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Clayton ENVIRONMENTAL CONSULTANTS

July and November, 1995
Quarterly Groundwater Sampling Report
at
Keep on Trucking
Former Aboveground Storage Tank Facility
Building H-213
370 8th Avenue
Oakland, California

Clayton Project No. 66258.01 February 22, 1996 Be 1/20196



#### **CONTENTS**

Section	on Page
1.0	INTRODUCTION
2.0	<b>BACKGROUND</b>
3.0	FIELD ACTIVITIES
4.0	ANALYTICAL RESULTS
5.0	<u>FINDINGS</u> 4
<u>Figu</u>	<u>res</u>
1 2	Site Location Map Monitoring Well Locations
<u>Table</u>	<u>e</u>
SUMN	MARY OF GROUNDWATER ANALYTICAL RESULTS
<u>Appe</u>	<u>endices</u>
Α	SUMMARY OF SKIMMER OPERATIONS

GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR IN JULY

WATER SAMPLING FIELD SURVEY FORMS

AND NOVEMBER 1995

В

 $\mathbf{C}$ 

#### 1.0 INTRODUCTION

Clayton Environmental Consultants, Inc. was retained by Port of Oakland to perform quarterly groundwater sampling and analysis at the Keep On Trucking near the former aboveground storage tank (AST) Facility located near the former Building H-213 at 370 8th Avenue in Oakland, California (Figure 1). On July 24 and November 10, 1995 Clayton collected groundwater samples from monitoring wells MW-1 through , MW-6. The monitoring well locations are shown on Figure 2.

#### 2.0 BACKGROUND

In October 1992 the United States Coast Guard (USCG) noted diesel in Clinton Basin. A subsequent investigation by the Port of Oakland identified diesel in the storm drains at the Ninth Avenue Terminal. Further investigations by the Port of Oakland indicated that the source of diesel to be a leaking underground piping system associated with a diesel AST at the subject site. The diesel AST was operated by Keep On Trucking Company.

During the period from December 1992 to February 1993, the fuel system was disconnected and removed. In September 1993, Uribe and Associates conducted a subsurface investigation. The investigation included installation and sampling of four monitoring wells (MW-1 through MW-4). The location of these monitoring wells is shown in Figure 2.

During the monitoring well development activities in September 1993, four to twelve inches of separate phase product was observed in monitoring well MW-4. The monitoring well MW-4 was purged once per week from September to November 1993. According to the Uribe and Associate report dated December 2, 1993, the bailing activities ceased on November 1, 1993, after all the diesel had apparently been removed. However, during the quarterly groundwater monitoring and sampling in June and September 1994, six to 10 inches of floating product was noted in monitoring well MW-4. No bailing of the floating product was performed until April 1995, when the passive skimmer was installed in monitoring well MW-4. A summary of the skimmer system is included in Appendix A.

During the subsequent subsurface investigations by Clayton in March 1995, two additional monitoring wells MW-5 and MW-6 were installed at the site (Figure 2). In April 1995, the identified floating product was identified in monitoring well MW-6 and dissolved petroleum hydrocarbons in monitoring well MW-5.

Table 1 is the analytical summary of the floating product thickness and groundwater elevations observed during the collection of samples from the monitoring wells.

- Time purged
- · Time of sample collection
- · Sampling method
- · Name of sampler
- · Climatic conditions

The water sample was collected using a new disposable bailer. All other equipment coming into contact with groundwater was thoroughly cleaned and decontaminated before use at the site. Detail of the groundwater sampling event is provided in the water sampling field survey forms (Appendix B).

Because of the passive skimmers in the monitoring wells MW-4 and MW-6 the depth to groundwater levels could not be measured during the November quarterly sampling event. However, these wells were monitored monthly to determine the thickness of the floating product and the amount of product removed by the skimmers from each well. The monthly field notes for the skimmers maintenance and operation is included in Appendix A.

Groundwater samples were transferred into clean laboratory-supplied containers that were closed, labeled, placed immediately into an ice chest, and transported to Clayton's state-certified laboratory for analysis. One trip blank was furnished in accordance with Clayton's quality assurance/quality control (QA/QC) program.

Groundwater samples were collected in such a manner to minimize the volatilization of a sample due to agitation and/or transfer from bailer to sample container. To document and trace samples from time of collection, a signed chain-of-custody record was completed by the sampler and accompanied the samples through the laboratory analyses. The completed chain-of-custody was included with the analytical report from the laboratory.

#### 4.0 ANALYTICAL RESULTS

The groundwater samples from MW-1 through MW-6 were analyzed using the following United States Environmental Protection Agency (USEPA) Methods:

- Method 8015 (modified) for total petroleum hydrocarbons as diesel (TPH-D)
- Method 8015 (modified) for total petroleum hydrocarbons as gasoline (TPH-G)
- Method 8020 for benzene, toluene, ethylbenzene, and xylenes (BTEX)

The analytical results for the groundwater samples collected from monitoring wells MW-1 through MW-6 from October 1993 through November 1995 are also summarized in Table 1. The analytical reports for the groundwater samples collected in July and November 1995 are included in Appendix C.



#### 5.0 FINDINGS

Based on the analytical reports and our field observations our findings follow:

- TPH-D, TPH-G and BTEX were detected in the July 24, and November 10, 1995 groundwater samples collected from MW-5.
- TPH-D, TPH-G and BTEX were detected in the July 24, 1995 groundwater samples collected from MW-4. Because of the floating product in monitoring well MW-4 on November, 10, 1995 no groundwater sample was collected from this well during the November 1995 sampling activities.
- Floating product was noted in monitoring well MW-6 on July 24, 1995 and in MW-4 and MW-6 on November 10, 1995. No groundwater samples was collected from the monitoring wells which contained floating product.
- TPH-D was detected in the groundwater samples collected in July and November, 1995 from MW-1, MW-2, MW-3, and MW-5.
- Toluene was detected a concentration of 0.7  $\mu$ g/L in the groundwater sample collected from monitoring well MW-3 on November 10, 1995. Toluene was not detected in the groundwater sample collected from MW-3 on July 24, 1995.
- TPH-G was detected in the groundwater sample collected from MW-2 on July 24, 1995 at a concentration of 70 μg/L. TPH-G was not detected in the groundwater sample collected from MW-2 on November 10, 1995.

The next quarterly sampling event is scheduled for February 1996.

This report prepared by:

Dariush Dastmalchi, REA

Project Geologist

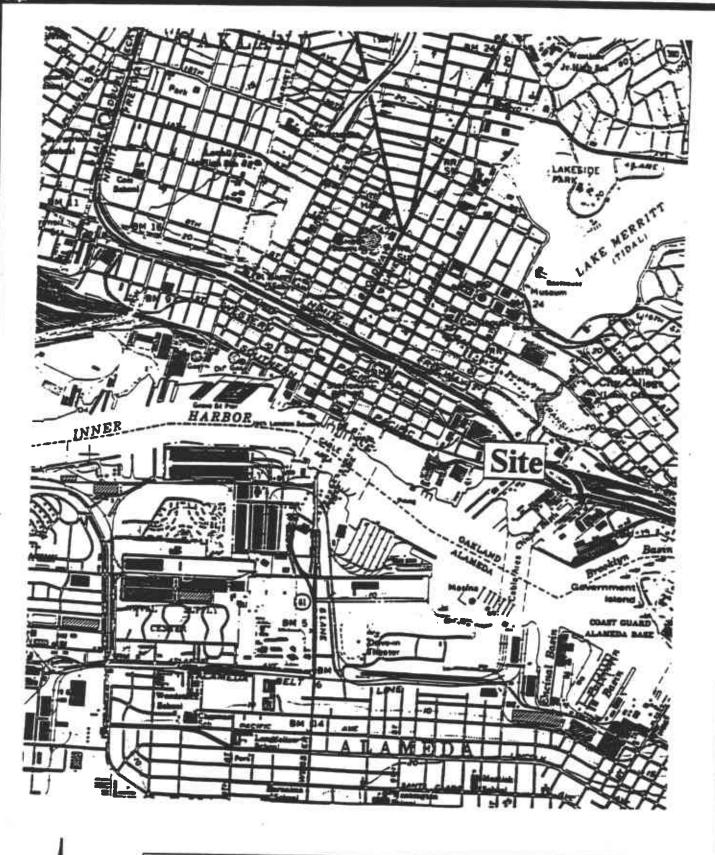
This report reviewed by:

George W. Mead IV, R.G., REA

Project Geologist

February 22, 1996





Site Location and Topographic Map KEEP ON TRUCKING FACILITY 370 8th Street Oakland, California

Clayton Project No. 58560.15

Figure

1

Clayton ENVIRONMENTAL CONSULTANTS

58560-15-16

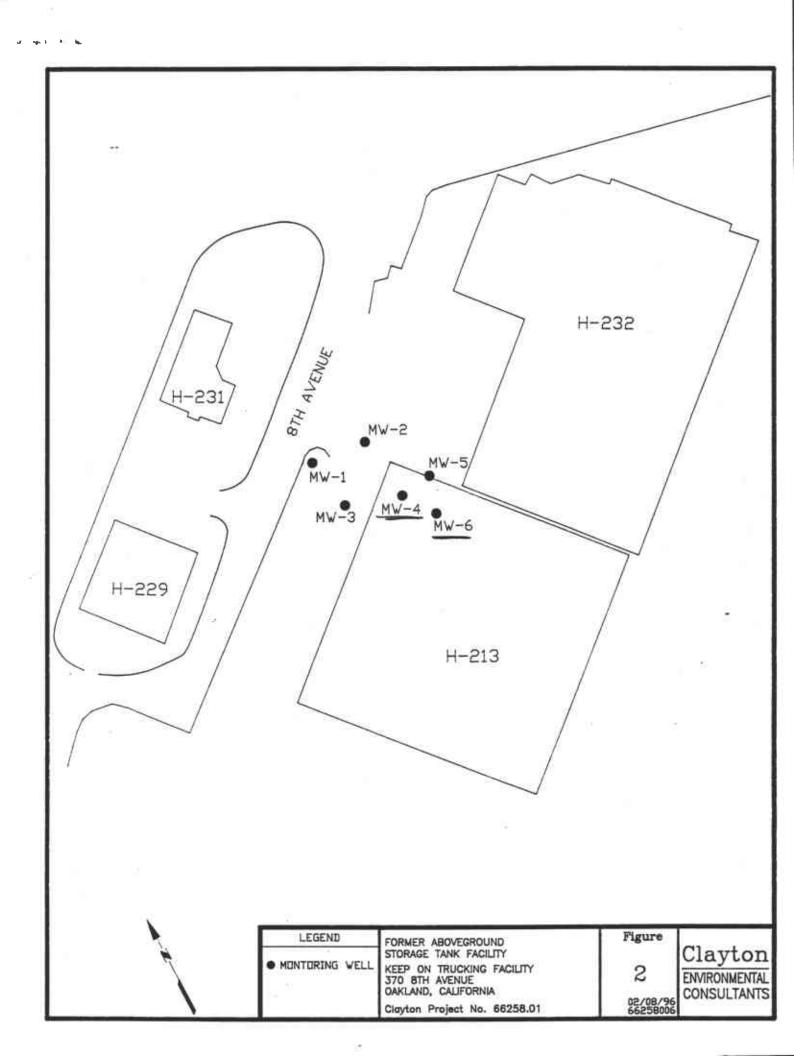


Table 1
Analytical Summary for Groundwater Samples
Collected From October 1993 through November 1995
All Concentrations in Micrograms per Liter (ug/L)

		Depth to Water	Top of Casing	Groundwater	Depth to FP	FP Thickness						•
	Date	(in feet)	Elevation	Elevation	(in feet)	(in feet)	TPH-D	TPH-G	Benzene	Toluene	Ethybenzene	Xylenes
MW-1	9/20/93	5,20	6.79	1.59	NA	0.00	1600	ND	ND	ND	ND	ND
	12/1/93	5.15	6.79	1.64	NA	0.00	610	ND	ND	ND	ND	ND
	3/31/94	4.09	6.79	2.70	NA	0.00	510	ND	ND	ND	ND	ND
	6/2/94	4.82	6.79	1.97	NA	0.00	540	ND	ND	ND	ND	ND
	9/30/94	5.63	6.79	1.16	NA	0.00	390	ND	ND	ND	ND	ND
	12/22/94	5.00	6.79	1.79	NA	0.00	210	ND	ND	ND	ND	ND
	4/10/95	4.94	6.79	1.85	NA	0.00	330	ND	ND	ND	ND	ND
	7/24/95	5.02	6.79	1.77	. NA	0.00	230	ND	ND	ND	ND	ND
	11/10/95	5.52	6.79	1.27	NA	0.00	430	ND	ND	ND	ND	ND
MW-2	9/20/93	4.40	7.12	2.72	NA	0.00	1900 <sup>.</sup>	ND	0.5	ND	ND	ND
	12/1/93	4.75	7.12	2.37	NA	0.00	1800	ND	ND	ND	ND	ND
	3/31/94	5.01	7.12	2.11	NA	0.00	1800	ND	ND	ND	ND	ND
	6/2/94	4.61	7.12	2.51	NA	0.00	870	ND	ND	ND	ND ·	ND
	9/30/94	4.93	7.12	2.19	NA	0.00	1200	ND	ND	ND	ND	ND
	12/22/94	4.43	7.12	2.69	NA	0.00	610	ND	ND	ND	ND	ND
	4/10/95	4.03	7.12	3.09	NA	0.00	550	ND	ND	ND	ND	ND
	7/24/95	4.41	7.12	2.71	NA	0.00	960	70	ND	ND	ND	ND
	11/10/95	4.59	7.12	2.53	NA	0.00	920	ND	ND	ND	ND	ND
MW-3	9/20/93	15.20	6.92	-8.28	NA	0.00	680	ND	ND	0.3	ND	ND
	12/1/93	5.70	6.92	1.22	NA	0.00	430	ND	ND	ND	ND	ND
	3/31/94	4.23	6.92	2.69	NA	0.00	690	ND	ND	ND	ND	ND
	6/2/94	3.86	6.92	3.06	NA	0.00	280	ND	ND	ND	ND	ND
	9/30/94	5.44	6.92	1.48	NA	0.00	480	ND	ND	ND	ND	ND
	12/22/94	4.87	6.92	2.05	NA	0.00	630	ND	ND	ND	ND	ND
	4/10/95	7.64	6.92	-0.72	NA	0.00	830	ND	ND	ND	ND	ND
	7/24/95	3.62	6.92	3.30	NA	0.00	460	ND	ND	ND	ND	ND
	11/10/95	5.11	6.92	1.81	NA	0.00	2100	ND	ND	0.7	ND	ND

Table 1
Analytical Summary for Groundwater Samples
Collected From October 1993 through November 1995
All Concentrations in Micrograms per Liter (ug/L)

		Depth to Water	Top of Casing	Groundwater	Depth to FP	FP Thickness	<del></del>					
	Date	(in feet)	Elevation	Elevation	(in feet)	(in feet)	TPH-D	TPH-G	Benzene	Toluene	Ethybenzene	Xylenes
MW-4	9/20/93	5.80	8.78	2.98	5.13	0.67	1300	ND	140	110	40	235
	12/1/93	4.10	8.78	4.68	sheen	sheen	32000	ND	71	41	. 20	150
	3/31/94	4.20	8.78	4.58	3.62	0.58	410000	ND	140	20	47	310
	6/2/94	3.88	8.78	4.90	3.38	0.50	NS	ND	NS	NS	NS	NS
	9/30/94	5.80	8.78	2.98	4.8	1.00	NS	ND	NS	NS	NS	NS
	12/22/94	3.47	8.78	5.31	2.63	0.84	NS	ND	NS	NS	NS	NS
	4/10/95	3.80	8.78	4.98	NA	0,00	NS	ND	NS	NS	NS	NS
	5/16/95	3.07	8.78	5.71	NA	NA	NS	ND	NS	NS	NS	NS
	7/24/95	3.65	8.78	5.13	NA	0.00	21000	2400	140	74	34	40
	11/10/95	NA	8.78	NA	NA	0.00	NS	NS	NS	NS	NS	NS
MW-5	4/10/95	4.64	8.64	4.00	NA	0.00	6200	1100	3.1	ND	2.9	11.3
	7/24/95	5.24	8.64	3.40	NA	0.00	4800	720	3.1	0.7	0.6	0.7
	11/10/95	5.38	8.64	3.26	NA	0.00	3700	260	0.8	0.5	0.6	1.9
MW-6	4/10/95	4.12	8.66	4.54	5.13	-1.01	10000	ND	1300	110	40	235
	7/24/95	5.19	8.66	3.47	4.09	1.10	NS	NS	NS	NS	NS	NS
	11/10/95	NA	8.66	NA	NA	NA	NS	NS	NS	NS	NS	NS

