

93 SEP 27 AMII: 42

A REPORT DOCUMENTING THE PURGING AND SAMPLING OF THREE GROUNDWATER MONITORING WELLS ON FOUR CONSECUTIVE QUARTERS AND THE DETERMINATION OF GROUNDWATER GRADIENT FOR TWELVE CONSECUTIVE MONTHS

AT:

ALAMEDA FIRE STATION 635 PACIFIC STREET ALAMEDA, CALIFORNIA

SEPTEMBER 8, 1993

1548 Jacob Avenue San Jose, CA 95118 Phone/Fax (408) 267-6427 - Pager (415) 578-5947



E nvironmental

T echnical

S ervices

A REPORT DOCUMENTING THE PURGING AND SAMPLING OF THREE GROUNDWATER MONITORING WELLS ON FOUR CONSECUTIVE QUARTERS AND THE DETERMINATION OF GROUNDWATER GRADIENT FOR TWELVE CONSECUTIVE MONTHS:

AT:

ALAMEDA FIRE STATION 635 PACIFIC STREET ALAMEDA, CALIFORNIA

prepared by:

ENVIRONMENTAL TECHNICAL SERVICES
Helen A. Mawhinney

Senior Environmental Specialist

and

GREENSFELDER & ASSOCIATES Roger Greensfelder PhD

CA Registered Geologist #3011

9/9/93

a coon

AUGUST 8, 1993

1548 Jacob Avenue San Jose, CA 95118 Phone/Fax (408) 267-6427 - Pager (415) 578-5947

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PREVIOUS ENVIRONMENTAL INVESTIGATIONS	1
2.1	TANK REMOVAL	1
2.2	EXCAVATION OF CONTAMINATION SOIL	1
2.3	ORIGINAL TANK REMOVAL ANALYTICAL RESULTS	2
	TABLE IA, ORIGINAL EXCAVATION, TANK PIT SOIL ANALYTICAL RESULTS, 8/17/922	?
	TABLE IB, ADDITIONAL EXCAVATION ANALYTICAL RESULTS, 8/18/92	2
3.0	SCOPE OF SERVICES	3
3.1	GROUNDWATER PURGING & SAMPLING	3
3.2	GROUNDWATER ANALYSIS	3
3.3	GROUNDWATER ANALYTICAL RESULTS	4
	TABLE II, GROUNDWATER ANALYTICAL RESULTS 1ST QUARTER SAMPLING, 9/5/92	4
	TABLE III, GROUNDWATER ANALYTICAL RESULTS 2ND QUARTER SAMPLING, 1/11/93	4
	TABLE IV, GROUNDWATER ANALYTICAL RESULTS 3RD QUARTER SAMPLING, 5/03/93	5
	TABLE V, GROUNDWATER ANALYTICAL RESULTS 4TH QUARTER SAMPLING, 7/29/93	5
3.4	GROUNDWATER GRADIENT	6
4.0	CONCLUSIONS AND RECOMMENDATIONS	-
5.0	REPORT	-

APPENDICES

Appendix A

MAPS

Figure 1. Site Location Map

Figure 2. Former Tank Location Map

Figure 3. Excavation and Sampling Map

Figure 4. Monitoring Well Location Map

Appendix B

Groundwater Analytical Results 1st Quarter, September 5, 1992

Appendix C

Groundwater Analytical Results 2nd Quarter, January 11, 1993

Appendix D

Groundwater Analytical Results 3rd Quarter, May 3, 1993

Appendix E

Groundwater Analytical Results 4th Quarter, July 29, 1993

Appendix F

Groundwater Development Reports

1.0 INTRODUCTION

The following report documents the sampling of three groundwater monitoring wells and the determination of groundwater gradient at the Alameda Fire Station, 635 Pacific Street, Alameda, California.

Refer to Appendix A, Figure 1, Site Location Map.

Groundwater was sampled on four consecutive quarters and groundwater gradient determined for twelve consecutive months.

The work was performed in response to the discovery of petroleum hydrocarbons beneath the site and has been requested by the Alameda County Office of Environmental Health Department, Hazardous Materials Division.

2.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

2.1 Tank Removal

On November 15, 1991 one 285-gallon underground storage tank (UST) was removed from the above referenced site. The tank previously contained diesel. One soil sample was collected from the native soil beneath the tank. The sample contained a detectable amount of toluene at 6.5 ppb and total xylenes at 4.4 ppb.

A soil sample was collected from stockpiled fill materials removed from the tank pit. This has a detectable amount of total petroleum hydrocarbons as diesel at 220 ppm and xylenes at 52 ppb.

2.2 EXCAVATION OF CONTAMINATED SOIL

Excavation of contaminated soil was performed on August 17, 1992 and four soil samples were collected. A sample was collected from each sidewall vadose/capillary zone. These samples were designated as FSX-1 and FSX-4. Soil sample FSX2-A was collected subsequent to excavation of material around sample FSX2, and confirms removal of the slight contamination present around FSX2. See Table 1A for analytical results.

2.3 ORIGINAL TANK REMOVAL, ANALYTICAL RESULTS

TABLE IA

SOIL ANALYTICAL RESULTS, ORIGINAL TANK REMOVAL Total Petroleum Hydrocarbons as Gasoline with Benzene, Toluene, Ethylbenzene, and Xylenes August 17, 1992

Results reported in ppm

Sample #	TPH-G	В	T	E	×	TPH-D
FSX-1	ND	ND	ND	ND	ND	ND
FSX-2	ND	ND	ND	ND	ND	7.1
FSX-3	ND	ND	ND	ОИ	ND	ND
FSX-4	ND	ND	ND	ND	ND	ND

FSSP1-FSSP4: This stockpile sample was composited with FSSP5 and FSSP6 which was collected on August 18, 1992. See Table 1B for analytical results.

ND = not detected at lower detection limit for this compound

To ensure that all of the contaminated soil was excavated, additional excavation was performed on August 18, 1992 due to the 7.1 ppm detection of diesel in sidewall sample FSX2. The stockpile sample collected on August 17, FSSP1-FSSP4, was composited with FSSP5 and FSSP6 collected on August 18, 1992 for one analysis. Refer to Table 1B for analytical results.

