





31 Nightowl Court, Richmond, CA 94803 (Office) 510-222-1541 (Fax) 510-525-2178

QUARTERLY GROUNDWATER MONITORING WELL SAMPLING REPORT FOR:

1435 WEBSTER STREET ALAMEDA, CA

(August 16, 1993)

SITE DESCRIPTION

1435 Webster Street is located in the northwest portion of the City of Alameda, which is in Alameda County, California (see Figures 1 and 2). This address is on the northwest corner of the intersection of Webster and Taylor Streets, and occupies Alameda County Assessor's Parcel number 74-427-51 (see Figure 3). It is 1.5 miles south of the Webster Street Tunnel, approximately 3.0 miles south of Interstate Highway 880, and 1.0 mile southeast of the U.S. Naval Air Station. The subject site is currently a City of Alameda public parking lot (street level only). Property use in the area is multi-purpose in nature with commercial, residential, and light industrial usage.

GEOLOGY AND HYDROGEOLOGY

The subject site is located on bay plain deposits approximately ¹/4 mile east of the San Francisco Bay. The bay is a drowned valley which is thought to have originally been formed by erosion of the ancestral Sacramento River and subsequently widened by subsidence and rise in the level of the sea. Quaternary (Pleistocene to recent) sediments deposited in what is now San Francisco Bay include both shallow marine and continental deposits known as "Bay Mud". The geologic deposits encountered during drilling in January of 1993 consisted primarily of fine to medium, loose to medium-dense, poorly-sorted, brown sand with some gravel. Groundwater was encountered at 11.5 feet below ground surface (bgs).

OVERVIEW OF PREVIOUS ENVIRONMENTAL COMPLIANCE ACTIVITIES PERFORMED AT THE SITE

Removal of Underground Storage Tanks

On October 11, 1988, CHIPS Environmental Consultants, Inc. performed soil gas analyses at the subject site at the request of Accutite Tank Testing and Maintenance Services (a division of Olympian Oil Company) of South San Francisco. The CHIPS study was specific to the area occupied by two (2) 10,000gallon underground gasoline storage tanks, one 7,500-gallon underground diesel storage tank, and one 500-gallon waste oil tank. High soil gas readings were obtained on the east side of one of two (2) gasoline pump islands, between the islands, and from the backfill between the gasoline storage tanks at both 8 and 11 feet below ground surface (bgs). Soil gas concentrations on the west side of the tank pits were relatively low.

All underground storage tanks were removed during September of 1989. Soil samples acquired for certified laboratory analyses attendant to the removal of the tanks contained concentrations of Total Petroleum Hydrocarbons as Gasoline (TPH-G) to 220 parts per million (ppm), Total Petroleum Hydrocarbons as Diesel (TPH-D) to 430 ppm, and 650 ppm Total Oil and Grease (TOG).

Over-excavation of the Former Tank Pits and Attendant Sampling

On January 11, 15, and 23, 1991, exploratory/remedial excavations of the fuel hydrocarbon contaminated soil were conducted by AAA Tank Removal/Forcade Excavation Services (California licensed contractors) under the direction of a staff geologist from Uriah Environmental Services, Inc. (UES) of Livermore/Modesto. The work performed was done in accordance with a workplan previously submitted to, and approved by, the Alameda County Health Care Services Agency (ACoHCSA).

Approximately 550 cubic yards of contaminated soil was removed from the area of the pit(s) previously occupied by the underground storage tanks. At that time, the dimensions of the excavation measured 34' (W) x 40' (L) x 18' (D). No further excavation was undertaken as the surface of the site was fully occupied by treatment beds constructed for the biological detoxification of previously excavated soil.

Following the bioremediation of the previously excavated soil, excavation activities resumed on September 23, 24, and 25, 1991. All work was performed

by W.A. Craig, Inc. (a California licensed contractor), under the direction of a UES staff hydrogeologist. The excavation was expanded to 34' (W) x 55' (L) x 18' (D), and an additional 300 cubic yards of contaminated soil was removed. During the course of the expanded excavation, contamination was observed to be confined to sandy clay lenses that were present at various depths along the south wall of the pit.

