



Mr. Scott Seery
Hazardous Materials Specialist
Alameda County Health Care Services Agency
UST Local Oversight Program
80 Swan Way, Room 200
Oakland, California 94621

SUBJECT: 'SUBSURFACE INVESTIGATION REPORT

4TH STREET AND MADIGAN AVENUE ON THE SANTA RITA

PROPERTY, ALAMEDA COUNTY, CALIFORNIA

Versar Project Number 2241-014

Dear Mr. Seery:

This report has been prepared by Versar, Inc. (Versar) to present the results of a subsurface investigation conducted on the northwest corner of 4th Street and Madigan Avenue (Site) on the Santa Rita property in Alameda County, California (Figure 1). The work was performed on behalf of the County of Alameda General Services Agency (GSA), under the direction of Mr. Rod Freitag, to further characterize the extent of soil and/or groundwater impacted by petroleum hydrocarbons released at the site. Information used to develop this investigation was based on a site reconnaissance and reports supplied to Versar by the GSA, as well as a meeting with you on July 15, 1995.

BACKGROUND

In May 1992, Environmental Science & Engineering, Inc. coordinated and supervised the removal of three underground storage tanks (USTs) (Numbers 4, 4a, 4b) from a single excavation on the site. The respective capacities of the underground storage tanks were 3,500, 8,000 and 10,000 gallons, all of which were used to store diesel fuel or fuel oil. Perforations or holes were reportedly not observed in the USTs upon removal. However, stained soils were observed during the excavation procedure. Three of the five soil samples collected from native soils below the USTs were reported to contain elevated concentrations of total petroleum hydrocarbons as diesel (TPH/D) and total oil and grease (TOG). The highest concentration of TPH/D (15,000 mg/kg) was reported present in a sample collected from an approximate depth of 15 feet below ground surface (bgs) in the southwestern corner of the excavation (Figure 2). Soils removed during the excavation process were stockpiled on-site adjacent to the former UST locations. The UST excavation was not backfilled following the completion of the tank removals. Concrete hold-down pads for the tanks were not excavated during the tank removal procedure and remain in the excavation.

In response to the results of the initial soil sample analyses, Versar submitted a workplan (dated August 2, 1995) to address the need for an additional subsurface investigation at the site.

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Mr. Scott Seery Alameda County Health Care Services Agency October 23, 1995 Page 2



FIELD INVESTIGATION

Versar developed a site Health and Safety plan prior to initiating field activities. This site-specific Health and Safety Plan was prepared to set forth procedures for safe conduct during completion of the field investigation. The Health and Safety Plan is designed to minimize risks to Versar personnel and others caused by potential exposure to hazardous materials or unsafe work conditions.

Soil Boring Drilling and Sampling

On September 1, 1995, four soil borings (B1 through B4) were drilled and sampled to depths ranging from 25 to 40 feet bgs, at the approximate locations shown on Figure 2.

The borings were drilled using a truck-mounted drilling rig equipped with 8-inch-diameter hollow-stem augers. During the borehole drilling, soil samples were collected at a maximum of 5-foot intervals for visual identification and classification. Soil samples were collected using a California-modified split-spoon sampler lined with brass sample tubes. Soil sample collection was accomplished by driving the sampler approximately 18 inches into undisturbed soils below the lead auger. Upon retrieval of the sampler at each sample interval, the lowest sample tube was removed, the ends of the sample tube were covered with Teflon© wrap, capped with plastic end-caps, labeled for identification purposes, and immediately placed in an insulated chest with ice, pending shipment to the laboratory for analysis. Chain-of-custody procedures were followed, including the use of chain-of-custody forms to document sample collection, handling, and transport to the laboratory. A second sample tube from the sampler was retained for head-space screening of organic vapors using an organic vapor analyzer (OVA).

The soil lithology was described by a Versar geologist working under the direction of a California State-registered geologist. Drilling logs were generated in the field to record descriptions of the soil types, sample depths and designations, and any observed significant features related to the presence of petroleum hydrocarbons or other hazardous materials. The drilling logs are included as Attachment 1. As shown on the logs, no field indicators or visual observation of potential contamination were noted during the drilling and sampling activities.

To assess groundwater conditions beneath the site, two groundwater grab samples were collected, one each from borings B2 and B3. The groundwater was encountered at 39 feet bgs at both locations. These borings were placed in a presumed down-gradient groundwater flow direction from the former UST excavation.