TABLE 1B

ADDITIONAL EXCAVATION SOIL ANALYTICAL RESULTS Total Petroleum Hydrocarbons as Gasoline and Diesel August 18, 1992

Results reported in ppm

Sample#	TPH-G	TPH-D	
FSX2-A (2FSX2)*	NA	ИД	
FSSP1-FSSP6	ND	3.0	

ND = not detected at the lower detection limit
NA - not analyzed for this compound
*As listed on chain of custody

An existing 2-inch groundwater monitoring well is located adjacent to and within 1.5 feet of the tank pit cavity. The well was constructed by Aqua Science Engineering on June 3, 1986. The well was constructed in compliance with Assembly Bill 1362 and the Groundwater Monitoring Guidelines for Hazardous Materials Storage drafted by the Alameda County Water District in May 1984. The well was placed in the assumed down-gradient direction. Gradient direction information differed within the area.

3.0 SCOPE OF SERVICES

3.1 Groundwater Purging & Sampling

The three existing groundwater monitoring wells were purged and sampled on September 5, 1992, January 11, 1993, May 3, 1993, and July 29, 1993. The wells were purged using a clean stainless steel bailer (1.5" diameter by 3.0' length). Subsequent to purging each well was sampled using a clean stainless steel bailer. A separate bailer was dedicated to each well for the sampling event. At consistent intervals throughout sampling, groundwater parameters (pH and temperature) were monitored to evaluate stabilization of the wells.

A water sample was decanted from the sampling bailer into two one-liter amber bottles and three 40-ml volatile organics analysis vials (VOAs) to a positive meniscus eliminating headspace.

The samples were transported to a certified hazardous waste analytical laboratory under chain of custody for analysis.

3.2 GROUNDWATER ANALYSIS

Each groundwater sample collected was analyzed for total petroleum hydrocarbons as gasoline with benzene, toluene, ethylbenzene, and total xylenes (TPHg & BTEX using EPA Method 5030/602) and total petroleum hydrocarbons as diesel (TPHd using EPA Method 3510).

3.3 GROUNDWATER ANALYTICAL RESULTS

TABLE II

GROUNDWATER ANALYTICAL RESULTS

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE WITH BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES AND TOTAL PETROLEUM HYDROCARBONS AS DIESEL SEPTEMBER 5, 1992

Results reported in ug/L

Sample# MW-2	TPHg ND	B ND	ND	E ND	X ND	TPH-D ND
MW-3	ND	ND	ND	ND	ND	ND
MW- 4	ОИ	ND	ND	ND	ND	ND

ND - not detected at lower detection limit

TABLE III GROUNDWATER ANALYTICAL RESULTS SECOND QUARTER JANUARY 11, 1993

Results reported in ug/L

Sample#	TPHg	<u>B</u>	<u>T</u>	E	x	TPH-D
MW-2	ND	ND	ND	ND	ND	ND
MW-3	ND	ND	ND	ND	ND	ND
MW-4	ND	ND	ND	ND	ND	ND

ND - not detected at lower detection limit

TABLE IV GROUNDWATER ANALYTICAL RESULTS THIRD QUARTER MAY 3, 1992

Results reported in ug/L

Sample#	TPHg	<u>B</u>	<u>T</u>	Ē	x	TPH-D
MW-2	ND	ND	ND	ND	ND	ND
MW-3	ND	ND	ND	ND	ND	ND
MW-4	ND	ND	ND	ND	ND	ND

ND - not detected at lower detection limit

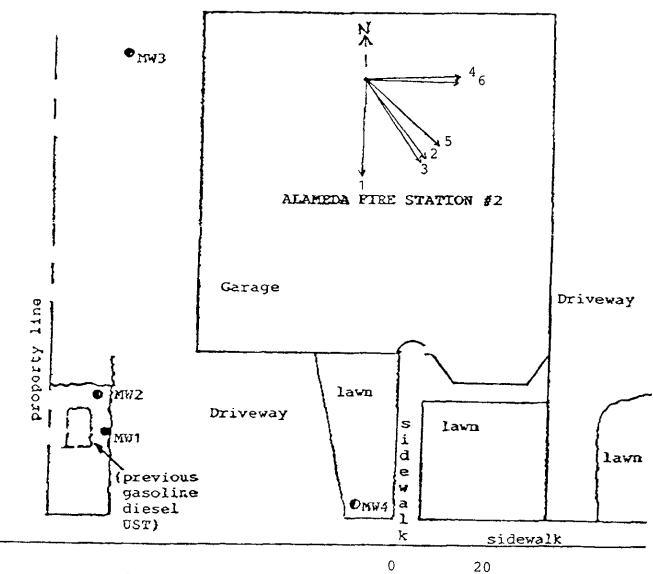
TABLE V GROUNDWATER ANALYTICAL RESULTS FOURTH QUARTER JULY 29, 1992

Results reported in ug/L

Sample#	TPHg	B	T	E	x	TPH-D
MW-2	ND	ND	ND	ND	ND	ND
MM- 3	ND	ND	ND	ND	ND	ND
MW-4	ND	ND	ND	ND	ND	ND

ND - not detected at lower detection limit

3.4 GROUNDWATER GRADIENT



	Groundwater	GRADIENT DATA		<u> </u>	41 001
NO.	DATE	<u>E4</u>	FLOW	scale <u>GRAD</u>	1'=20'
2 3 4 5	10/14/92 11/10/92 12/11/92 01/11/93 05/03/93 07/29/93	3.02 3.06 3.98 5.36 6.26 3.32	183 143 146 89 133	.0020 .0026 .0027 .0082 .0007	
MORTO					

NOTES
(1) Water elev. in MW4
(2) Flow azimuth (%E of N)
(3) Gradient (ft/ft)

4.0 CONCLUSIONS AND RECOMMENDATIONS

The three monitoring wells located on this site have been developed and sampled for four consecutive quarters and found no detectable amounts of TPH-G, TPH-D, and BTEX.

