On May 17, 2001, Cambria gauged and inspected for separate-phase hydrocarbons (SPH) in site monitoring and tank pit backfill wells in accordance with the ACHCSA-approved monitoring protocol presented below in Table A. Monitoring well locations are shown on Figure 1. Also on May 17 and 18, 2001, Cambria collected groundwater samples from site wells scheduled for sampling, provided no significant SPH were present in the wells. Field data sheets are presented as Appendix A.

Sample Analyses: Select groundwater samples were analyzed for: total petroleum hydrocarbons (TPH), as gasoline (TPHg), TPH as diesel (TPHd), TPH as kerosene (TPHk), TPH as motor oil (TPHmo); benzene, toluene, ethylbenzene and xylenes (BTEX); and methyl tertiary butyl ether (MTBE) by EPA Methods 8015/8020A by Caltest Analytical Laboratory of Napa, California, a California state-certified laboratory. Prior to TPHd/k/mo analyses, samples were filtered using industry standard 0.45-micron filters and then subjected to silica gel treatment by EPA Method 3630. Laboratory QA/QC method blanks were also subject to 0.45-micron filtration and silica gel treatment by EPA Method 3630. Positive detections of MTBE were confirmed by EPA Methods 8260 (with the exception of samples from well MW-5 which historically are known to test positive for MTBE). The specific analytes for each well sample are presented in Table A (below). Analytic results are summarized in Tables 1, 2, 3 and 4 (attached). The laboratory analytical reports and correspondence are included as Appendix B.

Rationale for 0.45 micron filtration and silica gel treatment: Due to the fine-grained nature of the subsurface formations screened by the monitor wells, the well construction design and the limitations of sampling methodologies, groundwater samples collected from wells at the Municipal Services Center (MSC) are occasionally observed to be turbid and, even when clear, are still likely to contain sub-micron size particles and colloids as *suspended solids*. These suspended solids and colloids may carry bound contaminants of concern, including hydrocarbons. Furthermore, in complex depositional environments such as that beneath the MSC, *naturally occurring hydrocarbons* and *biodegraded anthropogenic* hydrocarbons may be present in groundwater.

Therefore, consistent with RWQCB guidance[1,2] and agreement from ACHCSA[3], Cambria recommended filtration and silica gel treatment of groundwater samples prior to TPHd/k/mo analyses to objectively evaluate dissolved hydrocarbons in groundwater. The purpose of the filtration is to eliminate positive interference effects resulting from hydrocarbons bound to suspended particles and colloids in the groundwater samples, thus isolating the suspended from *dissolved* constituents. The industry standard for dissolved constituent filtration is 0.45 microns. The purpose of silica gel treatment is to mitigate positive interference effects resulting from limitations of the 8015M analysis by removing polar, biogenic hydrocarbons from anthropogenic hydrocarbons. The laboratory recommended method of silica gel treatment (consistent with RWQCB guidance) is EPA Method 3630.

It should be noted that it is highly unlikely any significant mass of inter-formational suspended particles with bound contaminants of concern are migrating beneath the site. Rather, extremely fine-grained particles and colloids are most likely dislodged from the formation/borehole wall interface. During well purging, significant gradients are induced, locally, introducing fine-grained materials into the wells. During static water level conditions, groundwater gradient and velocity are likely insignificant to transmit any inter-formational suspended or dislodged particles, if present, throughout the formation(s). Lastly, it is unlikely any amount of additional well development would curtail this phenomena, rather a change in sampling methodologies (or well construction design) could be considered. (non purge sampling?)

[1] Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SFBR), Use of Silica Gel Cleanup for Extractable TPH Analysis, Memorandum from Ravi Arulanantham, Toxics Cleanup Division to Stephen Morse, February 16, 1999

[2] Conversation with Dr. Ravi Arulanantham, RWQCB, May 25, 2001

[3] Conversation with Mr. Barney Chan, ACHCSA, May 25, 2001

Table A – Well Sampling Protocol (Second Quarter 2001)
City of Oakland Municipal Service Center

Well***	Quarter				Gauge Every Qtr	DO (field meter)	TPHg/ BTEX/ MTBE* (8015/ 8020)	TPH d/k/mo (8015) filter+ silica gel**	VOC (8260)	SVOC (8270)	LUFT metals	Comments
	1	2	3	4								
MW-1	X		X		X	X	X	X				
MW-2	X		X		X	X	X	X				
MW-5	X	X	X		X	X	X	X				
MW-6	X		X		X	X	X	X				SPH-present
MW-7	X		X		X	X	X	X				
MW-8	X	X	X	X	X	X	X	X				
MW-9	X	X	X	X	X	X	X	X				
MW-10	X	X	X	X	X	X	X	X				
MW-11	X	X	X	X	X	X	X	X				
MW-12	X	X	X	X	X	X	X	X				
MW-13	X	X	X	X	X	X	X	X				
MW-14	X	X	X	X	X	X	X	X				
MW-15	X	X	X	X	X	X	X	X				
MW-16	X		X	X	X	X	X	X				SPH present
MW-17	X	X	X	X	X	X	X	X				
MW-18	Gauge 3rd quarter only											
TBW-1	X		X		X	X	X	X				SPH present
TBW-3	X		X		X	X	X	X				
TBW-4	X		X		X	X	X	X				
TBW-5	X		X		X	X	X	X				SPH present
TBW-6	X		X		X	X	X	X				
Trip Blank	X	X	X	X	NA	NA	X	X				

DO = Dissolved oxygen
* = Any positive results for MTBE will be confirmed by re-analysis using EPA Method 8260, except in MW-5.
** = Prior to analysis, lab will filter sample with 0.45 micron filter, then subject filtrate to silica gel treatment (clean-up) by EPA Method 3630, and then sample/dilute the filtrate for analysis. The lab shall run a spiked method blank through the same procedure, evaluate, and explain any atypical deviation.
*** = Wells MW-3 and MW-4 were destroyed during the first quarter 1999.
**** = For MW-6 bail product first and use custom oil/water separator to facilitate sample collection

MONITORING RESULTS

Shallow Groundwater Topography

On May 17, 2001, Cambria gauged site monitoring wells and tank backfill wells in accordance with the protocol shown on Table A. Cursory examination of the shallow groundwater elevation map suggests groundwater flow towards San Leandro Bay and Damon Slough (Figure 1). Apparent groundwater flow directions are generally consistent with historical measurements. Depth-to-water and groundwater elevation data are presented in Table 1.

Occurrence of Separate-Phase Hydrocarbons

Separate-phase hydrocarbons (SPH) were detected in monitoring wells MW-6 (0.32 ft) and MW-16 (not measured), and in backfill wells TBW-1 (0.28 ft) and TBW-5 (0.67 ft). SPH in well MW-16 were extremely viscous and adhered to the oil-water interface probe. Cambria was unable to obtain an accurate and reliable SPH measurement in this well and consequently, neither product thickness nor depth to water could be measured with precision in this well. However, historically, SPH in well MW-16 have been less than or equal to 0.42 ft thick.

SPH thickness measurements in wells frequently may not be representative of true thicknesses in the formation(s) screened by the wells, and are typically several to many times thicker than those actually occurring in the deposits or formation(s) intercepted by the well screens[4, 5]. This phenomena can also be exaggerated by fluctuating water tables. The extent of SPH is defined in the downgradient direction for each of these areas by other site wells. SPH removal activities are described below in the corrective action section.

Contaminant Distribution in Groundwater

Benzene in Groundwater: The maximum benzene concentration detected was 140 μg/l in well MW-5. The maximum benzene concentration detected in an offsite perimeter well was 11 μg/l in well MW-14. This analytic result for benzene is below the acceptable risk thresholds for both the San

[4] Wagner, R.B., Hampton, D.R., and Howell, J.A., *A New Tool to Determine The Actual Thickness of Free Product in a Shallow Aquifer*, Proceedings of the Conference on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration, 1989. Published by the National Water Well Association.

[5] Yaniga, P. M., *Hydrocarbon Retrieval and Apparent Hydrocarbon Thickness: Relationship to Recharging/Discharging Aquifer Conditions*, presented to the National Water Well Association and the American Petroleum Institute, Houston, TX, 1984.

Francisco Airport Ecological Protection Zone Tier I Standards[6] and the City of Oakland Risk-Based Tier I[7] for inhalation of indoor air vapors of 71 µg/l and 110 µg/l, respectively. This analytic result for benzene is also below the acceptable risk threshold of 46 µg/l for ecological toxicity established by the USEPA according to the San Francisco Bay Regional Water Quality Control Board (RWQCB-SFBR)[8].

MTBE in Groundwater: MTBE was detected at 170 µg/l in the groundwater sample collected from well MW-5, and at 9.7 µg/l in the groundwater sample collected from well MW-11 (by EPA 8015/8020A). The detection of MTBE in the sample from well MW-11 was verified by EPA method 8260 at 5.1 µg/l. MTBE historically has been detected only in wells MW-5 and MW-6.

TPHg in Groundwater: The maximum TPHg concentration detected was 7,500 µg/l in well MW-5. All other concentrations are below the San Francisco Airport Ecological Protection Zone Tier I Standard acceptable threshold of 3,700 µg/l.[9] TPHg concentrations appear to be defined in the downgradient and crossgradient directions to within acceptable ecological risk thresholds.

TPHd in Groundwater: The maximum dissolved TPHd concentration detected in offsite perimeter wells was 210 µg/l in well MW-15. Analytical results were below the San Francisco Airport Ecological Protection Zone Tier I Standard of 640 µg/l.[10]

TPHmo in Groundwater: No dissolved TPHmo was detected in any of the wells.

Volatile Organic Compounds in Groundwater: The only VOC analysis performed on samples during the second quarter 2001 was the confirmation of MTBE in the sample from well MW-11 at 5.1 µg/l. Previous quarterly monitoring results for VOCs are presented in Table 2.

---

[6] Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SFBR) *Order No. 99-045* for a similar situation at the San Francisco International Airport. Staff comments dated July 16, 1998, signed by Mr. Steven Morse, Chief of the Toxics Cleanup Division, addressed to the SFIA Consolidated Tenant Group.

[7] Spence, L., and Gomez, M. *Oakland Risk-Based Corrective Action: Technical Background Document.* Urban Land Redevelopment Program Technical Advisory Committee. May 17, 1999.

[8] RWQCB-SFBR, *Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater.* Interim Final. August 2000.

[9] RWQCB-SFBR *Order No. 99-045* for a similar situation at the San Francisco International Airport. Staff comments dated July 16, 1998, signed by Mr. Steven Morse, Chief of the Toxics Cleanup Division, addressed to the SFIA Consolidated Tenant Group.

[10] Ibid.

Semi-Volatile Organic Compounds in Groundwater: SVOC analyses were not performed on samples during the second quarter 2001. Previous quarterly monitoring results are presented in Table 3.

LUFT Metals in Groundwater: LUFT metals analyses were not performed on samples during the second quarter 2001. Previous quarterly monitoring results are presented in Table 4.

Laboratory Quality Assurance and Quality Control: All samples and Laboratory Control Sample (LCS) method blanks were spiked with surrogates (prior to filtration and silica gel treatment) to evaluate laboratory QA/QC. All recoveries for all surrogates were within acceptable limits for all analyses, indicating that 0.45-micron filtration and silica gel treatment do not adversely affect sample quality.

Corrective Action Activities

Separate-Phase Hydrocarbon Removal: Separate-phase hydrocarbons (SPH) have been actively skimmed from well TBW-5 using a mobile SPH skimmer. Hydrocarbon-absorbing "socks" were used in wells MW-6, MW-16, TBW-1, and TBW-2. The hydrocarbon-absorbing "socks" were monitored on three separate events and were replaced if saturated. Access to TBW-2 is presently blocked by a concrete traffic barricade. Historically, trace or sheen amounts of SPH, when present, have been bailed from TBW-3; no SPH were observed in TBW-3 through the 2nd quarter.

