CAMBRIA

September 7, 1999

Thomas Peacock
Alameda County Department
of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Re: **Subsurface Investigation and Remediation Well Installation Report**
1432 Harrison Street
Oakland, California
Cambria Project No.: 540-0188

Dear Mr. Peacock:

On behalf of Ms. Barbara Jean Borsuk and Ms. Sheila Siegel, Cambria Environmental Technology, Inc. (Cambria) has prepared this subsurface investigation report for the above-referenced site. The work described in this report was required by the Alameda County Department of Environmental Health (ACDEH) and conducted as outlined in Cambria's March 9, 1999 *Investigation and Remediation Workplan* (Workplan). A site summary, the investigation and well installation procedures and results, conclusions, and Cambria's recommendations are presented below.

SITE SUMMARY

Site Description

Site Use & Location: The site currently operates as a commercial parking facility in downtown Oakland, California (Figure 1). The immediate area use is mixed residential and commercial. The nearest surface waters are Lake Merritt, located approximately one third mile east of the subject site, and the Oakland Inner Harbor, located approximately one mile south of the subject site.

Hydrogeology: Sands and silty sands underlie the site to the total explored depth of 30 ft below ground surface (bgs). Groundwater is present at a depth of approximately 20 feet.

Groundwater Flow Direction: Based on depth-to-water measurements made on June 23, 1999 by Blaine Tech Services of San Jose, California, groundwater flows away from the site towards both the north and south.

Adjacent Potential Hydrocarbon Sources: The subject site is located immediately adjacent to 1424 Harrison Street, where two USTs were closed in place (Figure 1). In addition, a Chevron service

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

Cambria Environmental Technology, Inc.

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

station located at the intersection of 14th and Harrison Streets, downgradient of the subject site, has had a confirmed gasoline release and conducted subsurface remediation.

Site Background

July 1990 through May 1993 Soil Boring Investigations: In July and September 1990, Subsurface Consultants of Oakland, California installed eight soil borings near the waste oil storage area, the hydraulic lift area, and the gasoline tank area. Nine soil samples were analyzed for petroleum hydrocarbons. In January and February 1992, RGA Environmental Consulting of Emeryville, California installed twenty-three soil borings near the same areas and analyzed twenty-nine soil samples for petroleum hydrocarbons. In May 1993, Levine-Fricke, Inc. (Levine-Fricke) of Emeryville, California installed two soil borings near the gasoline tank areas and analyzed six soil samples for petroleum hydrocarbons.

November and December 1993 Tank Removal: In November and December 1993, Levine-Fricke removed four underground storage tanks (USTs) from the site. Two 1,000-gallon, single-walled, steel, gasoline USTs were located under the sidewalk on Harrison Street (Figure 1), with gasoline dispensers located about 20 ft east of the USTs. Two additional steel single-walled, waste oil USTs, each approximately 1,000-gallons in capacity, were located in the basement of the garage near Alice Street. In addition, three hydraulic lifts, one vault, one sump, and associated piping, were excavated and removed from the site. A total of approximately 240 cubic yards of hydrocarbon-impacted soil were removed from the three areas.

August 1994 Subsurface Investigation: In August 1994, Levine-Fricke conducted a subsurface investigation to assess the extent of hydrocarbons in soil and groundwater. Three soil borings were installed and the borings were converted into groundwater monitoring wells (MW-1, MW-2, and MW-3).

July 1995 Subsurface Investigation: In July 1995, Cambria conducted a subsurface investigation to further define the extent of hydrocarbons in soil and groundwater. Cambria drilled 12 soil borings collecting either soil or groundwater samples from each boring. Up to 84,000 ppb TPHg and 9,600 ppb benzene were detected in the groundwater samples and up to 350 ppm TPHg and 4 ppm benzene were detected in the soil samples.

August 1996 Soil Vapor Extraction Test: In August 1996, Cambria conducted a soil vapor extraction test on existing groundwater monitoring wells MW-1 and MW-2. TPHg concentrations in soil vapor ranged from 2,600 to 3,100 parts per million - volume (ppmv) in MW-1 and from 22,000 to 28,000 ppmv in MW-2. The highest benzene concentration was 590 ppmv from MW-2. Results of the test suggested that the subsurface consists of moderate permeability materials such

as sands and silty sands, and that soil vapor extraction could effectively remove hydrocarbons from the subsurface soils, with an estimated radius of influence of 44 feet.

October 1996 Subsurface Investigation: In October 1996, Cambria conducted an additional subsurface investigation to further define the extent of hydrocarbons in soil and groundwater. Five soil borings were installed, and three of the borings were converted to monitoring wells MW-4, MW-5, and MW-6. Two additional angled borings were drilled to assess the impact of hydrocarbons from two closed-in-place tanks located directly upgradient of the site.

Quarterly Groundwater Monitoring: Groundwater samples have been collected from monitoring wells MW-1, MW-2, and MW-3 since January 1994, and from wells MW-4, MW-5, and MW-6 since October 1996. The current ACHCSA approved monitoring protocol consists of measuring depth to water in all wells on a quarterly basis and sampling monitoring wells MW-1, MW-2, MW-4, and MW-5 quarterly.

INVESTIGATION AND REMEDIATION WELL INSTALLATION PROCEDURES AND RESULTS

Consistent with the March 9, 1999 ACDEH-approved Workplan, Cambria installed four remediation wells and drilled two exploratory soil borings at the site. Cambria collected soil samples from all six drilling locations and collected grab groundwater samples from the two exploratory soil borings. The remediation well and soil boring locations are shown on Figure 1. Remediation well VES-1 was installed adjacent to the former gasoline pumps. Remediation well VES-2 was installed adjacent to the southernmost former site UST. Remediation well VES-3 was installed between the southernmost former site UST and the former fuel pumps. Remediation well VES-4 was installed adjacent to the northernmost former site UST. Soil borings CB-1 and CB-2 were drilled 10 ft and 20 ft, respectively, south-southwest of the abandoned USTs at 1424 Harrison Street.

Select soil samples collected from each soil boring and grab groundwater samples collected from CB-1 and CB-2 were analyzed for TPHg, BTEX, and MTBE. Soil samples were selected for analysis based on field indications of possible petroleum hydrocarbon content.

Cambria investigation and remediation well installation procedures are summarized below. The City of Oakland excavation and obstruction permits and the Alameda County Public Works Agency well permits are included as Attachment A. Boring logs and well construction diagrams are included as Attachment B. The analytical laboratory report is included as Attachment C. Cambria's standard field procedures for soil borings and remediation well installation are included as Attachment D.

Soil Boring and Remediation Well Construction Specifications

Drilling Dates: July 22 and 23, 1999.

Personnel Present: Cambria geologists Robert W. Schultz and Jacqueline Jones conducted the field activities under the supervision of Registered Geologist David C. Elias (No. 6584).

Permits: City of Oakland Excavation/Encroachment Permit No. X9900488, City of Oakland Obstruction Permit No. OB990385, and Alameda County Public Works Agency Well Permit No. 99WR111 (Attachment A).

Drilling Company: Gregg Drilling & Testing, Inc. (Gregg Drilling) of Martinez, California (C-57 License No. 485165).

Drilling Methods: Hollow-stem auger (HSA) for VES-1 through VES-4 and hydraulic-push for CB-1 and CB-2.

Number of Borings: Six.

Boring Depths: 24-30.5 ft (Attachment B).