FP Floating product

TPH-D Total petroleum hydrocarbons as diesel

TPH-D Total petroleum hydrocarbons as gasoline

NA Not applicable

ND Not detected at or above analytical detection limits

NS Not sampled

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#### APPENDIX A

**SUMMARY OF SKIMMER OPERATIONS** 

#### FREE PHASE PRODUCT OBSERVATIONS/DOCUMENTATION: MW-6

DATE	PRODUCT THICKNESS (S)kimmer/(W)ell	PRODUCT VOLUME REMOVED(gal)	COMMENTS
7/24/95			Passive Skimmer installed
7/28/95		0.10	(S) in place
8/17/95	12.5"(S)/0.6'(W)*	0.10	(S) in place
8/23/95	2.8(S)"/0.63'(W)*	0.10	Removed add. 10" with bailer
9/6/95	7"(S)/0.4'(W)*	0.05	Removed skimmer vol. only
9/28/95	3.5"(S)/0.4'(W)*	0.07	Removed add. 5.5" with bailer
11/10/95	2.0"(S)/0.06'(W)*	0.02	Removed add. 1" with bailer
12/18/95	10"(S)	0.10	Removed add. 4" with bailer
1/10/96	2"(S)/0.11'(W)*	0.03	Removed add. 2.5" with bailer
2/20/96	2.25"(S)	0.04	Removed add. 2.5" with bailer

<sup>\*</sup> Measured with Interface Probe after removal of skimmer

#### FREE PHASE PRODUCT OBSERVATIONS/DOCUMENTATION: MW-4

DATE	PRODUCT THICKNESS (S)kimmer/(W)ell	PRODUCT VOLUME REMOVED(gal)	COMMENTS
4/17/95		0.20	Skimmer in place
4/18/95		0.10	Skimmer in place
4/26/95	0.17' (S)	0.30	Skimmer in place
5/12/95	0.13' (S)	0.01	Skimmer in place
5/16/95	None	None	Skimmer in place
6/12/95	None	None	Skimmer in place
6/22/95	None	None	Skimmer in place
7/14/95	None	None	Skimmer in place
7/19/95	None	None	Passive Skimmer removed
7/28/95	0.04' (W)	0.01	Measured with Interface Probe
8/17/95	0.08' (W)	None	Measured with Interface Probe
8/23/95	0:07' (W)	None	Measured with Interface Probe
9/6/95	0.08' (W)	None	Measured with Interface Probe
9/28/95	0.07' (W)	0.004	Measured with Interface Probe
11/10/95	0.23' (W)	0.03	Measured with Interface Probe
12/18/95	0.15' (W)	0.02	Passive skimmer installed
1/10/96	2" (S)/ (W)	0.03	Skimmer in place
2/20/96	1.5" (S)	0.03	Skimmer in place

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#### APPENDIX B

WATER SAMPLING FIELD SURVEY FORMS

Project #:	66268,01	Site: $\underline{\mathcal{I}}$	0.0KEEP W	Truckede	Date: 101 10 1995
Well #:	mio -1	Sampling	Team: <u>R. S/</u>	LVA	
Sampling Me	thod: $\mathcal{D}_{\ell}$ 5 $P$				
Field Condition			es, warm		•
Describe Equ	ipment D-Con Befo	ore Sampling Thi	is Well:		
Total Depth of Well:	_15,01fe	et Time:	11.18	Depth to Water Before Pumpin	
Height of Water Column: 9.4	g feet •		<u>nch</u> <u>Vol</u> 65 = <u>/.57</u>	ume Fa	rige Volume Inctor To Purge  = 6.08 gal
Water Column: 9.4	9 feet •	2-inch 4-i	65 = <u>1.57</u>	ume Fa	rector To Purge = 6.08 gal
Water Column: 9.4	g From:	2-inch 4-i	65 = <u>1.57</u>	ume Fa	rector To Purge = 6.08 gal
Water Column: 9.4	g From:	2-inch 4-i	65 = <u>1.57</u>	ume Fa	rector To Purge = 6.08 gal
Water Column: 9.4	g From:	2-inch 4-i	65 = <u>1.57</u>	ume Fa	rector To Purge = 6.08 gal

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1400

			· ·	
	Rep #1	Rep #2	Rep #3	Rep #4
рН	7.1	<u> 7.v</u>	7.2	7.7
Conductivity	2000+	2000 t	2000+	2000
TC	21.0	21.1	21.1	21.2
Due comple Callerties Caller			·	
Pre-sample Collection Gallons Pur		<del></del>		
Time Sample Collection Begins:	1405	<del></del>		
Time Sample Collection Ends:	1410			
Total Gallons Purged:		_		
Comments:				_
•	<del>-</del>		-	
		·····		
				-

Project #:	Site:	P.O.D KEEP	ON TRUCKIUG	Date: 40v.10,1995
Well #:	-2 Sampl	ling Team: $\frac{\mathcal{R}.S}{S}$	ILVA	
Sampling Method:	DISPOSABLE			
Field Conditions:		s, warm, so		•
Describe Equipment D	-Con Before Sampling	This Well:		
Total Depth of Well: 14.4	<u> feet</u> Tim	18: <u>      2  </u>	Depth to Water Before Pumping	: <u>4.59</u> feet
Height of Water Column: 10.32 feet	<u>Diame</u> 2-inch 16			tor To Purge
Depth Purging From: _	<u>14</u> feet	Time Purg	ging Begins:/	311
Notes on Initial Dischar	ge: <u>FILKYISH</u>	+, TURBID	· .	
1313 2-6 1315 4-6 1375 6-6		2000+ 2000+ 2000+ 2000+ 2000+	22.2 22.1 21.7 21.5	CLEAR, PURGES CLEAR, PURGES CLEAR, PURGED CLEAR, DRY

### WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1420

pH Conductivity T*C	Rep #1 7.2 2000 + 20.7	Rep #2 7.1 2000 + 20.5	Rep #3  1.1  2000 +  20,4	7.1 2000 20.4
Pre-sample Collection Gallons Putime Sample Collection Begins: Time Sample Collection Ends: Total Gallons Purged:	142. 143. 8	<del></del>		
Comments:				

Project #:	Site: Y.C.O KEED OU IPULKING	6 Date: Mev. 10, 1995
Well #: <u>Mω-3</u>	Sampling Team: R. SILVA	
Sampling Method: Dispos	ABLE BAILER	
Field Conditions: CLEAR	SKIES WARM, SLIGHT	BREFZE OIL FRIM
	WELL COYERS.	•
Describe Fundament B. C. D. J.		
Describe Equipment D-Con Before Sa	ampling This Well:	
Total Depth	_ g≤ Depth to W	ater
of Well: 19.50 feet	Time: 11144 Depth to W	
Height of	<u>Diameter</u>	Purge Volume
Water Column: /4.39 feet • .1	nch <u>4-inch</u> Volume	
) <u>1121</u> lest	$.55 = \frac{\nu.70}{2} \text{ gal}$	$\frac{4}{2} = \frac{9.20}{2} \text{ gal}$
·		
Depth Purging From:	feet Time Purging Begins:	<u> 114c                                      </u>
Depth Purging From:	feet Time Purging Begins:	<u> 114c                                      </u>
Depth Purging From:/9  Notes on Initial Discharge:	••	<u> 114c - </u>
	••	<u> 114c                                      </u>
	••	<u> </u>
Notes on Initial Discharge: <u>BL-A</u> <u>Time</u> <u>Volume Purged</u>	pH Conductivity T	
Notes on Initial Discharge: BL-A  Time Volume Purged  1142 2-9m	pH Conductivity T  7,1 2000 + 20.0	Notes CLEAR
Notes on Initial Discharge: BL-A  Time Volume Purped  1142 2-9a2  1144 4-9a2	pH Conductivity T 7.1 2000+ 19.5	CLEAR PURGED DRY
Notes on Initial Discharge: BL-A  Time Volume Purped  1147 2 - GAZ  1144 4 - GAZ  1200 6 - GAZ	pH Conductivity T  7,1 2000 + 20.0	CLEAR PURGED

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1215

pH Conductivity T*C	Rep #1 7, 2 2000 f 18.7	7.2 2000+ 18.9	Rep #3 7.3 2000+ 18.9	Rep #4 7.3 2000-
Pre-sample Collection Gallons Purg Time Sample Collection Begins: Time Sample Collection Ends: Total Gallons Purged:	jed: <u>8</u> <u>12-20</u> 1 <b>5-0</b> 0			
Comments:				<del></del> .