As shown on Table B (below), Cambria estimates that approximately 17 pounds of SPH were removed from the site after the 1st quarter sampling event (after February 26, 2001) and through the 2nd quarter 2001 sampling event (May 18, 2001). Recovery of SPH has improved significantly with the installation and operation of a vendor-recommended skimmer (designed for heavier, higher viscosity SPH). The system resumed continuous operation May 8, 2001, and removed approximately 2.5 gallons by May 18, 2001 – a SPH removal rate of approximately 0.25 gallons per day. SPH recovered by the skimmer is assumed to be 100% hydrocarbon, as no detectable water is currently detected in the 500-gallon recovery tank. The 500-gallon recovery tank was last emptied for disposal on March 21, 2001.

Since water is also removed during SPH bailing and sock removal, Cambria estimates that approximately 50% of the bailed volume and 50% of the sock saturation weight is actually SPH (unless otherwise calculated in field). To determine the sock saturation weight, Cambria weighs each removed sock and subtracts the dry weight from the total weight of the used sock. One gallon of separate-phase hydrocarbons is estimated to weigh 6.6 pounds. This cumulative volume does not include additional SPH removal achieved by "socks" prior to the third quarter 2000.

Table B – SPH Removal Summary

Hydrocarbon Removal Method	Removal This Quarter (pounds)	Cumulative Removal (pounds)
Active Skimming (TBW-5)	16	432
Bailing/Socks (TBW-5)	0	132.4
Bailing/Socks (TBW-1)	0.9	13.8
Bailing/Socks (TBW-2)	0	2.5
Bailing/Socks (TBW-3)	0	9.6
Bailing/Socks (MW-6)	0.175	0.225
Bailing/Socks (MW-16)	0	3
Total SPH Removal	17 Pounds	593.5 Pounds

CONCLUSIONS AND RECOMMENDATIONS

Cambria offers the following conclusions and recommendations regarding site activities and this quarter's analytic results.

- Separate-phase hydrocarbon (SPH) recovery efforts are removing measurable hydrocarbons from the site subsurface, primarily in well TB-5, which has significantly improved with the new density skimmer and repaired pump installed in well TB-5 on May 8, 2001. Cambria recommends continued monitoring of SPH plume stability.

- Additional site assessment described in the January 2001 Site History and Characterization Report prepared by Baseline Environmental Consultants (Baseline) suggests that the downgradient extent of dissolved and separate-phase hydrocarbons has been adequately defined.

- With the exception of onsite well MW-5, TPHg concentrations are below the San Francisco Airport Ecological Protection Zone Tier I Standard acceptable threshold of 3,700 µg/l.[11] It should be noted that samples for TPHg analysis are *not* filtered, nor subject to silica gel treatment (cleanup). Therefore, the reported TPHg concentrations are indicative of *suspended* and dissolved *organic* and anthropogenic hydrocarbons, all quantitated as TPHg. [redacted] Many wells with TPHg detections did not contain detectable BTEX compounds, which are commonly detected in conjunction with gasoline releases. TPHg concentrations detected in perimeter offsite wells appear to be the result of local fill quality rather than offsite migration of dissolved petroleum hydrocarbons. The City may request that *duplicate* groundwater samples be subjected to filtration and silica gel treatment (as performed for the heavier-range petroleum hydrocarbon analyses), if the local regulatory agencies are concerned about the TPHg concentrations detected in offsite wells.

- Reported *dissolved* TPHd concentrations in offsite perimeter wells were below the San Francisco Airport Ecological Protection Zone Tier I Standard of 640 µg/l.

[11] Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SFBR) *Order No. 99-045* for a similar situation at the San Francisco International Airport. Staff comments dated July 16, 1998, signed by Mr. Steven Morse, Chief of the Toxics Cleanup Division, addressed to the SFIA Consolidated Tenant Group.

- No dissolved TPHmo was detected in site groundwater. The apparent detection of higher TPHmo concentrations prior to implementation of 0.45 micron filtration and silica gel treatment (based on previous monitoring results) suggests that heavier-range hydrocarbons may be adsorbed to extremely fine particles and colloids which are dislodged during sampling and occur as suspended solids in groundwater samples, and that *dissolved* TPHmo is not present in groundwater at detectable concentrations. The historical detection of TPHmo concentrations in downgradient offsite wells prior to filtration (based on previous monitoring results) also suggests that these TPHmo detections were a result of soil/fill quality effects and the resulting groundwater sample quality, rather than migration of dissolved TPHmo from an onsite release.

- As mentioned above, it is highly unlikely suspended solids with bound or adsorbed contaminants of concern are present as inter-formational mass migrating in groundwater beneath the site. Rather any suspended solids present in groundwater samples most likely originate from the formation/borehole wall interface and occur as a well bore, sampling-induced phenomena.

- Historical analytic results indicate that hydrocarbon attenuation is occurring at the site, with evidence that both aerobic and anaerobic biodegradation are taking place. Hydrocarbon attenuation was described in prior monitoring reports.

- In conjunction with the feasibility study being conducted by URS-Greiner, the City of Oakland may also wish to perform a site-specific ecological risk assessment or conduct feasibility testing at the site.

ANTICIPATED THIRD QUARTER 2001 ACTIVITIES

Monitoring Activities

Cambria will gauge, measure any detected SPH, and collect groundwater samples from site wells in accordance with the protocol presented in Appendix C. The protocol now proposes sampling of well MW-5 on a quarterly basis with analysis for TPHg, BTEX, and MTBE. All TPHd/k/mo analyses will be subject to 0.45-micron filtration and silica gel treatment prior to analysis. Following field activities, Cambria will tabulate the analytic data, contour groundwater elevations, and prepare a quarterly monitoring report.

Corrective Action

Cambria will continue SPH removal using active skimming in well TBW-5. Cambria will perform operation and maintenance (O&M) of the skimmer pump with the new 'density skimmer' filter. During scheduled O&M visits Well TBW-3 will be checked for presence of SPH and hydrocarbon-absorbing "socks" in wells MW-6, MW-16, TBW-1, and TBW-2 will be inspected and replaced if saturated.

URS-Greiner completed a feasibility study that evaluated remedial options for the site and recommended dual phase extraction (DPE) for SPH removal. Testing and implementation of DPE will be initiated. The first phase will involve the installation of test wells and piezometers to facilitate DPE testing and monitoring.

Repair of Offsite Well Vaults

During the third quarter, Cambria removed and replaced well vaults for 4 offsite wells (MW-8, MW-9, MW-10, and MW-14).

ATTACHMENTS

Figure 1 - Groundwater Elevation Contours and Hydrocarbon Concentration Map
Table 1 – Groundwater Elevation Data and Analytical Results - Hydrocarbons
Table 2 – Groundwater Analytical Results - VOCs
Table 3 – Groundwater Analytical Results - SVOCs
Table 4 – Groundwater Analytical Results – LUFT Metals
Appendix A - Field Data Sheets
Appendix B - Laboratory Analytical Reports/Correspondence
Appendix C – Well Sampling Protocol for 2nd Quarter 2001

H:\City of Oakland\Municipal Service Center\QM\CoO-2Q01.DOC

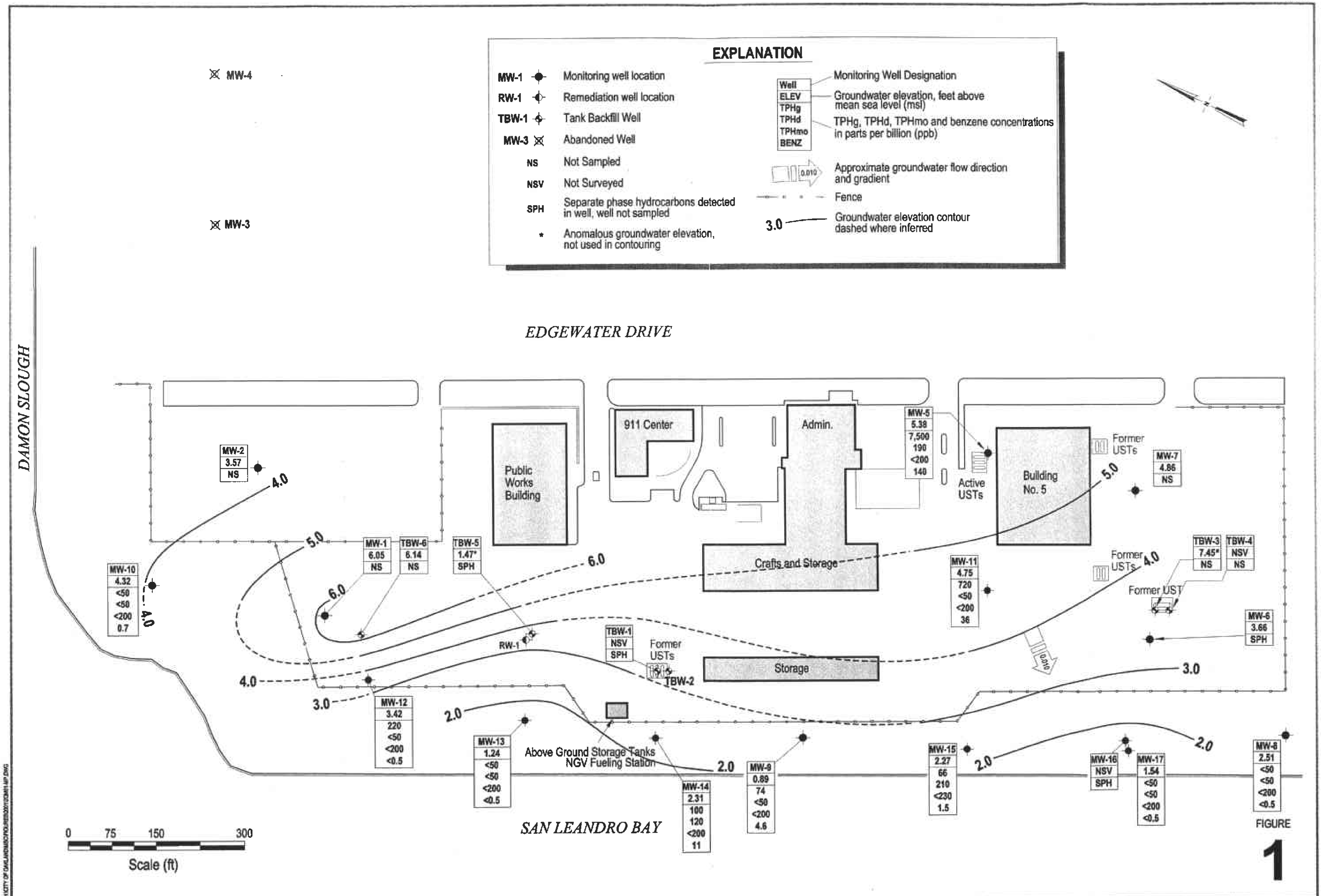
EXPLANATION
MW-1 Monitoring well location
RW-1 Remediation well location
TBW-1 Tank Backfill Well
MW-3 Abandoned Well
NS Not Sampled
NSV Not Surveyed
SPH Separate phase hydrocarbons detected in well, well not sampled
* Anomalous groundwater elevation, not used in contouring
Well Monitoring Well Designation
ELEV Groundwater elevation, feet above mean sea level (msl)
TPHg TPHd TPHmo BENZ TPHg, TPHd, TPHmo and benzene concentrations in parts per billion (ppb)
0.010 Approximate groundwater flow direction and gradient
Fence
3.0 Groundwater elevation contour dashed where inferred
EDGEWATER DRIVE
DAMON SLOUGH
SAN LEANDRO BAY
MW-4
MW-3
Public Works Building
911 Center
Admin.
Crafts and Storage
Storage
Building No. 5
Active USTs
Former USTs
Former UST
Above Ground Storage Tanks
NGV Fueling Station
RW-1
TBW-2
MW-2 3.57 NS
MW-10 4.32 <50 <50 <200 0.7
MW-1 6.05 NS
TBW-6 6.14 NS
TBW-5 1.47* SPH
TBW-1 NSV SPH
MW-5 5.38 7,500 190 <200 140
MW-7 4.86 NS
MW-11 4.75 720 <50 <200 36
TBW-3 7.45* NS
TBW-4 NSV NS
MW-6 3.66 SPH
MW-12 3.42 220 <50 <200 <0.5
MW-13 1.24 <50 <50 <200 <0.5
MW-14 2.31 100 120 <200 11
MW-9 0.89 74 <50 <200 4.6
MW-15 2.27 66 210 <230 1.5
MW-16 NSV SPH
MW-17 1.54 <50 <50 <200 <0.5
MW-8 2.51 <50 <50 <200 <0.5
2.0
3.0
4.0
5.0
6.0
0 75 150 300
Scale (ft)