Soil Sampling: Soil samples were collected every 5 ft and near the water table from VES-1 through VES-4. From CB-1 and CB-2, soil samples were collected continuously. Soil samples were logged and classified according to the Unified Soil Classification System (Attachment B).

Depth to Water: Groundwater was encountered in all borings at approximately 20 ft bgs.

Remediation Wells: Four wells were constructed.

Well Materials: VES-1 though VES-4 are co-axial air sparging and vapor extraction wells (Attachment B). The sparge points were constructed using 1-inch diameter schedule 40 PVC well casing with 0.020-inch slotted well screen, and Monterey #2/12 sand. Due to flowing sands, sparge points for wells VES-2 and VES-4 were installed in a natural sand pack. Filter cloth was used to cover the sparge point screens in these wells. The vapor extraction wells were constructed using 3-inch diameter schedule 40 PVC well casing with 0.020-inch slotted well screen, and Monterey #2/12 sand. Each well has a two ft thick surface bentonite seal and a 5-t ft thick bentonite seal between the sparge and vapor well casings, and was grouted with Portland type I/II cement.

Screened Intervals: Cambria screened the wells to allow air sparging beneath the water table and vapor extraction above the water table. Sparge points for VES-1 through VES-4 are screened from approximately 28 to 30 ft bgs. Vapor extraction wells in VES-1 through VES-4 are screened from approximately 5 to 20 ft bgs (Attachment B).

Soil and Water Handling: Gregg Drilling stored the soil cuttings generated during drilling on site pending disposal. The stockpile was underlain and covered with visqueen. Following profiling of chemical concentrations, Altamont Landfill & Resource Recovery Facility of Livermore, California, accepted the soil for reuse as Class II Cover soil. Altamont's profile number for this soil is 53865800.

Investigation Results

Select soil samples collected from borings CB-1, CB-2, and VES-1 through VES-4 were analyzed for TPHg, BTEX and MTBE. Grab groundwater samples collected from CB-1 and CB-2 were also analyzed for TPHg, BTEX and MTBE.

Soil Analytical Results: Maximum hydrocarbon concentrations of 7,600 ppm TPHg and 150 ppm benzene were detected in the 25 ft bgs soil samples from VES-4 (Table 1). Elevated hydrocarbon concentrations were also detected in soil samples collected from depths of 20 to 25 ft bgs in borings VES-1, VES-2, and VES-3. Hydrocarbon concentrations attenuate rapidly above and below 20 to 25 ft bgs.

Petroleum hydrocarbon concentrations of 1,500 ppm TPHg and 2.3 ppm benzene were detected in boring CB-1 at 24 ft bgs. Approximately 10 ft south-southwest of boring CB-1, maximum hydrocarbon concentrations of 4.8 ppm TPHd and 0.006 ppm benzene were detected in CB-2 at 24 ft bgs. Cambria also analyzed soil samples collected from depths of 10 to 20 ft bgs for TPHg, BTEX, and MTBE. No petroleum hydrocarbons were detected in soil samples collected from depths of 20.0 ft bgs and less.

Groundwater Analytical Results: Grab groundwater samples collected from CB-1 and CB-2 contained TPHg concentrations of 110,000 ppb and 4,700 ppb, respectively (Table 2). The samples from CB-1 and CB-2 also contained benzene concentrations of 1300 ppb and 21 ppb, respectively. Since wells VES-1 through VES-4 are vapor extraction/air sparging wells, the wells were not developed or sampled.

CONCLUSIONS

Soil analytical results for sampling locations VES-1 through VES-4 suggest that outside of the former tank and fuel pump areas, elevated hydrocarbon concentrations are limited to depths of 20 to 25 ft bgs. This depth range corresponds with the expected historical range for site groundwater depth.

Soil analytical results for sampling locations CB-1 and CB-2 suggest that gasoline that leaked from the former UST located in front of 1424 Harrison Street did not disperse more than 5 to 10 ft laterally in vadose zone soils. This soil data completes definition of the southwestern lateral extent of hydrocarbons in vadose zone soils. Therefore, the hydrocarbons detected in the 24 ft soil samples and the groundwater samples collected from CB-1 and CB-2 are likely the result of groundwater transport. In addition, the historical detection of elevated hydrocarbon concentrations beneath the former USTs at the subject site and the closed-in-place USTs at 1424 Harrison Street indicate that both sources may have contributed to the hydrocarbons detected in groundwater.

RECOMMENDATIONS

As prescribed by State UST Cleanup Fund guidelines, Cambria recommends preparation of a bid package to solicit cost proposals for installation and operation of a site remediation system. At least three bids from eligible firms must be considered at this time. Following the bid selection, the installed soil vapor extraction system should remediate residual hydrocarbons detected in soil and groundwater in the vicinity of both former UST locations.

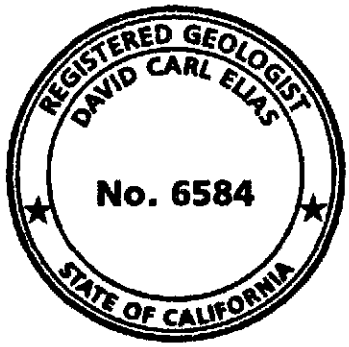
CLOSING

If you have any questions or comments regarding this report or future site activities, please call Robert W. Schultz at (510) 420-3341 or David C. Elias at (510) 420-3307.

Sincerely,
Cambria Environmental Technology, Inc.

Robert W. Schultz
Senior Staff Geologist

David C. Elias, R.G.
Senior Geologist



Figures: 1 - Vicinity Map
2 - Soil Boring and Remediation Well Location Map

Tables: 1 - Soil Analytical Data
2 - Groundwater Elevation and Analytical Data

Attachments: A - Well Permits
B - Boring Logs and Well Construction Diagrams
C - Analytical Laboratory Report
D - Standard Field Procedures for Soil Borings and Monitoring Wells

cc: Mark Borsuk, Esq., 1626 Vallejo Street, San Francisco, CA 94123-5116
Leroy Griffin, Oakland Fire Services Agency, 505 14th Street, Ste. 510, Oakland, CA 94612
Mark Owens, SWRCB Clean-Up Fund, P.O. Box 944212, Sacramento, CA 94244-2120

