do more more ama a can review for dosove Do SCM to iD potential receptors? Well surreyours prevenly done by GeoMatrix

Ms. Eva Chu Alameda County Department of Environmental Health 1131 Harbor Bay Parkway, 2nd Floor Alameda, California 94502

Re:

LETTER OF TRANSMITTAL

Second Quarter 2000 Groundwater Monitoring Report

Clark's Home and Garden 23040 Clawiter Road Hayward, California

Dear Ms. Chu:

Cambria Environmental Technology, Inc. has enclosed the Second Quarter 2000 Groundwater Monitoring Report for the above-referenced site.

If you have any questions, please do not hesitate to call me at (510) 420-3340.

Sincerely,

Cambria Environmental Technology, Inc.

\\SERVER\IR\Clarks H&G\QM\QMRTransmittal Letter.doc

Enclosure

Mr. Ken Clark, 23040 Clawiter Road, Hayward, California 95118-3686 cc:

Mr. and Mrs. Bob and Shirley Price, 537 Hidden Valley Road, Grants Pass, Oregon 97527

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

Mr. Kenneth D. Clark Clark's Home and Garden 23040 Clawiter Road Hayward, California 95118-3686

Re: Second Quarter 2000 Groundwater Monitoring Report

Clark's Home and Garden 23040 Clawiter Road Hayward, California Cambria Project # 189-1517



Dear Mr. Clark:

As required by the Alameda County Health Care Services Agency (ACHCSA), Cambria Environmental Technology, Inc. (Cambria) has prepared this quarterly monitoring report for the above-referenced site (Figure 1). The second quarter 2000 activities and results, bioparameter sampling analyses results, hydrocarbon distribution in groundwater, and the anticipated third quarter 2000 activities are presented below.

SECOND QUARTER 2000 ACTIVITIES and RESULTS

Monitoring Activities

Field Activities: On April 27, 2000, Cambria gauged and collected groundwater samples from wells MW-1, MW-2, and MW-3 (Figure 2). Cambria recorded dissolved oxygen (DO) and ferrous iron concentrations, and measured oxidation-reduction potential (ORP) during field activities. Field data sheets are presented as Attachment A.

Sample Analyses: Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) by modified EPA Method 8015, and benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert-butyl ether (MTBE) by EPA Method 8020. Samples were also analyzed for the bioparameters nitrate, sulfate and alkalinity. Any samples containing MTBE were further analyzed by EPA Method 8260. The groundwater analytical results are summarized in Table 1. The analytical report is included as Attachment B.

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

Monitoring Results

Groundwater Flow Direction: Based on depth-to-water measurements collected during Cambria's April 27, 2000 site visit, groundwater beneath the site flows to the west with a gradient of 0.005 ft/ft (Figure 2). Depth-to-water and groundwater elevation data are presented in Table 1.

BIOPARAMETER ANALYSES RESULTS



To assess the present level of intrinsic bioremediation, Cambria analyzed samples collected from all site wells for ORP, nitrate, sulfate, ferrous iron, alkalinity, and DO. Comparison of TPHg concentrations with the above bioparameters indicate that anaerobic biodegradation of hydrocarbons is occurring at the site. The analytic results and the relative TPHg concentrations are presented below:

	Table A - Bioparameter Concentrations in Ground Water								
	ORP	Nitrate	Sulfate	Ferrous Iron	Alkalinity	DO	ТРНg		
MW-1	114 mV	7.0 mg/l	36 mg/l	< 0.2 mg/l	550 mg/l	0.77 mg/l	960 μg/l		
MW-2	106 mV	15 mg/l	32 mg/l	< 0.2 mg/l	410 mg/l	1.29 mg/l	730 µg/l		
MW-3	116 mV	75 mg/l	70 mg/l	< 0.2 mg/l	430 mg/l	1.35 mg/l	<50 μg/l		

Bioparameter data indicates that both aerobic and anaerobic biodegradation are occurring when concentrations from source area well MW-1 are compared to down-gradient well MW-3.

Aerobic Biodegradation: During this quarter, DO concentrations from source area well MW-1, when compared to down-gradient well MW-3, decrease as hydrocarbon concentrations increase. DO has been depleted in the source area to below 1 mg/l, and nitrate and sulfate have likely been supplemented as electron acceptors. Alkalinity concentrations also indicate that aerobic biodegradation is occurring. The down-gradient alkalinity concentrations in MW-3 are lower than alkalinity concentrations reported in source area well MW-1.

Anaerobic Biodegradation: Nitrate and sulfate concentrations measured in source area well MW-1 demonstrate an inverse relationship with hydrocarbon concentrations when compared to nitrate and sulfate concentrations in down-gradient well MW-3. These results are consistent with the nitrate and sulfate results from the first quarter sampling event, indicating that anaerobic biodegradation is occurring beneath the site. The ORP measurements measured this quarter in wells MW-1, MW-2, and MW-3 are positive and inconsistent with the negative first quarter ORP measurements. Therefore, ORP results do not indicate that anaerobic biodegradation is occurring. However, the comparison of the results in the source area to the down-gradient well vary inversely, and indicate

that biodegradation is occurring. The relationships between the bioparameter results and the hydrocarbon results observed in site monitoring wells are presented in Table B. Historical bioparameter concentrations in groundwater are included in Table 2.