FIGURE
1

Groundwater Elevation Contour Map and Hydrocarbon Concentrations

May 17, 2001

CAMBRIA

Municipal Service Center
7101 Edgewater Drive
Oakland, California

CAMBRIA

Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
MW-1														
10/4/89	10.20	---	---	8020		---	---	---	540	65	26	14	22	---
10/4/89	10.20	---	---	8240		---	---	---	---	120	46	43	78	---
4/27/93	10.20	---	---	8020		---	---	---	<1,000	<1.0	<1.0	<1.0	<1.0	---
4/19/95	10.20	---	---	8020		---	---	---	3,200	880	15	23	21	---
7/27/95	10.20	4.62	5.58	8020		---	---	---	980	130	3.6	1.4	5.6	---
11/20/95	10.20	6.08	4.12	8020		---	---	---	400	99	2.8	1.1	4.6	---
2/21/96	10.20	4.62	5.58	8020		---	---	---	1,700	340	8.4	5.3	16	---
5/13/96	10.20	4.33	5.87	8020		---	---	---	7,300	2,000	30	42	38	---
8/27/96	10.20	5.25	4.95	8020		---	---	---	380	61	2.4	<0.5	4.2	---
2/23/98	10.20	1.75	8.45	8020		<50	<500	<50	820	160	4.9	3	9.7	---
8/19/98	10.20	4.78	5.42	8020	SGC	1,200	---	---	780	69	4.1	0.84	8.5	<5.0
11/11/98	10.20	5.64	4.56	---		---	---	---	---	---	---	---	---	---
2/23/99	10.20	3.41	6.79	8020	SGC	1,200	1,600	<50	1,100	190	5	3	12	<5.0
5/27/99	10.20	3.96	6.24	---		---	---	---	---	---	---	---	---	---
8/24/99	10.20	4.92	5.28	8020	SGC	640	1,900	<50	370	37	0.9	<0.5	1.9	<5.0
11/22/99	10.20	5.46	4.74	---		---	---	---	---	---	---	---	---	---
1/18/00	10.05	5.41	4.64	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	50	<200	<50	660	43	2.3	1.1	6	<5.0
5/11/00	10.05	4.63	5.42	---		---	---	---	---	---	---	---	---	---
8/24/00	10.05	5.07	4.98	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	340	<250	290	480	53	1.4	<0.5	2.9	<5.0
11/28/00	10.05	5.60	4.45	---		---	---	---	---	---	---	---	---	---
2/27/01	10.05	3.95	6.10	8020	Filtered+SGC	270	<250	<61	1,500	110	6.3	<1.5	9.9	<15
5/17/01	**10.05**	**4.00**	**6.05**	**---**		**---**	**---**	---	**---**	**---**	---	**---**	**---**	**---**
MW-2														
10/4/89	10.47	---	---	8020		---	---	---	<30	<0.3	<0.3	<0.3	<0.3	---
10/4/89	10.47	---	---	8240		---	---	---	---	2	<2.0	<2.0	<2.0	---
4/27/93	10.47	---	---	8020		---	---	---	<1,000	<1.0	<1.0	<1.0	<1.0	---
4/19/95	10.47	---	---	8020		---	---	---	<50	1.8	<0.5	<0.5	<0.5	---
7/27/95	10.47	6.22	4.25	8020		---	---	---	<50	2.3	<0.5	<0.5	<0.5	---

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
11/20/95	10.47	7.49	2.98	8020		---	---	---	<50	2.2	<0.5	<0.5	<0.5	---
2/21/96	10.47	6.68	3.79	8020		---	---	---	<50	1.7	<0.5	<0.5	0.5	---
5/13/96	10.47	6.32	4.15	8020		---	---	---	---	2	<0.5	<0.5	<0.5	---
8/27/96	10.47	6.84	3.63	8020		---	---	---	---	2.4	<0.5	<0.5	<0.5	---
2/24/98	10.47	5.44	5.03	8020		<50	<500	<50	---	1.6	<0.5	<0.5	<0.5	---
8/19/98	10.47	6.56	3.91	8020	SGC	330	---	---	<50	4.1	3.4	0.8	2.6	<5.0
11/11/98	10.47	7.37	3.10	---		---	---	---	---	---	---	---	---	---
2/23/99	10.47	8.68	1.79	8020	SGC	200	900	<50	<50	3.5	0.6	0.6	1.2	<5.0
5/27/99	10.47	5.20	5.27	---		---	---	---	---	---	---	---	---	---
8/24/99	10.47	6.75	3.72	8020	SGC	140	700	<50	<50	2.6	<0.5	<0.5	<0.5	<5.0
11/22/99	10.47	7.58	2.89	---		---	---	---	---	---	---	---	---	---
1/18/00	10.47	7.41	3.06	8020	SGC	60 A	660	<50	<50	2.1	<0.5	<0.5	<0.5	<5.0
5/11/00	10.47	6.43	4.04	---		---	---	---	---	---	---	---	---	---
8/24/00	10.47	8.91	1.56	8020	SGC	170	440	130	<50	2.4	<0.5	<0.5	<0.5	<5.0
11/28/00	10.47	7.35	3.12	---		---	---	---	---	---	---	---	---	---
2/27/01	10.47	6.70	3.77	8020	Filtered+SGC	<59	<240	<59	<50	3.6	<0.5	<0.5	<0.5	<5
5/17/01	**10.47**	**6.90**	**3.57**	**---**		---	---	---	---	---	---	---	---	---
MW-3														
10/4/89	---	---	---	8020		---	---	---	<30	<0.3	<0.3	<0.3	<0.3	---
10/4/89	---	---	---	8240		---	---	---	---	<2.0	<2.0	<2.0	<2.0	---
2/23/98	---	---	---	---		<50	<500	<50	---	---	---	---	---	---
11/11/98	---	5.83	---	---		---	---	---	---	---	---	---	---	---
2/23/99	---	---	---	---	Submerged	---	---	---	---	---	---	---	---	---
5/27/99	---	1.68	---	---		---	---	---	---	---	---	---	---	---
8/24/99	---	4.76	---	---		---	---	---	---	---	---	---	---	---
11/22/99	---	6.46	---	---		---	---	---	---	---	---	---	---	---
11/22/99	---	---	---	---	Destroyed	---	---	---	---	---	---	---	---	---

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
MW-4														
10/4/89	7.89	---	---	8020		---	---	---	<30	<0.3	<0.3	<0.3	<0.3	---
10/4/89	7.89	---	---	8240		---	---	---	---	<2.0	<2.0	<2.0	<2.0	---
11/11/98	7.89	6.25	1.64	---		---	---	---	---	---	---	---	---	---
2/23/99	7.89	3.10	4.79	---		---	---	---	---	---	---	---	---	---
5/27/99	7.89	4.03	3.86	---		---	---	---	---	---	---	---	---	---
8/24/99	7.89	5.07	2.82	---		---	---	---	---	---	---	---	---	---
11/22/99	7.89	6.32	1.57	---		---	---	---	---	---	---	---	---	---
11/22/99	---	---	---	---	Destroyed	---	---	---	---	---	---	---	---	---
MW-5														
12/13/91	11.15	---	---	8020		1,900	---	---	13,000	1,500	190	970	2,500	---
12/13/91	---	---	---	8020	Dup	---	---	---	16,000	1,400	180	870	2,500	---
12/13/91	11.15	---	---	8240		---	---	---	---	1,800	<250	1,000	3,800	---
12/13/91	---	---	---	8240	Dup	---	---	---	---	1,600	<250	980	3,500	---
4/27/93	11.15	---	---	8240		12,000	---	---	35,000	2,100	<1.0	1,800	2,700	---
4/19/95	11.15	---	---	8240		880	4,700	---	14,000	490	51	610	1,200	---
7/27/95	11.15	6.29	4.86	8240		590	5,000	---	22,000	1,300	54	1,500	2,400	---
11/20/95	11.15	6.98	4.17	8020		<50	<50	<50	8,900	430	31	610	880	---
2/21/96	11.15	5.97	5.18	8020		480	<50	<50	1,000	540	65	700	970	---
5/13/96	11.15	6.25	4.90	8020		<50	<50	<50	5,900	430	26	580	760	---
5/13/96	---	---	---	8020	Dup	<50	<50	<50	7,300	360	22	49	640	---
8/27/96	11.15	6.40	4.75	8020		2,000	<51	<51	6,600	430	27	600	650	---
8/27/96	---	---	---	8020	Dup	6,600	<51	<51	6,300	410	25	580	620	---
2/23/98	11.15	4.22	6.93	8020		<50	<500	<50	740	19	1.4	41	34	---
8/19/98	11.15	6.14	5.01	8020		1,400	<250	1700	5,800	500	25	730	300	5,900
8/19/98	11.15	6.14	5.01	8260	SGC	---	---	---	---	---	---	---	---	6,700
11/11/98	11.15	6.51	4.64	---		---	---	---	---	---	---	---	---	---
2/23/99	11.15	3.59	7.56	8020	SGC	2,000	700	<50	6,700	300	26	800	690	1,600
5/27/99	11.15	5.71	5.44	---		---	---	---	---	---	---	---	---	---
8/24/99	11.15	6.02	5.13	8020	SGC	220	2,000	<50	2,100 E	190 E	5.5	340 E	78	380 E
11/22/99	11.15	6.16	4.99	---		---	---	---	---	---	---	---	---	---