H:\SB-2004\Oakl-188-Borsuk\Remediation well Installation\installreport.wpd

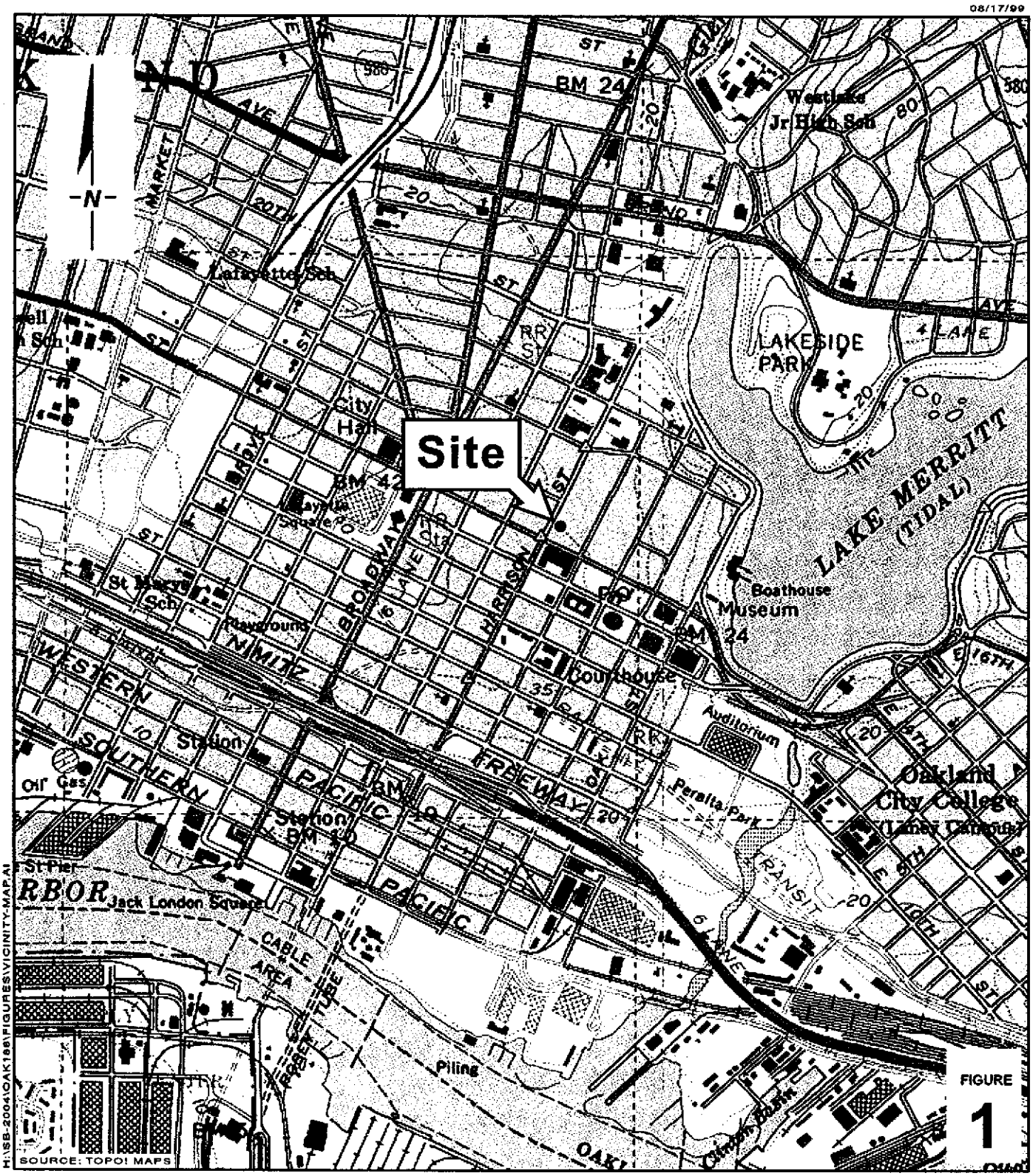


FIGURE 1

0 1/8 1/4 1/2 1

SCALE 1:1/4 MILE

Borsuk
1432 Harrison Street
Oakland, California

Vicinity Map

CAMBRIA

08/17/99

Soil Boring and Remediation Well Location Map

15th STREET

HARRISON STREET

ALICE STREET

14th STREET

MW-4

MW-5

MW-2

MW-1

MW-6

MW-3

VES-4

VES-1

VES-3

VES-2

CB-1

CB-2

1500 Harrison Street

building

parking facility

1439 Alice Street

building

1432 Harrison Street

parking facility

building

Former Gasoline Tanks

Former Gasoline Fuel Pumps

Former Wash Rack Sump

Former Hydraulic Lift Area

Former Waste Oil Tanks

Approximate Location of USTs closed in place, 1424 Harrison St.

N

0 25 50 100

Scale (ft)

EXPLANATION

- VES-1 — Vapor Extraction / Air Sparging Well Location
- CB-1 — Soil Boring Location
- MW-1 — Monitoring Well Location

NOTE: Wells MW-4, MW-5, and MW-6 installed in October, 1996.

FIGURE 2

CAMBRIA

Borsuk
1432 Harrison Street
Oakland, California

H:\SB-2004\OAK-188\FIGURES\BOR-LOC.DWG

CAMBRIA

Table 1. Soil Sample Analytic Data - 1432 Harrison Street, Oakland, California

Sample ID			TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
Soil Boring/ (Monitoring Well)	Sample Depth (ft)	Sample Date	<----------(mg/kg)---------->						
Historical Results:									
SB-F-20	20.0	07/07/95	16	1.9	10	2.5	11	--	a
SB-H-20	20.0	07/07/95	350	4.0	16	5.3	25	--	a
SB-L-20	20.0	07/07/95	220	1.6	4.1	4.8	24	--	b,d
SB-M/(MW-4)-20.0	20.0	10/02/96	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
SB-N/(MW-5)-20.0	20.0	10/02/96	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
SB-O/(MW-6)-20.5	20.5	10/03/96	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
SB-P-3.75	3.8	10/03/96	3.8	<0.005	0.016	0.017	0.084	<0.05	
SB-P-12.7	12.7	10/03/96	1,500	0.55	14	25	100	2.0	b,d
SB-Q-3.75	3.8	10/03/96	4.3	0.006	0.024	0.027	0.11	<0.02	g
SB-Q-9.6	9.6	10/03/96	1,900	0.95	15	43	200	<1.4	b,d
Current Investigation Results:									
VES-1-16.5	16.5	07/22/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
VES-1-21.5	21.5	07/22/99	5,600	59	400	75	370	<10	a
VES-1-30.5	30.5	07/22/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
VES-2-16.5	16.5	07/22/99	2.2	<0.005	0.018	<0.005	0.050	<0.05	g
VES-2-26.5	26.5	07/22/99	4,300	35	260	74	310	<10	a
VES-2-30.0	30.0	07/22/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
VES-3-15.5	15.5	07/23/99	1.3	0.011	<0.005	<0.005	0.010	<0.05	a
VES-3-20.5	20.5	07/23/99	2,100	<0.50	66	56	280	<10	b,j
VES-3-30.5	30.5	07/23/99	1.4	0.062	0.25	0.039	0.16	<0.05	a
VES-4-16.5	16.5	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
VES-4-25.0	25.0	07/23/99	7,600	150	490	170	640	32*	a
VES-4-30.0	30.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
CB-1-10.0	10.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
CB-1-16.0	16.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
CB-1-20.0	20.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
CB-1-24.0	24.0	07/23/99	1,500	2.3	6.8	12	58	<2	a
CB-2-12.0	12.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	
CB-2-15.0	15.0	07/23/99	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	

CAMBRIA

Table 1. Soil Sample Analytic Data - 1432 Harrison Street, Oakland, California

Sample ID			TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
Soil Boring/ (Monitoring Well)	Sample Depth (ft)	Sample Date	<----------(mg/kg)---------->						
CB-2-20.5	20.5	07/23/99	4.2	<0.005	0.010	0.007	0.025	<0.05	j
CB-2-24.0	24.0	07/23/99	4.8	0.006	<0.005	0.026	0.030	<0.05	j

Notes:

TPHg = Total purgeable petroleum hydrocarbons as gasoline by EPA method Modified 8015.

Benzene, toluene, ethylbenzene, xylenes (BTEX) by EPA method 8020.

MTBE = Methyl tert-butyl ether by modified EPA method 8020.

<n = not detected above n parts per million

a = unmodified or weakly modified gasoline is significant

b = heavier gasoline range compounds significant

d = gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline

g = strongly aged gasoline or diesel range compounds are significant

j = no recognizable pattern

* = MTBE result not confirmed by EPA Method 8260 analysis.