Project #:		Site: $\mathcal{I}$	C.O KEEP OF	1 TRUCKI46	Date: LOV. 10, 1995
Well #:	M10-5	Sampling	Team: <u> </u>	LIA	
Sampling Meth	od: <u>D159</u>	ESABLE 34			
					•
Field Condition	s: <u>CLEA</u>	R SKIES	WARM, 51	IGHT BREE	ZE
				•	
Describe Equip	ment D-Con Befor	re Sampling Thi	is Weil:		
			<del></del>		
Total Depth of Well:	19,45 fee	t Time	1127	Depth to Water Before Pumping	4.444
-		111116.		perore amubing	: <u>5,36</u> feet
Height of		<u>Diameter</u>			rge Volume
Water	feet *	2-inch 4-i			
<del>-</del>	feet *	2-inch 4-i			rge Volume tor To Purge = 9.00 gal
Water Column: ⊬.⊽7	feet •	2-inch 4-i	Volt		To Purge 9.00 gal
Water Column: ⊬.⊽7		2-inch 4-i	Volt	gal *	To Purge 9.00 gal
Water Column: ⊬.⊽7	From: <u>19</u>	2-inch 4-i	inch Volt 65 = 2.25 Time Purg	ime Fai gal * 7	To Purge 9.00 gal
Water Column: <u>州で</u> Depth Purging F	From: <u>19</u>	2-inch 4-i	Volt	ime Fai gal * 7	To Purge 9.00 gal
Water Column: <u>州で</u> Depth Purging F	From: <u>19</u>	2-inch 4-i	inch Volt 65 = 2.25 Time Purg	ime Fai gal * 7	To Purge 9.00 gal
Water Column: 14.07 Depth Purging F	From: <u>19</u>	2-inch 4-i	inch Volt 65 = 2.25 Time Purg	ime Fai gal * 7	To Purge 9.00 gal
Water Column: 14.07 Depth Purging F	From: <u>  (-)</u> Discharge: <u>-</u>	2-inch 4-i (.16)  feet  ARAY   5-H	Volt   Volt	ime Fair Fair Fair Fair Fair Fair Fair Fair	To Purge 9.00 gal
Water Column: 407 Depth Purging F  Notes on Initial  Time 1232 1334	Volume Purged	2-inch 4-i (.16)  feet  ARM//5-H	Time Purg	ing Begins: 13	To Purge 9.00 gal
Water Column: 407 Depth Purging f  Notes on Initial  Time 1334 1334	Volume Purged 2-6AV 4-6AV 6-6AV	2-inch 4-i (.16)  feet  ARAY   5-H  7.0  7.1	Conductivity  2000+  2000+  2000+	ing Begins: 13  2014 DDCR  19.3  20.3	Notes  Turbid
Water Column: 407 Depth Purging F  Notes on Initial  Time 1334 1334 1336	Volume Purged 2-6AV 4-6AV 6-6AV 8-6AV	2-inch 4-1 (.16)  feet  ARAY   5-14  7.0  7.1  7.0	Conductivity  2000+  2000+  2000+  2000+  2000+	ing Begins: 13  2016 DDCR  19.3  20.3  19.5	Notes  TURBID  TURBID  JUBITALY TURBIA
Water Column: 407 Depth Purging f  Notes on Initial  Time 1334 1334	Volume Purged 2-6AV 4-6AV 6-6AV	2-inch 4-i (.16)  feet  ARAY   5-H  7.0  7.1	Conductivity  2000+  2000+  2000+	ing Begins: 13  2014 DDCR  19.3  20.3	Notes TURBID TURBID

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1435

pH <sub>_</sub> Conductivity	7.7 2000+	7.6 2000 +	7.5 2000+	7.5 2000
T'C		18.6	<u>[6.5]</u>	18.6
Pre-sample Collection Galions Pur Time Sample Collection Begins: Time Sample Collection Ends: Total Galions Purged:	rged: 9 1440 1445			
Comments:				
				-
			<del></del>	



#### WATER SAMPLING FIELD SURVEY FORM

Project #:	J6560.15	Site: 1	O.DKEEP N	& Trucklus	Date: <u>July 24 1995</u>
Weli #:	m w -1	Sampling	Team: $R.5$	12VA	
Sampling Met	hod: <u>D1586</u>	SKP/E	FARER		
Field Conditio	ns: Part	Y CLOW	DY 2001, W	DIWEY_	
Describe Equi	pment D-Con Before	e Sampling Th	is Well:		
Total Depth of Well:	1494 fee	t Time:	1237	Depth to Water Before Pumping	
Height of Water Column: 9.92	_ feet *		inch Vol	ume Fa	rge Volume - ctor To Purge = 6.36 gal
Water Column: 9.92	≥feet • From:/4	2-inch 4-	inch Voi .65 = 1.5°	lumeFa	ctor To Purge = 6.36 gal
Water Column: 9.92	From: <u>/</u> 4	2-inch 4-	inch Voi .65 = 1.5°	lume <u>Fa</u> 3 gai • <u>4</u>	ctor To Purge = 6.36 gal
Water Column: 9.9.2  Depth Purging  Notes on Initia	From:	2-inch 4	inch Voi .65 = <u>/.5</u> ° Time Pur	lume Fa	ctor To Purge = 6.36 gal
Water Column: 9.9.2 Depth Purging	From: 14  Discharge:  Volume Purged  2-640	2-inch 4- (16)	inch Voi .65 = 1.5°  Time Pur  Conductivity 2004	lume Fa	Notes  Notes
Water Column: 9.92 Depth Purging Notes on initia	From:/	2-inch 4- (16)  feet  pH (	inch Vol.65 = 1.56  Time Pur	lume Fa	Notes

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1325

	Rep #1	Rep #2	Rep #3	Rep #4
рН	6.9	6.9	6.9	6.8
Conductivity	2000+	2000+	20004	2000+
T°C	20.1	200	19.9	19.9
Pre-sample Collection Gallons Pur	ged: <u> </u>	<u>.</u>		
Time Sample Collection Begins:	1330			
Time Sample Collection Ends:	<u> 1335</u>			
Total Gallons Purged:		<u> </u>		
·				
Comments:				·
		·	· · · · · · · · · · · · · · · · · · ·	
· ·				
				<del></del>
	<u></u>	·		<del>-</del>
		·		<del></del>

Project #:	58560.15	Site: $\underline{\mathcal{P}}$	0.0 KEEF .	M TRUE CONTRACT	Date: July 24 166
Well #:	MW-3			SILVA	,
Sampling Meth	od: DISPO	SABLE E	ALLER		-
Field Condition				UGHT BREF	
Describe Equip	ment D-Con Before	Sampling This	Well:		
Total Depth of Well:	19.42 feet	Time:	1239	Depth to Wate Before Pumpi	
Height of Water Column: 1501	feet *		n <u>ch</u> 5 = 2	Volume F .4⊅ gai *	Purge Volume - Factor To Purge 9.60 gal
Depth Purging I	From: <u>/9</u>	feet	Time	Purging Begins:i	345
Notes on Initial	Discharge:	LACICISH,	SILTY		
Time 1346 1347 1400	Volume Purged 2-GM 4-GM 6-GAL	pH 12.9 14.4 11.7	2000+ 2000+ 2000+	22.4 30.1 21.7	CLEAR PURGED
1401	Q. GAL	12.9	2000+	<u> 22.3</u>	CITAL DEY