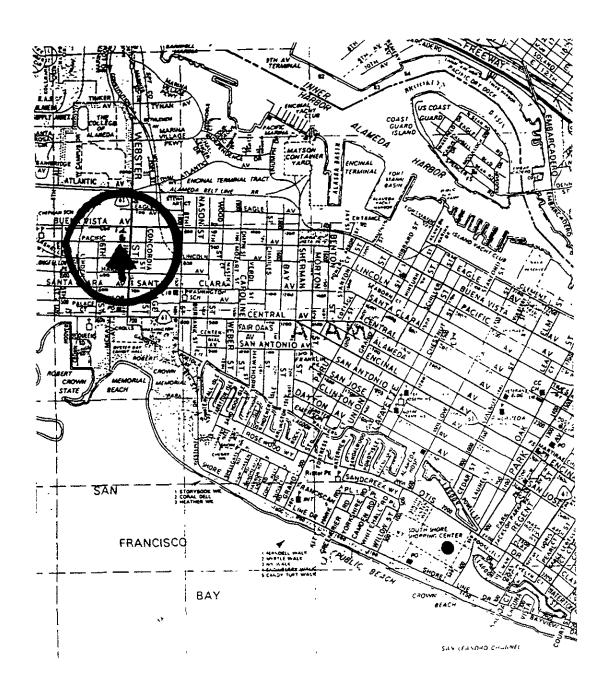
Therefore it is our recommendation that this site be considered for closure and no further monitoring be required.

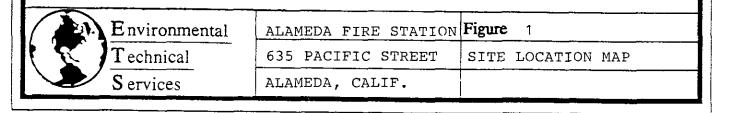
5.0 REPORT

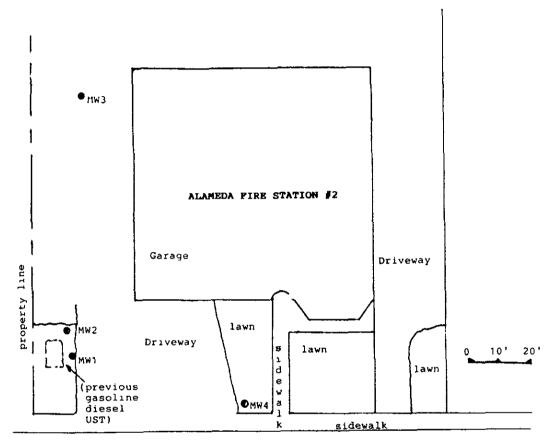
Please forward copies of this report, chain of custody documentation, and laboratory analytical reports to the San Francisco Regional Water Quality Control Board, and the Alameda County Department of Environmental Health Department Hazardous Materials Division.

Alameda County
Department of Environmental Health
Hazardous Materials Division
80 Swan Way,
Room 200
Oakland, CA 94621

San Francisco Regional Water Quality Control Board 2101 Webster Street, Rm 500 Oakland, CA 94621 APPENDIX A MAPS





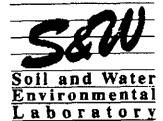


635 PACIFIC STREET

	Environmental	ALAMEDA FIRE STATION	Figure 2
1 2 1	Γ echnical	635 PACIFIC STREET	MONITORING WELL AND
	S ervices	ALAMEDA, CALIF	FORMER TANK LOCATION

APPENDIX B

GROUNDWATER ANALYTICAL RESULTS FIRST QUARTER



Drinking Water
Waste Water • Asbestos
Hazardous Waste — Soil
Calderon Testing — Air

14072 W. Park Avenue Boulder Creek, CA 95006 (408) 338-3053 Laboratory Report

Cilent Ervic*mraneri*tal Tech, Services

1548 Jacob Ave. San Jose CA 95118

Sample Site

Alam Fire Dept

635 Pacific Street

Alameda

Alam Fire #2

Date Received

Report Date 09/29/92

09/05/92

Analysis Requested

Total Hydrocarbons - Bas

Total Hydrocarbons - Diesel

BTEX

Procedure

EPA 5030

EPA 3510

EFA 602

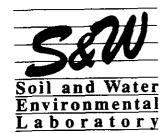
Oate Analyzed
09/05/52

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit			
2492-ET1-A	MU-2	Water/TPH-G	*	ප ිර p	рb		
2492-ET1-A	MW-2	Water/TPH-D	长	50 p	pb		
2492-ET1-A	MH-S	Water/放了巨X					
		Berrzene	*	0.5 p	pb		
		Toluene	₩.	0.5 p	pb		
		Ethylberizene	#	0.5 p	pb		
		Xylerms	₩	0.5 p	pb		
2432-ET1-R	₩ ₩-4	Water/TPH-G	*	50 p	•		
2492-ET1-B	Mi-4	Hater/TPH-D	*	50 p	Po		
2492-ET1-R	Mi-4	料点もセック型下区メ					
		Berizerie	*	0.5 p	•		
		Toluene	*	0.5 p	dqı		
		Ethylbenzene	*	0.55 p	pb		
		Xylenes	*	0.5 p	mb		

w No detectable amount @ detection limit

Analyst Signature

R. W. Larray



Drinking Water
Waste Water

Asbestos
Hazardous Waste

Soil
Calderon Testing

Air

14072 W. Park Avenue Boulder Creek, CA 95006 (408) 338-3053

Analysis Requested

Total Hydrocarbons - Gas Total Hydrocarbons - Diesel BTEX

Laboratory Report

Client

Report Date

Enviornmental Tech. Services 09/10/92 1548 Jacob Ave.

Sam Jose CA 95118

Sample Site

Date Received

Alameda Fire Det.