CAMBRIA

Table 2. Groundwater Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well/Boring ID	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					<----------(Concentrations in µg/l)---------->						
Current Investigation Grab Sample Results:											
CB-1-W	07/22/99	--	--	--	110,000	1,300	16,000	2,700	12,000	<3000*	a,b,c
CB-2-W	07/22/99	--	--	--	4,700	21	13	170	76	<50*	a,c
Historical Grab Sample Results:											
SB-A	07/06/95	--	~20	--	330	16	3.6	1.3	4.9	--	i,j
SB-B	07/07/95	--	~20	--	450	55	3.1	5.1	5.0	--	a
SB-C	07/06/95	--	~20	--	44,000	6,600	5,900	980	4,400	--	a
SB-D	07/06/95	--	~20	--	70,000	7,400	10,000	1,600	7,200	--	a
SB-E	07/06/95	--	~20	--	25,000	1,000	3,000	610	2,700	--	a
SB-G	07/07/95	--	~20	--	84,000	9,400	16,000	2,200	9,900	--	a,b
SB-I	07/07/95	--	~20	--	24,000	6,100	1,400	680	1,600	--	a
SB-J	07/07/95	--	~20	--	960	110	66	8.7	71	--	a
SB-K	07/07/95	--	~20	--	72,000	9,600	9,600	1,800	7,000	--	a
Monitoring Well Sample Results:											
MW-1	08/01/94	--	--	--	170,000	35,000	51,000	2,400	13,000	--	--
	12/21/94	34.95	19.53	15.42	180	41,000	64,000	3,100	100,000	--	--
	03/13/95	34.95	18.66	16.29	150	31,000	45,000	2,500	17,000	--	--
	06/27/95	34.95	18.20	16.75	71,000	17,000	18,000	1,600	7,700	--	--
	07/07/95	34.95	18.35	16.60	71,000	17,000	18,000	1,600	7,700	--	--
	09/28/95	34.95	18.70	16.25	110,000	27,000	34,000	1,700	14,000	--	--
	12/20/95	34.95	19.96	14.99	120,000	33,000	43,000	2,300	15,000	--	--
	03/26/96	34.95	19.27	15.68	140,000	29,000	36,000	1,900	13,000	<200*	d
	06/20/96	34.95	18.64	16.31	110,000	30,000	38,000	2,200	13,000	<200*	--
	09/26/96	34.95	19.35	15.60	170,000	28,000	40,000	2,200	15,000	ND**	--
	10/28/96	34.95	19.58	15.37	--	--	--	--	--	--	--
	12/12/96	34.95	19.68	15.27	110,000	36,000	47,000	2,500	16,000	ND*	--
	03/31/97	34.95	18.80	16.15	160,000	24,000	39,000	1,900	13,000	ND*	--
	06/27/97	34.95	19.26	15.69	130,000	25,000	36,000	2,000	14,000	ND*	--
	09/09/97	34.95	19.70	15.25	99,000	22,000	27,000	1,600	13,000	270*	--
	12/18/97	34.95	19.25	15.70	160,000	30,000	44,000	2,200	15,000	ND***	--
	03/12/98	34.95	17.52	17.43	190,000	20,000	49,000	2,500	18,000	ND***	--
	06/22/98	34.95	18.63	16.32	90,000	19,000	40,000	2,100	16,000	--	--

Table 2. Groundwater Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well/Boring ID	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					<----------(Concentrations in µg/l)---------->						
	09/18/98	34.95	18.60	16.35	190,000	29,000	48,000	2,400	17,000	--	--
	12/23/98	34.95	19.18	15.77	140,000	24,000	44,000	2,000	8,200	--	--
	03/29/99	34.95	18.52	16.43	181,000	22,200	40,100	1,844	12,200	--	--
	06/23/99	34.95	18.60	16.35	80,000	20,000	33,000	1,600	11,000	--	--
											--
MW-2	08/01/94	--	--	--	130,000	28,000	35,000	3,000	12,000	--	--
	12/21/94	35.18	19.91	15.27	200	140,000	200,000	3,500	22,000	--	--
	03/13/95	35.18	19.15	16.03	500	9,200	23,000	7,000	36,000	--	--
	06/27/95	35.18	18.74	16.44	120,000	23,000	30,000	2,700	13,000	--	--
	07/07/95	35.18	18.80	16.38	120,000	23,000	30,000	2,700	13,000	--	--
	09/28/95	35.18	19.30	15.88	110,000	23,000	29,000	2,500	11,000	--	--
	12/20/95	35.18	20.24	14.94	83,000	980	1,800	2,200	10,000	--	--
	03/26/96	35.18	19.69	15.49	150,000	23,000	32,000	2,800	12,000	<200*	d
	06/20/96	35.18	19.20	15.98	94,000	15,000	23,000	2,400	12,000	<200*	--
	09/26/96	35.18	19.80	15.38	150,000	20,000	29,000	2,800	12,000	ND**	--
	10/28/96	35.18	20.18	15.00	--	--	--	--	--	--	--
	12/12/96	35.18	20.17	15.01	58,000	3,100	11,000	1,700	8,100	220*	--
	03/31/97	35.18	19.67	15.51	38,000	6,000	7,900	690	3,300	ND*	--
	06/27/97	35.18	19.68	15.50	62,000	13,000	16,000	1,300	6,000	ND*	--
	09/09/97	35.18	20.20	14.98	81,000	16,000	18,000	1,800	8,600	ND***	--
	12/18/97	35.18	19.80	15.38	110,000	18,000	26,000	2,200	9,500	ND***	--
	03/12/98	35.18	18.07	17.11	120,000	16,000	26,000	2,200	9,400	ND***	--
	06/22/98	35.18	18.29	16.89	38,000	9,800	9,500	1,500	6,000	--	--
	09/18/98	35.18	19.09	16.09	68,000	12,000	16,000	1,400	5,900	--	--
	12/23/98	35.18	19.67	15.51	180,000	16,000	22,000	2,200	8,300	--	--
	03/29/99	35.18	18.97	16.21	16,600	1,380	1,920	373	1,840	--	--
	06/23/99	35.18	18.25	16.93	41,000	10,000	9,400	1,100	5,000	--	--
MW-3	08/01/94	--	--	--	<50	<0.5	<0.5	<0.5	<2.0	--	--
	12/21/94	33.97	18.82	15.15	<50	<0.5	<0.5	<0.5	<0.5	--	e

