W, A. CRAIG, INC. Environmental Consulting and Contracting P. O. Box 449 Napa, California 94559-0448 Contractor and Hazardons Substances License #455752 Cal/OSHA Statewide Annual Excavation Permit #859351 (800) 522-7244

Berkeley (510) 525-2780

Fex: (707) 252-3385

GROUNDWATER MONITORING REPORT December 1996

DAMELE PROPERTY 4401 Market Street Oakland, California

January 13, 1997 W.A. Craig, Inc. Project No. 3365-D





Napa (707) 252-3353

W. A. CRAIG, INC. Environmental Consulting and Contracting P. O. Box 448 Napa, California 94559-9448 Contractor and Hazardous Substances License #455752 Cal/OSHA Statewide Annual Excavation Permit #559351 (809) 522-7244

Eax: (707) 252-3385

January 13, 1997

Subject:

Berkeley (510) 525-2780

Mr. and Mrs. Casimiro Damele 3750 Victor Avenue Oakland, California 94619 510/ 531-0778

Project No. 3365-D

Napa (707) 252-3353

December 1996 Damele Property 4401 Market Street Oakland, California

REPORT - Groundwater Monitoring

Dear Mr. and Mrs. Damele:

W. A. Craig, Inc. (WAC), is pleased to submit this Groundwater Monitoring Report for sampling conducted on December 20, 1996 at 4401 Market Street (site) in Oakland, California (Figure 1). This is the eighth quarter of groundwater monitoring since the installation of three groundwater monitoring wells at the site in October, 1994. This work was performed in accordance with the scope of work presented in WAC's Work Plan dated February 10, 1994.

Scope of Work

The scope of work conducted by WAC during this period included the following tasks:

- Measuring static water levels in three monitoring wells;
- Purging and sampling groundwater from the three monitoring wells at the site;
- Analyzing groundwater samples for total petroleum hydrocarbons as gasoline range organic compounds (TPH-g), and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE); and
- Preparation of this report.

Groundwater Elevations

On December 20, 1996, WAC technical staff measured water levels in the monitoring wells using an electronic water level indicator. The monitoring wells were surveyed by a State-Licensed surveyor in November, 1994. The surveyed elevations and the field water level measurements were used to calculate the groundwater surface elevations at the site. The groundwater gradient and flow direction on December 23, 1996 were 0.019 ft/ft and S18°E, respectively. The average groundwater elevations were approximately 1.2-feet higher than were measured during the previous, June 1996, sampling event. Groundwater elevations for this and previous monitoring events are presented in **Table 1**. The locations of the monitoring wells and a depiction of the site groundwater elevation contours are shown in **Figure 2**.

Groundwater Sampling

Three well casing volumes were purged from each monitoring well prior to collecting groundwater samples. Field parameters including temperature, pH, conductivity, and turbidity were intermittently monitored during purging of the wells. Groundwater samples were collected using disposable polyethylene bailers. Field observations and well volume calculations were recorded on field groundwater sampling logs. Copies of the field logs are included as Attachment A.

Groundwater samples were submitted under chain-of-custody control to McCampbell Analytical, Inc. (MAI), of Pacheco, California. The purged groundwater is currently stored on-site in labeled, DOT approved, 55-gallon, steel drums.

Analytical Results

The groundwater samples were analyzed by MAI for TPH-g using EPA Method 8015 (modified) and purgeable aromatic hydrocarbons (BTEX) and MTBE using EPA Method 8020. MAI is certified by the State of California to perform the required analyses. The results of the analyses are summarized on **Table 2**. Copies of the laboratory analytical report and chain-of-custody documents are in **Attachment B**.

Groundwater samples from monitoring well MW-2 were reported to contain 13,000 micrograms per liter (μ g/l) TPH-g, 830 μ g/l benzene, 180 μ g/l toluene, 410 μ g/l ethylbenzene, and 2200 μ g/l xylenes. MTBE was not detected above 16 μ g/l. MTBE was reported at 28 μ g/l in monitoring well MW-1. TPH-g, BTEX and MTBE were not reported above the laboratory limits of detection in the groundwater samples collected from monitoring well MW-3. Figure 3 is a plot of TPH-g and benzene concentrations in monitoring well MW-2 and TPH-g concentrations in monitoring well MW-1 for the monitoring period (11/94 to 12/96). Figure 4 is a linear regression best fit plot of the same data plotted on a log-normal scale. These data suggest that the concentrations of TPH-g and benzene in the monitoring wells are relatively stable or decreasing.