635 Pacific St.

Alameda, CA

Alam Fire #2

03/05/32

Procedure

EPA 5030 EPA 3510 Date Analyzed
09/06/92

EPA 602

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
2492-ET1-C	MM-3	Water/TPH-G	*	50 ppb
2492-ET1-C	MVI-3	Water/TPH-D	*	50 ppb
2492-ET1-C	MM-3	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	₩.	0.5 ppb
		Xylenes	*	0.5 ppb

* No detectable amount @ detection limit

Analyst Signature

R. M. Lamon

CHAIN OF CUSTOUT RECORD

PROJECT	NOMW .	Alian	<i>-</i>	Siti	E NAME & A	DORESS PO	da la		ANAI	LYSES	 REC	DUEST	TED (1)	
Julies		SING AG		la	PECTOPINA W Flire	Alame ME/DATE	da Va	a (es	7	T .	, '	~	T-		REMARKS
IDANO.	DATE	TIME	30g	WATER		SAMPLING LOC	ATION	TPH (Gasofre)	TPH (Desert) &	Total OI & Great	Halogensted HC's	B, T, X & E	Heavy Metais		I ILIAMI II
MW-2	2	4/91	<u> </u>	X					V						
MW-4	Ł	, , , , , , , , , , , , , , , , , , , 	ļ	ıχ		- <u> </u>	·								
mw-3	9/4/92			Ŋ				V	1						
						-									
				\dashv		<u> </u>							\dashv	_	
			7											-	
				1						1				(1)	See attached "Table 2"
Religioushed by:	(Signati	F0)	}-		le/Time	I Basahad bu	(Signature)								for specific analysis method.
Asten []	avlas	•	ý	/5/3	2 1:16		: (Signature)	f	~ = =	y=4.					laboratory accepting samples
lelinquished by:	(Signatu	re) /	7	O#	e/Time	Received by:	(Signature)		1. Have	ali san	nples n	oolve مرا	for an	alysis t	been stored in los?
		<i>J</i>							_			10	<u> </u>		Myzed?
lelinquished by:	(Signatu	re)		Date	e/Time	Received by:	(Signature)				ples re				lave head epace?
elinquished by:	(Signatur	•)	8		VTIme	Rec'd for Labe	ymory by: (Sign	atro)	//	-ann	<i>p</i>	Je.	7) 7)		and properly packaged?
v: 12-88			ب ا	15/	64 : 35	10/1/ Je	how		8		ممدم	<u>~</u>			No. 7-5/97

APPENDIX C

GROUNDWATER ANALYTICAL RESULTS SECOND QUARTER

Soil and Environmenta<u>l</u> La<u>boratory</u>

Drinking Water Waste Water o Asbestos Hazardous Waste - Soil Calderon Testing - Air

14072 W. Park Avenue Boulder Creek, CA 95006 (408) 338-3053

Laboratory Report

Chent

Report Date Erviceraneratal Tech. Services 01/15/93

1548 Jacob Ave.

San Jose 95118

Sample \$1te

Alam Fire Station #2

635 Pacific Ave

Alameda

EMWALAMF I REC

Date Received 01/12/93

Analysis Requested

0123-ET2-C

0123-ET2-C

0123-ET2-C

0123-ET2-C

Total Hydrocarbons - Gas

Total Hydrocarbons - Diesel

MH-4

MH-4 MU-4

MH-4

Procedure

EPA 5030

EPA 3510

Date Analyzed 01/14/93

50 ppb

50 ppb

0.5 ppb

0.5 ppb

0.5 ppb 0.5 ppb

5 ppm

_	Total Oil &	Grease	EPA 503e			
	RTEX		EPA 602			
	S&W Ref. #	Client Ref #	Matrix/Analysis	Concentration	Da	tection Limit
	0123-ET2-A	M4-2	Water/TPH-G	₩	50	ppb
	0123-ET2-A	MM-2	Hatery/TPH-D	*	50	ppb
-	0123-ET2-A	MU-2	Water/TOG	*	5	ppm
_	0123-ET2-A	MH-2	Matery/BTEX			
			Ber:zene	*	0.5	ppb
			To: uene	#	0.5	ppb
			Ethylbenzene	*	0.5	
			Xylanes	₩	0.5	ppp
_	0123-FT2-B		Water/TPH-G	*	50	ppb
	0123-ET2-B	MH-3	Hater/TPH-D	*		ppb
	0123-E73-B	MH-3	Water/TOG	#		bbw
	0123-ET2-B	e-im	Mataleh/20TEX			
			Benzene	#	0.5	ppb
			Toluene	*	0.5	ppb
			Ethylbenzene	*	0.5	ppb
			Xylenes	*	0,5	ppb

好象も非ケップ子戸井一日

Water/TPH-D

Water/TOB

Bernzerie

Toluene

XYIENES

Ethylbenzene

WATEY

No detectable amount & detection limit

Arialyst Signature

Environmental Technical Services

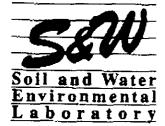
(408) 267-6427

CHAIN - OF - CUSTODY

Project Number	,	Site Nar	ne and Ad Fire S	dress to #2 Aue, Alamo	-fei	Type and Number of	A	maly	sis Re	quirec	1		Laboratory ID	Comments
Witnessing Ager	REみ L	ector Nam	22CKT)C e and Date	Aue, Alam	eaa	Containers	EX	Ì					Condition	
Alam A	d'.		- n - n -	· · · · · · · · · · · · · · · · · · ·	1		1 60 + ()	•	1	Ì	1	1	of Samples	
Sample ID	Date	Time	UEPT Matrix	Sample Location	nen_		IPH-G + BTEX	TPH-D -	100				1 - Good 2 - See Reverse	
Sample 1D		1 mile	IVIALITA	Sumple Escation		2 liters	<u> </u>	-	- ("		+-	+	z - See Reverse	
MW-2	11/93		H20	1st GW		2 VOAS	/					ļ		
mw·3							/							
mw-4							1	1						
///W	V		V											
										\neg				
		-												
<u> </u>	-													
								-			+			
Relinquished t	og: (Signa WWW/N	ture)		Date/Time	Received b	y: (Signature)			Date,				Remarks:	
Relinquished	by: (Signa	iture)	1-1.1	Date/Time		y: (Signature)			Date,				COMPANY: ADDRESS:	
Relinquished	by: (Sign		7 ,	Date/Time	Received b	y Lab: (Signatu			Date	/Time	e .?'	UL	PHONE:-	FAX:

APPENDIX D

GROUNDWATER ANALYTICAL RESULTS THIRD QUARTER



Drinking Water Waste Water ○ Ashestos Hazardous Waste - Soil Calderon Testing - Air