CAMBRIA

Table 2. Groundwater Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well/Boring ID	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					<----------(Concentrations in µg/l)---------->						
	03/13/95	33.97	17.86	16.11	<50	<0.5	<0.5	<0.5	<0.5	--	f,g
	07/07/95	33.97	18.25	15.72	--	--	--	--	--	--	h
	09/28/95	33.97	18.00	15.97	--	--	--	--	--	--	--
	12/20/95	33.97	18.74	15.23	--	--	--	--	--	--	--
	03/26/96	33.97	18.25	15.72	--	--	--	--	--	--	--
	06/20/96	33.97	18.35	15.62	--	--	--	--	--	--	--
	09/26/96	33.97	19.12	14.85	--	--	--	--	--	--	--
	10/28/96	33.97	19.11	14.86	--	--	--	--	--	--	--
	12/12/96	33.97	18.61	15.36	--	--	--	--	--	--	--
	03/31/97	33.97	18.35	15.62	--	--	--	--	--	--	--
	06/27/97	33.97	18.81	15.16	--	--	--	--	--	--	--
	09/09/97	33.97	19.18	14.79	--	--	--	--	--	--	--
	12/18/97	33.97	18.64	15.33	--	--	--	--	--	--	--
	03/12/98	33.97	17.56	16.41	--	--	--	--	--	--	--
	06/22/98	33.97	18.64	15.33	--	--	--	--	--	--	--
	09/18/98	33.97	18.33	15.64	--	--	--	--	--	--	--
	12/23/98	33.97	18.60	15.37	--	--	--	--	--	--	--
	03/29/99	33.97	17.85	16.12	--	--	--	--	--	--	--
	06/23/99	33.97	18.67	15.30	--	--	--	--	--	--	--
MW-4	10/28/96	30.77	19.32	11.45	10,000	3,900	420	400	360	<200*	--
	12/12/96	30.77	19.42	11.35	11,000	4,200	410	420	260	32*	--
	03/31/97	30.77	18.67	12.10	ND	ND	ND	ND	ND	ND*	--
	06/27/97	30.77	19.08	11.69	160	49	1.2	ND	5.9	ND*	--
	09/09/97	30.77	19.33	11.44	7,400	5,000	410	230	470	33*	--
	12/18/97	30.77	19.17	11.60	710	170	8.0	ND	39	ND***	--
	03/12/98	30.77	17.68	13.09	1,300	410	21	ND	57	ND***	--
	06/22/98	30.77	17.63	13.14	ND	ND	ND	ND	ND	--	--
	09/18/98	30.77	18.58	12.19	ND	42	1.6	ND	4.8	--	--
	12/23/98	30.77	19.01	11.76	1,900	1,000	76	50	120	--	--
	03/29/99	30.77	18.35	12.42	ND	ND	ND	ND	ND	--	--
	06/23/99	30.77	17.58	13.19	ND	ND	ND	ND	ND	--	--

Table 2. Groundwater Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well/Boring ID	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					<----------(Concentrations in µg/l)---------->						
MW-5	10/28/96	31.61	19.88	11.73	90	4.0	0.6	<0.50	<0.50	16*	--
	12/12/96	31.61	20.09	11.52	230	5.6	0.9	ND	0.9	3.6*	--
	03/31/97	31.61	19.24	12.37	90	3.1	ND	ND	ND	ND*	--
	06/27/97	31.61	19.16	12.45	ND	ND	ND	ND	ND	ND*	--
	09/09/97	31.61	19.93	11.68	ND	ND	ND	ND	ND	ND*	--
	12/18/97	31.61	19.77	11.84	ND	ND	ND	ND	ND	ND***	--
	03/12/98	31.61	19.77	11.84	79	2.3	ND	0.8	ND	ND*	--
	06/22/98	31.61	18.08	13.53	ND	ND	ND	ND	ND	--	--
	09/18/98	31.61	19.12	12.49	ND	ND	ND	ND	ND	--	--
	12/23/98	31.61	19.60	12.01	ND	0.8	0.9	ND	ND	--	--
	03/29/99	31.61	18.88	12.73	ND	ND	ND	ND	ND	--	--
	06/23/99	31.61	18.05	13.56	ND	ND	ND	ND	ND	--	--
MW-6	10/28/96	32.89	20.02	12.87	<50	<0.50	<0.50	<0.50	<0.50	<2.0*	--
	12/12/96	32.89	20.18	12.71	ND	ND	ND	ND	ND	ND*	--
	03/31/97	32.89	19.81	13.08	--	--	--	--	--	--	--
	06/27/97	32.89	19.76	13.13	--	--	--	--	--	--	--
	09/09/97	32.89	20.06	12.83	ND	ND	ND	ND	ND	ND*	--
	12/18/97	32.89	19.90	12.99	ND	ND	ND	ND	ND	--	--
	03/12/98	32.89	18.00	14.89	ND	ND	ND	ND	ND	ND*	--
	06/22/98	32.89	18.43	14.46	ND	ND	ND	ND	ND	--	--
	09/18/98	32.89	19.10	13.79	ND	ND	ND	ND	ND	--	--
	12/23/98	32.89	19.61	13.28	ND	ND	ND	ND	ND	--	--
	03/29/99	32.89	18.92	13.97	ND	ND	ND	ND	ND	--	--
	06/23/99	32.89	18.41	14.48	ND	ND	ND	ND	ND	--	--

CAMBRIA

Table 2. Groundwater Elevation and Analytic Data - 1432 Harrison St., Oakland, CA.

Well/Boring ID	Date	Top of Casing Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
					<----------(Concentrations in µg/l)---------->						

Abbreviations

TPHg = Total petroleum hydrocarbons as gasoline by EPA method Modified 8015.

Benzene, toluene, ethylbenzene, xylenes by EPA method 8020.

-- = Not Sampled/Not Analyzed

<n = Not detected in sample above n µg/l.

ND = Not detected at minimum quantitation limit. See laboratory reports.

µg/l = micrograms per liter

MTBE = Methyl tert-butyl ether

* = MTBE by EPA Method 8020

** = MTBE by EPA Method 8240

*** = MTBE by EPA Method 8260

VOCs = volatile organic compounds

Notes

a = Unmodified or weakly modified gasoline is significant.

b = Lighter than water immiscible sheen is present.

c = Liquid sample that contains greater than ~5 vol. % sediment.

d = MTBE result confirmed by secondary column or GC/MS analysis.

e = Sample analyzed for purgeable hydrocarbons by EPA method 8010, no purgeable halocarbons were detected.

f = Sample analyzed for VOCs by EPA method 8240, no non-BTEX compounds were detected.

g = Sample analyzed for Total Petroleum Hydrocarbons as motor oil (TPHmo) by EPA method Modified 8015, no TPHmo was detected.

h = Analytic sampling discontinued. Approved by Alameda County Department of Environmental Health.

i = Lighter than gasoline range compounds are significant.

j = Gasoline range compounds having broad chromatographic peaks are significant.

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERIN

PERMIT NUMBER	SITE ADDRESS/LOCATION
X9900488	1432 HARRISON ST.
APPROX. START DATE / APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
CONTRACTOR'S LICENSE # AND CLASS	CITY BUSINESS TAX #

ATTENTION:

1) State law requires that the contractor/owner call *Underground Service Alert (USA)* two working days before excavating. This permit is not valid unless applicant has secured a inquiry identification number issued by USA. The USA telephone number is 1 (800) 642-2444. UNDERGROUND SERVICE ALERT (USA) #: _____

2) **48 hours prior to starting work, YOU MUST CALL (510) 238-3651 TO SCHEDULE AN INSPECTION.**

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for th alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than tw structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&PC for this reason _____.

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or propert sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have rea this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X _____ 6/22/99

Signature of Permittee ☐ Agent for ☐ Contractor ☐ Owner Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☒ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☐ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☐ NO
90			X

ISSUED BY _____ DATE ISSUED 6/22/99

240T82

EXCAVATION

Job Site 1432 HARRISON ST Parcel# Appl# X9900498

Descr 3 monitoring wells & 2 soil borings on harrison st. encroach Permit Issued 06/22/99
ment permit signed & notarized.

Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job #
Util Fund #

Applicant Phone # Type License Class/Lic#

Owner
Contractor CAMBRIA ENVIRONMENTAL TECHNOLO X (510)420-3332 740588 A
Arch/Engr
Agent
Applic Addr 1144 65TH ST, OAKLAND, CA, 94608

$246.00 TOTAL FEES.00 AT ISSUANCE
$41.00 Applic $205.00 Permit
$.00 Process $.00 Rec Mgmt
$.00 Gen Plan $.00 Investg
$.00 Other

CITY OF OAKLAND

OBSTRUCTION

Job Site 1432 HARRISON ST Parcel# Appl# CB990388

3 monitoring wells & 2 soil borings on harrison st. encroach Permit Issued 06/22/99
ment permit signed & notarized.
park equipment at meter nos. H-1400,2,4,6,8,24

1432 HARRISON ST.

Nbr of days: 2 Nbr of meters: 6
Effective: 07/22/99 Expiration: 07/23/99

SHORT TERM METERED

	Applicant	Phone#	Fee	License Class
Owner				
Contractor	CAMBRIA ENVIRONMENTAL TECHNOLO	X	(510)420-3332 740.23	B
Arch/Engr				
Agent				

Applic Addr 1144 65TH ST, OAKLAND,CA, 94608

$90.00 TOTAL FEES PAID AT ISSUANCE

$.00 Applic	$90.00 Permit
$.00 Process	$.00 Rec Mgmt
$.00 Gen Plan	$.00 Invstg
$.00 Other	

CITY OF OAKLAND

two hundred dollars

Applicant: X

Issued by:

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-1651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1432 Harrison St.
Oakland, CA

California Coordinates Source _____ ft. Accuracy _____ ft.
CCN _____ CCE _____ ft.
APN _____

CLIENT
Name Mark Borsuk
Address 1626 Vallejo St. Phone _____
City San Francisco Zip 94123-5116

APPLICANT
Name Cambria Environmental Fax 510 420 9170
Address 1144 65th St., Ste B Phone 510 420 3341
City Oakland, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	☐	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	X
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 - 720904

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 4 in. Depth 32 ft.
Surface Seal Depth 5 ft. Number 4

~~GEOTECHNICAL PROJECTS~~ Environmental
Number of Borings 2 Maximum
Hole Diameter 3 in. Depth 30 ft.

ESTIMATED STARTING DATE April 12, 1999
ESTIMATED COMPLETION DATE April 13, 1999

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

APPLICANT'S SIGNATURE Robert V. Shultz DATE 3/12/99
CAMBRIA ENV.

FOR OFFICE USE

PERMIT NUMBER 99 WR 112
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

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

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

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

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

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

F. WELL DESTRUCTION
See attached.

G. SPECIAL CONDITIONS

APPROVED Andreas Godfrey DATE 3/23/

ATTACHMENT B

Boring Logs and Well Construction Diagrams

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	CB-1
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	23-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	23-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	20.0 ft (23-Jul-99) ▽
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Located 10' south-southwest of VES-2.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							CONCRETE.	0.4	Portland Type I/II
		CB-1 @4.0'		5	SM		**Silty SAND**; (SM); brown; dense; damp; 20% silt, 80% sand; no plasticity; high estimated permeability.		
		CB-1 @8.0'					@ 8' - 5% clay, 15% silt, 80% sand; low plasticity; moderate to high estimated permeability.	8.5	
<1.0		CB-1 @10.0'		10	SW		**SAND**; (SW); greenish grey; dense; damp to moist; 10% silt, 90% sand; no plasticity; high estimated permeability.	10.5	
		CB-1 @12.0'			SM		**Silty SAND**; (SM); brown; dense; damp; 5% clay, 15% silt, 80% sand; low plasticity; moderate to high estimated permeability.	14.0	
				15			**SAND with Silt**; (SW); greenish grey; very dense; moist; 14% silt, 86% sand; no plasticity; high estimated permeability.		
<1.0		CB-1 @16.0'			SW				
<1.0		CB-1 @20.0'		20			@ 20' - dense. ▽		
1,500		CB-1 @24.0'						24.0	Bottom of Boring @ 24 ft

WELL LOG (TPH-G) H:\SB-2004\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	CB-2
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	23-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	23-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	J. Jones	**DEPTH TO WATER (First Encountered)**	20.5 ft (23-Jul-99) ▽
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Located 10' south-southwest of CB-1.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
					SP		**CONCRETE.**	0.3	
					SM		**Gravelly SAND**; (SP); brown; loose; dry; 5% silt, 65% and, 30% gravel; high estimated permeability; fill.	0.5	
							Silty SAND; (SM); dark brown; loose; dry; 25% silt, 74% fine to medium grained sand, 1% subangular gravel to 0.5"; no plasticity; moderate to high estimated permeability.	2.5	
		CB-2 @4'		5	SW		**SAND**; (SW); light orangish brown; medium dense to dense; dry; 10% silt, 90% fine to medium grained sand; high estimated permeability.		
		CB-2 @8'					@ 9' - brown mottled with grey; medium dense; moist.		
				10			@ 10' - damp.		
					SM		**Silty SAND**; (SM); brown to orange brown; medium dense; damp; 20% silt, 80% sand; very low to low plasticity; moderate to high estimated permeability.	11.0	Portland Type I/II
<1.0		CB-2 @12'						14.0	
<1.0		CB-2 @15'		15	SW		**SAND**; (SW); olive grey to brown; dense; moist; 7% silt, 93% sand; high estimated permeability.		
								19.0	
				20	SM		**Silty SAND**; (SM); grey; dense; moist; 20% silt, 80% sand; low plasticity; moderate to high estimated permeability. ▽	20.5	
4.2		CB-2 @20.5'			SW		**SAND**; (SW); orange mottled with olive grey; dense; moist; 5% silt, 95% sand; high estimated permeability. @ 22' - brownish grey; very dense; moist to wet.		
4.8		CB-2 @24'						24.0	Bottom of Boring @ 24 ft

WELL LOG (TPH-G) H:\SB-2004\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	VES-1
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	23-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	23-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hollow-stem auger - "Rhino" Rig	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	8"	**SCREENED INTERVAL**	VE: 5' - 20' bgs; AS: 28' - 30' bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	19.3 ft (23-Jul-99) ▽
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 5' bgs; located in parking facility driveway, 30' from sidewalk.

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							ASPHALT.	0.2
							CONCRETE.	0.5
					SW		**SAND with Silt**; (SW); dark brown; medium dense; damp; 14% silt, 86% fine to medium grained sand; no plasticity; high estimated permeability.	
		VES-1 @6.5'		5			@ 5.5' - dark yellowish brown (10YR4/6).	
								8.5
		VES-1 @11.5'		10	SM		**Silty SAND**; (SM); grey mottled brown; medium dense; damp; 5% clay, 25% silt, 70% fine to medium grained sand; low plasticity; moderate to high estimated permeability.	
								13.5
				15			**SAND**; (SW); greyish brown; dense; damp; 10% silt, 90% fine to medium grained sand; no plasticity; high estimated permeability.	
<1.0		VES-1 @16.5'						
				20			@ 20' - wet.	
5,600		VES-1 @21.5'			SW			
				25			@ 25' - grey; medium dense; 5% silt, 95% fine to medium grained sand.	
		VES-1 @26.5'						
				30			@ 30' - grey.	30.5
<1.0		VES-1 @30.5'						

WELL DIAGRAM: Portland Type I/II; Bentonite Seal; Monterey Sand #2/12; 3"-diam., 0.020" Slotted Schedule 40 PVC; Bentonite Seal; 1"-diam., 0.020" Slotted Schedule 40 PVC; Bottom of Boring @ 30.5 ft

WELL LOG (TPH-G) H:\SB-2004\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	VES-2
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	22-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	22-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hollow-stem auger - "Rhino" Rig	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	8"	**SCREENED INTERVAL**	VE: 5' - 20' bgs; AS: 27.5' - 29.5' bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	20.0 ft (22-Jul-99)
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA

REMARKS Hand augered to 5' bgs; located in sidewalk in front of Auto Radio Headquarters.