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1440

	Rep #1	Rep #2	Rep #3	Rep #4
pH	10.7			11.2
Conductivity	2000+	2000+	2000+	2000+
T°C	20.7	20.5	210	20.9
Pre-sample Collection Gallons Pur	ged: <u>8</u>			
Time Sample Collection Begins:	1440			•
Time Sample Collection Ends:	1450	2		
Total Gallons Purged:	9			
0				,
Comments:				
	<del>_</del>			
·				<u></u>
	<u> </u>			<del></del>
<u> </u>				·
				<del></del>

wtr-smp.bp

Revised: 06/29/95

Project #:	58560.15	Site: $\underline{7}$	1.0.0 - KEEP ON	1 TEMERING	Date: <u>July 24, 1965</u>
Well #:	M10-2	Sampling	Team: <u>R. S</u>	ILVA	
Sampling Met					
Field Condition	ons: <u>CLEA</u>	K 12150	DEFEN O	1212Y	
	ipment D-Con Befor	_			
		<u> </u>		<del></del>	
Total Depth of Well:	fee	et Time:	1241	Depth to Water Before Pumping	g: <u>3,62</u> feet
Height of Water Column: 11.23	<u>}</u> feet	Diameter 2-inch 4- (.16)		Jime Pu Jane Fa Jane 4	volume  To Purge  To Purge  To gai
Water Column: 1/.23	3_ feet	2-inch 4-	inch Volu .65 = /. &c	<u>ime</u> Fa gai 4	<u>To Purge</u> = <u>7.20</u> gal
Water Column: 1[.2.5] Depth Purging		2-inch 4- (16)	inch Volu .65 = <u>/ &amp; &amp; </u> Time Purg	<u>ime</u> Fa gai 4	<u>To Purge</u> = <u>7.20</u> gal
Water Column: 1[.2.5] Depth Purging	3 From: <u>/4</u>	2-inch 4- (16)	inch Volu .65 = <u>/ &amp; &amp; </u> Time Purg	<u>ime</u> Fa gai 4	<u>To Purge</u> = <u>7.20</u> gal
Water Column: 16.22  Depth Purging  Notes on Initia	3 From: <u>/4</u>	2-inch 4- (16)	inch Volu .65 = <u>/ &amp; &amp; </u> Time Purg	<u>ime</u> Fa gai 4	<u>To Purge</u> = <u>7.20</u> gal
Water Column: 11.22  Depth Purging  Notes on Initia  Time 1413	Yolume Purged  2-GM	2-inch 4- (16)  feet    COWNICH     pH     11. 4	Tures of Conductivity	ime Fa	Notes  CLEAR  To Purge  7.20 gal  Notes
Water Column: 11.2.5  Depth Purging  Notes on Initia  Time 1413 14/4	Yolume Purged 2-GM 4-GM	2-inch 4- (16)  feet    Rowney    pH	Turesto  Conductivity  2004	ime Fa gai 9 ging Begins: //	Notes  CLEAR  Pulcas  Pulcas
Water Column: 11.22  Depth Purging  Notes on Initia  Time 1413	Yolume Purged  2-GM	2-inch 4- (16)  feet    COWNICH     pH     11. 4	Tures of Conductivity	Ime Fa	Notes  CLEAR  To Purge  7.20 gal  Notes

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1500

	Rep #1	Rep #2	Rep #3	Rep #4
рН	95	9.5	9.6	9.4
Conductivity	2000+	-2000+_	2000+	2000-
TC	17.4		<u> </u>	17.5
Pre-sample Collection Gallons Pure	ged: <u>8</u>			
Time Sample Collection Begins:	1505			
Time Sample Collection Ends:	1516	<del></del>		
Total Gallons Purged:	9	<u>.</u>		
Comments:				
				<del></del> -
	<u>.</u> .		<u></u> -	
				<u></u>

Revised: 06/29/95

Project #:	58560.15	Site: $\underline{\mathscr{V}}$	O.C KEEF EL	1. Threach	S Date: Jul	424,1496
Well #:			Team: R 5			, <del></del>
Sampling Meth	hod: <u>D1500</u>					
Field Condition	ns: <u>Clear</u>	- SKIEL,	WARM WI	NDY		
Describe Equip	pment D-Con Before	e Sampling Thi	s Well:		<u>-</u>	. <u> </u>
Total Depth of Well:	14.90 fee	t Time:	1241	Depth to Water Before Pumpin	g: <u>3,65</u>	feet
Height of Water Column: //.25	feet *	Diameter           2-inch         4-i           .16		Pu me Fa gal • <u>-/</u>	rige \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	olume <u>Purge</u> <u>20</u> gal
Water Column: //.25	feet * From: 14	2-inch 4-i	<u>Noth</u> <u>Volu</u> 55 = <u>/.♀.⊘</u>	me Fa gai * <u>-/</u>	<u>Tetor</u> = <u>7</u>	olume Purge 20 gal
Water Column: //.25  Depth Purging		2-inch 4-i	nch Volu 55 = <u>/. 2.0</u> Time Purg	me Fagal • 4	<u>rector</u> = <u>7</u>	<u>Purge</u> 20 gai
Water Column: //.25  Depth Purging	From: 14 Discharge: 7	16 det  feet  Rown 15H	Time Purg	me Fa gal • 4 ing Begins: /	= 7. = 7.	Purge 20 gai
Water Column: //.25  Depth Purging  Notes on Initial	From: 14  Discharge: 7  Volume Purged  Z-GAL	2-inch 4-i (16)  feet  Rown(SH)	Time Purg	me Fa gal • 4  ing Begins: /	STAGE NOT CLEAR	Purge 20 gai
Water Column: //.z<  Depth Purging  Notes on Initial	From: 14  Discharge: 7	2-inch 4-i (16) feet  PROWNISH  PH  8.1  9.3	Conductivity  2000+	me Fa gal • 4  ing Begins: /  TT 19.4  19.7	STAGE FRANCE PORT OF THE PARTY	Purge 20 gai
Water Column: //.25  Depth Purging  Notes on Initial	Prom: 14  Discharge: 7  Volume Purged  2-GAL  4-GAL	2-inch 4-i (16)  feet  Rown(SH)	Time Purg	me Fa gal • 4  ing Begins: /	STAGE NOT CLEAR	es

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1645

	Rep #1	Rep #2	Rep #3	Rep #4
pН	7.5	7.4	7.4	7.3
Conductivity	2000+	2000+	2000+	. 20001
T°C		19.6	19.4	19,5
Pre-sample Collection Gallons Pu	rged: ${\cal B}$			
Time Sample Collection Begins:	1650			
Time Sample Collection Ends:	1655			
Total Gallons Purged:	9			
	,			
	·			•.
Comments:		<del>-</del>		<u> </u>
				<del></del>
				····
				-
· · · · · · · · · · · · · · · · · · ·				·

Revised: 06/29/95

Project #:	CE560,15	Site:	POR-KEEFO	V TRUCKING	Date:	Tulu24/840
Weli #:	MW-5	Sampling	g Team: $R.5$	1214		<u> </u>
Sampling Me	ethod: Dis					
•	ions: <u>CLF</u> 1			,		
Describe Equ	uipment D-Con Befo	re Sampling Th	nis Well:			
	·					
Total Depth of Well:		et Time:	1245	Depth to Water Before Pumping	g: <u></u> <u> </u>	5 2 <del>4</del> feet
Height of Water Column: / <u>4//</u>	<u>√</u> feet •	Diameter 2-inch 4-	<u>inch</u> <u>Vole</u> .65 ≈ 2.26	Pu <u>ime Fa</u> _gai *	rge ctor =	Volume To Purge 9.04 gal
Depth Purging	g From:	feet		ing Begins: <u>//</u>		
Notes on Initia	al Discharge: <u></u>	RAYISH, S	SICTY		<del></del>	
Time   1606   1607   608   1609	Volume Purged 2-GAU 4-GAU 6-GAU 9-GMU	pH 6.9 6.9	Conductivity 2000+ 2000+ 2000+ 2000+	19.4 19.7 19.9 19.6	THRB THRB THRB CLEAN	ID ID
	<del></del>					