	Table B - Bioparameter Analysis		
Bio- parameter	Description of chemical processes and implications of relationship between hydrocarbon and bioparameter concentrations.	Relationship indicating active bio- degradation	Observed Relationship
ORP	The oxidation-reduction potential (ORP) of groundwater is a measure of electron activity and is an indicator of the relative tendency of a solute species to gain or lose electrons. The ORP of groundwater generally ranges from -400 millivolts (mV) to +800 mV. Under oxidizing conditions the ORP of groundwater is positive, while under reducing conditions the ORP is usually negative. Reducing conditions (negative ORP) suggests that anaerobic biodegradation is occurring. Generally, the ORP of groundwater inside a hydrocarbon plume should be somewhat less than that measured outside the plume.	inverse	inverse
Nitrate	After DO has been depleted in the groundwater, nitrate may be used as an electron acceptor for anaerobic biodegradation. In this denitrification process, nitrate is reduced to nitrite. Reduced nitrate concentrations in the source area compared to the clean area suggests that anaerobic biodegradation is occurring.	inverse	inverse
Sulfate	After DO and nitrate have been depleted in the groundwater, sulfate may be used as an electron acceptor for anaerobic biodegradation. If sulfate concentrations vary inversely with hydrocarbon concentrations, anaerobic biodegradation of fuel hydrocarbons is probably occurring.	inverse	inverse
Ferrous Iron	In some cases ferric iron acts as an electron acceptor during anaerobic biodegradation of petroleum hydrocarbons. In this process, ferric iron is reduced to ferrous iron, which may be soluble in water. Therefore, if the ferrous iron concentrations vary directly with hydrocarbon concentration, anaerobic biodegradation may be occurring.	direct	inconclusive
Alkalinity	The total alkalinity of groundwater indicates the groundwater's ability to neutralize acid. High alkalinity (high pH) conditions occur when groundwater contains elevated hydroxides, carbonates, and bicarbonates of elements such as calcium, magnesium, sodium, potassium, or ammonia. Since these chemical species are created by the respiration of microorganisms, high alkalinity is an indicator of biological activity. However, these chemical species may also result from the dissolution of rock (especially carbonates) and the transfer of carbon dioxide from the atmosphere. Alkalinity also buffers groundwater pH against acid generation by both aerobic and anaerobic biodegradation processes. Higher alkalinity in the source area as compared to clean areas suggests that aerobic biodegradation is occurring.	direct	direct



thermodynamically favored electron acceptor used in aerobic biodegradation of petroleum hydrocarbons. Active aerobic biodegradation of BTEX compounds requires at least 1 ppm DO in groundwater and DO concentrations can be as high as 8 to 13 mg/L in oxygen-saturated groundwater that is free of hydrocarbons. Observed inverse relationships between DO and hydrocarbon concentrations indicate the occurrence of aerobic degradation, provided that at least 1 to 2 mg/L of DO is present in groundwater.



Hydrocarbon Distribution in Groundwater

Hydrocarbon concentrations decreased significantly since the first quarter sampling event in wells MW-1 and MW-2. The only benzene concentration reported was 3.5 μ g/l detected in groundwater samples collected from the source area well MW-1. The maximum TPHg and TPHd concentrations detected were 960 μ g/l and 1,400 μ g/l in monitoring wells MW-1 and MW-2, respectively. No petroleum hydrocarbon constituents were reported above laboratory detection limits in groundwater samples collected from down-gradient well MW-3. The hydrocarbon plume appears to be stable with evidence that natural hydrocarbon biodegradation is occurring.

ANTICIPATED THIRD QUARTER 2000 ACTIVITIES

Monitoring Activities

Quarterly Ground Water Sampling: Cambria will continue to gauge, measure dissolved oxygen, ORP and ferrous iron concentrations, and collect groundwater samples from all site wells. Cambria will submit the samples to an analytical laboratory for TPHg, TPHd, BTEX, MTBE, and bioparameters analyses. Cambria will also tabulate the data and prepare a quarterly monitoring report.

Purged Groundwater Disposal: Any purge water generated during sampling events will be disposed of by an approved facility during the third quarter 2000.

CLOSING

We appreciate the opportunity to provide environmental services on behalf of Mr. Ken Clark. If you have any questions or comments, please call John Riggi at (510) 420-3340.

Sincerely,

Cambria Environmental Technology, Inc.

) Whian



John A. Rigge Project Geologist

Dave C. Elias, RG Senior Geologist



cc:

Ms. Eva Chu, Alameda County Department of Environmental Health 1131 Harbor Bay Parkway, 2nd Floor, Alameda, California 94502

Mr. and Mrs. Bob and Shirley Price, 537 Hidden Valley Road, Grants Pass, Oregon 97527