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
1/18/00	11.15	6.60	4.55	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	100	320	<50	3,000	66 E	6.3	400 E	90	(1,300)
5/11/00	11.15	5.62	5.53	---		---	---	---	---	---	---	---	---	---
8/24/00	11.15	6.32	4.83	8020	SGC	4,800	560	6,600	12,000	220	21	430	91	(1,400)
11/28/00	11.15	6.47	4.68	---		---	---	---	---	---	---	---	---	---
2/27/01	11.15	4.40	6.75	8020	Filtered+SGC	230	<250	<61	6,300	150	7	350	55	830
5/17/01	**11.15**	**5.77**	**5.38**	**8020**	**Filtered+SGC**	**190**	**<200**	**<50**	**7,500**	**140**	**7**	**580**	**101**	**170**
MW-6														
12/13/91	10.98	---	---	8020		520	---	---	780	110	2.7	<2.5	5.5	---
12/13/91	10.98	---	---	8240		---	---	---	---	95	5	<5	<5	---
4/27/93	10.98	---	---	8020		<1,000	---	---	<1,000	430	4	5	10	---
4/19/95	10.98	---	---	8020		6,700	---	---	5,700	40	<0.8	3.9	29	---
4/19/95	---	---	---	8020	Dup	3,700	---	---	3,000	310	3.1	2.7	100	---
7/27/95	10.98	7.09	3.89	8020		3,900	---	---	6,100	430	15	200	600	---
7/27/95	---	---	---	8020	Dup	2,600	---	---	6,300	420	15	200	600	---
11/20/95	10.98	7.89	3.09	8020		850	---	---	6,800	160	4.6	8	240	---
11/20/95	---	---	---	8020	Dup	---	---	---	3,600	130	11	4.4	200	---
2/21/96	10.98	7.40	3.58	8020	Filtered+SGC	1,700	---	---	2,800	230	2.8	3.8	44	---
2/21/96	---	---	---	8020	Dup	2,500	---	---	2,200	280	3	4	4.6	---
5/13/96	10.98	7.10	3.88	8020		400	<50	<50	3,100	430	12	5.2	67	---
8/27/96	10.98	7.42	3.56	8020		3,100	---	---	4,200	300	9.3	110	110	---
8/19/98	10.98	---	---	---	SPH: 0.125 ft	---	---	---	---	---	---	---	---	---
11/11/98	10.98	7.09	3.93	---	SPH: 0.05 ft	---	---	---	---	---	---	---	---	---
2/23/99	10.98	7.31	3.67	---	SPH: NM	---	---	---	---	---	---	---	---	---
5/27/99	10.98	6.91	4.25	---	SPH: 0.20 ft	---	---	---	---	---	---	---	---	---
8/24/99	10.98	7.46	3.72	---	SPH: 0.03 ft	---	---	---	---	---	---	---	---	---
11/22/99	10.98	7.96	3.15	---	SPH: 0.16 ft	---	---	---	---	---	---	---	---	---
1/18/00	10.98	8.08	3.05	---	SPH: 0.19 ft	---	---	---	---	---	---	---	---	---
5/11/00	10.98	7.52	4.47	---	SPH: 0.01 ft	---	---	---	---	---	---	---	---	---
8/24/00	10.98	7.50	3.53	---	SPH: 0.06 ft	---	---	---	---	---	---	---	---	---
11/28/00	10.98	6.39	4.62	---	SPH: 0.04 ft	---	---	---	---	---	---	---	---	---
2/26/01	10.98	7.80	3.50	8020	SPH: 0.40 ft, F	820	<240	<60	6,100	181	<5	14.2	<5	<50
2/26/01	---	---	---	8260B		---	---	---	---	270	3	9	3	(19)
5/17/01	**10.98**	**7.57**	**3.66**	**---**	**SPH: 0.32 ft**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
MW-7														
12/13/91	11.51	---	---	8020		<50	---	---	<50	<0.5	<0.5	<0.5	<0.5	---
12/13/91	11.51	---	---	8240		---	---	---	---	<5	<5	<5	<5	---
4/27/93	11.51	---	---	8240		<1,000	---	---	<1,000	<1.0	<1.0	<1.0	<1.0	---
4/19/95	11.51	---	---	8240		<50	<1,000	---	<50	<2.0	<2.0	<2.0	<2.0	---
7/27/95	11.51	6.87	4.64	8240		<50	<1,000	---	<50	<2.0	<2.0	<2.0	<2.0	---
11/20/95	11.51	8.48	3.03	8020		<50	---	---	<50	<0.5	<0.5	<0.5	1.5	---
2/21/96	11.51	6.29	5.22	8020		<50	---	---	<50	<0.5	<0.5	<0.5	<0.5	---
5/13/96	11.51	6.95	4.56	8020		<50	---	---	---	<0.5	<0.5	<0.5	<0.5	---
8/27/96	11.51	6.80	4.71	8020		---	---	---	---	<0.5	<0.5	<0.5	<0.5	---
8/19/98	11.51	6.88	4.63	---		---	---	---	---	---	---	---	---	---
11/11/98	11.51	7.40	4.11	---		---	---	---	---	---	---	---	---	---
2/23/99	11.51	5.57	5.94	8020		<50	<200	<50	80	<0.5	<0.5	<0.5	1	<5.0
5/27/99	11.51	6.56	4.95	---		---	---	---	---	---	---	---	---	---
8/24/99	11.51	6.29	5.22	8020	SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	5
11/22/99	11.51	6.80	4.71	---		---	---	---	---	---	---	---	---	---
1/18/00	11.51	7.31	4.20	---		---	---	---	---	---	---	---	---	---
1/19/00	11.51	---	---	8020	SGC	<50	<200	<50	54	1.5	1.5	2.4	3.8	<5.0
5/11/00	11.51	6.41	5.10	---		---	---	---	---	---	---	---	---	---
8/24/00	11.51	7.11	4.40	8020		<50	<250	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	11.51	7.30	4.21	---		---	---	---	---	---	---	---	---	---
2/27/01	11.51	5.75	5.76	8020	Filtered+SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
5/17/01	**11.51**	**6.65**	**4.86**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
MW-8														
11/20/96	12.22	---	---	8020		880	---	---	<50	0.66	<0.5	<0.5	<0.5	---
11/20/97	12.22	9.59	2.63	8020		200	---	---	<50	<0.5	<0.5	<0.5	<0.5	2
2/24/98	12.22	8.42	3.80	8020		<50	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	---
6/8/98	12.22	9.57	2.65	8020		1,200	1,000	<50	<50	<0.5	<0.5	<0.5	<0.5	---
8/19/98	12.22	9.49	2.73	8020	SGC	<50	<250	<50	<50	1.6	3.4	1	2.8	<5.0
11/11/98	12.22	9.64	2.58	8020	SGC	<50	<200	<50	<50	0.9	0.8	0.6	2.3	<5.0
2/23/99	12.22	11.53	0.69	8020		700	1,500	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/27/99	12.22	9.65	2.57	8020		<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
8/24/99	12.22	9.62	2.60	8020	SGC	70	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
11/22/99	12.22	9.64	2.58	8020	SGC	57	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
1/18/00	12.22	8.31	3.91	8020	SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/11/00	12.22	9.69	2.53	8020	SGC	<50	<200	<50	<50	<0.5	1.3	<0.5	2.1	<5.0
8/24/00	12.22	9.40	2.82	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	85	<250	<50	<50					
11/28/00	12.22	9.40	2.83	8020	SGC	<50	910	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
2/27/01	12.22	9.50	2.72	8020	Filtered+SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/17/01	**12.22**	**9.71**	**2.51**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
MW-9														
11/20/96	10.77	---	---	8020		1,900	---	---	240	21	0.81	1.8	2.2	---
11/20/97	10.77	7.91	2.86	8020		---	---	---	300	20	<0.5	<0.5	1.8	<1.0
2/24/98	10.77	6.11	4.66	8020		<50	<500	<50	2,200	540	5.6	1.6	4.9	---
6/8/98	10.77	7.14	3.63	8020		1,800	890	<50	840	450	6.1	3.3	5.3	---
8/19/98	10.77	7.88	2.89	8020	SGC	190	<250	160	740	370	8.6	0.99	7.3	<5.0
11/11/98	10.77	8.23	2.54	8020	SGC	<50	230	<50	700	130	4.3	<0.5	3.9	<5.0
2/23/99	10.77	6.65	4.12	8020		1,100	3,700	<50	1,100	620	9.7	1.5	7.7	<5.0
5/27/99	10.77	7.70	3.07	8020	SGC	70	300	<50	950	470	11	1.5	9.2	<5.0
8/24/99	10.77	8.12	2.65	8020	SGC	890	1,700	<50	290	45	2.8	<0.5	3	<5.0
11/22/99	10.77	8.33	2.44	8020	SGC	1,000	6,000	<50	170	12	1.8	<0.5	2	<5.0
1/18/00	10.77	8.63	2.14	8020	SGC	200 A	2,300	<50	160	5.7	1.9	0.6	4.2	<5.0
5/11/00	10.77	7.70	3.07	8020	SGC	180 A	980	<100	1,050	280	7.0	<2.5	5.9	<25
8/24/00	10.77	8.31	2.46	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	580	2,200	170	180	23	2.4	<0.5	2.7	<5.0
11/28/00	10.77	8.45	2.32	8020	SGC	200	1,600	<50	130	1.9	<0.5	<0.5	<0.5	<5.0
11/28/00	10.77	8.45	2.32	---	Filtered+SGC	<50	<200	<50	---	---	---	---	---	---
2/26/01	10.77	6.40	4.37	8020	Filtered+SGC	120	<200	<50	142	33	1.8	<0.5	<0.5	<5.0
5/17/01	**10.77**	**9.88**	**0.89**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**74**	**4.6**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
MW-10														
11/20/96	10.59	---	---	8020		940	---	---	<50	49	0.59	0.54	1.2	---
11/20/97	10.59	7.70	2.89	8020		---	---	---	<50	<0.5	<0.5	<0.5	<0.5	---
2/24/98	10.59	4.39	6.20	8020		<50	<500	<50	<50	<0.5	<0.5	<0.5	<0.5	---
6/8/98	10.59	6.94	3.65	8020		500	<500	<50	<50	7.3	<0.5	<0.5	<0.5	---

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
8/19/98	10.59	6.99	3.60	8020	SGC	240	520	110	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/11/98	10.59	7.57	3.02	8020	SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
2/23/99	10.59	5.51	5.08	8020		170	1,200	<50	<50	1.3	<0.5	<0.5	<0.5	<5.0
5/27/99	10.59	6.72	3.87	8020	SGC	<50	<200	<50	350	170	1.5	0.5	2.3	<5.0
8/24/99	10.59	7.27	3.32	8020	SGC	140	300	<50	380	160 E	<0.5	<0.5	2.6	<5.0
11/22/99	10.59	7.71	2.88	8020	SGC	570	3,400	<50	110	5.1	<0.5	<0.5	0.72	<5.0
1/18/00	10.59	7.77	2.82	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	120 A,B	1,200	<50	100	<0.5	<0.5	0.8	<0.5	<5.0
5/11/00	10.59	7.00	3.59	8020	SGC	110 A	990	<50	145	1.62	0.5	0.5	0.9	<5.0
8/24/00	10.59	7.31	3.28	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	430	1,300	110	<50	1.0	<0.5	<0.5	<0.5	<5.0
11/28/00	10.59	7.90	2.69	8020	SGC	220	1,500	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
2/27/01	10.59	5.80	4.79	8020	Filtered+SGC	85	<230	<57	<50	1.3	<0.5	<0.5	<0.5	<5.0
5/17/01	**10.59**	**6.27**	**4.32**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**<50**	**0.7**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
MW-11														
1/18/00	11.60	7.08	4.52	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	<50	500	<50	220	<0.5	<0.5	<0.5	<0.5	<5.0
5/11/00	11.60	5.95	5.65	8020	SGC	<50	430	<50	600	23	2.1	18	15	<5.0
8/24/00	11.60	6.58	5.02	8020		<50	<250	<50	110	5.9	<0.5	0.73	0.64	<5.0
11/28/00	11.60	6.91	4.69	8020	SGC	<50	<200	<50	180	4	<0.5	1.9	<0.5	<5.0
2/27/01	11.60	5.65	5.95	8020	Filtered+SGC	86	<240	<60	720	29	5.2	38	36	<5.0
5/17/01	**11.60**	**6.85**	**4.75**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**720**	**36**	**3.4**	**15**	**18**	**9.7**
MW-12														
1/18/00	10.43	8.11	2.32	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	1,800 A	11,000	<50	200	<0.5	3.4	1.5	8.4	<5.0
5/11/00	10.43	6.78	3.65	8020	SGC	2,400 A	4,900	<100	370	<0.5	<0.5	<0.5	0.9	<5.0
8/24/00	10.43	7.56	2.87	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	3,500	5,000	3,700	170	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	10.43	8.13	2.30	8020	SGC	2,100	14,000	<50	290	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	10.43	8.13	2.30	---	Filtered+SGC	50	<200	<50	---	---	---	---	---	---
2/27/01	10.43	6.00	4.43	8020	Filtered+SGC	320	<250	66	110	1.4	<0.5	<0.5	<0.5	<5.0
5/17/01	**10.43**	**7.01**	**3.42**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**220**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**