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

Time Field Parameter Measurement Begins: 1700

	Rep #1	Rep #2	Rep #3	Rep #4
pH .	6.9	6.9	6.8	6.7
Conductivity	20001	2000+	2000+	2000+
T°C	19.4	19.3	19.3	19.1
Pre-sample Collection Ga	llons Purged: 9			
Time Sample Collection E			•	
Time Sample Collection E				
Total Gallons Purged:	10			
: 	•			
_				
Comments:			· · · · · · · · · · · · · · · · · · ·	<del></del>
		<u> </u>		
		<u>-</u>	<del></del>	. <u></u>
	· · · · · · · · · · · · · · · · · · ·			
	·		· · · · · · · · · · · · · · · · · · ·	<del></del>

Well #: MW-6 Sampling Team: R-SILVAT  Sampling Method: NOT APPLICABLE & FLOATING PROTUCT WELL NOT SAMPLED  Field Conditions: CLEAR WARM, WINT 4  Describe Equipment D-Con Before Sampling This Well:  Total Depth of Well: feet Time: 1247 Depth to Water Before Pumping: 5.19 feet  Height of Water Column: Feet Pumping: Factor To Pumping: Golumn: Factor To Pumping: Golumn: Factor To Pumping: Golumn: Factor To Pumping: Golumn: Feet Time Pumping Begins: Feet Time Pumping Begins Begins Begins Begins Begins Begins Beg	Project #: 58560,15 Site: P.O.O KEEP ON TRUCKING Date: JULY 24,194	5
Sampling Method:    Not applicable   Ploating Product Well	Well #: Sampling Team: R- 5/4VA-	
Field Conditions: CLEAR WARM, WINTY  Describe Equipment D-Con Before Sampling This Well:  Total Depth of Well: feet Time: 1247 Depth to Water Before Pumping: 5.19 feet  Height of Diameter Purge Volume Factor To Purge Column: feet 16 .65 =	Sampling Method: War Applicages & Translation	
Describe Equipment D-Con Before Sampling This Well:  Total Depth of Well: feet Time: 1247 Depth to Water Before Pumping: 5.19 feet  Height of Water 2-inch 4-inch Volume Factor To Purge Column: feet Time purging Begins:  Depth Purging From: feet Time Purging Begins:	SAMPLED	
Total Depth of Well: feet Time: 1247 Depth to Water Before Pumping: 5.19 feet  Height of Diameter Purge Volume Factor To Purge Water Column: feet 7.65 = 9 gal = 9 gal  Depth Purging From: feet Time Purging Begins:		
Height of Water Column:    Time:   1247   Before Pumping:   5.19   feet	Describe Equipment D-Con Before Sampling This Well:	
Height of Water Column:    Time:   1247   Before Pumping:   5.19   feet		
Water Column:  feet  2-inch 4-inch Volume Factor To Purge gal  Depth Purging From: feet  Time Purging Begins:  Notes on Initial Discharge: 4.09 - 5.19 FLORT NA TELEST	-4 IV-II	t
Notes on Initial Discharge: 4.09 - 5.19 FLORENCE COLUMN	Water 2-inch 4-inch Volume Factor To Purge	
Time Makasa Barrata and a same and	Depth Purging From:feet Time Purging Begins:	
Time Makasa Barrata and a same and	Notes on Initial Discharge: 4.09 - 5.19 FLORTING TELEVIT	
Time Volume Purged pH Conductivity T Notes		
	Time Volume Purged pH Conductivity T Notes	_
		- -
		<u>-</u>

## WATER SAMPLING FIELD SURVEY FORM (CONTINUED)

•	Rep #1	Rep #2	Rep #3	Rep #4
pH				<del></del>
Conductivity		<u> </u>	- ,	
T°C	·			
Pre-sample Collection Gallons Pu	rged:			
Time Sample Collection Begins:				
Time Sample Collection Ends:				
		<del></del>		
Total Gallons Purged:				
		<del></del>		
Total Gallons Purged:		· · · · · · · · · · · · · · · · · · ·		
Total Gallons Purged:				·
Total Gallons Purged:		·		
		·		

ENVIRONHENTAL PROTECTION 95 MAR 27 PH 1: 41

#### APPENDIX C

GROUNDWATER SAMPLING ANALYTICAL REPORTS FOR IN JULY AND NOVEMBER 1995

1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106



August 7, 1995

Mr. Dariush Dastmalchi CLAYTON ENVIRONMENTAL CONSULTANTS, INC. 1252 Quarry Lane Pleasanton, CA 94566

Client Ref.: 58560.18
Clayton Project No.: 95072.00A

Dear Mr. Dastmalchi:

Attached is our analytical laboratory report for the samples received on July 25, 1995. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after September 6, 1995, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH

Director, Laboratory Services

San Francisco Regional Office

HAH/caa

Attachments

Page 2 of 8

#### Analytical Results for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

Sample Identification: MW-1

Lab Number:

9507200-01A

ample Matrix/Media:

WATER

reparation Method:

EPA 5030

Date Sampled:

Date Received:

Date Prepared:

Date Analyzed:

07/26/95

07/24/95

07/24/95

07/26/95

Method Reference:	EPA 8015/8020	-	Analyst:	WAS
nalyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
TEX/Gasoline	• •			
Benzene		71-43-2	ND	0.4
Ethylbenzene		100-41-4	ND	0.3
Toluene		108-88-3	ND	0.3
o-Xylene	•	95 <b>-</b> 47-6	ND	0.4
p,m-Xylenes			ND	0.4
Gasoline	•		ND	50
urrogates	•		Recovery (%)	OC Limits (%)
a,a,a-Trifluorotol	uene	98-08-8	96	50 - 150

Not detected at or above limit of detection ND: Information not available or not applicable

Page 3 of 8

Analytical Results

for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: MW-2

Lab Number:

9507200-02A

ample Matrix/Media: .reparation Method:

WATER

Method Reference:

EPA 5030

EPA 8015/8020

Date Sampled:

07/24/95

Date Received:

07/24/95

Date Prepared:

07/26/95

Date Analyzed:

07/26/95

Analyst:

WAS

method Reference:	EPA 8015/8020		Allaryst.	WAD		
nalyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)		
TEX/Gasoline		•				
Benzene		71-43-2	ND	0.4		
Ethylbenzene		100-41-4	ND	0.3		
Toluene		108-88-3	ND	0.3		
o-Xylene		95-47-6	ND	0.4		
p,m-Xylenes		<del></del>	ND	0.4		
Gasoline			70	50		
S <u>urrogates</u>			Recovery (%)	OC Limits (%)		
a,a,a-Trifluorotoluen	e	98-08-8	95	50 - 150		

Not detected at or above limit of detection ND: Information not available or not applicable

Gasoline result from presence of MTBE in sample

Page 4 of 8

Analytical Results

for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: MW-3

a,a,a-Trifluorotoluene

Lab Number:

9507200-03A

ample Matrix/Media: reparation Method:

WATER EPA 5030

Method Reference:

EPA 8015/8020

Date Sampled:

07/24/95

Date Received:

07/24/95 07/26/95

Date Prepared: Date Analyzed:

07/26/95

50 - 150

Analyst:

WAS

nalyte CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
--------------	----------------------	--

TEX/Gasoline			
Benzene Ethylbenzene Toluene o-Xylene p.m-Xylenes Gasoline	71-43-2 100-41-4 108-88-3 95-47-6	ND ND ND ND ND	0.4 0.3 0.3 0.4 0.4
Surrogates		Recovery (%)	OC Limits (%)

98-08-8 91

of 8 Page 5

#### Analytical Results for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: MW-4

Lab Number:

9507200-04A

ample Matrix/Media: reparation Method:

WATER EPA 5030

EPA 8015/8020

Date Sampled:

Date Received:

Date Prepared:

Date Analyzed:

Analyst:

07/24/95 07/24/95

07/26/95

07/26/95

WAS

Method Reference:	EPA 8015/8020		Allaryst.	WILD		
nalyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)		
TEX/Gasoline						
Benzene Ethylbenzene Toluene o-Xylene p;m-Xylenes Gasoline		71-43-2 100-41-4 108-88-3 95-47-6	140 34 74 12 28 2400	0.4 0.3 0.3 0.4 0.4		
Surrogates			Recovery (%)	OC Limits (名)		
a,a,a-Trifluorotolu	ene	98-08-8	81	50 - 150		

Page 6 of 8

# Analytical Results

for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: MW-5

Lab Number:

9507200-05A

ample Matrix/Media:

WATER

.reparation Method:

EPA 5030

Date Sampled:

07/24/95

Date Received:

07/24/95

Date Prepared:

07/27/95

Date Analyzed:

07/27/95

MAC

Method Reference:	EPA 8015/8020	015/8020 Ana		WAS		
nalyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)		
TEX/Gasoline						
Benzene		71-43-2	3.1	0.4		
Ethylbenzene		100-41-4	0.6	0.3		
Toluene		108-88-3	0.7	0.3		
o-Xylene		95-47-6	ND	0.4		
p,m-Xylenes			0.7	0.4		
Gasoline			720 a	50		
Surrogates			Recovery (%)	OC Limits (%)		
a,a,a-Trifluorotoluer	ne	98-08-8	99	50 - 150		
	•		•			

Sample appears to be weathered gasoline.

Page 7 of 8

#### Analytical Results for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: METHOD BLANK

Lab Number:

9507200-08A

ample Matrix/Media: reparation Method:

Method Reference:

EPA 5030

WATER

EPA 8015/8020

Date Sampled:

Date Received:

Date Prepared:

Date Analyzed:

07/26/95 07/26/95

Analyst:

WAS

nalyte	te CAS #		Method Detection Limit (ug/L)		
TEX/Gasoline	•				
Benzene	71-43-2	ND	0.4		
Ethylbenzene	100-41-4	ND	0.3		
Toluene	108-88-3	ND	0.3		
o-Xylene	95-47-6	ND	0.4		
p,m-Xylenes		ND	0.4		
Gasoline		ND	50		
urrogates		Recovery (%)	OC Limits (%)		
a,a,a-Trifluorotoluene	98-08-8	90	50 - 150		

Page 8 of 8

## Analytical Results

for

Port of Oakland

Client Reference: 58560.18 Clayton Project No. 95072.00

sample Identification: See Below

07/24/95

Lab Number:

9507200

Date Received:

ample Matrix/Media:

WATER

Date Extracted: 07/26/95

EPA 3510

Date Analyzed:

08/01/95

\_xtraction Method: Method Reference:

EPA 8015 (Modified)

Lab Sumber	Sample Identification	Date Sampled	TPH-D (ug/L)	Method Detection Limit (ug/L)
01	MW-1	07/24/95	230 a	50
02	MW-2	07/24/95	960 a	50
03	MW - 3	07/24/95	460 a	50
04	MW - 4	07/24/95	21000 a	50
05	MW-5	07/24/95	4800 a	50
08	METHOD BLANK		ND	50

ND: Not detected at or above limit of detection

<sup>--:</sup> Information not available or not applicable

\_PH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel.

a Unidentified hydrocarbons present in diesel range; quantitation based on diesel.



### REQUEST FOR LABORATORY **ANALYTICAL SERVICES**

For Clayton Use (	Only Page_	of	2				
Project No.							
Batch No. 9507200							
Ind. Code		W.P.	~				
Date Logged In	7/25	By X	NOR				

										Date	ı rogg	<b>9</b> 0 III	,	10 L	P	(V+V)	
O Name	DARIUSH DASTMALCHI	Title			Purch	ase Or	der No					Clien	t Job I	<b>%</b> . 5	850	60.18	
Comp	Address State, Zip		Dept.		ŲŲ	Nar			•								
Mailing	Address				SEND	O Con	npany	PORT	- BF	= 01	KL	421	<u>&gt; -</u>			Dept.	
City, S	itate, Zip				]‰ ≱	Add	ress	Ke	EP	ON"	Tec	16-15	14/	27			
Teleph	ione No. [ ] eleta					City	, State	, Zip						<u> </u>			
Date Result: STAZIDAR	Req.: Rush Charges Authorized? Pho → TAT Yes No L		1	s are: f applicable)	Containers	(Enter	an 'X'	in the	box be	AN/ low to	ALYSI: indical	S REC	UEST lest; E	ED nter a	'P' # P	reservative	added. *)
pecial Instr	uctions: (method, limit of detection, etc.	)		ing Water	Tair												
	n of Preservative: P = HCL		Colle	cted in the of New York	oer of Cor										//		
C	LIENT SAMPLE IDENTIFICATION	DATE SAMPLE		AIR VOLUME (specify units)		$\angle$			_	_	$\angle$	$\angle$	$\angle$	_	_		ONLY
	MW-1	7-24-9	5 H20	40mes	2	XP										01	AB
	Juw-1			LITER	2.		XP									<del></del>	CD
	mw-2			40mis	2-	Xe_										<u> 65</u>	AB
<u> </u>	MW-2			HIER	2		XP										$\Omega$
<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	MW-3			40mis	2.	$\chi_{\rho}$	_									03	A CO
	mw-3			LITER	2		Xe									<del></del>	CD
	Mw-4			40mes	2	Xe					,5					OUI	A/D
	MW-4			LITER	2		Xe									,	CD
	mw-5			40mes	2	XP										05	A.B.
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22345 Roethel Drive Novi, Mi 48375

(810) 344-1770

**Raritan Center** 160 Fieldcrest Ave. Edison, NJ 08837

(009) 225 en 10

400 Chastain Center Blvd., N.W.

Suite 490

Kennesaw, GA 30144 (404) 400 7500

1252 Quarry Lane Pleasanton, CA 94566

(510) 426-2657

Clayton Laboratory WHITE Clayton Accounting YELLOW -

Client Retains PINK

1252 Quarry Lane P.O. Box 9019 Pleasanton, CA 94566 (510) 426-2600 Fax (510) 426-0106



November 28, 1995

Mr. George Mead CLAYTON ENVIRONMENTAL CONSULTANTS, INC. 1252 Quarry Lane Pleasanton, CA 94566

> Client Ref.: 66258.01 Clayton Project No.: 95111.60

Dear Mr. Mead:

Attached is our analytical laboratory report for the samples received on November 10, 1995. Following the cover letter is the Quality Control Narrative detailing sample information/problems and a summary of the quality control issues. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after December 28, 1995, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH

Michael Fynsh for

Director, Laboratory Services

San Francisco Regional Office

HAH/tjb

Attachments

Page 1a

QUALITY CONTROL NARRATIVE for Port of Oakland Client Reference: 66258.01 Clayton Project No. 95111.60

#### Sample Information/Problems:

There were no problems with sample receipt.

#### Analytical Problems:

No problems were encountered with the sample analyses.

#### Quality Control:

The quality control data is summarized in the Quality Assurance Data Package, which follows the analytical report.