ATTACHMENTS

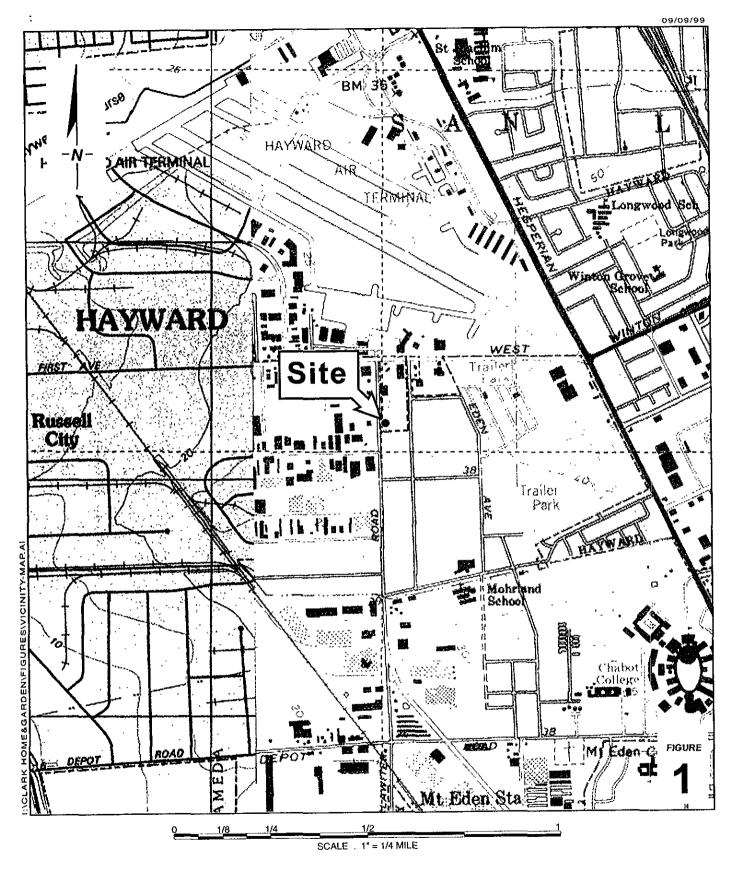
Figure 1 - Vicinity Map

Figure 2 - Groundwater Contour Map

Table 1 - Groundwater Elevation and Analytical Data

Attachment A - Field Data Sheets

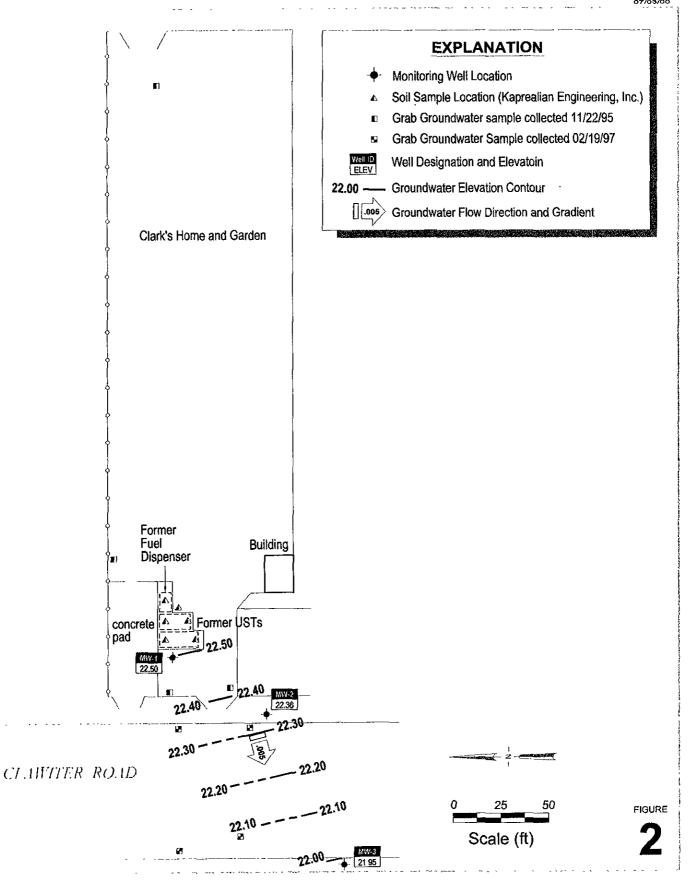
Attachment B - Laboratory Analytical Report



Clark's Home and Garden



Vicinity Map



Clark's Home and Garden

9

Groundwater Contour Map

Table 1. Groundwater Analytical Data - Clark's Home and Garden, 23040 Clawiter Road, Hayward, California

		Depth to	Groundwater							
Well ID	Date	Groundwater	Elevation	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
TOC (ft)		(ft)	(ft*)	<			(μg/L)			>
MW-1	8/7/91			5,900	7,100	45	<25	130	520	
35.30	9/5/91			47,000	2,800	<50	<50	230	660	
	10/15/91			24,000	13,000	<50	<50	<50	390	
	1/7/92			23,000	9,000	<50	<50	270	800	
	4/8/92			8,100	3,500	19	<5	350	210	
	7/7/92			7,000	6,300	<5	<5	190	170	
	11/23/93			2,400	1,600	1.5	3.7	41	24	
	1/31/94			3,900	1,900	1.9	4.2	56	49	
	4/11/94			2,200	3,000	1.2	4.6	11	11	
	7/27/94			6,200	4,400	<1	<1	50	74	
	10/31/94			1,700	1,800	2.1	4.9	20	42	
	10/9/95			870	1,300	< 0.5	< 0.5	12	10.4	
	1/17/96			1,800	1,800	10	<5	16	19.8	
	4/25/96			1,700	1,500	11	5.7	26	25	
	2/19/97			2,800	430	9	6	33	50	
	10/15/99	14.45	20.85	$1,000^{a}$	1,400	3.3	5	4.6	6.7	<5.0
	1/25/00	14.21	21.09	$2,200^{a,b}$	1,400 ^{b,d,g}	3.3	1.7	4.6	7.4	<5.0
	4/27/00	12.80	22.50	960ª	820 ^{d,e}	3.5	3.2	7.7	25	<5.0
MW-2	10/15/99	13.86	20.76	4300 ^{g,j}	3,100	<1	6.7	11	11	<5.0
34.62	1/25/00	13.61	21.01	2,300 ^{b,g,h}	2,900 ^{b,d,g}	<0.5	2.3	2.2	2	<5.0
34.02	4/27/00	12.26	22.36	730 ^{b,j}	1,400 ^{b,f}	<0.5	0.86	0.71	0.77	<5.0
	4/2//00	12.20	22.50	750	1,700		0.00	3112	01 , ,	
MW-3	10/15/99	14.88	20.42	<50	99	< 0.5	< 0.5	< 0.5	< 0.5	<5.0
35.30	1/25/00	14.67	20.63	<50	98 ^g	<0.5	< 0.5	<0.5	< 0.5	< 5.0
	4/27/00	13.35	21.95	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
ТВ	10/15/99			<50		<0.5	<0.5	<0.5	<0.5	<5.0

