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**Environmental Services Company**  
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Oakland, CA 94611  
510.547.8196  
510.547.8706 FAX  
jennifer.c.sedlachek@exxonmobil.com

**RECEIVED**

10:26 am, Jun 05, 2009

Alameda County  
Environmental Health

**Jennifer C. Sedlachek**  
Project Manager

**ExxonMobil**

June 2, 2009

Ms. Barbara Jakub  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Subject: Former Mobil Station 04334, 2492 Castro Valley Boulevard, Castro Valley, California

Dear Ms. Jakub:

Attached for your review and comment is a copy of the *Report of Groundwater Monitoring, Second Quarter 2009* for the above-referenced site. The report, prepared by ETIC Engineering, Inc. of Pleasant Hill, California, details the results of the April 2009 sampling event.

Upon information and belief, I declare, under penalty of perjury, that the information contained in the attached report is true and correct.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,



Jennifer C. Sedlachek  
Project Manager

Attachment: ETIC Groundwater Monitoring Report

- c: w/ attachment:  
Ms. Paula Floeck – Jiffy Lube International  
Mr. Joseph D. Phillips – Jiffy Lube Remediation Coordinator  
Mr. William Slautterback – Cal Lube Real Estate Limited Partnership  
Mr. William Peterson – Owner of Castro Valley Lumber Company
- c: w/o attachment:  
Mr. Bryan Campbell – ETIC Engineering, Inc.



**Report of Groundwater Monitoring  
Second Quarter 2009**

**Former Mobil Station 04334  
2492 Castro Valley Boulevard  
Castro Valley, California**

Prepared for

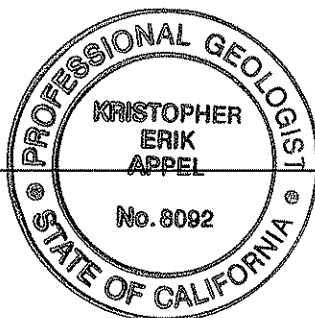
ExxonMobil Oil Corporation

Prepared by

ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, California 94523  
(925) 602-4710

A handwritten signature in black ink, appearing to read "K. Erik Appel".

K. Erik Appel, P.G. #8092  
Senior Project Geologist



A handwritten date in black ink, "June 2, 2009".

Date

June 2009

## SITE CONTACTS

Site Name: Former Mobil Station 04334

Site Address: 2492 Castro Valley Boulevard  
Castro Valley, California

ExxonMobil Project Manager: Jennifer C. Sedlachek  
ExxonMobil Environmental Services Company  
4096 Piedmont Avenue #194  
Oakland, California 94611  
(510) 547-8196

Consultant to ExxonMobil: ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, California 94523  
(925) 602-4710

ETIC Project Manager: K. Erik Appel

Regulatory Oversight: Barbara Jakub  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502  
(510) 567-6700

## INTRODUCTION

ETIC Engineering, Inc. (ETIC) has prepared this quarterly groundwater monitoring report for ExxonMobil Environmental Services Company on behalf of ExxonMobil Oil Corporation for the former Mobil Station 04334. This report presents the results for the most recent groundwater monitoring conducted at the site and summarizes recent site activities. This report covers site activities from 29 January 2009, the date of the previous monitoring event, to 15 April 2009, the date of the most recent monitoring event. Groundwater monitoring results, well construction details, and a groundwater monitoring plan are provided in the attached figures and tables. Groundwater monitoring protocols, field data, and analytical results are provided in the attached appendixes.

## GENERAL SITE INFORMATION

<b>Site name:</b>	Former Mobil Station 04334
<b>Site address:</b>	2492 Castro Valley Boulevard, Castro Valley, California
<b>Current property owner:</b>	Cal Lube Real Estate Limited Partnership
<b>Current site use:</b>	Jiffy Lube Oil Change facility
<b>Current phase of project:</b>	Groundwater monitoring
<b>Tanks at site:</b>	Four former underground storage tanks removed 1983
<b>Number of wells:</b>	5 (3 onsite, 2 offsite)

## GROUNDWATER MONITORING SUMMARY

<b>Gauging and sampling date:</b>	15 April 2009
<b>Wells gauged and sampled:</b>	MW1-MW5
<b>Wells gauged only:</b>	None
<b>Groundwater flow direction:</b>	East
<b>Groundwater gradient:</b>	0.0085
<b>Well screens submerged:</b>	None
<b>Well screens not submerged:</b>	MW1, MW2, MW3, MW4, MW5
<b>Liquid-phase hydrocarbons:</b>	Not observed or detected
<b>Laboratory:</b>	Calscience Environmental Laboratories, Inc., Garden Grove, California

### Analyses performed:

- Total Petroleum Hydrocarbons as gasoline and as diesel by EPA Method 8015B (M)
- Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B
- Methyl tertiary butyl ether by EPA Method 8260B
- Ethyl tertiary butyl ether, tertiary amyl methyl ether, tertiary butyl alcohol, 1,2-dibromoethane, 1,2-dichloroethane, diisopropyl ether, and ethanol by EPA Method 8260B

## **ADDITIONAL ACTIVITIES PERFORMED**

On 30 January 2009, one offsite well was installed. The associated well installation report was submitted on 26 March 2009 under separate cover.