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In order to reduce the potential for cross-contamination, the downhole sampling equipment was decontaminated between sampling events using a laboratory-grade detergent solution, rinsed in two tapwater baths, with a final rinse in deionized water. Additionally, the augers and associated drilling equipment were pressure-washed with a hot pressure washer prior to beginning drilling and between borings. Equipment rinseate generated during this investigation was deposited and sealed in 55-gallon U.S. Department of Transportation (DOT)-approved drums, then labeled and stored on-site pending receipt of laboratory analytical results and evaluation of disposal alternatives. Soil cuttings were stockpiled on plastic sheeting, and covered with plastic sheeting, for temporary storage.

After completion, the borings were backfilled with a bentonite/cement grout seal from total depth to the ground surface.

Soil and Groundwater Analytical Results

Twenty soil samples and two groundwater samples were submitted for analysis to McCampbell Analytical, Inc., a state-certified analytical laboratory in Pacheco, California. The samples were analyzed for total petroleum hydrocarbons as gasoline (TPH/G); TPH/D; and benzene, toluene, ethylbenzene, and xylenes, in accordance with Environmental Protection Agency (EPA) Methods 8015 (modified) and 8020. The analytical results are presented in the laboratory report, included as Attachment 2.

Analytical results of the soil samples indicated that no detectable concentrations of the selected analytes were found, therefore, none of the soil samples were analyzed for semi-volatile organic compounds. Analytical results from the two groundwater grab samples indicated that boring B2 contained 84 ug/L (equivalent to parts-per-billion, ppb) TPH/D. The groundwater samples from Boring B3 did not have any detectable concentrations of analytes.

CONCLUSIONS AND RECOMMENDATIONS

Based on the field observation and analytical results, Versar recommends that no further action is warranted for the site, and the site be considered for closure. Versar's recommendation is supported by the following:

Groundwater beneath the site is located approximately 39 feet bgs, and no carcinogenic constituents were detected from groundwater samples collected in a presumed downgradient groundwater flow direction from the former UST excavation.

VCI'NAII'NG.

Mr. Scott Seery Alameda County Health Care Services Agency October 23, 1995 Page 4

- Laboratory analysis of the groundwater grab sample collected from boring B2 indicated 84 ug/L of TPH/D, slightly above the laboratory reporting limit of 50 ug/L. Because a grab sample collected through augers often contains soil particulate, which preferentially adsorb hydrocarbons, this may not be representative of groundwater conditions beneath the site. Additionally, the TPH/D concentration at this level is not considered to be a threat to human health or the environment.
- Soil sampling analytical results from the four borings did not indicate the presence of petroleum hydrocarbons or gasoline contamination beneath the site.
- No visual or field indications of petroleum hydrocarbons were noted in any of the borings.

If you have any questions or concerns regarding this report, or would like to arrange a meeting to discuss this project, please contact John Bird at (510) 814-5929.

Sincerely,

Versar, Inc.

Prepared By:

Reviewed By:

Paul Graff, R. Senior Geologist

R.G. No. 5600

ohn C. Bird, R.E.A. Project Manager

> No. 5600 Exp 6/30/97

Rod Freitag cc:

Alameda County General Services Agency

PKG/pkg

Wernanine.