1 of 2

Table 1. Groundwater Analytical Data - Clark's Home and Garden, 23040 Clawiter Road, Hayward, California

		Depth to	Groundwater			<u> </u>				
Well ID	Date	Groundwater	Elevation	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
TOC (ft)		(ft)	(ft*)	<			(μg/L)			>

Abbreviations and Methods:

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015 Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020

MTBE = Methyl tert-butyl ether by EPA Method 8020

 $\mu g/L = micrograms per liter$

TOC = top of casing elevation

TB = trip blank

-- = not available, not analyzed, or does not apply

Notes:

Sampling prior to 1999 reported by Geomatrix.

- a unmodified or weakly modified gasoline is significant
- b lighter than water immiscible sheen is present
- c heavier gasoline range compounds are significant (aged gasoline?)
- d gasoline range compounds are significant
- e diesel range compounds are significant; no recognizable pattern
- f aged diesel? is significant
- g strongly aged gasoline or diesel range compounds are significant
- j no recognizable pattern

2 of 2

Table 2. Bioparameter Concentrations in Groundwater - Clark's Home and Garden, 23040 Clawiter Road, Hayward, California

Well ID	Date	ORP mV	Nitrate	Sulfate	Ferrous Iron —— mg/l————	Alkalinity	DO	TPHg μg/l
MILL	1/05/00	-108	2	20	0.8	720	2.31	2,200
MW-1	1/25/00		3					•
	4/27/00	114	7	36	<0.2	550	0.77	960
MW-2	1/25/00	-130	20	42	0.3	520	0.31	2,300
	4/27/00	106	15	32	<0.2	410.0	1.29	730
MW-3	1/25/00	-37	69	66	0.02	470	0.46	<50
	4/27/00	116	75	70	< 0.2	430	1.35	<50

Abbreviations:

ORP = Oxidation-Reduction Potential

mV = millivolts

mg/L = milligrams per liter

μg/L = micrograms per liter

DO = Dissolved Oxygen

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

ATTACHMENT A

Field Data Sheets

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
1/1/1/1-1	10:57 10:54 10:50am		12.801		23.481 28.12' 29.251	
MW-2	10:54		12.26'		25.12'	
MW-3	10:50am		13.35)		29.251	
				•		
				<u></u>		
<u></u>		<u></u>				
				<u> </u>		
	,	M				
,				· · ·		•
		:				

Project Name: ChARK'S 1/46	Project Number: 189 - 15/7
Measured By: CB/ME	Date: 4/27/00

WELL SAMPLING FORM

Project Name: Clark's Home &Garden	Cambria Mgr: DCE	Well ID: MW-	
Project Number: 189-1517-009	Date: 4/21/00	Well Yield:	
Site Address:	Sampling Method:	Well Diameter: 2 "pvc	
23040 Clawiter Road Hayward, CA.	Disposable bailer	Technician(s): ME	
Initial Depth to Water: 12.80	Total Well Depth: 23.48'	Water Column Height: 10.68'	
Volume/ft: 0.16	1 Casing Volume: /- 7/90c	3 Casing Volumes: 5, 1264L.	
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 5.3 qal	
Start Purge Time: 11:21Am	Stop Purge Time: 11:32	Total Time: \\ min.	

1 Casing Volume = Water column height x Volume/ft 97 5 C FORD = 114 mV FORD | Well Diam. Volume/ft (gallons) | 1.47 | Volume/ft (gal

Time	Casing Volume	Temp. C	pН	Cond. uS	Comments
11:24	/	19.0	7.2	732	ODOR-OUS.
11:27	2	16.0'	7.3	765	
11:31	3.	17.8°	7.2	737	
	·				

Sampl	e ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-	1	4/27/00	12:35	4 voa's	HCL	TPHg, BTEX, MTBE* * MTBE (Confirm hits)	8020 8015 8260
MW-	1	4/27/00	12:35	1L plastic	None	Nitrate, Sulfate, Alk.	
MW-	(4/27/00	12:35	1L plastic	None	TPHd	8015