Conclusions

Groundwater elevations were approximately 1.2-feet higher than previously measured during the June 1996 sampling event. The groundwater flow in the general site area is consistently toward the south.

Analytical results for monitoring well MW-1 have remained below the detectable reporting limits for benzene and toluene. All analytes in monitoring well MW-2 were reported at higher concentrations than were reported during the previous sampling period, although the concentrations are generally consistent with historical concentrations. Concentrations of all analytes in monitoring well MW-2 appear to increase with rising groundwater and decrease with falling groundwater. The groundwater sample analytical results for samples from MW-3 are consistent with previous monitoring periods and continue to be below the laboratory limits of detection for TPH-g, BTEX, and MTBE.

Primary drinking water quality standards have been exceeded for MTBE (monitoring well MW-1) and benzene (monitoring well MW-2). The upgradient monitoring well (MW-3) has had trace to non-detected concentrations of these constituents. Monitoring wells MW-1 and MW-2 are down gradient of the site. Based on regression analysis of the groundwater data, there appears to be a clear trend indicating that all constituents are decreasing over time.

Recommendations

On the basis of WAC's review of the groundwater quality results information from eight quarterly groundwater monitoring events and the results of previous investigations, WAC recommends expanding the current groundwater monitoring well network to include one, or more, down gradient monitoring wells. These wells would be used to assess and monitor the lateral extent of gasoline and related constituents. WAC further recommends that the existing groundwater monitoring program should be continued and expanded to include any new wells. WAC will submit a Risk Based Corrective Action Tier 1 Evaluation and Tier 2 Workplan to the Alameda County Environmental Health Department to present the details of the above recommendations.

Professional Certification

> What about said data on site?

This report has been prepared by the staff of W. A. Craig, Inc., under the professional supervision of the persons whose seals and signatures appear hereon. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analysis, conclusions and recommendations contained in this report are based upon site conditions as they existed at the time of quarterly monitoring and sampling and they are subject to change.

The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this report. W.A. Craig, Inc., recognizes that the limited scope of services performed in execution of this scope of work may not be appropriate to satisfy the needs, or

requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of said user. There is no other warranty, either expressed or implied.

Closing Statement

The next quarterly sampling event is tentatively scheduled for March, 1997. We appreciate this opportunity to be of service to you on this groundwater monitoring project. Should you have any questions regarding this report please give us a call at (707) 252-3353.

Sincerely,

W.A. Craig, Inc.,





W.A. Craig II, R.E.A. Owner

GAF:dec

Attachments:

Table 1 - Groundwater Elevations Table 2 - Groundwater Sample Analytical Results

Figure 1 - Site Location Map

Figure 2 - Groundwater Contour Map

Figure 3 - TPH-g & Benzene vs Time Plot

Figure 4 - Linear Regression Log Plot

A - Groundwater Sampling Logs

B - Laboratory Analytical Reports

cc: Ms. Amy Leech, Alameda County Department of Environmental Management

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<u>TABLE 1</u> Groundwater Elevations 4401 Market Street Oakland, California

Well Number	Date	Well Elevation	Depth to Water	Elevation
MW-1	02/14/95	71.12	12.65	58.47
	06/07/95	71.12	14.62	56.50
	08/29/95	71.12	15.04	56.08
	12/08/95	71.12	15.94	55.18
	03/07/96	71.12	12.36	58.76
	06/19/96	71.12	13.70	57.42
	12/20/96	71.12	12.35	58.77
	00/14/05	R 0 (0		50.50
MW-2	02/14/95	70.62	12.12	58.50
	06/07/95	70.62	14.38	56.24
	08/29/95	70.62	14.40	56.22
	12/08/95	70.62	15.22	55.40
	03/07/96	70.62	12.04	58.58
	06/19/96	70.62	13.38	57.24
	12/20/96	70.62	12.22	58.40
MW_2	02/14/05	71 70	13.45	58 3/
IVI W - J	06/07/95	71.79	14.64	57.15
	08/20/05	71.79	14.04	56.85
	12/08/05	71.77	15.92	55 07
	03/07/04	71.77	13.62	58.00
	06/10/04	71.77	12.09	57.95
	13/30/04	71.79	13.94	57.65

Note: Groundwater elevations are referenced to Mean Sea Level.