14072 W. Park Avenue Boulder Creek, CA 95006 (408) 338-3053

Latioratory Report

Client

Envionmental Tech. Services 05/13/93

1548 Jacob Ave.

CA 95118 San Jose

Sample Site

Pate Received /05/93

Alameda Fire Station #2 Park Street, Alameda

AFS #2

Analysis Requested

Procedure

Date Analyzed / 05/93

Total Hydrocarbons - Gas

EPA 5030

Total Hydrocarbons - Diesel

EPA 3510 EPA 602

BTEX

		فيسمون بالناقات والمناوات				
S&W Ref #	Client Ref. #	Matrix/Analysis	Concentration		Detection L	imit
1253-ET2-A	MW-2	Water/TPH-	G	*	50	ppb
1253-ET2-A	MM-5	Water/TPH-		*	50	bb p
1253-ET2-A	MM-S	Water/BTEX				
	• • • • • • • • • • • • • • • • • • • •	Benzene		*	0.5	ppb
		Toluene		*	0.5	ppb
		Ethylbenz	ene	*	0.5	ppb
		Xylenes		*	0.5	bbp
	 MW-3	Water/TPH-	·G	*	50	рръ
1253-ET2-B		Water/TPH-		*		ppb
1253-ET2-B		Water/BTEX				
1253-ET2-B	MM-2	Benzene		*	0.5	ppb
		Tolugna		#		ppb
		Ethylbenz		*		ppb
		Xylenes		#	0.5	ppb
	Apr. 150 and an — —	Water/TPH-	.e	*	50	ppb
1253-ET2-C		Water/IPH-		*		ppb
1253-ET2-C		Water/iPh Water/BTE		**	J •	
1253-ET2-C	MW-4		•	*	0.5	ppb
		Benzena Teluena		*		bbp
		Tolumne	1848	*		ppb
		Ethy1beni	i =	 *		bbp
		Xylenes		•	~, u	P- P

No detectable amount @ detection limit

Analyst Signature

Soil and Water Environmental Laboratory

14072 West Park Avenue Boulder Creek, CA 95006 (408) 338-3053/4466

CHAIN - OF - CUSTODY

Project Number		Site Nar	ne and Ad	dress Park St FIRE S	, Alamuda	Type and Number of	Δ	nalys	sis Req	uired			Laboratory ID	 Comments
4F5*2	- J	lam	EDA	FIRE 5	PATIONS	Number of Containers	K	K	<u> </u>		 	\dashv	Com 200	
with essing Age	ncy/inspé	ctor (Nam	e and Date	:			TPH-G + BTEX	D + BREX					Condition of Samples	
Sample ID	Date	Time	Matrix	Sample Location			护	+ Q-H4I	<u>10</u>				1 - Good 2 - See Reverse	
HW-2	5/3/43		H20				/	/						
MW-3							/	/						
<u>Н</u> ш-2 <u>Мш-3</u> Мш-4							/	1						
, , ,														
				· · · · · · · · · · · · · · · · · · ·										
Relinquished by	y: (Signati	ire) WU		Date/Time	Received by:	(Signature) FRIDC-	٤_		Date/1	îme			Remarks:	
Relinguished b	Relinquished by: (Signature) Date/Time Received by			<u> </u>			Date/T				COMPANY: ADDRESS:			
7/1/1/	Relinquished by: (Signature) Date/Time Received by Vilen Maunimey 5/5/93		Lab: (Signatur	e)	5	Date / 7	Гime 5 (6,12	,	PHONE:	FAX:			
vicey 11	(MEN 1) JAWALION 19 13/73 1 01 118				<u> </u>			···/C	/ /]	LABC	DRA	TORY REQUIR	(2) COPIES OF THIS FORM

APPENDIX E

GROUNDWATER ANALYTICAL RESULTS FOURTH QUARTER

Soil and Water Environmental Laboratory, Inc.

Drinking Water Waste Water - Asbestos Hazardous Waste - Soil Calderon Testing - Air

14072 W. Park Avenue Boulder Creek, CA 95006 (408) 338-3053

Laboratory Report

Client

Envioramental Tech. Services of /15/33

1548 Jacob Ave. 95118 CA San Jose

Sample Site Pacific Ave.

Alameda Fire Station

Alameda

AlamFire

Date Recorpts 25/93

Analysis Requested

Procedure EPA 5030

Date Analyzed 01/93

Total Hydrocarbons - Gas Total Hydrocarbons - Diesel

EPA 3510

602 EFA

BTEX

P • • • • • • • • • • • • • • • • • • •					
S&W Ref #	Client Ref. #	Metrix/Anslysis	Concentration		Detection Limit
2103-ET1=A 2103-ET1=A 2103-ET1=A	MM-5 WM-5	Water/TPH-B Water/TPH-D Water/BTEX Benzene Toluene Ethylbenzen Xylenes	. ₽	* * *	50 ppb 50 ppb 0.5 ppb 0.5 ppb 0.5 ppb
2103-ET1=B 2103-ET1=B 2103-ET1=B	MW-3 MW-3 MW-3	Water/TPH-G Water/TPH-D Water/BTEX Benzene Toluene Ethylbenzen	ne:	*	50 ppb dqq 03 0.5 ppb 0.5 ppb 0.5 ppb
2103-ET1=C 2103-ET1=C 2103-ET1=C	MH-4	Water/TPH-G Water/TPH-D Water/BTEX Benzene Toluene Ethylbenze Xylenes	•	* *	50 ppb 50 ppb 0.5 ppb 0.5 ppb 0.5 ppb

No detectable amount @ detection limit

Analyst Signature

Environmental Technical Services

(408) 267-6427

CHAIN - OF - CUSTODY

	Site Nan	ne and Ad	dress Pacific C	ierd	Type and Number of	An	alysi:	s Requi	red		Laboratory ID 2103-1	=T/	Comments
cy/Inspe	Cor Name	e and Date		<u> Mance</u>	a Centainers	×318 - 5 Hd	PH:D TOHA	8			Condition of Samples 1 - Good		
Date	Time	Matrix	Sample Location			╒╁	╗		1-1	+-1	Z-See Reverse	6	
7/2/0		160				7						++	:
		7					Λ					B	
		 					7		1			O	
M)c	 	1114				1		_	╂╌╁	-		_	
		1										 	
	 	 										ļ	
	<u> </u>	 	`			1			† †				
						-			+				·
		\			<u></u>							 	
												 	