WELL SAMPLING FORM

Project Name: Clark's Home &Garden	Cambria Mgr: DCE	Well ID: MW- 2	
Project Number: 189-1517-009	Date: 4/27/00	Well Yield:	
Site Address:	Sampling Method:	Well Diameter: 2 "pvc	
23040 Clawiter Road Hayward, CA.	Disposable bailer	Technician(s): ME	
Initial Depth to Water: 12,26	Total Well Depth: 25.121	Water Column Height: 12.86	
Volume/ft: 16 aal/a	1 Casing Volume: 2.06 gol	3 Casing Volumes: 6.2 gas	
Purging Device: disposable bailer	Did Well Dewater?: //O_	Total Gallons Purged: 6.594e	
Start Purge Time: //:46	Stop Purge Time: / 2:0/	Total Time: 15 Min	

1 Casing Volume = Water column height x Volume Rt.	empus	iron=0,0-Mg/Lwell 1		
@17.594"		Well J	<u>Diam.</u> <u>Volume/ft (gallo</u>	ons)
1 Casing Volume = Water column height x Volume/ ft.			2" 0.16	
DOLT DOD-	10/	mal	4" 0.65	
POST ORP=1	(6)	my	6" 1.47	

Time	Casing Volume	Temp. C	pН	Cond. uS	Comments
11.50		17.8	7.8	701	
11:54	2	17.9	7.6	693	6.REYISH-PURGE
12:01	3	17.6	7.5	68P	GREYISH-PURGE WATER
					-water in well
	<u></u>			· · · · · · · · · · · · · · · · · · ·	Ossing upon
					arrival-
			<u></u>		removed

Sample	e ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-	2	4/27/00	12.50	4 voa's	HCL	TPHg, BTEX, MTBE* * MTBE (Confirm hits)	8020 8015 8260
MW-	2	4/27/00	12:50	1L plastic	None	Nitrate, Sulfate, Alk.	
MW-	7	4/27/00	12:50	1L plastic	None	TPHd	8015

WELL SAMPLING FORM

Project Name: Clark's Home &Garden	Cambria Mgr: DCE	Well ID: MW- 3
Project Number: 189-1517-009	Date. 4/27/00	Well Yield:
Site Address:	Sampling Method:	Well Diameter: 2 "pvc
23040 Clawiter Road Hayward, CA.	Disposable bailer	Technician(s): ME
Initial Depth to Water: 13.35	Total Well Depth: 29-25	Water Column Height: 15.90
Volume/ft: 1699/A	1 Casing Volume: 2,155gal	3 Casing Volumes: 7.63 gal
Purging Device: disposable bailer	Did Well Dewater?: V0	Total Gallons Purged: 8 qa/
Start Purge Time: 12:06 PM	Stop Purge Time: \2:19	Total Time: 13 min.

| Casing Volume = Water column height x Volume/ft. @ 18.5° C | Ferrous from = 0.0 mold -0.2 ms/L. | Volume/ft (gallons) | Volume/ft

Time	Casing Volume	Temp. C	pН	Cond. uS	Comments
12:09		18.1°	7.6	760	
12:15	2	18.2	7.8	549	silty purge water
12:14	33	18.3	7.6	760	3 ()
		1			
					,

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW- 3	4/27/00	1:05	4 voa's	HCL	TPHg, BTEX, MTBE* * MTBE (Confirm hits)	8020 8015 8260
MW- 3	4/21/00	1:05	1L plastic	None	Nitrate, Sulfate, Alk.	
MW - 3	4/29/00	1:05	1L plastic	None	ТРН	8015

ATTACHMENT B

Analytical Laboratory Report

Sent By: McCampbell Analytical;

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

May-4-00 9:29AM;

Cambria	Environment	al Technolo	gy): #189-151	17;	Date Samp	oled: 04/27	/00								
1144 65 ^d	Street, Suite	С		Clark'	s H&G			Date Received: 04/28/00										
Oakland,	CA 94608			Client	Contact: I	Mark Erick	son	Date Extracted: 04/28/00										
				Client	P.O:	- 		Date Anal	yzed: 04/28	8/00								
	e Range (C6									* & BTEX*								
Lab ID	Client ID	Matrix		H(g) [†]	мтве	Benzene	Toluene	Ethylben- zene	Xylenes	% Recovery Surrogate								
36612	MW-1	w	9	60,a	ND	3.5	3.2	7.7	25	*								
36613	MW-2	w	73	0,j,h	ND	ND	0.86	0.71	0.77	*								
36614	MW-3	w	1	ND	ND	ND	ND	ND	ND	93								
				<u> </u>														
										-								
		<u> </u>																
				····														
						<u></u>				<u> </u>								
	<u>.</u>																	
_																		
								<u></u>										

5.0

0.05

0.5

0.005

W

50 ug/L

1.0 mg/kg

0.5

0.005

0.5

0.005

0.5

0.005

Reporting Limit unless

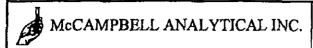
otherwise stated; ND means not detected above

the reporting limit

^{*} 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

^{*} 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 aftered gasoline?; c) 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.