On September 27, 1991, four (4) discrete soil samples were acquired from the sidewalls of the expanded excavation. These samples were found to be free of detectable concentrations of TPH-G, TOG, and benzene, toluene, ethylbenzene, and total xylenes (BTEX), but contained 21-24 ppm TPH in the diesel range. The "non-standard diesel pattern" reported by the laboratory was previously compared to a tar wrap fabric by running comparative chromatographic standards. This comparative study appeared to confirm the hypothesis that the "non-standard" TPH-D range material detected was composed of partially-degraded, extractable hydrocarbons which comprise a portion of the tar wrap material.

A soil sample acquired from the floor of the expanded excavation was found to contain benzene at 120 parts per billion (ppb), toluene at 16 ppb, and ethylbenzene at 23 ppb.

Bioremediation of Hydrocarbon-Contaminated Soil

Following the excavation of contaminated soil in January, 1991, this material and approximately 50 cubic yards of stockpiled soil remaining from the underground storage tank excavation was configured on-site in quadrilateral beds atop bermed, hydrocarbon resistant liners. The treatment beds were inoculated with a bio-nutrient solution containing common, non-pathogenic, hydrocarbon-utilizing soil bacteria and a dilute commercial fertilizer solution. During the course of treatment, the soil was monitored to determine rates of degradation, soil temperature, moisture, pH, and nutrient levels.

On September 20, 1991, soil samples were acquired and submitted for uncertified analyses. Levels of TPH-G were found to be below the detection limit of 10 ppm, while concentrations of TPH-Oil had been reduced to below the detection limit of 50 ppm. Based upon these results, twelve (12) discrete samples (one for every 50 cubic yards of soil under treatment) were obtained for certified analyses. All samples were free of detectable concentrations of TPH-G, BTEX, and TOG. Ten (10) of twelve (12) samples were found to be free of detectable concentrations of TPH-D, with the two (2) remaining samples containing 16 and 44 ppm TPH-D, respectively. According to UES (and as noted above), these levels of "TPH-D"

were not represented by a chromatographic pattern typical of diesel fuel and represented, instead, partially degraded tar wrap.

On December 2, 1991, ten (10) discrete soil samples (one for every 20 cubic yards of soil under treatment) were acquired from approximately 200 cubic yards of contaminated soil remaining under treatment. All samples were found to be free of detectable concentrations of the referenced analytes.

For additional and/or more specific information regarding these sampling and remediation activities (sample locations, methodologies, etc.), please refer to the aforementioned UES workplan and the UES Report, "Installation of Three Groundwater Monitoring Wells (March 25, 1993).

Installation of Groundwater Monitoring Wells

On January 11 and 12, 1993, three (3) soil borings were advanced on the subject site under the direction of a UES staff hydrogeologist. Discrete soil samples were collected at five-foot intervals between the ground surface and the top of the capillary fringe. The samples collected were submitted for certified analyses for TPH-D, TPH-G, BTEX, and TOG. All samples were found to be free of detectable concentrations of the referenced analytes.

Following completion of the drilling and soil sampling, each boring was converted into a 2-inch inside-diameter groundwater monitoring well (see Figure 4). All work performed was done under the authority of a permit (#92664) issued by the Alameda County Zone 7 Water Resources Agency.

For additional and/or more specific information regarding these borings (boring logs, well construction details, etc.), please refer to the UES Report, "Installation of Three Groundwater Monitoring Wells (March 25, 1993).

COMPLIANCE MONITORING/ON-SITE GROUNDWATER MONITORING WELLS

According to information made available to BT Associates, the on-site groundwater monitoring wells were developed and sampled at some time near the end of the first quarter of 1993. The hydraulic gradient was calculated as 0.005 ft/ft, and the direction of groundwater flow was determined to be to the southeast (S66°E). At the time of this report, however, the analytical results for the initial groundwater samples collected by UES were not available.

In April of 1993, UES ceased business operations. In May of 1993, the sampling and reporting responsibilities for the subject site were assumed by BT Associates.

With the approval of ACoHCSA, BT Associates collected groundwater samples from the on-site monitoring wells on June 3, 1993. At that time, however, MW-1 was inaccessible as a car had been parked directly over the well. The sampler remained on site for approximately five (5) hours, but the owner of the vehicle did not return. Door-to-door inquiries were also made in an attempt to locate the owner of the vehicle, but were unsuccessful. The vehicle remained parked over MW-1 for several more days, at which time further attempts to sample the well were discontinued.