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Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						µg/l								
MW-13														
1/18/00	11.34	9.63	1.71	8020	SGC	8,800 A	120,000	<50	<50	<0.5	0.8	<0.5	<0.5	<5.0
5/11/00	11.34	10.12	1.22	8020	SGC	11,000 A	110,000	<500	70	1.6	5.4	1.2	7.6	<5.0
8/24/00	11.34	10.22	1.12	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	3,100	13,000	1,200	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	11.34	10.50	0.84	8020	SGC	2,400	36,000	<1300	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	11.34	10.50	0.84	---	Filtered+SGC	280	1,100	<50	---	---	---	---	---	---
2/26/01	11.34	9.60	1.74	8020	Filtered+SGC	100	<260	<64	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/17/01	**11.34**	**10.10**	**1.24**	---		---	---	---	---	---	---	---	---	---
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
MW-14														
1/18/00	10.05	7.37	2.68	8020	SGC	1,700 A	22,000	<50	120	<0.5	<0.5	<0.5	<0.5	<5.0
5/11/00	10.05	6.73	3.32	8020	SGC	360 A	4,300	<100	120	<0.5	<0.5	0.5	<0.5	<5.0
8/24/00	10.05	7.30	2.75	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	1,000	3,100	460	90	6.3	<0.5	<0.5	<0.5	<5.0
11/28/00	10.05	7.40	2.65	8020	SGC	380	6,400	<250	140	7.4	<0.5	<0.5	<0.5	<5.0
11/28/00	10.05	7.40	2.65	---	Filtered+SGC	<50	<200	<50	---	---	---	---	---	---
2/26/01	10.05	6.20	3.85	8020	Filtered+SGC	150	<230	<58	73	2.3	<0.5	<0.5	<0.5	<5.0
5/17/01	**10.05**	**7.74**	**2.31**	---		---	---	---	---	---	---	---	---	---
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**120**	**<200**	**<50**	**100**	**11**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
MW-15														
1/18/00	12.36	10.56	1.80	8020	SGC	12,000 A	89,000	<50	110	3.8	2.1	1	4.6	<5.0
5/11/00	12.36	10.03	2.33	8020	SGC	120 A	590	<50	90	0.9	0.9	<0.5	3.3	<5.0
8/24/00	12.36	10.22	2.14	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	1,900	8,600	1,000	<50	1.9	<0.5	<0.5	1.5	<5.0
11/28/00	12.36	10.30	2.06	8020	SGC	2,500	36,000	<1300	80	1.7	<0.5	<0.5	1.6	<5.0
11/28/00	12.36	10.30	2.06	---	Filtered+SGC	73	<200	<50	---	---	---	---	---	---
2/26/01	12.36	9.30	3.06	8020	Filtered+SGC	190	<240	<60	55	0.6	<0.5	<0.5	0.5	<5.0
5/17/01	**12.36**	**10.09**	**2.27**	---		---	---	---	---	---	---	---	---	---
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**210**	**<230**	**<57**	**66**	**1.5**	**<0.5**	**<0.5**	**2.1**	**<5.0**
MW-16														
1/18/00	13.57	10.22	3.43	---	SPH: 0.1 ft	---	---	---	---	---	---	---	---	---
5/11/00	13.57	13.31	0.27	---	SPH: 0.01 ft	---	---	---	---	---	---	---	---	---
8/24/00	13.57	8.91	4.66	---	SPH: NM	---	---	---	---	---	---	---	---	---
11/28/00	13.57	13.05	0.86	---	SPH: 0.42 ft	---	---	---	---	---	---	---	---	---
2/26/01	13.57	13.10	0.79	---	SPH: 0.40 ft	---	---	---	---	---	---	---	---	---
5/17/01	**13.57**	**12.62G**	**---**	**---**	**SPH: NM**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						µg/l								
MW-17														
1/18/00	9.86	5.35	4.51	8020	SGC	850 A	21,000	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/11/00	9.86	9.85	0.01	8020	SGC	150 A	2,900	<100	<50	<0.5	<0.5	<0.5	<0.5	<5.0
8/24/00	9.86	8.59	1.27	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	190	610	71	<50	0.58	<0.5	<0.5	<0.5	<5.0
11/28/00	9.86	9.25	0.61	8020	SGC	<250	2,400	<250	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	9.86	9.25	0.61	---	Filtered+SGC	<50	<200	<50	---	---	---	---	---	---
2/26/01	9.86	9.40	0.46	8020	Filtered+SGC	<50	<200	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/17/01	**9.86**	**8.32**	**1.54**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
5/18/01	**---**	**---**	**---**	**8020**	**Filtered+SGC**	**<50**	**<200**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**
TBW-1														
2/23/99	---	6.25	---	---	SPH: 0.10 ft	---	---	---	---	---	---	---	---	---
5/27/99	---	5.29	---	---	SPH: 0.01 ft	---	---	---	---	---	---	---	---	---
8/24/99	---	6.99	---	---	SPH: 0.18 ft	---	---	---	---	---	---	---	---	---
11/22/99	---	---	---	---	Inaccessible	---	---	---	---	---	---	---	---	---
1/18/00	---	---	---	---	Inaccessible	---	---	---	---	---	---	---	---	---
5/11/00	---	6.90	---	---	SPH: 0.10 ft	---	---	---	---	---	---	---	---	---
8/24/00	---	7.12	---	---	SPH: NM	---	---	---	---	---	---	---	---	---
11/28/00	---	7.75	---	---	SPH: 0.36 ft	---	---	---	---	---	---	---	---	---
2/27/01	---	9.06	---	---	SPH: 0.51 ft	---	---	---	---	---	---	---	---	---
5/17/01	**---**	**6.98**	**---**	**---**	**SPH:0.28 ft**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
TBW-3														
8/19/98	---	2.67	---	8020	SGC	810,000	---	---	920	3.2	<0.5	<0.5	0.77	<10
8/19/98	---	2.67	---	8260		---	---	---	---	---	---	---	---	<5.0
2/23/99	---	1.25	---	8020		3,800	3,000	<50	110	1.6	<0.5	<0.5	<0.5	<5.0
5/27/99	---	---	---	---	DTW: NM	---	---	---	---	---	---	---	---	---
8/24/99	---	3.25	---	---	SPH globules	---	---	---	---	---	---	---	---	---
11/22/99	---	3.68	---	---		---	---	---	---	---	---	---	---	---
1/18/00	9.92	3.73	6.19	---	SPH globules	---	---	---	---	---	---	---	---	---
5/11/00	9.92	2.07	7.85	---		---	---	---	---	---	---	---	---	---
8/24/00	9.92	2.82	7.10	---	SPH: sheen	44,000	13,000	34,000	570	4.7	<0.5	<0.5	<0.5	<5.0
11/28/00	---	---	---	---		---	---	---	---	---	---	---	---	---
2/27/01	9.92	1.29	8.63	8020	Filtered+SGC	560	<230	<57	120	1.5	<0.5	<0.5	<0.5	<5.0
5/17/01	**9.92**	**2.47**	**7.45**	**---**		**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						← µg/l →								
TBW-4														
2/27/01	---	1.35	---	8020	Filtered+SGC	410	<230	<57	250	1.9	<0.5	<0.5	<0.5	<5.0
5/17/01	---	**2.52**	---	**---**		---	---	---	---	---	---	---	---	---
TBW-5														
2/23/99	---	9.72	---	---	SPH: 1.45 ft	---	---	---	---	---	---	---	---	---
5/27/99	---	7.03	---	---	SPH: 1.13 ft	---	---	---	---	---	---	---	---	---
8/24/99	---	6.52	---	---	SPH: 1.33 ft	---	---	---	---	---	---	---	---	---
11/22/99	---	8.31	---	---	SPH: 1.29 ft	---	---	---	---	---	---	---	---	---
1/18/00	10.22	6.20	4.74	---	SPH: 0.90 ft	---	---	---	---	---	---	---	---	---
5/11/00	10.22	9.41	1.05	---	SPH: 0.30 ft	---	---	---	---	---	---	---	---	---
8/24/00	10.22	9.62	0.81	---	SPH: 0.26 ft	---	---	---	---	---	---	---	---	---
11/28/00	10.22	10.25	0.34	---	SPH: 0.46 ft	---	---	---	---	---	---	---	---	---
2/27/01	10.22	9.06	1.45	---	SPH: 0.36 ft	---	---	---	---	---	---	---	---	---
5/17/01	**10.22**	**8.75**	**1.47**	**---**	**SPH: 0.67 ft**	---	---	---	---	---	---	---	---	---
TBW-6														
2/23/99	---	2.09	---	8020		160	600	<50	60	<0.5	<0.5	<0.5	<0.5	<5.0
5/27/99	---	3.31	---	---		---	---	---	---	---	---	---	---	---
8/24/99	---	7.29	---	8020	SGC	180	400	<50	130	<0.5	<0.5	<0.5	<0.5	<5.0
11/22/99	---	4.37	---	---		---	---	---	---	---	---	---	---	---
1/18/00	9.49	3.83	5.66	---		---	---	---	---	---	---	---	---	---
1/19/00	---	---	---	8020	SGC	55 C	<200	<50	170	0.6	<0.5	<0.5	<0.5	<5.0
5/11/00	9.49	2.51	6.98	---		---	---	---	---	---	---	---	---	---
8/24/00	9.49	4.34	5.15	---		---	---	---	---	---	---	---	---	---
8/25/00	---	---	---	8020	SGC	320	<250	200	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	9.49	4.74	4.75	---		---	---	---	---	---	---	---	---	---
2/27/01	9.49	2.30	7.19	8020	Filtered+SGC	<57	<230	<57	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/17/01	**9.49**	**3.35**	**6.14**	**---**		---	---	---	---	---	---	---	---	---
Trip Blank														
8/19/98	---	---	---	8020		---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/22/99	---	---	---	8020		---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<5.0
11/28/00	---	---	---	8020		---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<5.0
2/27/01	---	---	---	8020	Filtered+SGC	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<5.0
5/17/01	---	---	---	**8020**	**SGC**	---	---	---	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**

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Table 1. Groundwater Elevation Data and Analytical Results - Hydrocarbons - City of Oakland Municipal Services Center, Oakland, CA

Sample ID/ Date	TOC Elev.	DTW	GW Elev.	BTEX Method	Notes	TPHd	TPHmo	TPHk	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
						µg/l								

Notes

All concentrations in micrograms per liter (µg/l)

--- = not measured/analyzed

TOC = Top of casing

DTW = Depth to water

DTP = Depth to product (SPH)

Filtered = 0.45 micron glass membrane filter

GW = Groundwater

Groundwater Elevation corrected for the presence of free product according to the calculation: GW Elevation = TOC - DTW + (0.8 x SPH thickness)

BTEX = Benzene, toluene, ethylbenzene, and xylenes - analyzed by EPA Method 8020 or 8240/8260

TPHd = Total petroleum hydrocarbons quantitated as diesel - analyzed by Modified EPA Method 8015

TPHmo = Total petroleum hydrocarbons quantitated as motor oil - analyzed by Modified EPA Method 8015

TPHk = Total petroleum hydrocarbons quantitated as kerosene - analyzed by Modified EPA Method 8015

TPHg = Total petroleum hydrocarbons quantitated as gasoline - analyzed by Modified EPA Method 8015

MTBE = methyl tert-butyl ether - analyzed by EPA Method 8020 or 8260. Confirmation 8260 results shown in parentheses

DUP = Duplicate sample

SPH = Separate-phase hydrocarbons; measured thickness

SGC = Silica gel cleanup based on Method 3630B prior to TPHd, TPHk, or TPHmo analysis, following CRWQCB February 16, 1999 memorandum

NM = Not measured

TBW = Tank backfill well

A = The analytical laboratory reviewed the data and noted that petroleum hydrocarbons quantified in the diesel range are actually the front end of the motor oil pattern

B = The analytical laboratory reviewed the data and noted that the quantitation in the diesel range show no diesel pattern; the response looks like lower carbon chain compounds close to the gasoline range

C = The analytical laboratory reviewed the data and noted that there is no pattern related to diesel range; the peaks are small and random

E = Results are estimated due to concentrations exceeding the calibration ranged

F = Filtration with 0.45 micron glass membrane filter and silica gel treatment

G = Depth to product, depth to water could not be determined

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Table 2. Groundwater Analytical Results - VOCs by EPA Method 8260 - City of Oakland Municipal Services Center, Oakland, California

Sample ID/ Date	Benzene	n-Butyl-benzene	sec-Butyl-benzene	Chloro-ethane	1,2-DCA	1,2-DCP	Ethyl-benzene	Isopropyl-benzene	p-Isopropyl-toluene	MTBE	Napthalene	n-Propyl-benzene	Toluene	1,2,4-TMB	1,3,5-TMB	Xylenes
	←								µg/l							→
MW-5																
2/27/01	180	9	4	3	7	3	260	23	6	1,100	43	68	7	1	11	53
MW-6																
2/27/01	270	11	3	<1	7	<1	9	6	1	19	62	21	3	1	<1	3

Notes

All concentrations in micrograms per liter (mg/l)

µg/l = micrograms per liter

VOCs = Volatile organic compounds by EPA Method 8260. Sample not subject to SCG or filtration prior to analysis.