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

Cambria Envi	ronmental Technolog		ent Project ID: #189-1517;	Date Sampled: 04/27/00										
1144 65 th Stre	et, Suite C	Cla	rk's H&G	Date Received: 04/28/00										
Oakland, CA	94608	Clie	ent Contact: Mark Erickson	Date Extracted:	:d: 04/28/00									
		Clie	ent P.O:	Date Analyzed:	:d: 04/28/00									
EPA methods mo	_	-	-C23) Extractable Hydrocarbo omia RWQCB (SF Bay Region) metho		D(3510)									
Lab ID		Matrix	TPH(d)⁺											
36612	MW-1	W	820,d,b		103									
36613	MW-2	W	1400,c,h		100									
36614	MW-3	w	ND		100									
		<u></u>		· · · · · · · · · · · · · · · · · · ·										

• water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP
extracts in ug/L
cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been

50 ug/L

1.0 mg/kg

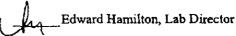
W

diminished by dilution of original extract.

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit

'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 diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (kerosene?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

works of strong



Λ 141

	McCAMPBELL ANALYTICAL INC.									9	1	Z	C	<u> </u>	<u>t6</u>	_	_													
	McCAM	IPBELL 10 2 rd AV	ANAL	YTI) UTH. #	CAL #D7	IN	C.	•		•			'		17Y F-	73 .								OL	Υ			ORD		12/
		PACHI	ECO, CA 9	4553		_		_	_			I		']	LUI	N.	AK	OU	ND	TIN	1E			***	^ -	0		49.71		, M.,
	Telephone: (925) 798-1620 Fax: (925) 798-1622																<u> </u>	- , .				F	RUS	H	24	H		48 H	LUU	
Commence Control	o: MARK ERICKS ON Bill To: CANBRIA EN y: Cambria Environmental Technology														;	<u> </u>	<u>. A</u>	nály	sis F	Lequ	est)ther	-	Comments
Company: Cambrid	a Environmen o th Street, Suite	ital Techn	lology							,					ទ					•		1							- 1	1.
	d, CA 94608	e C	·									{	ш		88		ŀ							-			3			(B B)
		<u>.</u>		/5	40) 40								+ 8015Y MTBE		Grease (5520 E&F/B&F)					(,		EPA 625 / 8270 / 8310			- 1	ľ	1			100
Tele: (510) 420-07 Project #:		/7			10) 42			484	7-	77	10		ક		8	8				18		2				į				6.
Project Location:	9-151		P1	roject	Name	:: <u>C</u>	LA	K,	<u> </u>	Ht		\exists	2 .		3	2 S	5	3	٠	3		22					1			13
Sampler Signature	230,40	11/19	174/1	18%	<u> </u>	E)	-	42	41	4	12	2	020		S.	ğ	00/	8	Ž	1		525			8	- 1	4			7 %
Sampler Signature	Typos	مری سری	1//							376	THO		0208/209)	1 1	S	8	ξ	3	O E	Ġ)		ž			နို		200			20101
	(SAMP	LING		r	N	/AT	RIX		PRES	SERV	ED	9) 82	015	8	¥	,	\$		(<u>8</u>)					8		, T	-		6 . 6
				SIS	ģ	П	\top		П	T	T	П	S S	80	Ę	Ę.		<u> </u>	8	8	20	is l	큺	ä	<u>₹</u>	- 1	1			育しば
SAMPLE ID	LOCATION			ain	1 2								HAI	3	ē		2		18	98	90	Ž	ž	١	§	}	The state of	,]		3,50
		Date	Time	Containers	[강]	id.	_	ge	占		. ර	b	3	Z.	12	F	§ Ş	2 8	8	624	3	18,	51	1.5	<u> </u>		D.H.E.	1 '		212
	1			# #	Type Containers	Water	Soul Air	I.E.	Other	3 E	HNO	Other	BTEX & TPH	TPH as Diesel (8015)	Total Petroleum Oil	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BIEA ONLI (J	EPA 608 / 8080 PCB's ONLY	EPA 624 / 82407 8260	EPA 625 / 8270	PAH's / PNA's by	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	밀	1			22 7
1:411)-1		4/27/4	1/2/20		SE.	X	-	+-		X	7		V	V		\dashv	_	+	+			\rightarrow	_	_	_	$\overline{}$	Ì	+-	<u> </u>	
11/11/2	U-1 4/2-1/20/235 6 XX XX												台				+	+	╁			\vdash	-	-	-	╌┦	Υ	 		36612
111111-3	 	1/	1.05	6			+	╁╌	1-1	₩,	#-	+-	1	H	H	-	+		+-	╫				-+	\dashv	\dashv	+			36613
1151710	 	 \\	7.703	0	-	4	+			4	-	╂	18,	14			-	+	+	14-			-	\dashv	+		4	′		30013
	 	-	 				-	╁	╀╌┨			+-	 		-		\dashv		+-	┼-	 		-							36614
	ļ				<u> </u>	\sqcup			4	_		_	_	 	Щ		_	_		┦	<u> </u>			-			_	_		
···-		1			<u> </u>					_									4.	ļ_			_		{					
	<u> </u>	<u> </u>		<u> </u>								<u> </u>						1												
	•	1.			1																									
												1		\vdash																
	1	<u> </u>		 			_	1	П			┪~~	1-	\top	1					1		П				_		\dashv	\vdash	
·	1	1	 	 	┨	┢╌┼		+	+		+	╁	╁╌	╫╾	-	-	+	\dashv			┼	\vdash					-	+	-	[
	 	 			-	-	+	+-	+	-	-	╁┈	·	┼	-	\vdash		\dashv	+-	╁	\vdash	-	-		_				┪	
	 	 		 -	 		-	+	-	-	_		1	╂	├	 	_			-	╄	_			-				├-	<u> </u>
<u> </u>		<u> </u>	<u> </u>	<u> </u>			\bot	\perp		\perp			1_	<u> </u>							<u> </u>						\sqcup		<u> </u>	
	<u> </u>	<u> </u>			1						-				1													-	}	İ
11/	17.7	1			1						Т	7	T				\Box	\neg	\top	1	Τ							\top		
Relinguished By		Date: /	Time:	Rec	eived B	<u>т</u> у:				<u> </u>			R	ema	uks:					_1		<u> </u>				اا				<u> </u>
1/1/ July	1	Date: Time: Received By: Date: Time: Received By: Remarks:												_	11		MIGHTS.													
Refinguished By:	~	(Daye:	Time:				,	-		Ž			1	7	^	7	دسرام	יייע ייי	.) () a	/ 	بر س		•					, -1	•,	ببسعيارت
Olleon	a	4.28	1200		Vive	le\	V	(WA	7)					1	Z.K	- ,	77-0	np	LE	,		_	>	-	ر	رو		1. 1 FaTE
Relinquished By:		Date:	Time:		eived B		<u>Y</u> _				<u></u>		7		4	VO	48	,	Z	PH	4	, '	151	E)		, ,,	10	יבי) '	/ 1/1 x f / 1
	;	}		1									1		1	- 1	(E	-	N	172	14	Z-,	86	4	£1	7	, 17	LKI	421	uly
	-											_/	-ļ					_												TB.M