 													
					 		\vdash	1	-				
\					 	135	 	╁┼	_		 	-	
							<u> </u>				Remarks:		
pr Malen	atupe)	 :	Date/Time 7.3	Received b	y: (Signature) Fridge	ر	Ì	Date/	- Illie				
IIIAU Linu: (Silon	<i>HUNO</i>	wy	Date/Time	Received	y: (Signature)			Date/	Time		COMPANY:	£15	
Relinquished by: (Signature) Date/Time Received Received Date/Time Received		Received	by Lab: (Signal	ture)		Date/	Time	10:15	A LIND AMOUNT	. •	FAX:		
	Date 7/43 11 11 W 1' Date The property of	Date Time 7/8 11 11 12 15 13 16 14 17 15 17 15 17 16 17 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18 1	Date Time Matrix 7 37 37 37 37 37 37 37 37 37 37 37 37	Date Time Matrix Sample Location 7/3/3	Date Time Matrix Sample Location 1	Date Time Matrix Sample Location 1	Date Time Matrix Sample Location 7/3/93 10 11 11 11 11 12 11 13 14 14 11 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Date Time Matrix Sample Location E E E 7/3/13	Date Time Matrix Sample Location	Date Time Matrix Sample Location	Date Time Matrix Sample Location	Date Time Matrix Sample Location	Date Time Matrix Sample Location I

APPENDIX F GROUNDWATER DEVELOPMENT REPORTS

Project Name:			· · · · · · · · · · · · · · · · · · ·	Well#	
ALAMEDA FIRE S	STATION			M₩-2	
DATE: Jul	y 29, 1993				
NAME: Mawhinney/Smit	-h		<u>Time</u> 12:	Began: 05 p	
DEPTH OF WELL	-	DEPTH TO W	ATER	WELL	DIAM.
17.7		5.92		2	
Time Gall	ons	Temp.	рН	Conc	<u>i.</u>
12:08		79.9	12.23	.55	
12:12 3		76.1	12.07	.55	
12:20 5		73.8	16.57	.55	
12:30 7		72.6	15.30	.56	
Volume		Purging		Sampl	ing
Evacuated		Equip.		Equip	
8 gallons	Sta	inless Steel Bailer		Stainless Baile	=
Depth to Water	Upon Compl	etion of Sam	mpling: 5.9'		
Sheen	Floating	Product	Sample Colo	or	Odor
no	no		gold/muddy		no
Sediment/Forei	gn Matter:	very little	silt		
Sample ID#	· · · · · · · · · · · · · · · · · · ·	Analysis		Laboratory	
MW-1		TPH-G, BTE	X	S & W Lab	
Sample Contain 2/40ml VOAs 2 amber one-li					

Project Name:	· · · · · · · · · · · · · · · · · · ·	······································		Well#
ALAMEDA FIRE	STATION			MM-3
DATE: Ju	ly 29, 1993			
NAME: Mawhinney				Began: 45p
DEPTH OF WELL	:	DEPTH TO W	ATER	WELL DIAM.
Time Gall	lons	Temp.	На	Cond.
12:57	l	72.6	13.42	.38
1:00	3	70.8	13.57	.38
1:07	5	69.8	14.94	.34
1:15	7	69.8	14.92	.38
Volume Evacuated		Purging Equip.		Sampling Equip.
8 gallons		nless Steel Bailer		Stainless Steel Bailer
Depth to Wate	r Upon Comple	etion of Sam	pling: 5.9	
Sheen no	Floating no	Product	Sample Colo gold/muddy	
Sediment/Fore	ign Matter: v	very little	silt	
Sample ID#		Analysis TPH-G, BTE	X	Laboratory S & W Lab
Sample Contai	ners:			
2/40ml VOAs 2 amber one-1	iter bottles			

Project	Name:			ell#
DIAMEDA	FIRE STATION	т.	_	
	TIRE STATIO	V	М	W – 4
DATE:	July 29,	1993		
NAME:			Time Be	egan:
Mawhinne	÷У		11::	
DEPTH OF		DEPTH TO W	IATER	WELL DIAM.
18.3		7.74'	· 	2 1
Time	Gallons	Temp.	рн	Cond.
11:15	1	90.3	16.83	1.15
11:20	3	81.9	13.28	.51
11:28	5	78.4	14.58	.48
11:35	7	76.6	13.69	.49
Volume		Purging	·	Sampling
Evacuate	<u>d</u>	Equip.		Equip.
8 gallon	.S	Stainless Steel	Q	tainless Steel
•		Bailer	5	Bailer
Depth to	Water Upon	Completion of San	moling: 6.5!	
	· · · · · · · · · · · · · · · · · · ·			
Sheen no	Floa	ating Product	Sample Color	Odor
		no	gold/muddy	no
Sediment	/Foreign Mat	ter: very little	silt	·····
Sample I	D#	Analysis	L	aboratory
MW-3		TPH-g, BTE	X S	& W Lab
Sample C	ontainers:			
2/40ml V	OAs			
	one-liter bo	ottles		

		m)	V- 2		
Project	Name:	· · · · · · · · · · · · · · · · · · ·		Well#	
ALAMEDA	A FIRE STAT	ION		M W-2	
DATE:	May 3, 1993	3			
NAME: Mawhinr	ney			Time Beg 12:29p	
DEPTH C	OF WELL	DEPTH	TO WAT	<u>er</u>	WELL DIAM.
17.7'		4	.87 ′		2"
Time	Gallons	Salinity	Нq	Temp.	Cond.
12:34	1	*	*	63.5 F	5.53
12:38	3	*	*	63.7 F	5.34
12:42	5	*	*	63.7 F	5.34
12:50	7	*	*	63.7 F	5.34
<u>Volume</u> Evacuat	ted	Purg Egui			Sampling Equip.
7 gallo	ons	Stainles Steel Bai			Stainless Steel Bailer
Depth o	of Well Upor	n Completion	of Sam	pling:	
17.7′	Good Rechar	rge			
Sheen	F	loating Prod	uct	Sample (Color Odor
no		no		gold	no
Sedimer	nt/Foreign]	Matter: ver	y silty		
Sample	ID#	Analy	sis		Laboratory
MW-2		TPHg, BTEX	, TPHd		S & W Lab
Sample	Containers				
2/40-m] 2 amber	l VOAs r one liter	bottles			