FIGURES



ATTACHMENT 1

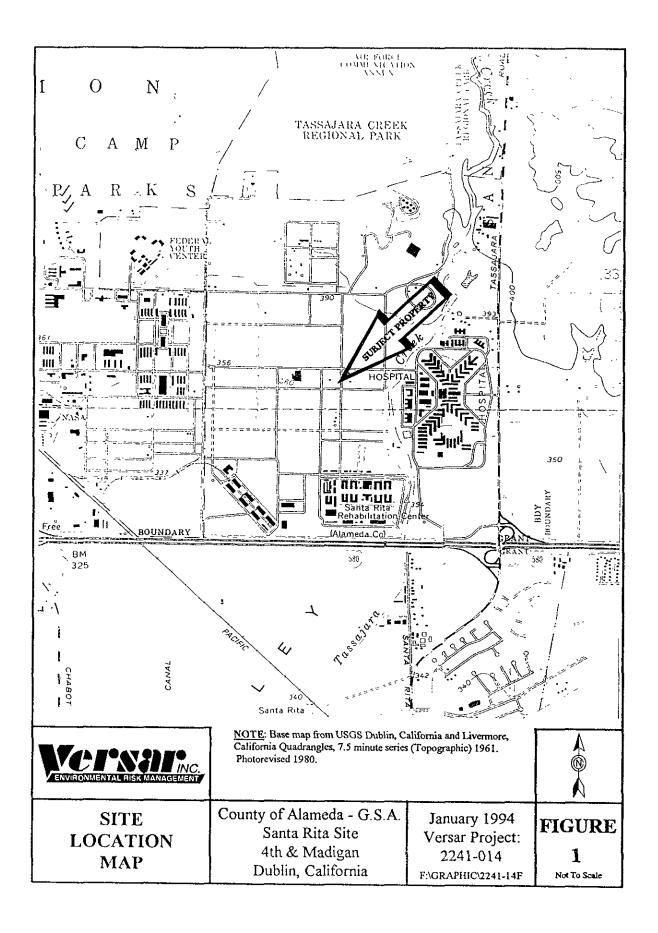
DRILLING LOGS

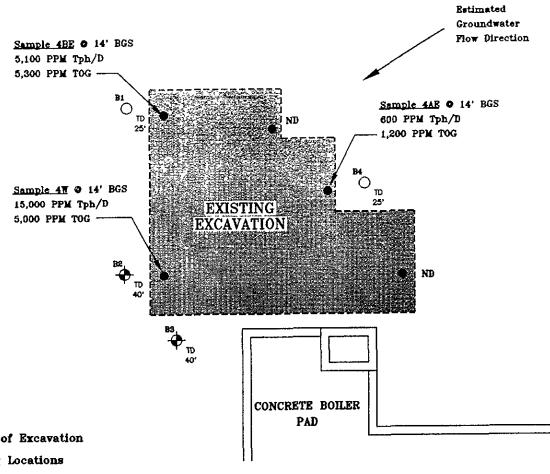


ATTACHMENT 2 LABORATORY REPORT



FIGURES





LEGEND

- -- Approximate Limits of Excavation
- Previous Soil Boring Locations
- Soil Boring
- Hydropunch Groundwater Sample
- Total Boring Depth, Feet Below Ground Surface (BGS)



NOTE:
ALL DIMENSIONS AND LOCATIONS
ARE APPROXIMATE



SITE

MAP

Bet. Map Adopted from ESE Site Map

County of Alameda - G.S.A.
Santa Rita Site
4th & Madigan
Dublin, California

August 1995 Versar Project: 2241-014



FIGURE 2



ATTACHMENT 1

DRILLING LOGS

													P_1_01_	
	,, <u>,,,,</u>			Ver	sar 1	Inc.				DRILLI	NG LOG	<u> </u>	PROJECT NO. 2241-014	
Su	per	vis	ing	Geol	ogist:	L	Bir	d			Site Name: S	anta	Rita - Alameda County	
Lo	g E	}y:		<u>1_H</u> 2	urisa	an_					Boring No: B	1		
Da	ite:	_ç	2/1/	95						· · · · · · · · · · · · · · · · · · ·	Boring Diamet	ter: 8	R-inch	
Dr	illir	ng	Cor	ntracte	or: V	Ves	it H	azmat Dri	lling Co	rp.	Boring Depth:	25-	feet	
Çç	ontr	act	or l	Lic. N	o. C	57.	-554	1979			Boring Location	on: S	See figure	
ł .				CMI										
Dr	ille I	<u>r:</u>	G	eorge	De	lesi	15	r i			GGG GOH PEG	10010		
				ĀĀ	tion				SOII		ISCS SOIL DES ON AND GEOL		TION CINTERPRETATION	[E
Depth (ft)	Advanced/	Recovered	Blow Counts	First Water/ ' Water Table '	Well Construction	USCS Group	Lithology	COLOR	YPE, RO	UNDING, S URE, DENS	ORTING, PERO	CENT ARY	: GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
2								Road	Base.					
1						SM	1	Silty	Sand - p	oorly sorte	ed with trace g	grave	ıl; moist; dense.	
.6.														
					,									
8	X	X	17					i	-		gular, poorly s no odor or sta		d, fine to medium grains with ; no organics.	0
12	XX	XX	20 24			SW								
14														
16	XX	X	22 50	/5"		CL		Į.			and sand; moi le no. B1 -15'		ard; no odor or staining;	0
18											- CONTROL CONT			
20	X	X	14					1	_		trace silt; monple no. B1 -		very stiff; medium plasticity;	
22	X	X	14 17											0