_	19993											7	Z	<u>:</u> C	l	46	· . <u>C</u>	la	_													
	Telenhor	McCAM 1 1e: (925) 798-	10 2 [™] AV PACHI		UTH,	#D7			798-	162	7				,	TU	RN					OF ME					ξ	ם	COR	S HO	UR ST	X _Y
ŀ				ical B	ill To							27	, 						Āπāī	veid	Ŕ	uest					7 42		Othe		Comm	
		ort To: MARK ERICKICO Bill To: CAMBRIA ET										<u></u>						Ť	11101	1	1201	.	T	Γ-		1		├ .		-	Comm	EII LS
Ī		ⁱⁿ Street, Suite														3&F			- 1		Ì			Ì		1		1		1	14.3	~
	Oakland	, CA 94608												192		&F/1				1	7	1	2	•	ļ			3		1	100	7,
	Tele: (510) 420-07					10) 4								Σ		OE	8.1)	1			à	넔	20	ļ l			Ì		.	- 1	17	
		9-151	7			Nam			RKS	<u> </u>	H	46		<u> </u>		(55)	£		2	1	Į	3	23	ĺ			ł	3		i	1 3	
- 1	Project Location:	230,00	7.54	ALKI	727	2	je!	<u> </u>	#2	201	u	11	20	ģ		Grease (5520 E&F/B&F)	g		802		֓֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓		2	1		ē	}	245125			23	l) i
	Sampler Signature	Moch	of Ox	//-										នឹ	1 :	ဇ်	ğ	Ī	ĝ		۾ ڌِ	الا	18	ļ		18		2		1	38	
		SAMPLING MATRIX METHOL PRESERVE											Gas (602/1020 + 8015) MTBE	(8015)	S IO	Hydr		BY 6				b	_		1739		ا وم			1 C	60	
	SAMPLE ID											Offer	BTEX & TPH 10	TPH as Diesel (8015)	Total Petroleum Oil &	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	Er Cos Josep Ports Off	EPA 608 / 8080 PCB's C	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	5	(TRATE	•		CONF	£ .	
			//		*		. 1	S ₹	: S		<u> </u>	n a	10	'n	F	F	F	国	in l	3 1	<u>ਹ</u> 5	1 1 1 1	E.	O	13	73	Š	11		_ _		
4	15/10-1		4/27/00	12.35	6	X	X				$\Delta \lambda$	X_{\perp}		X	X									l		ļ		X	,	_	366	
X	ww-2		1	1250	6		1					Ш.	1		1								Γ					П			3661	2
لد	11/1/1-3		V	1:05	6	V					V	I		IJ	1						J		Τ				T	11	7:		3661	13
,	4.1												1						7	1	7	\top	T	Π	<u> </u>							
Ì											十		\top	1	1				+	+	7	+	 	十	.	-	\vdash		_		3661	4
ì					 	 			+-		\dashv	-	+	\vdash				_	\dashv	+	+	+-	┼	-	-	\vdash	 	H	—	1		
			 -			1		-	-		+	+	+-	-	 	\vdash			\dashv	+		+-	╁	┼─	 -		-	╂─┤	+		·	
1						\vdash	1	-	+	\vdash	_	+	╁	╁─	+	\vdash			╌┼	+		╁	+-	-	-	-	-		\dashv	- -	<u> </u>	
		······································		 -		 	-	-	+	\vdash		+	+-	 	-	-		\dashv		+		╌├╌	-	├	├		├	┢╾┥	\dashv			
					 	-	H		+	┝╌╂	+			╂─	-	-		\dashv		+	+	-	-	├	-	-	 	┢╾┥	-+		ļ	
	<u></u>		1	 	 	 	-			┝╼╂	+			-	├-	-	\vdash		\dashv				┼	ļ	 	├	 	┟─┤	_		<u> </u>	··
			1	 	1	 					-	-		-		├		{		+			╄-	 	 -		 				 	
	<u> </u>	ļ	ļ		├	-	-	-	-			+	+	╀	-	 			+	-	- -	┿	┼	ļ		 	-		-+		<u> </u>	
					 	-	-		+	┝╌┨	-	4	-	}_	⊢	-			-	4		+	-	 	 	}			_]	
					<u> </u>	.			-		_		- -	.	़—			_[1	_	1	<u> </u>	<u> </u>			<u> </u>	\sqcup		_ _	<u></u>	
	11/1	1,/			ļ. <u>.</u>	<u> </u>								_		L						<u> </u>		<u> </u>					\perp			
	Relinquished By	1190 9:45 Juliones											R	ema 🕹	1ks:	4	l	1104	<u>'</u>	W	140	/	A	ui))	.2	. –		D D	NBEE 1-1.1; 174; 18.	ر -	
	Refinguished By:	al	(Date:	Time:	Becc	ived B		V	(1)		1	`			1	1 *	/	EX	2)	r _A	m	OLE	÷.		_		-		, -	7		
	Relinquished By:		4,28 Date:	12:00 Time:		eived B		V	<u> </u>			,		1		4	VOA	28	<i>'</i> .	7	71	49	, '	BI	2	ζ,	, n	278	?=	٠ ر	1-11:	1146
	<u> </u>	1	<u></u>	<u> </u>													-/	ł	-	A	117	111	Z-,	81	U.F	397	t	1	41	HL II	114	ļ
												V	~	/																	TB.	NU