		7 M	7 −3		
Projec	t Name:		···	Well#	
ALAMED.	A FIRE STAT	ION		MW-3	
DATE:	May 3, 1993	3			
NAME:		·	** *	Time Begar	1:
Mawhin	ney			1:00p	
DEPTH	OF WELL	DEPTH	TO WAT	ER	WELL DIAM.
17.62′			5.54 ′		2"
Time	Gallons	Salinity	рН	Temp.	Cond.
1:05	1	*	*	64.7 F	7.62
1:08	3	*	*	64.4 F	7.84
1:12	5	*	*	64.2 F	12.1
1:16	7	*	*	59.3 F	12.94
Volume	1	Purg			Sampling
Evacua	ted	<u>Equi</u>	<u>p.</u>		Equip.
7 gall	ons	Stainles	s		Stainless
		Steel Bai	ler	S	teel Bailer
Depth	to Water Up	on Completio	n of Sa	ampling:	
17.7'	at completion	on			
Sheen	F	loating Prod	uct	Sample Co	lor <u>O</u> dor
no		no		gold	no
Sedime	ent/Foreign	Matter: ver	y litt]	le silt	
Sample	ID#	Analy	sis		Laboratory
MW- 3		TPHg, BTEX	, TPHd		S & W Lab
Sample	Containers			····	
2/40-m	ıl VOAs	hottles			

2 amber one liter bottles

					
Project	Name:			Well#	<u> </u>
ALAMEDA	A FIRE STAT	CION		MW-4	r
DATE:	May 3, 199	93			
NAME:	· · · · · · · · · · · · · · · · · · ·			Time Bega	in:
Mawhinr	ney			11:41	
DEPTH C	OF WELL	DEPTH	TO WAT	ER	WELL DIAM.
14.8		4.	. 8		2"
Time	Gallons	Salinity	рH	Temp.	Cond.
11:48	1	*	*	61.2 F	5.61
11:54	3	*	*	60.7 F	7.09
12:00	5	*	*	60.7 F	7.30
12:05	7	*	*	60.7 F	7.29
12:24	9	*	*	60.7 F	7.29
Volume		Purg	ing		Sampling
Evacuat	ted	Egui			Equip.
9 gallo	ons	Stainless	5		Stainless
- J-		Steel Bai		S	Steel Bailer
Depth o	of Well Upo	on Completion	of San	pling:	
19.00'	Recharge	good			
Sheen	1	Floating Produ	ıct	Sample Co	olor Odor
no		no		gold	no
Sedimer	nt/Foreign	Matter: very	/ littl	e silty	<u>, </u>
Sample	ID#	Analys	sis		Laboratory
MW-4		TPHg, BTEX	, TPHd		S & W Lab
Sample	Containers	<u> </u>			_
2/40-m]	l VOAs				
•	one liter	bottles			

MONITORING WELL SAMPLING DATA MONITORING WELL NO.1

MONITORING WELL NO.1							
PROJECT NAME:			WELI	WELL #			
ALAMEDA FIRE STATION #2			MW-	-1			
DATE:	JANUARY 11	, 1993					
NAME:			TIMI	E BEGAN:			
Helen Ma	whinney		12:4	1 5			
DEPTH OF	WELL(FT.)	DEPTH OF	PTH OF WATER (FT.) WELL D				
19.2		5.7	7	2"			
TIME	GALLONS	рН	TEMP.	COND.			
10:45	1	7.3	61.0	1.49			
10:50	2	7.2	61.0	1.48			
10:55	3	7.3	61.0	1.49			
11:05	4	7.2	59.0	1.49			
11:15	5	7.2	61.0	1.49			
11:19	7	7.2	61.0	61.0 1.49			
VOLUME EVACUATI	<u>ED</u>	PURGING EQU	IP. S	AMPLING EQUIP.	_		
8 gallons		Stainless Stailer		ainless Steel iler			
DEPTH TO	WATER UPON	COMPLETION	OF SAMPLING		_		
Not meas	sured. Recha	arge very go	od				
SHEEN	FLOATI	NG PRODUCT	SAMPLE C	OLOR ODOR	_		
no no		gold	gold no				
SEDIMENT/FOREIGN MATTER: Sample clear							
SAMPLE ID# ANALYSIS			LAB	ORATORY	_		
MW-1	1 TPHg, BTEX S & W Lab.			W Lab.			
SAMPLE CONTAINERS 3/ 40-ml VOAs				<u>RVATIVE</u> (24 hr.analysis	<u> </u>		

MONITORING WELL SAMPLING DATA MONITORING WELL NO.2							
PROJECT	NAME:		WEL				
ALAMEDA FIRE STATION #2			MW-	MW-2			
DATE:	JANUARY 11	, 1993					
NAME:			TIM	E BEGAN:			
Helen Ma	awhinney		11:	25			
DEPTH O	F WELL(FT.)	DEPTH OF I	WATER (FT.)	WELI	DIAM.		
17.7		5.3			2"		
TIME	GALLONS	рН	TEMP.	CO	ID.		
11:25	1	7.96	60.4	3.4	17		
11:30	2	7.94	60.5 3.47				
11:35	3	7.93	60.5 3.48				
11:40	4	7.90	60.5 3.51				
11:45	5	7.90	90 60.4 3.53				
11:50	7	7.90	7.90 60.4 3.53				
VOLUME EVACUAT	<u>VOLUME</u> <u>PURGING EQUIP.</u> <u>SAMPLING EQUIP</u> <u>EVACUATED</u>				EQUIP.		
8 gallons Stainless S Bailer		Stainless St Bailer	=	tainles: ailer	s Steel		
DEPTH T Not mea		COMPLETION O	F SAMPLING				
SHEEN no		NG PRODUCT no	SAMPLE C	OLOR 1d	o <u>DOR</u> no		
SEDIMEN	T/FOREIGN MA	PTER: sample	clear				
SAMPLE MW-2	AMPLE ID# ANALYSIS LABORATORY W-2 TPHg, BTEX S & W Lab						
SAMPLE CONTAINERS 3/ 40-ml VOAs				<pre>PRESERVATIVE none (24 hr. analysis)</pre>			