				P <u>2</u> of _	 _		
Versar Inc	C	DRILLI	VG LOG	PROJECT NO. 2241-014			
Supervising Geologist: I	Bird		Site Name: Santa	Rita - Alameda County			
Log By: M. Harrison			Boring No: R1]		
Date: 9/1/95			Boring Diameter:	8-inch			
Drilling Contractor: We	st Hazmat Dril	ling Corp.	Boring Depth: 25-	feet			
Contractor Lic. No. C57	7-554979		Boring Location: S	See figure			
Rig Type: CME-75							
Driller: George De les	sus						
Depth (ft) Advanced/ Recovered Blow Counts First Water/ 1 Water Table 1 Well Construction			USCS SOIL DESCRIPTION CONDITION AND GEOLOGIC INTERPRETATION				
Depth (ft) Advanced/ Recovered Blow Counts First Water/ Water Table Well Construc	SOIL TY COLOR GEOLO				Headspace (ppm)		
Depth (ft) Advanced Recovered Blow Cou First Wate Water Tal Well Con	SOIL TY	YPE, ROUNDING, S	ORTING, PERCENT	EGRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	ace		
dvarion dvario	GEOLO	, MOISTORE, DENS GY: FILL, ALLUVIU	JM, BEDROCK	POROSITY, ODORS, STAINING	adsī		
U A M W IT N N I	0 1	,			He		
24							
20 C	I Brow	n Clay; poorly so	rted; trace to some	sand; trace silt; moist; hard;	0		
26×30	no sta	aining or odor (Sa	mple No. B1 - 25')	. TD = 25'.			
50/5"							
28							
					i !		
30							
32							
34							
36							
38	 						
] 		
40		·····					
42							
							
44							

				Ver	sar 1	nc.			D	RILLIN	G LOG	PROJECT NO. 2241-014	
Su	ıpeı	rvis	ing	Geol					<u> </u>			Rita - Alameda County	
BF				<u> 1 Ha</u>							Boring No: B2		
				95							Boring Diameter: 8	3-inch	
D	rilli	ng	Cor	itracto	or: V	Ves	t.Ha	azmat Dri	lling Corp.		Boring Depth: 40-	· · · · · · · · · · · · · · · · · · ·	
C	ontr	act	or I	Lic. N	o. C	57.	-554	1979			Boring Location: S	ee figure	
R	<u>rs</u> i	`yp	e	CMI	7-75								
D	rille	:T:	G	eorge	De)	esi	15			=			
				ĀĀ	ction				SOIL CO		SCS SOIL DESCRIP ON AND GEOLOGIC	TION INTERPRETATION	(F)
Depth (ft)	Advanced/	Recovered	Blow Counts	First Water/ Water Table	Well Construction	USCS Group	Lithology	COLOR	, MOISTURI	E, DENS		: GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
2						Fil		Fill - 1	poorly sorte	ed sand	and gravel to 4 fee	et bgs.	
4													
6						SM		Silty S	Sand - with	gravel;	poorly sorted; mo	ist.	
-8													
10	N N		21 38			CL		Brow	n clay, mois	st, trace	sand and silt, calc	ite deposits, no odor or	0
12	2		40						stammig.				
14	1												
14			24 50	/5"		CL		Dense	e brown cla	y, trace	silt, moist, silty cl	ay, no odor or staining.	0
15									· · · · · · · · · · · · · · · · · · ·				
2(XXXX		20 20 22			CI			n clay, trace		d sand; calcite dep	osits, trace silt,	
22										_			0