TABLE 2 **Groundwater Sample Analytical Results** 4401 Market Street, Oakland, California (reported in µg/l)

Well Number	Sample Date	MTBE	TPH-g	Benzene	Toluene	Ethylbenzene	Xylenes
MW-I	11/08/94	NT	54	ND	ND	ND	1.2
	02/14/95	NT	71	ND	ND	ND	0.97
	06/07/95	NT	540	0.60	ND	1.7	1.3
	08/29/95	NT	440	ND	ND	1.3	
	12/08/95	NT	ND	ND	ND	ND	ND
	03/07/96	44	77	ND	ND	ND	ND
	06/19/96	84	500	ND	ND	0.85	0.36
	12/20/96	28	ND	ND	ND	ND	ND
MW-2	11/08/94	NT	20.000	1.400	960	980	4,600
	02/14/95	NT	8600	380	210	410	2,000
	06/07/95	NT	6200	500	78	270	1,200
	08/29/95	NT	4100	330	61	210	980
	12/08/95	NT	9400	360	1 90	440	2,000
	03/07/96	18	12,000	790	170	440	2,000
	06/19/96	ND	9000	520	82	350	1,500
	12/20/96	ND*	13,000	830	180	410	2200
MW-3	11/08/94	NT	ND	0.71	0.84	1.2	5.8
한 것 같은 것 같	02/14/95	NT	ND	ND	ND	ND	ND
	06/07/95	NT	ND	ND	ND	ND	1.6
	08/29/95	NT	ND	ND	ND	ND	ND
	12/08/95	NT	ND	ND	ND	ND	ND
	03/07/96	ND	ND	ND	ND	ND	ND
	06/19/96	ND	ND	ND	ND	ND	ND
	12/20/96	ND	ND	ND	ND	ND	ND
California MCL		40	None Listed	1.0	150	700	1750

MCL = Maximum Contaminant Level Primary Drinking Water Standard ND = Not detected above the laboratory limit of detection.

NT = Not Tested

 μ g/l= micrograms per liter * = Not detected above 16 μ g/l





Project No. 336 January 1997	5-4		TPH-g, Be Dame 4401 Ma Oakland,	Figure 3	
ecked by:	W. A.	CRAIG,	INC . d Consulting	P. O. Box 448 Napa, California 94559-0448 Cal License #455752	(707) 252-3353 FAX (707) 252-3385

29 E 1/13/67	Project No. 3365 January 1997	5-4 LINEAR REGI Dame 4401 Mai Oakland,	LINEAR REGRESSION PLOT Damele Site 4401 Market Stree Oakland, California				
Checked by: c		W. A. CRAIG, INC. Environmental Contracting and Consulting	P.O. Box 448 Napa, California 94559-0448 Cal License #455752	(707) 252-3353 FAX (707) 252-3385			

ATTACHMENT A

GROUNDWATER SAMPLING LOGS

GROUNDWATER SAMPLING WELL DEVELOPMENT LOG

		WELL DEVEL	OPMENT	LOG			
	: <u> </u>	1W-/	FIELD P		(S): Russ	ci Gentry	
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	ED:						
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DATE(S) PURGED	· · · · · · · · · · · · · · · · · · ·	(Grit)		WELL D	EWATERED	TYES THIND	
PURGE METHOD:	Di	sp. Bailer		DATE S	AMPLED:	2/20/96	
INITIAL DEPTH TO	WATER:	<u> </u>	· · · · · · · · · · · · · · · · · · ·	TIME SA	MPLED:	11:00	
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		3+	CONDITIONS: FRA Cold				
PURGE RATE (GP	M):		PURGES/SAMPLED BY:				
		א <u>ן אז טיל</u> (FT) = <u>(</u>	90_	% RECO	DVERED PRIOR T	O SAMPLING	
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Co. Doc/Forms/GW Sampling Log 10/31/95