Preparation of the quarterly report was also delayed due to concerns previously developed by staff of JL Analytical Services, Inc. (JLAS) of Modesto regarding the accuracy of the detection limits for the TPH-D and TPH-G analyses they had achieved for the samples acquired by BT Associates on June 3 (there were no problems with the BTEX or TOG analyses). JLAS informed BT Associates that they had used the LUFT Method for the TPH-D and TPH-G analyses, based upon the recommendation of a representative of the State Department of Health Services. At the time the groundwater samples from 1435 Webster Street were submitted to the laboratory, JLAS was conducting an extensive review of the LUFT Method, as well as an examination of its own processes, equipment specifications, data, etc. In response to JLAS' concern, re-sampling of the groundwater at the subject site (all three wells) was scheduled. In its preliminary evaluation, however, JLAS reported that it did not find indication(s) of problems with the detection limits for TPH-G or TPH-D. A decision was then made to delay re-sampling until the laboratory had concluded its investigation.

JLAS' review was completed during the week of July 19, 1993, with the laboratory concluding that the data it had initially reported was accurate. The final report pertaining to the analyses of the samples collected in June was received by BT Associates on August 10, 1993 (see Appendix B). As the time for the next quarterly sampling event is now less than one month away, the decision was made to forego re-sampling (primarily to include MW-1) at this time, while ensuring that all wells are sampled as scheduled in future events. Analytical results for the samples collected in June have been summarized in Table I, below:

Well #	Date	Depth to Water (ft)	TPH-G	TPH-D	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TOG	
			(275)						(Phu)	
MW-1	2/93-3/93	7.91	(Data not	available	from UES)				
	6/3/93	na	(Well inaccessible due to presence of vehicle parked over well)							
MW-2	2/93-3/93	8.02	(Data not	available	from UES)				
	6/3/93	9.54	ND	ND	5.8	ND	ND	ND	ND	
MW-3	2/93-3/93	8.25	(Data not	available	from UES))				
	6/3/93	9.80	ND	ND	ND	ND	ND	ND	ND	
Method Detection Limits	6/3/93	-	50	50	0.2	0.2	0.2	0.6	2	
TPH-G=	Total Petroleur	n Hydrocarb	ons as Gaso	line		TOG =	Total Oil a	nd Grease		
TPH-D =	Total Petroleur	n Hydrocarb	ons as Diese	4		na =	Not analyz	ed		
UES =	Uriah Environ	mental Servic	es, Inc.			ppm =	Parts per n	nillion		
ND =	Not detected a	t or above the	Method De	etection Lin	nit	ppb =	Parts per b	illion		

Table I - Groundwater Sampling Results

Well Sampling Methodology

Depth to water and total well depth were measured using an electric tape, and the volume of water within the 2-inch inside-diameter casings computed. Each well was then purged using a clean, disposable polyethylene bailer until the groundwater was free of significant sand, silt, and/or other grit material, and pH, conductivity, and temperature readings stabilized. Over three (3) well volumes were removed from each well. Measurements of pH, conductivity, and temperature were recorded as referenced within Appendix B.

Subsequent to purging the wells, a groundwater sample was collected from each well using a clean, disposable polyethylene bailer lowered to a point just below the water surface. Using a Voss VOC Sampler, each groundwater sample was immediately transferred into four (4) Volatile Organic Analysis (VOA) vials which contained sufficient hydrochloric acid preservative to reduce the pH of the sample to <2.0, and two (2) one-liter, amber glass bottles. Each sample container was promptly sealed with a teflon-lined screw cap, labeled, placed on blue ice, and then transported under chain-of-custody to a California state-certified hazardous waste analytical laboratory for analysis for Total Petroleum

Hydrocarbons as Gasoline (TPH-G), benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Methods 5030/8015-8020 (602); Total Petroleum Hydrocarbons as Diesel (TPH-D) using EPA Methods 3510/8015; and Total Oil and Grease (TOG) using EPA Method 5520.

Extracted groundwater, in excess of that acquired for laboratory analysis, was placed into a covered DOT drum and stored on site pending the receipt of the report of laboratory analysis and the development of an appropriate disposal protocol.