			Ver	sar i	Inc.			DRILLI	NG LOG	PROJECT NO. 2241-014	
Sup	ervis	sing	Geol	ogist:	I	Biro	1		Site Name: Santa	Rita - Alameda County	
Log	By:		<u>1_H</u> 2	urisa	an_		<u>-</u>		Boring No: R2	<u> </u>	
Dat	e: ()/1.	/95						Boring Diameter:	8-inch	
Dri	ling	Co	ntracto	or: V	Ves	t Ha	zmat Dri	lling Corp.	Boring Depth: 40.	-feet	
Cor	tract	tor	Lic. N	o. C	57.	-554	979		Boring Location: 5	See figure	
Rig	Тур	Ġ.	CME	E-75		 .					
Dn	ler:	G	eorge	De.	esi	IS.					
			ŽÃ	tion					ISCS SOIL DESCRII ON AND GEOLOGIO	PTION C INTERPRETATION	
Depth (ft)	Advanced/ Recovered	Blow Counts	First Water/ Water Water Table	Well Construction	USCS Group	Lithology	COLOR	YPE, ROUNDING, S	ORTING, PERCENT SITY, SECONDARY	T: GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
24											
26		16 24			CL		Brow	vn clay, trace silt, t	race sand, no odor	or staining, moist.	0
28		27									
30		16 30					Inter	spersed sand and o no odor or stain	• * *	silt, soft, moist, poorly sorted,	0
32											
34		16 16 32			SM		Silty	sand, no odor or s	taining, moist.		0
38			1987								
40		6	Â				Grou	indwater at 39'	***************************************		
42		9						sand, no odor or s	_	e collected.	0
44											

ı				Ver	sar l	Inc.			DRILLI	NG LOG	PROJECT NO. 2241-014	
Su	pei	rvis	sing	Geol	ogist:	I	Bir	d		Site Name: Santa	Rita - Alameda County	
Lo	og F	Β <u>γ:</u>		4_H	arriso	n_				Boring No: B3	<u> </u>	
Di	ite:	<u></u>	2/1.	/95				,		Boring Diameter: 8	R-inch	
Dr	illi	ng	Co	ntract	or: V	Ves	it H	azmat Dril	lling Corp.	Boring Depth: 40-	feet]
Co	ntr	ract	or]	Lic. N	lo. C	57	-554	1979		Boring Location: S	ee figure	
		-			<u> </u>		y					
Dr	ille I	er:	G	eorge	- De	1				IGGS SOM PEGGENE	TYON	
			s	ŽĀ	ıction	Ĺ				ISCS SOIL DESCRIP ON AND GEOLOGIC		(Ē
Depth (ft)	Advanced/	Recovered	Blow Count	First Water/ Water Water Table	Well Constr	USCS Group	Lithology	COLOR		SITY, SECONDARY	: GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
2						SM		Fill-	- brown gravel to silty sands wi		n to brown unconsolidated	0
1												
╹├╌		\Box										
6	-	\vdash				ļ				·		
8												
10	X	X	16 24			CL		Bro		st, hard, medium p		0
	r	n	3.0					-, ,,,,-,,	no odor or stanin	18 (pample Millioe	(LB3-10)	
12		Н				\vdash						
14	X	X	12									
	Ø	Ø	16			CL		Bro	wn silty clay, moi	st, calcite striations	s. dense	
4		\cap	20					2.0	no odor or stainir		.,,	0
16	-	\vdash	\dashv						<u> </u>			
1 2												
			21							· · · · · · · · · · · · · · · · · · ·		
20			21 25					San	dy clay, moist, cal	cite, brown striatio	ns, no odor or staining.	
				_ 7		CL						0
22									·			

				Ver	sar 1	Inc.			DRILLI	NG LOG	PROJECT NO. 2241-014	
Su	ıpe	rvis	ing	Geol	ogist:	J	Bira	1		Site Name: Santa I	Rita - Alameda County	
LC	og J	Bv:	Ν	1. Ha	arrisc	n.				Boring No: B3	·	
Dí	11¢.	C)/1/	95					·····	Boring Diameter: 8	-inch	
Dr	illi	ព្រ	Cor	ntracte	or: V	Ves	t Ha	azmat Dril	lling Corp.	Boring Depth: 40-1	feet	
Co	<u>onti</u>	ract	or I	<u>.1c. N</u>	lo. C	57.	-554	979		Boring Location: S	ee figure	
Rı	g .	Гур	<u>e:</u>	CMI	E-75							
Dı	ille	÷Γ:	G	eorge	e De	lesi	IS.					
			S	Ā Ā	uction	G				JSCS SOIL DESCRIP ON AND GEOLOGIC		(ma
Depth (ft)	Advanced	Recovered	Blow Count	First Water/ '	Well Construction	USCS Group	Lithology	COLOR	YPE, ROUNDING, S k, MOISTURE, DENS GY: FILL, ALLUVI	SITY, SECONDARY I	GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
24		X	16			CL		San	dy clay, trace silt, brown.	moist, calcite striati	ions, no odor or staining,	
	X	X	19 23									0
26												
.28			1.0					·				
30	X	X	10 10 15			CL		Silty	y clay, moist, brov	vn, no odor or stain	ing.	0
32												
34	X	\otimes	7									
36		*	11 17			SM		Silty	y sand, light brow	n, moderately sorted	d, no odor or staining.	0
38 40				Ã					oundwater at 39' - End of borehole.	Groundwater samp	ple collected.	
42												
44		لسبا	الما			<u> </u>						l