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Repert to water after recovery 14.60 (FT) = 30 % recovered prior to sampling IELD PARAMETERS: (VOLUME (GAL) TEMPERATURE (24 HR CLOCK) PH TURBIDITY (NTU) (VALUME (GAL) TEMPERATURE (CONDUCTIVITY PH TURBIDITY (NTU) (VI.15 C.23 Clear (VI.15 C.23 Clear Clear MMENTS: Medua to Strong hydrocorbon door present <th< td=""><td></td><td>²M):</td><td></td><td></td><td>PURGE</td><td>S/SAMPLED E</td><td>BY: Fog , C</td><td><u>old</u></td></th<>		² M):			PURGE	S/SAMPLED E	BY: Fog , C	<u>old</u>		
TIME (24 HR CLOCK) VOLUME (GAL) TEMPERATURE (X:00) ELECTRICAL CONDUCTIVITY PH TURBIDITY (NTU) 11:48 2.0 60.7 11.15 6.73 Ulear 11:54 4.0 63.4 11.82 6.49 Ulear 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 6.51 11.45 11:58 6.0 65.5 11.49 11.49 11.49 11:58 6.0 65.5 11.49 11.49 11.49 11:59 6.0 57.5 11.49 11.49 11.49 <		R AFTER RECOVE	RY <u>14.60</u> (FT) =	90	% REC		PR TO SAMPLING	Z		
TIME (24 HR CLOCK) VOLUME REMOVED (GAL) TEMPERATURE (X100) ELECTRICAL CONDUCTIVITY PH TURBIDITY (NTU) 11:54 2.0 60.7 11.15 6.73 Clear 11:54 4.0 63.4 11.82 6.49 Slight 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:58 6.0 65.5 11.49 6.51 11.44 11:59 6.0 65.5 11.49 6.51 11.44 11:59 6.0 6.51 11.49 11.44 11.44 11:59 7.75 7.75 7.75 7.75 11.44 <td>IELD PARAMETE</td> <td>RS;</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	IELD PARAMETE	RS;								
MILY 8 2.0 60.7 11.15 6.73 (Ilear 11:54 4.0 63.4 11.82 6.49 Slight 11:58 6.0 65.5 11.49 6.51 N MMENTS: Medium to Streng hydrocarbon odar present Shile purying No sheen detected.	TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	TEMPERATURE			PH	TURBIDI	TY		
MMENTS: Medina to Streng hydrocarbon adar present While purgiby No sheen detected.	$\frac{11:48}{11:44}$	2.0	60.7	11.15		6.23	(NTU)			
MMENTS: Medius to Streng hydrocarbon adar present while puryiby No sheen detected.	11: (9	4.0	63.4	11. 82		649	Clear			
MMENTS: Mading to Strang hydrocarbon dar present while puryshy No sheen detected.		6.0	65.5	11.49		6.51	- Sligh			
MMENTS: Medius to Streng hydrocarbon adar present Julie purginy No sheen detected.					_					
MMENTS: Medium to Streng hydrocarbon odar present Julie purythy No sheen detected.										
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MMENTS: Medium to Streng hydrocarbon dar present while purying No sheen detected.	<u>-</u>									
Shile purgity. No steen detected.	DMMENTS:	Medino	to Stran	h. 1	,	1				
		while and	yily No	sheer	200	detertal	present			
			~ V			<u></u>	« <u></u>			
		·								
			·							
	b									