τ
9
ag
æ
Ĺ
•
Û

McCA	(MPB) 110 2"								N	C.				C	\mathcal{H}	A	I	N	0)F	7 (Cl		57	C)L) }	1	RI	EC	<i>CO</i>	RI	D	
Telephone: (PAC 925) 798-10	HECO 520	, CA 9	455	3.5	560 Fa		925)	75	18-1	622		Τl	URI						RU	SH	24	t H(ם וטכ	R 4	48 1	U HOI	JR	51	ZA'	Y I	tOU'	O TINE	,
Report To: ED HAMILTON Bill To: MAI											AN.	AL	YS	IS	RE	QI	UE	ST		\prod		(TI	IE	R					-				
Project #: 1999 7 Project Name: CAM												į	1		ļ										Ţ_									
Project Location	n:								-	165	TIL	STS.			1		ļ	ļ		<u></u>														
j 	•	SAMI	SAMPLING			MATRIX			METHOD PRESERVED					اح	1			Meta	99															
SAMPLE ID	LOCATION	Date	Time	# Containers	Type Containers		Air	Sludge	Other	lce HCI	HNO	Other	EPA 601/8010	EPA 602/8020	EPA 608/808	EPA 608/8080-PCB's only	EPA 624/8240/8260	EPA 625/8270	CAM - 17 Metals	EPA - Priority Pollutant Metals	LUFT Metals	LEAD (7240/7421/239,2/6010)	ORGANIC LEAD	RCI	NITEGIE	DUITATE	A KAINIT				Co	OMM	ENTS	3
MW - 1		4/27		シ	以	X				X															*	Z		ز ر	38	71	3	06	12	. 1
MW -2		1			1]																				13	
MW - 3		1			الر		ĺ			X					1				ĺ								H					66		F
Palinguished Bu		Dita	Time:	Rec	ejveć	By								ema	rice																			
Relinquished By: Relinquished By: Relinquished By:	(VVII)	## 128 19 ate: 19 ate:	i	Rec	eivec	1 By:	<u>l</u> 12	e.c	<u>^</u>	L *P)		K	ema	rks	•											,							

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351

Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # L120-01

Date: 5/08/00

McCampbell Analytical

110 2nd Avenue South CA 94553 Pacheco

Project: 19997

PO#

Date Rec'd: 4/29/00 Date Started:

4/29/00 Date Completed: 5/06/00

Date Sampled: 4/27/00

Time: Sampler:

Sample ID	Lab ID	RL	Method	Analyte	Results Units
MW-1	L33871	1.0	300.0	Nitrate (NO3)	7.0 mg/L
		1.0	300.0	Sulfate	36 mg/L
		10	2320B	Alkalinity	550 mg/L
MW-2	L33872	1.0	300.0	Nitrate (NO3)	15 mg/L
		1.0	300.0	Sulfate	32 mg/L
		10	2320B	Alkalinity	410 mg/L
MW-3	L33873	1.0	300.0	Nitrate (NO3)	75 mg/L
(ATAA-D	255070	1.0	300.0	Sulfate	70 mg/L
		10	2320B	Alkalinity	430 mg/L

Donna Keller

Laboratory Director

Sent By: McCampbell Analytical;

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 5 Phone (209) 572-0900 Fax (209) 572-0916

Report# L120-01

QC REPORT

McCampbell Analytical 110 2nd Avenue South

Pacheco

CA 94553

Dates Analyzed 4/29/00-5/6/00

Analyte	Batch # Method	MS % Recovery	MSD % Recovery	RPD	Blank
Nitrate (NO3)	103247 300.0	102.0	112.0	9.3	ND
Sulfate	103248 300.0	116.0	116.0	0.0	ND
Alkalinity	[03317 2320B	85.0	90.0	5.7	ND

Chemist

Donna Keller Laboratory Director

Certification # 1157