MONITORING WELL SAMPLING DATA MONITORING WELL NO.3

	1	MONITORING WEL	L NO.3			
PROJECT	NAME:		WEI	<u>L</u> #		
ALAMEDA	FIRE STATION	#2	MW-3			
DATE:	JANUARY 11	, 1993				
NAME:			TIM	E BEGAN:		
Helen Ma	whinney		12:00p			
DEPTH OF	WELL(FT.)	DEPTH OF WA	TER(FT.)	WELL DIAM.		
17.6		6.0	.0 2 ⁿ			
TIME	GALLONS	рН	TEMP.	COND.		
12:00	1	7.68	57.1	1.53		
12:05	2	7.68	57.3	1.52		
12:10	3	7.67	57.3 1.52			
12:15	4	7.63	57.4 1.53			
12:20	5	7.65	65 57.5 1.53			
12:25	7	7.65	57.5	1.53		
VOLUME EVACUATE		PURGING EQUIP.	<u>.</u> <u>s</u>	SAMPLING EQUIP.		
8 gallon		Stainless Stee Bailer		ainless Steel ailer		
DEPTH TO	WATER UPON	COMPLETION OF	SAMPLING			
Not measured. Recharge very good						
SHEEN	FLOATIN	G PRODUCT	SAMPLE C	COLOR ODOR		
no	no		gold	no		
SEDIMENT/FOREIGN MATTER: very little silt						
SAMPLE I	D#	ANALYSIS LABORATORY				
MW-3		TPHg, BTEX	S 8	W Lab.		

PRESERVATIVE

none (24 hr.analysis)

SAMPLE CONTAINERS 3/ 40-ml VOAs

Project Name:			Well#				
ALAMEDA FIRE STATION# 2			MW-2				
Date:	Septem	ber 4, 1992					
Name:			Time Began: 3:12				
Mawhinney							
DEPTH OF	WELL(ft.)	DEPTH TO W	ATER(ft.)	WELL I	NAM.		
17.7		7.3		2'			
Time (Gallons	Salinity	рH	Temp.	Cond.		
3:12	1	.05	7.5	25 C	1.46		
3:30	3	.05	7.3	23 C	1.00		
3:41	5	.04	7.0	23 C	1.26		
3:54	8	.04	7.3	23 C	1.20		
4:11	10	.04	7.3	23 C	1.24		
Volume Purging Equip. Evacuated			Sampling Equip.				
	_	ess Steel Bai			el Bailer		
		Completion of	f Sampling				
Not measur	ed. Re	charge very go	ood				
Sheen	Floatin	g Product	Sample	Color	Odor		
no no			gold		no		
Sediment/F	oreign Ma	tter: sample o	clear				
ample ID# Analysis		alysis	Laboratory				
MW-2	TP	Hg, BTEX	s	& W Lab.			
Sample Containers			Preservative				
3/ 40-ml VOAs			N	(24 hr ar			

Project	Name:		Well#			
ALAMEDA	FIRE STATIC	ON# 2	MW	!-3		
Date:	Septemb	per 4, 1992				
Name:			Time Beg	an:		
Mawhinne	У		4:29			
DEPTH OF	WELL(ft.)	DEPTH TO W	ATER(ft.)	WELL D	IAM.	
17.73		7.9	3	2"		
Time	Gallons	Salinity	Hq	Temp:	Cond.	
12:21	1	.04	7.6	26 C	1.25	
12:34	3	.05	7.5	25 C	1.38	
12:48	5	.04	7.3	23 C	1.26	
1:01	8	.04	7.2	24 C	1.26	
1:15	10	.04	7.3	23 C	1.24	
Volume Purging Equip. Evacuated		g Equip.	Sampling Equip.		p.	
10 gallo	ns Stainl	ess Steel Bai	ler Stai	nless Ste	el Bailer	
Depth to	Water Upon	Completion o	f Sampling	,		
Recharge	very good					
Sheen	Floatin	g Product	Sample	Color	Odor	
no	no	•	gold		no	
Sediment	/Foreign Ma	tter: sample	clear			
Sample II	D ∉ A n	alysis	La	boratory		
MW-3	TP	Hg, BTEX	S	& W Lab.		
Sample Containers 3/ 40-ml VOAs			<u>Preservative</u> None (24 hr analysis)			

Project Name:			Well#			
ALAMEDA FIRE STATION# 2		ON# 2	MW-4			
Date:	Septem	ber 4, 1992				
Name:	Time Began:					
Mawhinney			4:29			
DEPTH OF W	ELL(ft.)	DEPTH TO V	NATER(ft.)	WELL D	IAM.	
19.81		7.2		2*		
Time G	allons	Salinity	рН	Temp.	Cond.	
2:01	1	.04	7.6	26 C	1.25	
2:16	3	.05	7.5	25 C	1.38	
2:25	5	.04	7.3	23 C	1.26	
2:45	g	.04	7.2	24 C	1.26	
3:01	10	.04	7.3	23 C	1.24	
Volume Purging Equip. Evacuated			Sampling Equip.			
		ess Steel Bai			el Bailer	
Depth to Wa	ater Upon	Completion o	f Sampling			
Recharge ve	ery good					
Sheen	Floatin	g Product	Sample	Color	Odor	
no	no		gold		no	
Sediment/Fo	reign Ma	tter: sample	clear			
Sample ID: Analysis		alysis	Laboratory			
MW-4	TPHG, BTEX S & W Lab.					
Sample Containers			Preservative			
3/ 40-ml VO)As			(24 hr ar	nalysis)	