1,2-DCA = 1,2-dichloroenthane

1,2-DCP = 1,2-dichloropropane

MTBE = methyl tertiary-butyl ether

1,2,4-TMB = 1,2,4-trimethylbenzene

1,3,5-TMB = 1,3,5-trimethylbenzene

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Table 3. Groundwater Analytical Results - SVOCs by EPA Method 8270
City of Oakland Municipal Services Center, Oakland, California

Sample ID/ Date	Naphthalene	Pyrene	Other SVOCs
	<---------- µg/L ---------->		
MW-6			
2/27/01	19	ND	ND
MW-9			
11/28/00	ND	ND	ND
MW-13			
11/28/00	ND	10	ND
MW-17			
11/28/00	ND	ND	ND

Notes
All concentrations in micrograms per liter (µg/l)
SVOCs = Semi-volatile organic compounds by EPA Method 8270.
Samples not subject to filtration or silica gel cleanup prior to analysis.

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Table 4. Groundwater Analytical Results - LUFT Metals - City of Oakland Municipal Services Center, Oakland, California

Sample ID/ Date	Cadmium	Chromium	Lead	Nickel	Zinc	Notes
	<----------	----------	mg/l ----------	----------	---------->	
MW-2						
8/19/98	---	---	<100	---	---	a
MW-6						
2/28/01	<0.001	0.035	0.23	0.046	0.19	non-filtered

Abbreviations and Notes:

LUFT metals by EPA Method 6010. Samples filtered in lab prior to analysis, unless noted otherwise.

mg/l = milligrams per liter

--- = not measured/analyzed

a = Analyzed for organic lead

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Attachment A

Field Data Sheets

City of Oakland Municipal Service Center
Solar Rem Active Skimmer and Passive Skimmer Log Sheet GB
Date 4-4-01

Active Skimmer Paramters	Well ID TBW-5		Well ID Passive Skimmer or Pig Installed ?	Passive Skimmer Product Thickness	Passive Skimmer Volume Product Remove
High Level Alarms	3	Furnish & install new dens			
Well Discharge Cycles	8023	skimmer in TBW-5			
Loss of Power	880	Battery Bad			
Off Pushed	4	Bladder pump malfunctions			
Compressor Startups	4811				
PLC On Time	125				
Compressor Run Hours	263				
Depth to Product	8.28'				
Product Thickness	.32	Tank	DTP-3.71'		

City of Oakland Municipal Service Center
Solar Rem Active Skimmer and Passive Skimmer Log Sheet
Date 5-8-01 - Furnish & Instal < Repaired Pump & Recharged Battery

Active Skimmer Paramters	Well ID TBW5		Well ID Passive Skimmer or Pig Installed ?	Passive Skimmer Product Thickness	Passive Skimmer Volume Product Remove
High Level Alarms	6				
Well Discharge Cycles	8023				
Loss of Power	888				
Off Pushed	7				
Compressor Startups	4815				
PLC On Time	125				
Compressor Run Hours	263				
Depth to Product	8.40				
Product Thickness	.32	Tank	DTP-3.71'	DTB-3.91'	

TBW-5-DTP was measured prior to pump installation.
Skimmer parameters taken after installation.
Battery doesn't seem to be holding a charge.

CAMBRI

DAILY FIELD REPORT

Project Name: City of Oakland	Cambria Mgr: TH	Field Person: SG
Project Number: 153-1247	Date: 5-17-01	Site Address: 7101 Edgewater Dr. Oakland, C
General Tasks: 2nd Qt QM		

Time	Activity/Comments	Code	Hours
5:00	cleaned truck & Prepped		
6:00	left office		
6:30	onsite		
7:00	met up with Tom Berry		
	safety meeting		
	gauged		
	sampled 4 wells		
1:00	left site		
1:30	day over		
	5-18-01		
3:00 pm	left office		
3:30.	onsite		
	sampled outside wells		
9:00	left site		
11:00	came back to site for O&M		
12:30	left site		
	day over		

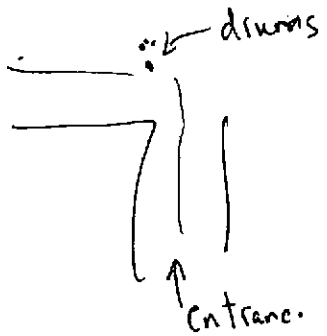
DRUM INVENTORY RECORD

Project No./Task 153-1653-012
Date 5-18-01
Client City of Oakland
Day of the Week Friday

Location City of Oakland MSC
Project Mgr Tom Howard
Technician SG

Drum No. or ID	Well or Source ID(s)	Sample ID	Type of Material	Amount of Material in Drum	Date Generated	Comments
1			purge water	full		
2			↓	↓		
3			↓	↓		
4			↓	↓		
5			↓	↓	5-18-01	

Sketch Locations of Drums:



No. Of Drums Generated:
Soil:
Water:
Total No. Of Drums at Site: 5

Date Removed:
Landfill:

Drums Removed:

Personnel initials:

CAMB. .A

WELL DEPTH MEASUREMENTS

Well ID	Time	Top of Screen	DTB	DTP	DTW	DOP	Casing Dia	Comments
MW-1	8:50				4.00			
MW-2	8:45				6.90			
MW-5	8:51				5.77			
MW-6	9:05			7.25	7.57			bailed 100 ml SPH
MW-7	8:55				6.65			
MW-8	8:46				9.71			
MW-9	9:18				9.88			
MW-10	9:26				6.27			
MW-11	8:53				6.85			
MW-12	9:23				7:01			
MW-13	9:13				10:10			
MW-14	9:10				7.74			
MW-15	9:06				10.09			
MW-16	9:57		14.94	12.62	—			SPH very sticky unable to remove by bailing no depth to water
MW-17	8:51				8.32			

Project Name: City of Oakland

Project Number: 153-1653-012

Measured By: S. Lill

Date: 5-17-01

H:\ARCO\6113\Forms\ARCO_GW-DEPTH.WPD

CAMB. A

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
TBW-1	9:10	6.70	6.98			Sock was (redeployed to proper depth) no clean change of sock removed ½ Liter SPH
TBW-3	9:02		2.47			
TBW-4	9:00		2.52			
TBW-5	9:15	8.08	8.75			
TBW-6	8:47		3.35			

Project Name: City of Oakland

Project Number: 153-1653-012

Measured By: S. Mtl

Date: 5-17-01

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-5
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2 " pvc
		Technician(s): SG
Initial Depth to Water: 5.77	Total Well Depth: 14.30	Water Column Height: 8.53
Volume/ft: 0.16	1 Casing Volume: 1.36	3 Casing Volumes: 4.09
Purging Device: ~~sub-pump~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 4
Start Purge Time: 11:20	Stop Purge Time: 11:34	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
11:25	2	20.3	7.43	1304	
11:30	3	20.4	7.31	1407	odor
11:35	4	19.9	7.25	1365	
					stripped bolts
					2 (9/16) needed

Post-purge DO= 0.19 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-5	5-17-01	11:40	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-8
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2 " **pvc**
		Technician(s): SG
Initial Depth to Water: 9.71	Total Well Depth: 15.10	Water Column Height: 5.39
Volume/ft: 0.16	1 Casing Volume: MWA 0.86	3 Casing Volumes: 2.58
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: NO	Total Gallons Purged: 2.50
Start Purge Time: 6:25	Stop Purge Time: 6:54	Total Time: 29mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
6:35	1	15.9	7.24	3999	
6:45	1.5	16.1	7.61	3999	
6:55	2.5	16.3	7.59	3999	

Post-purge DO= 1.00 **ug/L**

Post-purge ORP= _____ **mV**

Ferrous Iron= _____ **ug/L**

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-8	5-18-01	7:00	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-9
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2" **pvc**
		Technician(s): SG
Initial Depth to Water: 10.09	Total Well Depth: 13.98	Water Column Height: 3.89
Volume/ft: 0.16	1 Casing Volume: 0.62	3 Casing Volumes: 1.86
Purging Device: ~~submp~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 2
Start Purge Time: 4:35	Stop Purge Time: 5:09	Total Time: 34mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
4:45	.5	15.1	7.29	3999	
5:00	1.5	15.4	7.71	3999	
5:10	2	15.7	7.62	3999	

Post-purge DO= 0.87 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-9	5-18-01	5:15	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-10
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 6.27	Total Well Depth: 15.00	Water Column Height: 8.73
Volume/ft: 0.16	1 Casing Volume: 1.39	3 Casing Volumes: 4.19
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 4
Start Purge Time: 3:20	Stop Purge Time: 3:34	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
3:25	2	16.4	7.20	1721	
3:30	4	15.1	7.39	1784	
3:35	6	15.2	7.42	1812	

Post-purge DO= 0.81 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-10	5-18-01	3:40	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: ~~MW-1~~ MW-11
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 6.85	Total Well Depth: 19.47	Water Column Height: 12.62
Volume/ft: 0.16	1 Casing Volume: 2.04	3 Casing Volumes: 6.03
Purging Device: ~~sub-pump~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 6
Start Purge Time: 11:50	Stop Purge Time: 12:04	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
11:55	2	14.7	7.85	2753	
12:00	4	14.8	7.51	2092	
12:05	6	14.8	7.54	1953	

Post-purge DO= 0.59 ug/L

Post-purge ORP= _____ mV

Ferrous Iron= _____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-11	5-17-01	12:05	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-12
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2 " pvc
		Technician(s): SG
Initial Depth to Water: 6.94	Total Well Depth: 14.70	Water Column Height: 7.76
Volume/ft: 0.16	1 Casing Volume: 1.24 gal	3 Casing Volumes: 3.72
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 4
Start Purge Time: 10:00	Stop Purge Time: 10:11	Total Time: 11 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
10:04	2	18.4	6.52	2057	needs a new bolts for lid for 12"
10:08	3	17.9	6.58	2120	Sheen (2) 15/16
10:12	4	17.8	6.64	2077	
					DO= 0.58 mg/L

Post-purge DO= 0.58 ug/L

Post-purge ORP=_____ mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-12	5-17-01	10:17	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-13
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2 " pvc
		Technician(s): SG
Initial Depth to Water: 10.10	Total Well Depth: 20.10	Water Column Height: 10.00
Volume/ft: 0.16	1 Casing Volume: 1.60	3 Casing Volumes: 4.80
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: yes	Total Gallons Purged: 2
Start Purge Time: 13:00	Stop Purge Time: 13:04	Total Time: 4 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
13:05	2	21.5	7.32	2259	
~~13:09~~	4				
~~13:15~~	5	well dewatered			

Post-purge DO= 0.55 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-13	5-18-01	~~13:10~~ 13:20	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-14
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2 " **pvc**
		Technician(s): SG
Initial Depth to Water: 7.74	Total Well Depth: 14.73	Water Column Height: 6.99
Volume/ft: 0.16	1 Casing Volume: 1.11	3 Casing Volumes: 3.33
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: NO	Total Gallons Purged: 3.50
Start Purge Time: 3:55	Stop Purge Time:	Total Time:

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
4:00	1.5	15.7	7.22	1819	
4:10	2	15.4	7.31	1651	
4:20	3.5	15.4	7.35	1622	

Post-purge DO= 0.90 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-14	5-18-01	4:25	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: MW-1S
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 10.09	Total Well Depth: 20.10	Water Column Height: 10.01
Volume/ft: 0.16	1 Casing Volume: ~~3~~ 1.60	3 Casing Volumes: 4.80
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: NO	Total Gallons Purged: 5
Start Purge Time: 5:25	Stop Purge Time: 5:39	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
5:30	1.5	15.7	7.79	3999	
5:35	3	15.5	7.62	3999	
5:40	5	15.6	7.65	3999	