Results of Certified Laboratory Analyses

With the exception of benzene, all other target analytes were non-detectable (ND) in all groundwater samples collected on June 3, 1993. Benzene was detected in MW-2 at a level of 5.8 parts per billion (ppb), and was ND in MW-3. Analytical results for the groundwater samples collected have been summarized in Table I (page 5, above, and Appendix A). Copies of all laboratory results as received from the certified hazardous waste analytical laboratory are enclosed within Appendix B.

CONCLUSIONS AND RECOMMENDATIONS

The levels of Total Petroleum Hydrocarbons as Diesel (TPH-D), Total Petroleum Hydrocarbons as Gasoline (TPH-G), Total Oil and Grease (TOG), toluene, ethylbenzene, and total xylenes were found to be below the limits of laboratory detection. Benzene was detected in only one well at 5.8 parts per billion.

As the sampling conducted on June 3, 1993, represents only the first or second round of quarterly groundwater sampling (depending upon the availability of the analytical results for the samples collected by UES earlier this year), it is recommended that quarterly groundwater monitoring be continued.

The next quarterly groundwater monitoring event for this site will be scheduled to take place in early September, 1993.

BT502/WEB1435/081693

APPENDIX A

FIGURES AND TABLES





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Well #	Date	Depth to Water (ft)	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	TOG (ppm)
MW-1	2/93-3/93 6/3/93	7.91 na	(Data not (Well inad	available ccessible c	from UES lue to pres) ience of ve	ehicle park	ked over w	/ell)
MW-2	2/93-3/93 6/3/93	8.02 9.54	(Data not ND	available ND	from UES 5.8) ND	ND	NĎ	ND
MW-3	2/93-3/93 6/3/93	8.25 9.8O	(Data not ND	available ND	from UES ND) ND	ND	ND	ND
Method Detection Limits	6/3/93	-	50	50	0.2	0.2	0.2	0.6	2
TPH-G = TPH-D = UES = ND =	Total Petroleu Total Petroleu Uriah Environ Not detected a	m Hydrocarb m Hydrocarb mental Servic it or above the	ons as Gasc ons as Dies ces, Inc. e Method D	TOG = na = ppm = ppb =	Total Oil a Not analy: Parts per r Parts per t	und Grease zed nillion pillion			

Table I - Groundwater Sampling Results

APPENDIX B

REPORTS OF CERTIFIED LABORATORY ANALYSES CHAIN-OF-CUSTODY AND QA/QC DOCUMENTS WELL MONITORING FORMS



J L ANALYTICAL SERVICES, INC.

217 Primo Way • P.O. Box 576185 • Modesto, California 95357 Office (209) 538-8111 • FAX (209) 538-3966

Company:	¦Project ¦Ferrar	ID:	ם : :	ate	Sampled:	06	6/03/93		
B T Associates	1435 Web	ster, Alem	eda ¦D	Date Received:06/04/93					
31 Nightowl Court	Client C	ontact:	······································						
Richmond, CA 94803	Bruce Ts	utsui	i T	TPH Analysis: 06/09/93					
I J	9 I		; B	TEX	Analysis	:06	107/93		
Low Boiling Point TPH (as Gasoline) and BTEX									
:									
<u> DOHS LUFT procedure: EPA</u>	method 6	02							
Lab Number: Client I D	¦ TPH-G	¦Benzene ¦	Toluen	e ¦I	Ethyl Ben	-:>	(ylenes		
	ł	1 I 1 I		:	zene	:			
<u>; (Water)</u>	<u> </u>	<u>; uq/L ;</u>	<u>uq/L</u>	<u> </u>	uq/L		<u>ug/L</u>		
1									
30600573 MW-2	ND	5.8	ND		ND	ł	ND		
; 30600574 ; MW-3	I ND	ND :	ND	;	ND	;	ND		
	1	1				:			
Blank :	i i	ND	ND	1	ND	;	ND		
Method Detection Limit	; 50	; 0.2 ;	0.2	:	0.2	;	0.6		
Analytical Method	LUFT	602	602		602		602		
1 									

ND - Not Detected

RESPECTFULLY SUBMITTED

Mary a.

MARY A. JACOBS, DIRECTOR





J L ANALYTICAL SERVICES, INC.