				Ver	sar l	nc.	_		DRILLI	NG LOG	PROJECT NO. 2241-014	
S	ıpeı	rvis	ing	Geol	ogist:	I	Bire	1		Site Name: Santa	Rita - Alameda County	
L	og I	By:		1 H:	arriso	n_				Boring No: B4		
.D	ate:		2/1/	95_						Boring Diameter: 8	R-inch	
D	rilli	ng	Cor	ntracto	or: V	Ves	t Ha	zmat Dri	lling Corp.	Boring Depth: 25-		
				lic. N	_		-554	979		Boring Location: S	ee figure	
				CMI								
D	rille T	er:	G	eorge					· · · · · · · · · · · · · · · · · · ·	I JSCS SOIL DESCRIP	TION	
7				ĀĀ	tion					ON AND GEOLOGIC		Ê
Denth (A)	Advanced/	Recovered	Blow Counts	First Water/ Water Table	Well Constru	USCS Group	Lithology	COLOR		SITY, SECONDARY	: GRAVEL, SANDS, FINES POROSITY, ODORS, STAINING	Headspace (ppm)
_2								Fi	ill - gravel grading	to unconsolidated	brown silty sand with depth	
_A												
8												
	XXXX		18 18			SP.		Bı	rown-Sand to silty no odor or staini		y sorted, medium dense,	0
	2	-										
	12		7									
		*2	11			SM		Si	ilty sand, moderate staining, moist.	ely sorted, medium	dense, no odor or	0
	8									MARINE - TOTAL - AND		
2			6 8 13			CL		В	rown-sandy clay,	brown, moist, trace	silt, no odor or staining.	0
2								25	5' End of borehole	.		



ATTACHMENT 2 LABORATORY REPORT

09/14/95

Dear John:

Enclosed are:

- 1). the results of 22 samples from your # 2241-014; 4th & Madigan, Santa Rita project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quelity, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton

Versar			roject ID:	# 2241-014	; 4th & I	Date Sampled: 09/01/95			
1255 Harbor	Bay Pkwy, # 100	iviadigan	, Sama Kua		I	Date Receive	d: 09/01/95		
Alameda, CA	. 94502	Client Co	ontact: John	Bird		Date Extracte	d: 09/01/95	,	
		Client P.	O:]	Date Analyze	d: 09/03-09	/04/95	
EPA methods 50	Gasoline Range								
Lab ID	Client ID	Matrix	TPH(g) ⁺	Benzene	Toluene	Ethylben	Xylenes	% Rec. Surrogate	
55979	B1-10	S		ND	ND	ND	ND	105	
55980	B1-15	S		ND	ND	ND	ND	102	
55981	B1-20	S		ND	ND	ND	ND	104	
55982	B1-25	S		ND	ND	ND	ND	103	
55983	B2-10	S		ND	ND	ND	ND	108	
55984	B2-15	S	97E 49E 40E	ND	ND	ND	ND	103	
55985	B2-20	S	446	ND	ND	ND	ND	106	
55986	B2-25	s	77.7	ND	ND	ND	ND	105	
55987 .	B2-30	s		ND	ND	ND	ND	106	
55988	B2-35	s		ND	ND	ND	ND	104	
55989	B2-40	S		ND	ND	ND	ND	105	
55990	B3-10	S		ND	ND	ND	ND	108	
55991	B3-15	S		ND	ND	ND	ND	106	
55992	B3-20	S		ND	ND	ND	ND	106	
Reporting	Limit unless other-	W	50 ug/L	0.5	0.5	0.5	0.5		
	ND means not de- e the reporting limit	S	1.0 mg/kg	0.005	0.005	0.005	0.005		

^{*} water and vapor samples are reported in ug/L, soil samples in ng/kg, and all TCLP extracts in mg/L

[#] cluttered chromatogram; sample peak coelutes with surrogate peak

⁺ The following descriptions of the TPH chromatogram are currory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly mc dified 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.