DockForms/GW Sampling Log 10/31/95

	ER:	M()-3				~	-	
DATE START	ED:	12 /20 /al	_ FIELD PERSON(S): <u>Rusell Gentry</u>					
TIME STARTE	=	LATE 146				7 ->		
DATE COMPL	FTED.		_ JOB NU	JMBER	ł: .	<u>. 2 C</u>	65-4	
	ETED:		_ JOB NA	ME:	-	Da	mele	
EPTH TO BOTT	OM OR CASING I	FNGTU						
OTAL	DEPTH			WELL	INSIDE DIA	METER		
H (FT) <u>//.7</u>	<u>62</u> - TO WATER	<u>11.76'</u>	VOLUI FACTO V.F.= (ME DR GAL/FT	1"=0.0 1-1/2"= 2"=0.1 3"=0.3	41 4"=0.63 =0.092 6"=1.4(63 8"=2.6 67 12"=5.8		
ATE(S) PURGE	<u>).</u>	(GAL)						
URGE METHOD	D:	0.000		WELL	DEWATERE	<u>] D</u>	IYES INN	
ITIAL DEPTH TO	O WATER:	UISP ISUI	IA.	DATE	SAMPLED:		12/20/0	
ASING VOLUME	REMOVED (GAL):	6.0		SAMP	LING METHO	<u>.</u>	10:25	
		7+		WEAT	HER		Dailer	
URGE RATE (GPM):								
	M):	RY _ <u>/3,00`</u> (FT) =	98_	PURGI	ES/SAMPLED	DBY:	RA RA SAMPLING	
	R AFTER RECOVE RS; VOLUME REMOVED	RY <u>13.00</u> (FT) =	<u>98</u> (<u>x</u> /c	% REC	OVERED PR		RA RA SAMPLING	
EPTH TO WATER	R AFTER RECOVE RS; VOLUME REMOVED (GAL)	RY <u>13.00</u> (FT) =	98 (x/c ELECTRI CONDUCT	% REC % REC CAL IVITY	ES/SAMPLEE OVERED PR		TURBIDITY	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 10:12	M): R AFTER RECOVE RS; VOLUME REMOVED (GAL)	RY <u>13.00</u> (FT) = TEMPERATURE 60.1	<u>98</u> (<u>k</u> /c ELECTRI CONDUCT <u>5</u> ,22	22) CAL IVITY	ES/SAMPLED OVERED PR PH 8,34		TURBIDITY (NTU)	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 20:09 20:12 20:15	R AFTER RECOVE RS; VOLUME REMOVED (GAL) 2,0 4,0	RY 13.00 (FT) = TEMPERATURE60.162.0	<u>98</u> (<u>k</u> /c ELECTRI CONDUCT <u>5.22</u> <u>5.12</u>	20) CAL IVITY	PH 8.34 7.99		TURBIDITY (NTU)	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 70:09 10:12	M): RAFTER RECOVE RS; VOLUME REMOVED (GAL) 2.0 4.0 6.0	RY 13.00 (FT) = TEMPERATURE60.162.062.5	<u>98</u> ELECTRI CONDUCT <u>5.27</u> <u>5.12</u> <u>4.99</u>	% REC % REC CAL IVITY	PH 8.34 7.99		TURBIDITY (NTU) Clear	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 10:09 10:12 10:25	M): R AFTER RECOVE RS; VOLUME REMOVED (GAL) 2.0 4.0 6.0	RY 13.00 (FT) = TEMPERATURE60.162.062.5	<u>98</u> ELECTRI CONDUCT <u>5.22</u> <u>5.12</u> <u>4.99</u>	% REC	PH 8.34 7.99 2.93		TURBIDITY (NTU) (NTU)	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 10:12 10:12	M): R AFTER RECOVE RS; VOLUME REMOVED (GAL) 2.0 4.0 6.0	$RY _ 13.00^{\circ} (FT) =$ $TEMPERATURE$ 60.1 62.0 62.5	<u>98</u> <u>ELECTRI</u> <u>CONDUCT</u> <u>5.22</u> <u>5.12</u> <u>4.99</u>	% REC	PH 8,34 7.99		TURBIDITY (NTU) (NTU) (NTU)	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 10:09 10:12 10:12 10:15 MENTS:	M): RAFTER RECOVE RS; VOLUME REMOVED (GAL) 2.0 4.0 6.0 No sheer	$RY _ \underline{13.00}^{\circ} (FT) =$ $TEMPERATURE$ 60.1 62.0 62.5	<u>98</u> ELECTRI CONDUCT <u>5.22</u> <u>5.12</u> <u>4.99</u>	% REC	PH 8.34 7.99 2.93 		TURBIDITY (NTU) Clew Slight	
EPTH TO WATER ELD PARAMETE TIME 24 HR CLOCK) 20:09 20:12 20:15 MENTS:	M): RAFTER RECOVE RS; VOLUME REMOVED (GAL) 2.0 4.0 6.0 No sheer	$RY _ \underline{l}, \underline{oo}^{*}(FT) =$ $TEMPERATURE$ 60.1 62.0 62.5	<u>98</u> <u>ELECTRI</u> <u>CONDUCT</u> <u>5.22</u> <u>5.12</u> <u>4.99</u>	% REC	PH 8.34 7.99 7.93		TURBIDITY (NTU) Clew	