N 1 44 114 1

217 Primo Way • P.O. Box 576185 • Modesto, California 95357 Office (209) 538-8111 • FAX (209) 538-3966

{Company:	Project ID:	Date Sampled: 06/03/93						
8 1	;Ferrar) 1						
¦B T Associates	1435 Webster, Alemeda	Date Received:06/04/93						
(31 Nightowl Court	Client Contact:	t						
Richmond, CA 94803	Bruce Tsutsui	TPH Analysis: 06/09/93						
t 1	•	<u>0/G Analysis :06/11/93</u>						
Medium Boiling Point TPH (as Diesel) and Dil/Grease								
1	_	,						
DOHS LUFT procedure; Sta	ndard Method 503.D							
{Lab Number; Client I D	; TPH-D ; ; Oil	& : :						
	: : Gre	ase (
:; (Water)	<u> ug/L _ mg</u>	/						
1								
; 30600573 ; MW-2	ND N	D ; ; ;						
; 30600574 ; MW-3	+ ND + N	D }						
1								
Method Detection Limit	; 50 ; ; 2	.0 : :						
Analytical Method	LUFT 50	3.D						

RESPECTFULLY SUBMITTED

Mary a.

MARY A. JACOBS, DIRECTOR



BT Associates Environmental Services

31 Nightowl Court Richmond, CA 94803 (Office) 510-222-1541 (Fax) 510-525-2178

CHAIN OF CUSTODY Date: MAGE 3 1993 Page ____ of ____

	PROJECTI.D. FERLAR				ANALYSIS REQUEST									#						
, ,	ADDRESS <u>1435</u> SAMPLER'S NAME SIGNATURE <u></u> TELEPHONE NUMB	NOUNE.	57. ALOI RAFP Kyp - SII-3591		T P H G	T P H D	T P H G & B T E X	B T E X	0 & 0 220 0 & 0	M E T A L S Cd,Cr Pb,Zn	PH UA RL GO AC BA LR EB O N S	VO OR LG IA AN TI LS E	O R G A N I C L E A D	T O T A L E A D	S O L U B L E L E A D					OF CONTAINERS
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	31 Nig	ASSOCI Environmental S chtowl Court, Richmon	ALCS ervices nd, CA 94803	(Offic 510-222 (Fa) 510-525					
	WEL	L MONITORI	NG FORM						
CLIENT:	Ferrar Property	DATE:		6/3/93					
SITE ADDRESS:	1435 Webster Street	COUN REPRE	COUNTY REPRESENTATIVE:Ms. Juliet Shin						
_	Alameda, CA	COUN CONTA	COUNTY REPRESENTATIVE CONTACTED PRIOR TO SAMPLING? Yes						
= WAT	TOTAL WELL DEPTH - DEPTH TO WATER ER COLUMN HEIGHT Multiply 1 well volume b to be purged from monito 3 x2.42 GALLONS	$\frac{23.80'}{9.54'} \text{ MONITORING}$ $\frac{9.54'}{14.26'} \text{ PURGE METHONE}$ $\frac{14.26'}{14.26'} \times 0.17 = 2$ $\frac{2}{14.26'} \times 0.17 = 2$	WELL # DD: Disposal .42 Gallons (1 w um number of gallo ; samples. as (3 Well Volumes) pH	MW-2 ble Bailer vell volume) ns of water CONDUCTIVITY					
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1422		67.3	6.98	890					
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CONTAMINANT ODOR?	TIME OF SAMPLE COLLECTION:
TURBIDITY LEVEL: Moderate	WITNESSED BY: No Witness
SHEEN ON WATER? No	SAMPLER'S SIGNATURE:
	(Bruce Tsutsui for John Rapp)

And the second second

31 Nightowl Court, Richmond, CA 94803								
	WELI	L MONITORIN	IG FORM)				
CLIENT:	Ferrar Property	DATE:	- 4111.4	6/3/93				
ADDRESS:1	1435 Webster Street	COUNT REPRES	Y ENTATIVE:	Ms. Juliet Shin				
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CONTAMINANT ODOR?	TIME OF SAMPLE COLLECTION:1356
TURBIDITY LEVEL: Moderate	WITNESSED BY: No Witness
SHEEN ON WATER? No	SAMPLER'S SIGNATURE:
	(Bruce Tsutsui for John Rapp)

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