Post-purge DO= 0.51 ug/L

Post-purge ORP= _____ mV

Ferrous Iron= _____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1S	5-18-01	5:45	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

CAMBRIA

WELL SAMPLING FORM

Project Name: **City of Oakland**	Cambria Mgr: **BCR**	Well ID: ~~MW-18~~ MW-17
Project Number: **153-1247**	Date: 5-17-01	Well Yield:
Site Address: **7101 Edgewater Drive Oakland, California**	Sampling Method: **Disposable bailer**	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 8.37	Total Well Depth: 17.98	Water Column Height: 9.66
Volume/ft: 0.16	1 Casing Volume: 1.54	3 Casing Volumes: 4.63
Purging Device: ~~sub pump~~ disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 5
Start Purge Time: 5:55	Stop Purge Time: 6:04	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp.	pH	Cond.	Comments
6:00	1.5	15.4	7.80	3999	
6:05	3	15.7	7.64	3999	
6:10	5	15.9	7.60	3999	

Post-purge DO= .94 ug/L

Post-purge ORP=_____mV

Ferrous Iron=_____ ug/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-17	5-18-01	6:15	**4 voa's**	**HCL**	**TPHg, BTEX, MTBE**	**8020 8015, confirm MTBE by 8260**
			2 half-liter plastic	**none**	**nitrate, sulfate, alkalinity**	
			2 ambers	**none**	**TPHd/TPHk/TPHmo**	**NOTE: silica gel clean up**

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Appendix B

Laboratory Analytical Reports/Correspondence

Caltest
ANALYTICAL LABORATORY
ENVIRONMENTAL ANALYSES

CASE NARRATIVE

Client: Cambria
Project: City of Oakland
Order #: B050585
Date: July 11, 2001

Samples were received cold, sealed and intact at Caltest. Samples were requested for TPH analyses.

1. Gasoline analyses was performed by EPA 5030/8015B, purge and trap. BTEX and MTBE analyses were performed by EPA 5030/8021 and the MTBE hits were confirmed by EPA 8260, GCMS.

Surrogate recoveries were acceptable for all samples; surrogates are compounds added to a sample prior to extraction to verify complete and valid extraction. LCS and matrix spikes recoveries were within laboratory control limits; spiked compounds are added either to a lab blank (LCS) or an actual sample (matrix spike). The recoveries are calculated to provide accuracy and precession data

2. Samples for diesel, kerosene, and motor oil analyses were filtered through a 0.45 micron filter prior to extraction per the COC. The extract was passed through a silica gel column per EPA 3630; analyses of extract followed this cleanup.

Surrogate recoveries were acceptable for all samples. LCS and matrix spikes recoveries were within laboratory control limits; diesel was used as the spiking compound.

If you have any questions please call me or another project manager at Caltest (707) 258-4000.

Sincerely,
Caltest Analytical Laboratory

William Svoboda
Project Manager

1885 North Kelly Road • Napa, California 94558
(707) 258-4000 • Fax: (707) 226-1001 • e-mail: caltest@caltestlab.com

Caltest
ANALYTICAL LABORATORY
ENVIRONMENTAL ANALYSES

LAB ORDER No.: B050585

REPORT of ANALYTICAL RESULTS

Report Date: 13 JUN 2001
Received Date: 22 MAY 2001

Client: Tom Howard
Cambria
1144 65th Street, Suite C
Oakland, CA 94608

Project: 153-1653-012\CITY OF OAKLAND MSC

Sampled by: SANJIR GILL

Lab Number	Sample Identification	Matrix	Sampled Date/Time
B050585-1	MW-5	AQUEOUS	17 MAY 01 11:40
B050585-2	MW-8	AQUEOUS	18 MAY 01 07:00
B050585-3	MW-9	AQUEOUS	18 MAY 01 17:15
B050585-4	MW-10	AQUEOUS	18 MAY 01 15:40
B050585-5	MW-11	AQUEOUS	17 MAY 01 12:05
B050585-6	MW-12	AQUEOUS	17 MAY 01 10:17
B050585-7	MW-13	AQUEOUS	18 MAY 01 15:10
B050585-8	MW-14	AQUEOUS	18 MAY 01 16:25
B050585-9	MW-15	AQUEOUS	18 MAY 01 17:45
B050585-10	MW-17	AQUEOUS	18 MAY 01 18:15
B050585-11	TB	AQUEOUS	17 MAY 01

William Svoboda
Project Manager

CAHorn
Christine Horn
Laboratory Director

1885 North Kelly Road • Napa, California 94558
(707) 258-4000 • Fax: (707) 226-1001 • e-mail: caltest@caltestlab.com

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-1							
SAMPLE ID: MW-5							
SAMPLED: 17 MAY 01 11:40							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1,2
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	190.	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	47.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-1 (continued)							
SAMPLE ID: MW-5							
SAMPLED: 17 MAY 01 11:40							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS					05.25.01	V010059G9A	3,4,5
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L	1			
TPH-Purgeable, quantitated as gasoline	7500.	500.	ug/L	10			
Benzene	140.	5.	ug/L	10			
Toluene	7.0	0.5	ug/L	1			
Ethylbenzene	580.	5.	ug/L	10			
Xylenes (Total)	101.	0.5	ug/L	1			
Methyl tert-Butyl Ether (MTBE)	170.	5.	ug/L	1			
Surrogate 4-Bromofluorobenzene [FID]	125.		%	1			
Surrogate 4-Bromofluorobenzene [PID]	90.		%	1			

1) Sample Preparation on 05-24-01 using EPA 3510
2) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
3) Sample Preparation on 05-24-01 using EPA 5030
4) Sample diluted to bring concentration of target analyte(s) within the working range of the instrument, resulting in increased reporting limits.
5) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-2							
SAMPLE ID: MW-8							
SAMPLED: 18 MAY 01 07:00							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	78.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-2 (continued)							
SAMPLE ID: MW-8							
SAMPLED: 18 MAY 01 07:00							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
Benzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	101.		%				
Surrogate 4-Bromofluorobenzene [PID]	105.		%				
LAB NUMBER: B050585-3							
SAMPLE ID: MW-9							
SAMPLED: 18 MAY 01 17:15							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				

1) Sample Preparation on 05-24-01 using EPA 3510
2) Sample Preparation on 05-24-01 using EPA 5030

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-3 (continued)							
SAMPLE ID: MW-9							
SAMPLED: 18 MAY 01 17:15							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED (continued)				1	06.08.01	T010138TPH	
Surrogate o-Terphenyl	76.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-3 (continued)							
SAMPLE ID: MW-9							
SAMPLED: 18 MAY 01 17:15							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	1,2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
TPH-Purgeable, quantitated as gasoline	74.	50.	ug/L				
Benzene	4.6	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	97.		%				
Surrogate 4-Bromofluorobenzene [PID]	99.		%				
LAB NUMBER: B050585-4							
SAMPLE ID: MW-10							
SAMPLED: 18 MAY 01 15:40							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	3
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	82.		%				

1) Sample Preparation on 05-24-01 using EPA 5030
2) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.
3) Sample Preparation on 05-24-01 using EPA 3510

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-4 (continued)							
SAMPLE ID: MW-10							
SAMPLED: 18 MAY 01 15:40							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED (continued)				1	06.08.01	T010138TPH	
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-4 (continued)							
SAMPLE ID: MW-10							
SAMPLED: 18 MAY 01 15:40							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	1
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
Benzene	0.7	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	102.		%				
Surrogate 4-Bromofluorobenzene [PID]	106.		%				
LAB NUMBER: B050585-5							
SAMPLE ID: MW-11							
SAMPLED: 17 MAY 01 12:05							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	2
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	70.		%				
Kerosene	ND	50.	ug/L				

1) Sample Preparation on 05-24-01 using EPA 5030
2) Sample Preparation on 05-24-01 using EPA 3510

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-5 (continued)							
SAMPLE ID: MW-11							
SAMPLED: 17 MAY 01 12:05							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.25.01	V010059G9A	1,2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
TPH-Purgeable, quantitated as gasoline	720.	50.	ug/L				
Benzene	36.	0.5	ug/L				
Toluene	3.4	0.5	ug/L				
Ethylbenzene	15.	0.5	ug/L				
Xylenes (Total)	18.	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	9.7	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	98.		%				
Surrogate 4-Bromofluorobenzene [PID]	102.		%				
LAB NUMBER: B050585-6							
SAMPLE ID: MW-12							
SAMPLED: 17 MAY 01 10:17							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	3
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	38.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-6 (continued)							
SAMPLE ID: MW-12							
SAMPLED: 17 MAY 01 10:17							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.25.01	V010059G9A	1,2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				

1) Sample Preparation on 05-24-01 using EPA 5030
2) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.
3) Sample Preparation on 05-24-01 using EPA 3510

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-6 (continued)							
SAMPLE ID: MW-12							
SAMPLED: 17 MAY 01 10:17							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)				1	05.25.01	V010059G9A	
TPH-Purgeable, quantitated as gasoline	220.	50.	ug/L				
Benzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	88.		%				
Surrogate 4-Bromofluorobenzene [PID]	90.		%				
LAB NUMBER: B050585-7							
SAMPLE ID: MW-13							
SAMPLED: 18 MAY 01 15:10							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	78.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-7 (continued)							
SAMPLE ID: MW-13							
SAMPLED: 18 MAY 01 15:10							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
Benzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				

1) Sample Preparation on 05-24-01 using EPA 3510
2) Sample Preparation on 05-24-01 using EPA 5030

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-7 (continued)							
SAMPLE ID: MW-13							
SAMPLED: 18 MAY 01 15:10							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)				1	05.24.01	V010059G9A	
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	98.		%				
Surrogate 4-Bromofluorobenzene [PID]	102.		%				
LAB NUMBER: B050585-8							
SAMPLE ID: MW-14							
SAMPLED: 18 MAY 01 16:25							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1,2
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	120.	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	79.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-8 (continued)							
SAMPLE ID: MW-14							
SAMPLED: 18 MAY 01 16:25							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	3,4
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
TPH-Purgeable, quantitated as gasoline	100.	50.	ug/L				

1) Sample Preparation on 05-24-01 using EPA 3510
2) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
3) Sample Preparation on 05-24-01 using EPA 5030
4) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-8 (continued)							
SAMPLE ID: MW-14							
SAMPLED: 18 MAY 01 16:25							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)				1	05.24.01	V010059G9A	
Benzene	11.	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	95.		%				
Surrogate 4-Bromofluorobenzene [PID]	99.		%				
LAB NUMBER: B050585-9							
SAMPLE ID: MW-15							
SAMPLED: 18 MAY 01 17:45							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1,2
Diesel Fuel	ND	57.	ug/L				
TPH-Extractable, quantitated as diesel	210.	57.	ug/L				
Motor Oil	ND	230.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	230.	ug/L				
Surrogate o-Terphenyl	73.		%				
Kerosene	ND	57.	ug/L				
LAB NUMBER: B050585-9 (continued)							
SAMPLE ID: MW-15							
SAMPLED: 18 MAY 01 17:45							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	3,4
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				

1) Sample Preparation on 05-24-01 using EPA 3510
2) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on Diesel #2 standards.
3) Sample Preparation on 05-24-01 using EPA 5030
4) An unidentified petroleum hydrocarbon was present in the sample. An approximate concentration has been calculated based on gasoline standards.