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ATTACHMENT B

LABORATORY ANALYTICAL REPORTS

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McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553 Tele: 510-798-1620 Fax: 510-798-1622

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W.A. Crai	g, Inc.	C	lient Project	ID: # 3365	Date Sampled: 12/20/96						
P.O. Box 4	48		Date Received: 12/20/96								
Napa, CA	94559-0448	C	lient Contac	t: Leland Y	Date Extracted: 12/21/96						
		C	Client P.O: Date Analyzed: 12/2								
Gasolin EPA method	ne Range (C6-C s 5030, modified 80	12) Vola	t ile Hydroca 20 or 602; Califo	rbons as G ornia RWQCI	asoline*, v B (SF Bay Reg	vith Methy gion) method	tert-Butyl GCFID(5030	Ether* &	BTEX*		
Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylben- zene	Xylenes	% Rec. Surrogate		
72337	MW-3	w	ND	ND	ND	ND	ND	ND	103		
72338	MW-1	w	ND	28	ND	ND	ND	ND	101		
72339	MW-2	w	13,000,a	ND< 16	830	180	410	2200	#		
72340	Trip Blank	w	ND	ND	ND	ND	ND	ND	118		
Reportin	g Limit unless	w	50 ug/L	5.0	0.5	0.5	0.5	0.5			
above the	se stated; ND not detected reporting limit	S	1.0 mg/kg 0.05 0.005				0.005	0.005]		

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

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_Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.

QC REPORT FOR HYDROCARBON ANALYSES

Date: 12/21/96

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Matrix: Water

	Concent	ration	(mg/L)	1	रे Reco	very	
Analyte	Sample (#72119)	MS	MSD	Amount Spiked	 MS	MSD	RPD
TPH (gas) Benzene	0.0	104.8 9.8	95.8 9.3	100.0	104.8	95.8	9.0
Toluene Ethyl Benzene Xylenes	0.0 0.0 0.0	9.7 9.4 27.6	9.2 9.1 26.4	10.0 10.0 30.0	97.0 94.0 92.0	92.0 91.0 88.0	5.3 3.2 4.4
TPH (diesel)	0	142	140	150	95	94	1.4
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	l						

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

 $RPD = (MS - MSD) / (MS + MSD) \times 2 \times 100$

W. A. CRAIG, INC.

CHAIN-OF-CUSTODY RECORD

PROJECT	NO	ROJECT NAME		1		-							T
1710	·		Air,	,	r -	<u> </u>	NA	LY	<u>SI</u>	<u> </u>		7844AWAC712	
PURCHAS ORDER N		Handle Hanature of sampler Rumue Such	Soil, Water, / ther	ine (8015)	602/8020)	sel (8015)	& BTEX	1.1			sived?	REMARKS	LABORATORY
DATE	TIME	W. A. CRAIG, INC.'S SAMPLE IDENTIFICATION	MATRIX: Sludge, O	TPHgasol	BTEX (TPHdie	рнат	MTBE			Prese		I. D. NUMBER
12/20	10:2	5 MW-3 (2Von)	W				1	J			ICE	Non preserved	1
	11:a	p nw-1			_		V						72338
<u>}</u>	12:0	5 M - 2 V	-{			_	4	4				V	72339
	120	1 Top Dunk	-₩-				-	✓					
													/2340
		ICE/T PRESERVA GOOD CONDITION APPROPRI HEAD SPACE ABSENT CONTAINED	VO ATTVE ATE RS		86 1	WETAL							
	HED BY (S	ignature): DATE/TIME RECEIVED BY (Sign DATE/TIME RECEIVED BY (Sign DATE/TIME RECEIVED BY (Sign DATE/TIME RECEIVED BY (Sign DATE/TIME RECEIVED BY (Sign	nelure): nelure): Faure):						TUF	BOR Tech TRA E:	ATORY: anyobe Anahytr ROUND S day	PLEASE SEND RESUL W. A. CRA P.O. BOX NAPA, CA (707) 252	ть то: AIG, INC. ' 448 94559-0448 -3353