Versar					; 4th & I	Date Sampled: 09/01/95				
1255 Harbor	Bay Pkwy, # 100	Madigar	ı, Santa Rita		Γ	ate Receive	:d: 09/01/95	;		
Alameda, CA	, 94502	Client C	ontact: John	Bird	Ĺ	Date Extracted: 09/01/95				
		Client P	.O:		Ι	ate Analyze	d: 09/03-09	2/09/95		
EPA methods 50	Gasoline Range									
Lab ID	Client ID	Matrix	TPH(g) ⁺	Benzene	Toluene	Ethylben- zene	Xylenes	% Rec. Surrogate		
55993	B3-25	s		ND	ND	ND	ND	108		
55994	B3-30	s		ND	ND	ND	ND	106		
55995	B3-35	s		ND	ND	ND	ND	102		
55996	B3W	W		ND	ND	ND	ND	95		
55997	B2W	w		ND	ND	ND	ND	98		
55998	B4-10	S		ND	ND	ND	ND	107		
55999	B4-15	S		ND	ND	ND	ND	104		
56000	B4-20	S		ND	ND	ND	ND	103		
Reporting wise stated	Limit unless other- , ND means not de-	W	50 ug/L	0.5	0.5	0.5	0.5			

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

1.0 mg/kg

S

0.003

0.005

0.005

0.005

tected above the reporting limit

[#] 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.

Versar			roject ID: #2241-1)14; 4th &	Date Sampled: 09/01/95		
1255 Harbor	Bay Pkwy, # 100	Madigan,	Santa Rita	Date Received: 09/	01/95	
Alameda, CA	A 94502	Client Co	ontact: John Bird	Date Extracted: 09/	01-09/08/95	
		Client P.	D:	Date Analyzed: 09/	01-09/02/95	
EPA methods m		- ,	C23) Extractable Hydrocarbons		D(3510)	
Lab ID	Client ID	Matrix	TPH(d) ⁺		% Recovery Surrogate	
55979	B1-10	S	ND	· ·	100	
55980	B1-15	S	ND		100	
55981	B1-20	S	ND		100	
55982	B1-25	S	ND		100	
55983	B2-10	s	ND		99	
55984	B2-15	S	ND		98	
55985	B2-20	S	ND		100	
55986	B2-25	S	ND		100	
55987	B2-30	S	ND		100	
55988	B2-35	S	ND		98	
55989	B2-40	S	ND		98	
55990	B3-10	S	ND		95	
55991	B3-15	S	ND		95	
55992	B3-20	S	ND		95	
Reporting	Limit unless other-	W	50 ug/L			
tected abov	; ND means not de- e the reporting limit	s	1.0 mg/kg			

^{*} water samples are reported in ug/L, soil samples in mg/kg, and all TCLP and STLC extracts in mg/L

[#] cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

⁺ 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 (?); 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.

McCAMPBELL ANALYTICAL INC.

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

Versar	ersar 255 Harbor Bay Pkwy, # 100	Client Proje Madigan, Sai	ct ID: #2241-014; 4th & nta Rita		
	•			Date Received: 09/	01/95
Alameda, CA	, 94502	Client Conta	ct: John Bird	Date Extracted: 09/	01/95
		Client P.O:		Date Analyzed: 09/	01-09/02/95
EPA methods m			Extractable Hydrocarbon RWQCB (SF Bay Region) method		0(3510)
Lab ID	Client ID	Matrix	TPH(d) ⁺		% Recovery Surrogate
55993	B3-25	S	ND		95
55994	B3-30	S	ND		96
55995	B3-35	s	ND		96
55996	B3W	w	ND		99
55997	B2W	w	84,b		98
55998	B4-10	S	ND		97
55999	B4-15	S	ND		97
56000	B4-20	S	ND		96
Reporting	Limit unless other- ; ND means not de-	w	50 ug/L		
wise stated tected abov	; ND means not de- e the reporting limit	S	1.0 mg/kg	<u> </u>	1

^{*} water samples are reported in ug/L, soil samples in mg/kg, and all TCLP and STLC extracts in mg/L

[#] cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

⁺ 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 (?); 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.