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							CONCRETE.	0.4
							SAND with Silt; (SW); dark brown; medium dense; damp; 14% silt, 86% fine to medium grained gravel; no plasticity; high estimated permeability.	
				5				
		VES-2 @6.5'			SW		@ 5' - dark yellowish brown (10YR4/6); dense.	
				10			@ 10' - dark greenish grey (Gley 3/1); dense.	
		VES-2 @11.5'						
							SAND; (SW); dark greenish grey; dense; damp to moist; 10% silt, 90% fine to medium grained sand; no plasticity; high estimated permeability.	13.5
				15				
2.2		VES-2 @16.5'						
				20			@ 20' - wet.	
		VES-2 @21.5'			SW			
				25				
4,300		VES-2 @26.5'						
<1.0		VES-2 @30'		30				30.0

WELL DIAGRAM

- Portland Type I/II
- Bentonite Seal
- Monterey Sand #2/12
- 3"-diam., 0.020" Slotted Schedule 40 PVC
- Bentonite Seal
- Native Soil
- 1"-diam., 0.020" Slotted Schedule 40 PVC with Filter Cloth

Bottom of Boring @ 30 ft

WELL LOG (TPH-G) H:\SB-2004\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	VES-3
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	23-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	23-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hollow-stem auger - B-61	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	8"	**SCREENED INTERVAL**	VE: 5' - 20' bgs; AS: 28' - 30' bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	20.0 ft (23-Jul-99) ▽
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 4' bgs; located in parking lot near Auto Radio Headquarters.

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							ASPHALT.	0.3
							SAND with Silt; (SW); brown; dense; damp; 14% silt, 86% sand; no plasticity; high estimated permeability.	
	10 14 20	VES-3 @5.5'		5	SW			
							Silty SAND; (SM); grey-green; dense; damp; 20% silt, 80% sand; low plasticity; moderate to high estimated permeability.	7.0
	9 13 20	VES-3 @10.5'		10	SM			
							SAND; (SW); greenish grey; dense; damp; 5% silt, 95% sand; high estimated permeability.	12.5
	19 20 30	VES-3 @15.5'		15				
1.3								
	18 45 50	VES-3 @20.5'		20	SW		@ 20' - grey; very dense. ▽	
2,100								
	10 50 50	VES-3 @25.5'		25				
	20 20 50	VES-3 @30.5'		30				30.5
1.4								

WELL DIAGRAM

- Portland Type I/II
- Bentonite Seal
- Monterey Sand #2/12
- 3"-diam., 0.020" Slotted Schedule 40 PVC
- Bentonite Seal
- Native Soil
- 1"-diam., 0.020" Slotted Schedule 40 PVC with Filter Cloth

Bottom of Boring @ 30.5 ft

WELL LOG (TPH-G) H:\SB-200\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

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

BORING/WELL LOG

CLIENT NAME	Borsuk	**BORING/WELL NAME**	VES-4
JOB/SITE NAME	1432 Harrison Street	**DRILLING STARTED**	23-Jul-99
LOCATION	Oakland, California	**DRILLING COMPLETED**	23-Jul-99
PROJECT NUMBER	540-0188	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	35.00 ft above msl
DRILLING METHOD	Hollow-stem auger - "Rhino" Rig	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	8"	**SCREENED INTERVAL**	VE: 5' - 20' bgs; AS: 27' - 27' bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	20.0 ft (23-Jul-99) ▽
REVIEWED BY	D. Elias, RG# 6584	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 5' bgs; located in sidewalk near Douglas/Alright site boundary.

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							CONCRETE.	0.4
							SAND with Silt; (SW); brown; dense; damp; 14% silt, 86% sand; no plasticity; high estimated permeability.	
		VES-4 @6.5'		5	SW			
		VES-4 @11.5'		10				
							SAND; (SW); grey-brown; medium dense; damp; 5% silt, 95% sand; high estimated permeability.	13.5
<1.0		VES-4 @16.5'		15	SW			
							SAND with Silt; (SW); grey-brown; dense; damp; 14% silt, 86% sand; no plasticity; high estimated permeability. ▽	18.5
		VES-4 @21.5'		20	SW			
							SAND; (SW); dark grey; dense; damp; 5% silt, 95% sand; high estimated permeability.	23.0
4,300		VES-4 @26.5'		25	SW			
<1.0		VES-4 @30'		30				30.0

WELL DIAGRAM

- Portland Type I/II
- Bentonite Seal
- Monterey Sand #2/12
- 3"-diam., 0.020" Slotted Schedule 40 PVC
- Bentonite Seal
- Monterey Sand #2/12 to 28.5'; Native Soil from 28.5' to 30'
- 1"-diam., 0.020" Slotted Schedule 40 PVC with Filter Cloth

Bottom of Boring @ 30 ft

WELL LOG (TPH-G) H:\SB-2004\OAKL-1-2\GINT\BORSUK.GPJ DEFAULT.GDT 8/30/99

ATTACHMENT C

Analytical Laboratory Report

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #540-0188; Borsuk	Date Sampled: 07/22/99
		Date Received: 07/26/99
	Client Contact: Bob Schultz	Date Extracted: 07/26/99
	Client P.O:	Date Analyzed: 07/26/99

08/02/99

Dear Bob:

Enclosed are:

1). the results of **22** samples from your **#540-0188; Borsuk** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #540-0188; Borsuk	Date Sampled: 07/22/99
		Date Received: 07/26/99
	Client Contact: Bob Schultz	Date Extracted: 07/26-07/30/99
	Client P.O:	Date Analyzed: 07/26-07/30/99

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben-zene	Xylenes	% Recovery Surrogate
15999	VES-1-16.5'	S	ND	ND	ND	ND	ND	ND	110
16000	VES-1-21.5'	S	5600,a	ND<10	59	400	75	370	---#
16002	VES-1-30.5'	S	ND	ND	ND	ND	ND	ND	100
16005	VES-2-16.5'	S	2.2,g	ND	ND	0.018	ND	0.050	98
16007	VES-2-26.5'	S	4300,a	ND<10	35	260	74	310	116
16008	VES-2-30.0'	S	ND	ND	ND	ND	ND	ND	97
16011	VES-3-15.5'	S	1.3,a	ND	0.011	ND	ND	0.010	106
16012	VES-3-20.5'	S	2100,b,j	ND<10	ND<0.50	66	56	280	105
16014	VES-3-30.5'	S	1.4,a	ND	0.062	0.25	0.039	0.16	95
16017	VES-4-16.5'	S	ND	ND	ND	ND	ND	ND	109
16019	VES-4-25'	S	7600,a	32	150	490	170	640	118
16020	VES-4-30'	S	ND	ND	ND	ND	ND	ND	103
16023	CB-1-10.0'	S	ND	ND	ND	ND	ND	ND	98
16025	CB-1-16.0'	S	ND	ND	ND	ND	ND	ND	109
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #540-0188; Borsuk	Date Sampled: 07/22/99
1144 65th Street, Suite C		Date Received: 07/26/99
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 07/26-07/30/99
	Client P.O:	Date Analyzed: 07/26-07/30/99