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-9 (continued)							
SAMPLE ID: MW-15							
SAMPLED: 18 MAY 01 17:45							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)				1	05.24.01	V010059G9A	
TPH-Purgeable, quantitated as gasoline	66.	50.	ug/L				
Benzene	1.5	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	2.1	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	101.		%				
Surrogate 4-Bromofluorobenzene [PID]	103.		%				
LAB NUMBER: B050585-10							
SAMPLE ID: MW-17							
SAMPLED: 18 MAY 01 18:15							
METHOD: EPA 8015M							
TPH SEMI-VOL- DISSOLVED				1	06.08.01	T010138TPH	1
Diesel Fuel	ND	50.	ug/L				
TPH-Extractable, quantitated as diesel	ND	50.	ug/L				
Motor Oil	ND	200.	ug/L				
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L				
Surrogate o-Terphenyl	61.		%				
Kerosene	ND	50.	ug/L				
LAB NUMBER: B050585-10 (continued)							
SAMPLE ID: MW-17							
SAMPLED: 18 MAY 01 18:15							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.24.01	V010059G9A	2
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
Benzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				

1) Sample Preparation on 05-24-01 using EPA 3510
2) Sample Preparation on 05-24-01 using EPA 5030

ORGANIC ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	D.F.	ANALYZED	QC BATCH	NOTES
LAB NUMBER: B050585-10 (continued)							
SAMPLE ID: MW-17							
SAMPLED: 18 MAY 01 18:15							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS (continued)				1	05.24.01	V010059G9A	
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	96.		%				
Surrogate 4-Bromofluorobenzene [PID]	102.		%				
LAB NUMBER: B050585-11							
SAMPLE ID: TB							
SAMPLED: 17 MAY 01							
METHOD: EPA 8015/8020A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				1	05.25.01	V010059G9A	1
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L				
Benzene	ND	0.5	ug/L				
Toluene	ND	0.5	ug/L				
Ethylbenzene	ND	0.5	ug/L				
Xylenes (Total)	ND	0.5	ug/L				
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L				
Surrogate 4-Bromofluorobenzene [FID]	92.		%				
Surrogate 4-Bromofluorobenzene [PID]	95.		%				

1) Sample Preparation on 05-24-01 using EPA 5030

Caltest
ANALYTICAL LABORATORY
ENVIRONMENTAL ANALYSES

LAB ORDER No.: B050585

SUPPLEMENTAL QUALITY CONTROL (QC) DATA REPORT

Report Date: 13 JUN 2001
Received Date: 22 MAY 2001

Client: Tom Howard
Cambria
1144 65th Street, Suite C
Oakland, CA 94608

Project: 153-1653-012\CITY OF OAKLAND MSC

QC Batch ID	Method	Matrix
T010138TPH	8015M	AQUEOUS
V010059G9A	8015/8020A	AQUEOUS

William Svoboda
Project Manager

Christine Horn
Laboratory Director

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 North Kelly Road • Napa, California 94558
(707) 258-4000 • Fax: (707) 226-1001 • e-mail: caltest@caltestlab.com

METHOD BLANK ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	RESULT	R.L.	UNITS	ANALYZED	NOTES
QC BATCH: T010138TPH					
TPH SEMI-VOL- DISSOLVED				06.07.01	
Diesel Fuel	ND	50.	ug/L		
TPH-Extractable, quantitated as diesel	ND	50.	ug/L		
Motor Oil	ND	200.	ug/L		
TPH-Extractable, quantitated as Motor Oil	ND	200.	ug/L		
Surrogate o-Terphenyl	73.		%		
Kerosene	ND	50.	ug/L		
QC BATCH: V010059G9A					
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS				05.24.01	
Total Petroleum Hydrocarbons - Gasoline	ND	50.	ug/L		
TPH-Purgeable, quantitated as gasoline	ND	50.	ug/L		
Benzene	ND	0.5	ug/L		
Toluene	ND	0.5	ug/L		
Ethylbenzene	ND	0.5	ug/L		
Xylenes (Total)	ND	0.5	ug/L		
Methyl tert-Butyl Ether (MTBE)	ND	5.	ug/L		
Surrogate 4-Bromofluorobenzene [FID]	94.		%		
Surrogate 4-Bromofluorobenzene [PID]	98.		%		

LABORATORY CONTROL SAMPLE ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF	ANALYZED	NOTES
QC BATCH: T010138TPH							
TPH SEMI-VOL- DISSOLVED						06.07.01	1
Diesel Fuel	1000	917.\	92\	36-102\			
Surrogate o-Terphenyl	100	95.3\	95\	40-140\			
QC BATCH: V010059G9A							
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS						05.24.01	
Total Petroleum Hydrocarbons - Gasoline	550.	525.\	95\	50-130\			
Benzene	6.69	6.52\	97\	50-130\			
Toluene	39.1	39.0\	100\	50-130\			
Ethylbenzene	9.20	9.72\	106\	50-130\			
Xylenes (Total)	47.4	47.1\	99\	49-129\			
Methyl tert-Butyl Ether (MTBE)	11.1	11.3\	102\				
Surrogate 4-Bromofluorobenzene [FID]	20.0	19.6\	98\	50-130\			
Surrogate 4-Bromofluorobenzene [PID]	20.0	21.4\	107\	50-130\			

1) This batch has four LCS's,two prefiltered and two unfiltered the two prefiltered have no recovery. This LCS is an unfiltered.

MATRIX SPIKE ANALYTICAL RESULTS

LAB ORDER No.: B050585

ANALYTE	ORIGINAL RESULT	SPIKE AMOUNT	SPIKE\DUP RESULT	SPK\DUP %REC	ACCEPTANCE %REC \RPD	REL% DIFF	ANALYZED	NOTES
QC BATCH: T010138TPH								
QC SAMPLE LAB NUMBER: B050585-5								
TPH SEMI-VOL- DISSOLVED							06.07.01	
Diesel Fuel	ND	2000.	1770.\1570.	88\78	38-105\32	12.		
Surrogate o-Terphenyl	70.%	200.	178.\155.	89\78	40-140\			
QC BATCH: V010059G9A								
QC SAMPLE LAB NUMBER: B050585-10								
AROMATIC HYDROCARBONS AND TOTAL PURGEABLE PETROLEUM HYDROCARBONS							05.24.01	
Total Petroleum Hydrocarbons - Gasoline	ND	550.	484.\436.	88\79	50-130\25	10.		
Benzene	ND	6.69	6.69\5.86	100\88	50-130\25	13.		
Toluene	ND	39.1	39.4\35.0	101\90	50-130\25	12.		
Ethylbenzene	ND	9.20	9.87\8.68	107\94	50-130\25	13.		
Xylenes (Total)	ND	47.4	47.3\42.0	100\89	43-124\10	12.		
Methyl tert-Butyl Ether (MTBE)	ND	11.1	13.6\12.3	123\111		10.		
Surrogate 4-Bromofluorobenzene [FID]	96.%	20.0	20.2\18.8	101\94	50-130\			
Surrogate 4-Bromofluorobenzene [PID]	102.%	20.0	22.2\19.8	111\99	50-130\			

Caltest ANALYTICAL LABORATORY

1885 N. KELLY ROAD • NAPA, CA 94558 • (707) 258-4000 • Fax (707) 226-1001 • www.caltestlab.com

SAMPLE CHAIN OF CUSTODY

PAGE 1 OF 1

LAB ORDER #: 0050585

PROJECT # / PROJECT NAME: 153-1653-012 / City of Oakland MSC

P.O. #:

CLIENT: Cambria Env. Tech

REPORT TO: Tom Howard

ADDRESS: 1144 65th st. CITY: Oakland STATE: Ca ZIP: 94608

BILLING ADDRESS: same as above

PHONE #: 510-420-3310 FAX PHONE: 510-420-9170 SAMPLER (PRINT & SIGN NAME): Sanjiv Gill, S. Gill

ANALYSES REQUESTED

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	TPHg BTEX MTBE by 8015 & 8020	TPHd/K/mO with silica gel cleanup	REMARKS
-1	5-17-01	11:40	AQ	4 VOA 3 Amber	HCl	MW-5		X	X	X	any positive results for MTBE will be confirmed by reanalysis using EPA Method 8260 except in MW-5
-2	5-18-01	7:00	AQ	4 VOA 3 Amber	HCl	MW-8		X	X	X	
-3	5-18-01	5:15	AQ	4 VOA 3 Amber	HCl	MW-9		X	X	X	
-4	5-18-01	3:40	AQ	4 VOA 3 Amber	HCl	MW-10		X	X	X	
-5	5-17-01	12:05	AQ	4 VOA 3 Amber	HCl	MW-11 *		X	X	X	prior to extraction, lab will filter sample with 0.45 micron glass-membrane filter and then treat extract with silica gel in flask and ultrasonic bath agitation, and the sample/dilute the extract for analysis (required by ACHCSA).
-6	5-17-01	10:17	AQ	4 VOA 3 Amber	HCl	MW-12		X	X	X	
-7	5-18-01	3:10	AQ	4 VOA 3 Amber	HCl	MW-13		X	X	X	
-8	5-18-01	4:25	AQ	4 VOA 3 Amber	HCl	MW-14		X	X	X	
-9	5-18-01	5:45	AQ	4 VOA 3 Amber	HCl	MW-15		X	X	X	
-10	5-18-01	6:15	AQ	4 VOA 3 Amber	HCl	MW-17		X	X	X	The lab shall run a spiked method blank through the same procedure and evaluate and explain any atypical deviation.
-11	5-17-01	—	AQ	2 VOA	HCl	TB **		X	X		

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
S. Gill	5-22-01 1340	Fco. Pinillos	Fco. Pinillos	5/22/01 1650	

FOR LAB USE ONLY

Samples: WC ____ MICRO ____ BIO ____ AA ____ SV ____ VOA ____ pH? Y/N TEMP: 2.0 SEALED: Y/N INTACT: Y/N

BD: BIO ____ WO ____ AA ____

OC: AA ____ SV ____ VOA ____

SIL: HP ____ PT ____ QT ____ VOA ____

W/HNO$_3$ ____ H$_2$SO$_4$ ____ NaOH ____

PIL: HNO$_3$ ____ H$_2$SO$_4$ ____ NaOH ____ HCL ____

COMMENTS:

* 1 VOA w/ 7mm bubble

2 " " 5mm "

" " over 1 cm bubble. 5/23/01

** 1 VOA w/ 3mm bubble

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; AHL = 500 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

R ____ PR ____ M ____ F ____

CAMBRIA

Appendix C

Well Sampling Protocol for 3rd Quarter 2001

Table A – Well Sampling Protocol (Third Quarter 2001)
City of Oakland Municipal Service Center

Well***	Quarter				Gauge Every Qtr	DO (field meter)	TPHg/ BTEX/ MTBE* (8015/ 8020)	TPH d/k/mo (8015) w/filtration + silica **	VOC (8260)	SVOC (8270)	LUFT metals	Comments
	1	2	3	4								
MW-1	X		X		X	X	X	X				
MW-2	X		X		X	X	X	X				
MW-5	X	X	X	X	X	X	X	X				
MW-6	X		X		X	X	X	X				SPH present
MW-7	X		X		X	X	X	X				
MW-8	X	X	X	X	X	X	X	X				
MW-9	X	X	X	X	X	X	X	X				
MW-10	X	X	X	X	X	X	X	X				
MW-11	X	X	X	X	X	X	X	X				
MW-12	X	X	X	X	X	X	X	X				
MW-13	X	X	X	X	X	X	X	X				
MW-14	X	X	X	X	X	X	X	X				
MW-15	X	X	X	X	X	X	X	X				
MW-16	X		X	X	X	X	X	X				SPH present
MW-17	X	X	X	X	X	X	X	X				
MW-18	Gauge 3rd quarter only											
TBW-1	X		X		X	X	X	X				SPH present
TBW-3	X		X		X	X	X	X				
TBW-4	X		X		X	X	X	X				
TBW-5	X		X		X	X	X	X				SPH present
TBW-6	X		X		X	X	X	X				
Trip Blank	X	X	X	X	NA	NA	X	X				

DO = Dissolved oxygen

* = Any positive results for MTBE will be confirmed by re-analysis using EPA Method 8260, except in MW-5.

** = Prior to analysis, lab will filter sample with 0.45 micron filter, then subject filtrate to silica gel treatment (clean-up) by EPA Method 3630, and then sample/dilute the filtrate for analysis. The lab shall run a spiked method blank through the same procedure and evaluate and explain any atypical deviation.

*** = Wells MW-3 and MW-4 were destroyed during the first quarter 1999.