Date:

09/03/95

Matrix: Soil

No. of London	Concent	ration	(mg/kg)		% Recovery		
Analyte	Sample	MS	MSD	Amount Spiked	MS	MSD	RPD
TPH (gas)	0.000	1.607	1.679	2.03	79	83	4.4
Benzene Toluene	0.000	0.166	0.160 0.162	0.2	83 85	80 81	3.7
Ethylbenzene	0.000	0.170	0.160	0.2	85	80	4.8 6.1
Xylenes	0.000	0.544	0.508	0.6	91	85	6.8
TPH (diesel)	0	323	316	300	108	105	2.0
TRPH (oil`& grease)	A\N	N/A	N/A	N/A	N/A	N/A	N/A

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

Date: 09/04/95

Matrix: Soil

No. 2 color	Concent	ration	(mg/kg)		% Recor	very	·
Analyte	Sample MS		MSD	Amount Spiked	MS	MSD	RPD
TPH (gas)	0.000	2.006	1.977	2.03	99	97	1.5
Benzene	0.000	0.204	0.204	0.2	102	102	0.0
Toluene	0.000	0.204	0.206	0.2	102	103	1.0
Ethylbenzene	0.000	0.206	0.206	0.2	103	103	0.0
Xylenes	0.000	0.646	0.648	0.6	108	108	0.3
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Date:

09/08/95-09/09/95

Matrix: Soil

	Concent	ration	(mg/kg)		% Reco	very	
Analyte	Sample MS		MSD	Amount Spiked	MS	MSD	RPD
TPH (gas)	0.000	1.777	1.696	2.03	88	84	4.7
Benzene Toluene	0.000	0.180 0.184	0.190 0.196	0.2	90 92	95 98	5.4 6.3
Ethylbenzene	0.000	0.184	0.196	0.2	92	98	6.3
Xylenes	0.000	0.580	0.616	0.6	97	103	6.0
TPH (diesel)	0	301	301	300	100	100	0.3
TRPH (oil`& grease)			18.7	20.8	88 9		2.7

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

Date: 09/01/95-09/02/95 Matrix: Soil

	Concent	ration	(mg/kg)		% Reco	very	
Analyte	Sample MS		MSD	Amount Spiked	MS	MSD	RPD
TPH (gas) Benzene Toluene Ethylbenzene Xylenes	0.000 0.000 0.000 0.000	2.024 0.190 0.190 0.190 0.600	1.954 0.182 0.180 0.180 0.580	2.03 0.2 0.2 0.2 0.6	100 95 95 95 100	96 91 90 90	3.5 4.3 5.4 5.4
TPH (diesel)	0	295	299	300	98	100	1.6
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Date:

09/01/95-09/02/95 Matrix: Water

	Concent	ration	(ug/L)		% Reco	very	
Analyte	Sample	MS	MSD	Amount Spiked	MS	MSD	RPD
TPH (gas) Benzene Toluene Ethyl Benzene Xylenes	N/A N/A N/A N/A						
TPH (diesel)	0	153	154	150	102	103	0.3
TRPH (oil & grease)	N/A						

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

Date: 09/04/95

Matrix: Water

3 3 - 4 - 1	Concent	ration	(ug/L)		% Reco	very	
Analyte	Sample	MS	MSD	Amount Spiked	MS	MSD	RPD
TPH (gas)	0.0	113.7		100	114	113	0.8
Benzene Toluene	0	9 9.2	9.4 9.5	10 10	90.0	94.0 95.0	4.3 3.2
Ethyl Benzene	o	9.3	9.7	10	93.0		4.2
Xylenes	0	30.4	31	30	101.3	103.3	2.0
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

Date:

09/08/95-09/09/95 Matrix: Water

	Concent	ration	(ug/L)		% Reco	very	
Analyte	Sample	MS	MSD	Amount Spiked	MS	MSD	RPD
TPH (gas) Benzene	0.0	94.8	91.5	100	95	92	3.5
Toluene	0	10.9 10.8	10.2 10.2	10 10	109.0 108.0	102.0 102.0	6.6 5.7
Ethyl Benzene	0	10.8	10.2	10	108.0	102.0	5.7
Xylenes	0	34.5	32.8	30	115.0	109.3	5.1
TPH (diesel)	o	166	163	150	111	108	2.0
TRPH (oil & grease)	0	23900	24100	23700	101	102	0.8

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

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132-10	9/1/3	930		4) :	レ	~							į 1	55983	\ \
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B2-20	1/95	950		-		1.	~	-								55985	1
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BZ-3U	1/1/95	10,00				1								.,		55987	
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R-7. 1	9/	1					-							\rightarrow				
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