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethylben -zene	Xylenes	% Recovery Surrogate
16026	CB-1-20.0'	S	ND	ND	ND	ND	ND	ND	112
16029	CB-2-12.0'	S	ND	ND	ND	ND	ND	ND	95
16030	CB-2-15.0'	S	ND	ND	ND	ND	ND	ND	101
16031	CB-2-20.5'	S	4.2,j	ND	ND	0.010	0.007	0.025	109
16032	CB-2-24.0'	S	4.8,j	ND	0.006	ND	0.026	0.030	102
16033	CB-1-W	W	110,000,a,h,i	ND<3000	1300	16,000	2700	12,000	108
16034	CB-2-W'	W	4700,a,i	ND<50	21	13	170	76	110
16034A	CB-1-24.0'	S	1500,a	ND<2	2.3	6.8	12	58	---#
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 925-798-1620 Fax: 925-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/25/99-07/26/99 Matrix: WATER

Analyte	Concentration (ug/L) Sample (#15450)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.0	107.4	105.4	100.0	107.4	105.4	1.9
Benzene	0.0	9.9	9.6	10.0	99.0	96.0	3.1
Toluene	0.0	10.1	9.8	10.0	101.0	98.0	3.0
Ethyl Benzene	0.0	10.3	10.0	10.0	103.0	100.0	3.0
Xylenes	0.0	30.8	30.1	30.0	102.7	100.3	2.3
TPH(diesel)	0.0	7717	7643	7500	103	102	1.0
TRPH (oil & grease)	0	21000	21400	23700	89	90	1.9

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 925-798-1620 Fax: 925-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/25/99-07/26/99 Matrix: SOIL

Analyte	Concentration (mg/kg) Sample (#09617)	MS	MSD	Amount Spiked	% Recovery MS	MSD	RPD
TPH (gas)	0.000	2.162	2.172	2.03	107	107	0.5
Benzene	0.000	0.196	0.212	0.2	98	106	7.8
Toluene	0.000	0.204	0.220	0.2	102	110	7.5
Ethylbenzene	0.000	0.206	0.224	0.2	103	112	8.4
Xylenes	0.000	0.598	0.644	0.6	100	107	7.4
TPH(diesel)	0	318	319	300	106	106	0.3
TRPH (oil and grease)	0.0	21.0	21.4	20.8	101	103	1.9

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

McCAMPBELL ANALYTICAL INC.
110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☑ 5 DAY

Report To: Bob Schultz Bill To: Cambria
Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 540-0188 Project Name: Borsuk
Project Location: 1432 Harrison Oakland
Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Other	Other	Other	Comments
VES-1-6.5'		7/22	8:15	1	SS Tube		X				X																						15997 H
VES-1-11.5'			8:25	1																													15998 H
VES-1-16.5'			8:30	1											X																		15999
VES-1-21.5'			8:40	1											X																		16000 H
VES-1-26.5'			8:50	1																													16001 H
VES-1-30.5'			9:00	1											X																		16002
VES-2-6.5'			12:15	1																													16003 H
VES-2-11.5'			12:20	1																													16004 H
VES-2-16.5'			12:30	1											X																		16005
VES-2-21.5			12:35	1																													16006 H
VES-2-26.5			12:40	1											X																		16007
VES-2-30.0			12:45	1											X																		16008

Relinquished By:	Date:	Time:	Received By:
Bob Schultz	7/26/99	11:35	
Relinquished By:	Date:	Time:	Received By:
	7/26/99	12:55	Gina A Butler
Relinquished By:	Date:	Time:	Received By:

Remarks:

	VOAS	O&G	METALS	OTHER
PRESERVATION				
APPROPRIATE				
CONTAINERS ✓				

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

TB.MV

McCAMPBELL ANALYTICAL INC.
110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: Bob Schultz Bill To: Cambria
Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 540-0188 Project Name: Borsuk
Project Location: 1432 Harrison, Oakland
Sampler Signature: Schultz

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: Ice	HCl	HNO_3	Other	BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
VES-3-5.5'		7/23	12:15	1	4" Tube		X				X																				16009 H
VES-3-10.5'			12:25	1																											16010 H
VES-3-15.5'			12:35	1											X																16011
VES-3-20.5'			12:45	1											X																16012
VES-3-25.5'			12:55	1																											16013 H
VES-3-30.5'			13:05	1											X																16014
VES-4-6.5'			12:30																												16015 H
VES-4-11.5			12:35																												16016 H
VES-4-16.5			12:40												X																16017
VES-4-21.5			12:45												X																16018 H
VES-4-26.5			12:50												X																16019
VES-4-30			13:00												X																16020

Relinquished By:	Date:	Time:	Received By:
Bob Schultz	7/26/99	11:35	
Relinquished By:	Date:	Time:	Received By:
	7/26/99	12:55	Tina A. Butler
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATION APPROPRIATE ✓
CONTAINERS

VOAS	O&G	METALS	OTHER

16065

McCAMPBELL ANALYTICAL INC.
110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☑ 5 DAY

Report To: Bob Schultz Bill To: Cambria

Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608

Tele: (510) 420-0700 Fax: (510) 420-9170

Project #: 540-0188 Project Name: Borsuk

Project Location: 1432 Harrison

Sampler Signature: Schultz

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
CB-1-4.0'		7/23	11:30																												16021 H
CB-1-8.0'			11:40																												16022 H
CB-1-10.0'			11:45												X																16023
CB-1-12.0'			11:45																												16024 H
CB-1-16.0'			11:55												X																16025
CB-1-20.0'			12:00												X																16026
CB-2-4.0'			12:30																												16027 H
CB-2-8.0'			12:40																												16028 H
CB-2-12.0'			12:50												X																16029
CB-2-15.0'			13:00												X																16030
CB-2-20.5'			13:15												X																16031
CB-2-24.0'			13:20												X																16032
+5 CB-1-W			12:20	7	VOA	X					X	X			X																16033
+5 CB-2-W			13:45	6	VOA	X					X	X			X																16034
CB-1-24.0			12:15	1			X								X																16034A

Relinquished By:	Date:	Time:	Received By:
Bob Schultz	7/26/06	11:35	A Moulin 3CS
A Moulin	7/26/06	7:55	Tina A Butler
Relinquished By:	Date:	Time:	Received By:

Remarks:

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATION APPROPRIATE ✓
CONTAINERS ✓

VOAS | O&G | METALS | OTHER

ATTACHMENT D

Standard Field Procedures for Soil Borings and Remediation Wells

CAMBRIA

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Cambria Environmental Technology's standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

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

Sample Storage, Handling and Transport

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

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licenced waste haulers and disposed in secure, licenced facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licenced waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

CAMBRIA

STANDARD FIELD PROCEDURES FOR REMEDIATION WELL INSTALLATION

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

SOIL BORING AND SAMPLING

Objectives

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

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or push technologies such as the Geoprobe. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

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

Sample Analysis

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

Field Screening

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

cap. PID measurements are used along with the field observations, odors, stratigraphy and groundwater depth to select soil samples for analysis.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

REMEDIATION WELL INSTALLATION

Well Construction

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

Well casing and screen are typically one to four inch diameter flush-threaded Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement. Well-heads are typically connected remediation piping set in traffic-rated vaults finished flush with the ground surface. Typical well screen intervals for each type of well are as follows:

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

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

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

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

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

Well Development

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

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