- MS/MSD: A matrix spike and matrix spike duplicate were analyzed where applicable, and all results were acceptable.
- LCS/LCSD: A laboratory control spike and duplicate were analyzed where applicable, and all results were acceptable.
- ICV/CCV: Response for all analytes met Clayton acceptance criteria.
- Surrogate Recoveries: All surrogate recoveries were acceptable. The surrogate recoveries, where applicable, are listed on the sample result pages.

of 7 Page 2

Analytical Results

for

Port of Oakland

Client Reference: 66258.01 Clayton Project No. 95111.60

sample Identification: MW-1

Date Sampled:

11/10/95

Lab Number:

9511160-01A

Date Received: 11/10/95

ample Matrix/Media:

WATER

Date Prepared: Date Analyzed:

11/20/95 11/21/95

reparation Method:

EPA 5030

Method Reference:

EPA 8015/8020

Analyst:

FAK

nalyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
TEX/Gasoline			
Benzene Ethylbenzene Toluene o-Xylene p,m-Xylenes Gasoline	71-43-2 100-41-4 108-88-3 95-47-6	ND ND ND ND ND	0.4 0.3 0.3 0.4 0.4
Surrogates		Recovery (%)	OC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	99	50 - 150

Page 3 of 7

# Analytical Results for

#### Port of Oakland

Client Reference: 66258.01 Clayton Project No. 95111.60

Jample Identification:MW-2Date Sampled:11/10/95Lab Number:9511160-02ADate Received:11/10/95Jample Matrix/Media:WATERDate Prepared:11/20/95Preparation Method:EPA 5030Date Analyzed:11/21/95

'reparation Method: EPA 5030 Date Analyzed: 11/2

Method Reference:	EPA 8015/8020		Analyst:	rak		
malyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)		
<pre>}TEX/Gasoline</pre>						
Benzene Ethylbenzene Toluene o-Xylene p,m-Xylenes Gasoline		71-43-2 100-41-4 108-88-3 95-47-6	ND ND ND ND ND ND	0.4 0.3 0.3 0.4 0.4 50		
<u>Surrogates</u>	•		Recovery (%)	OC Limits (%)		
a,a,a-Trifluorotolu	lene	98-08-8	97	50 - 150		

of 7 Page 4

Analytical Results for

Port of Oakland Client Reference: 66258.01

Clayton Project No. 95111.60

Jample Identification: MW-3

Date Sampled:

11/10/95

Lab Number:

9511160-03A

Date Received:

11/10/95

Sample Matrix/Media:

WATER

Date Prepared: Date Analyzed: 11/20/95 11/20/95

'reparation Method: Method Reference:

EPA 5030 EPA 8015/8020

Analyst:

FAK

nalyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)

TEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	0.7	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes		ND	0.4
Gasoline	<del>-, -</del>	ND	50

Surrogates	Recovery (%)	OC LIMILES (4)
a,a,a-Trifluorotoluene	98-08-8 94	50 - 150

Page 5 of 7

Analytical Results

for

Port of Oakland

Client Reference: 66258.01 Clayton Project No. 95111.60

Lample Identification: MW-5

Lab Number:

9511160-04A

ample Matrix/Media:

EPA 5030

reparation Method:

WATER

EPA 8015/8020

Date Sampled:

11/10/95

Date Received:

11/10/95 11/20/95

Date Prepared: Date Analyzed:

11/20/95

Analyst:

FAK

Method Reference:	EPA 8015/8020		Aldiyst.	1111
nalyte		CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
ETEX/Gasoline			<del>-</del> '	
Benzene Ethylbenzene Toluene o-Xylene p.,m-Xylenes Gasoline		71-43-2 100-41-4 108-88-3 95-47-6	0.8 0.6 0.5 0.7 1.2 260	0.4 0.3 0.3 0.4 0.4
Surrogates			Recovery (%)	OC Limits (%)
a,a,a-Trifluorotolu	ene	98-08-8	88	50 - 150

Page 6 of 7

#### Analytical Results for

Port of Oakland

Client Reference: 66258.01 Clayton Project No. 95111.60

Lample Identification: METHOD BLANK

Lab Number:

9511160-06A

ample Matrix/Media:

WATER

reparation Method:

EPA 5030

Method Reference:

EPA 8015/8020

Date Sampled:

Date Received:

Date Prepared:

11/20/95 Date Analyzed:

11/20/95

Analyst:

FAK

nalyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
TEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88 <b>-</b> 3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes		ND	0.4
Gasoline		ND	50
Surrogates		Recovery (%)	OC Limits (名)
a,a,a-Trifluorotoluene	98-08-8	95	50 - 150

Page 7 of 7

Analytical Results

for

Port of Oakland

Client Reference: 66258.01 Clayton Project No. 95111.60

\_ample Identification: See Below

11/10/95 Date Received:

Lab Number:

9511160

Date Extracted: 11/10/95

ample Matrix/Media:

WATER

Date Analyzed: 11/14/95

xtraction Method:

EPA 3510

Method Reference:

EPA 8015 (Modified)

0.1 1 0.2 1 0.3 1	MW-1 11/10/95 430 MW-2 11/10/95 920 MW-3 11/10/95 2100	TPH-D (ug/L)	Method Detection Limit (ug/L)	
0.1	MW-1	11/10/95	430 a	50
02	MW-2		920 a	50
03	MW-3	11/10/95	2100 a	50
04	MW - 5	11/10/95	3700	50
06			ND	50

D: Not detected at or above limit of detection

PH-D = Extractable petroleum hydrocarbons from C10 to C42 quantitated as diesel. Unidentified hydrocarbons present in diesel and oil range; quantitation based on diesel.

<sup>-:</sup> Information not available or not applicable

Quality Assurance Results Summary

Matrix Spike/Matrix Spike Duplicate Results

for

Clayton Project No. 95111.60

for Clayton Project No. 95111.60

Clayton Lab Number: Ext./Prep. Hethod:

9511098-LCS EPA 3510

Date: Analyst:

MBN

Std. Source: Sample Matrix/Media: 11/10/95

E951025-01W WATER

Analytical Method: Instrument ID: Date:

EPA 8015 02893 11/14/95 15:41 GUD

Time: Analyst: Units: QC Batch No:

UG/L 95111068

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
DIESEL	ND	1,000	1,030	103	931	93	98	65	128	10	25

#### Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate for

Clayton Project No. 95111.60

Clayton Lab Number: Ext./Prep. Method:

9511124-01A EPA 5030

Date:

Analyst: Std. Source: Sample Matrix/Media: 11/14/95 FAK

V951109-01W WATER

Analytical Method: Instrument ID: Date: Time:

EPA 8015/8020 05587 11/15/95 20:29 FAK

Analyst: Units: QC Batch No:

ug/L 951114A1

Analyte		Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD- Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD	UCL (%RPD)
BENZENE	(PID)	ND	3.97	4.03	102	3.95	99	101	79	125	2.0	20
ETHYLBENZENE	(PID)	ND	5.54	5,53	100	5.51	99	100	91	123	0.4	20
GASOLINE	(FID)	ND	500	530	106	510	102	104	80	120	3.8	25
TOLUENE	(PID)	ND	24.7	24.5	99	25.1	102	100	84	118	2.4	50
TOTAL XYLENE	(PID)	ND	36.1	36.2	100	36.0	100	100	85	115	0.6	20

Clayton Project No. 95111.60

Clayton Lab Number: Ext./Prep. Hethod:

9511118-02B EPA 5030

Date: Analyst: 11/20/95 FAK

Std. Source:

V951109-02W

Sample Matrix/Media:

WATER

Analytical Method: Instrument 10:

EPA 8015/8020 05587 11/20/95 16:22

Date: Time: Analyst: Units:

FAK ug/L

QC Batch No:

951120A1

Analyte		Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
BENZENE	(PID)	ND	4.64	4.74	102	4.76	103	102	79	125	0.4	20
ETHYLBENZENE	(PID)	ND	5.43	5.62	103	5.60	103	103	91	123	0.4	20
GASOLINE	(FID)	ND	500	567	113	546	109	111	80	120	3.8	25
TOLUENE	(PID)	ND	24.2	24.8	102	24.9	103	103	84	118	0.4	20
TOTAL XYLENE	(PID)	ND	33.3	34.3	103	34.3	103	103	85	115	0.0	20



# REQUEST FOR LABORATORY ANALYTICAL SERVICES

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For Clayton	Use Only	Page		. of <u>~</u>	
Project No.	9:	511	162 (	mw7)	)
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	Client Job	No.	6251	701	

									Date	Logged	In (	18_	Ву	11/2
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	MW-3			40 mus	2	Xρ		,						03 AB
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	M10-5			40MLS	2	XP								04 A B
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Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

Kennesaw, GA 30144

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22345 Roethel Drive Raritan Center Novi, MI 48375 160 Fieldcrest

(610) 344-1770

160 Fieldcrest Ave. Edison, NJ 08837 908) 5040 400 Chastain Center Blvd., N.W. Suite 490

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NSULTANTS

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use O	nly	Page_	2 of 2
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22345 Roethel Drive Raritan Center

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Novi, MI 48375

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160 Fieldcrest Ave.

Edisa 1801 400 Chastain Center Blvd., N.W. Suite 490 aw, ^ - 1144 Κŧ

1252 Quarry Lane Pleasanton, CA 94566 1510) 40° 3657

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