## **WORK PROPOSED FOR NEXT QUARTER**

Groundwater will be monitored in accordance with the attached groundwater monitoring plan.

### **Attachments:**

Figure 1: Site Map Showing Groundwater Elevations and Contours

Figure 2: Site Map Showing Groundwater Analytical Results

Table 1: Well Construction Details

Table 2: Groundwater Monitoring Data

Table 3: Groundwater Monitoring Plan

Appendix A: Field Protocols

Appendix B: Field Documents

Appendix C: Laboratory Analytical Reports and Chain-of-Custody Documentation

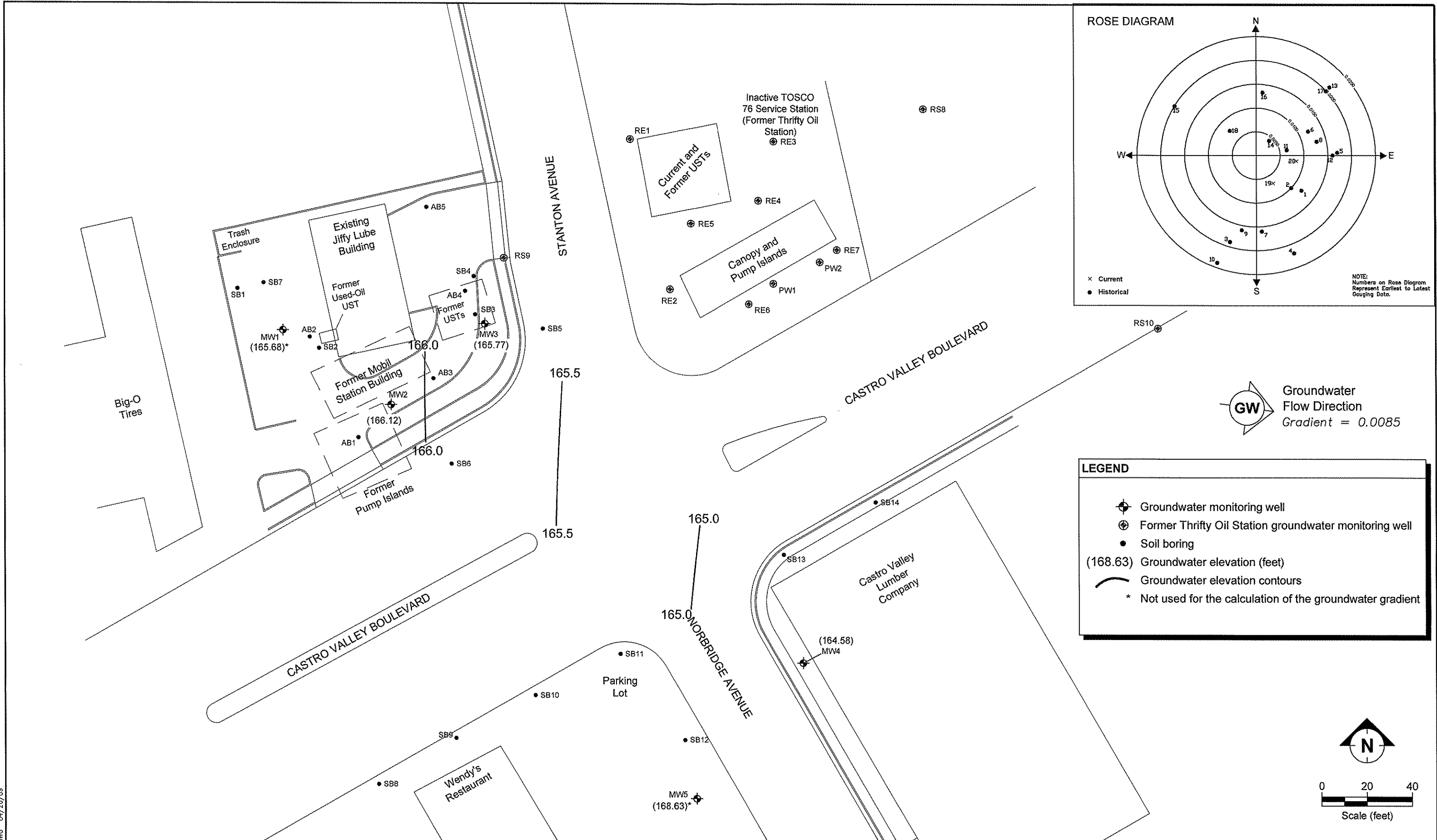
## **Figures**

FILENAME: 202009.DWG 04/26/09

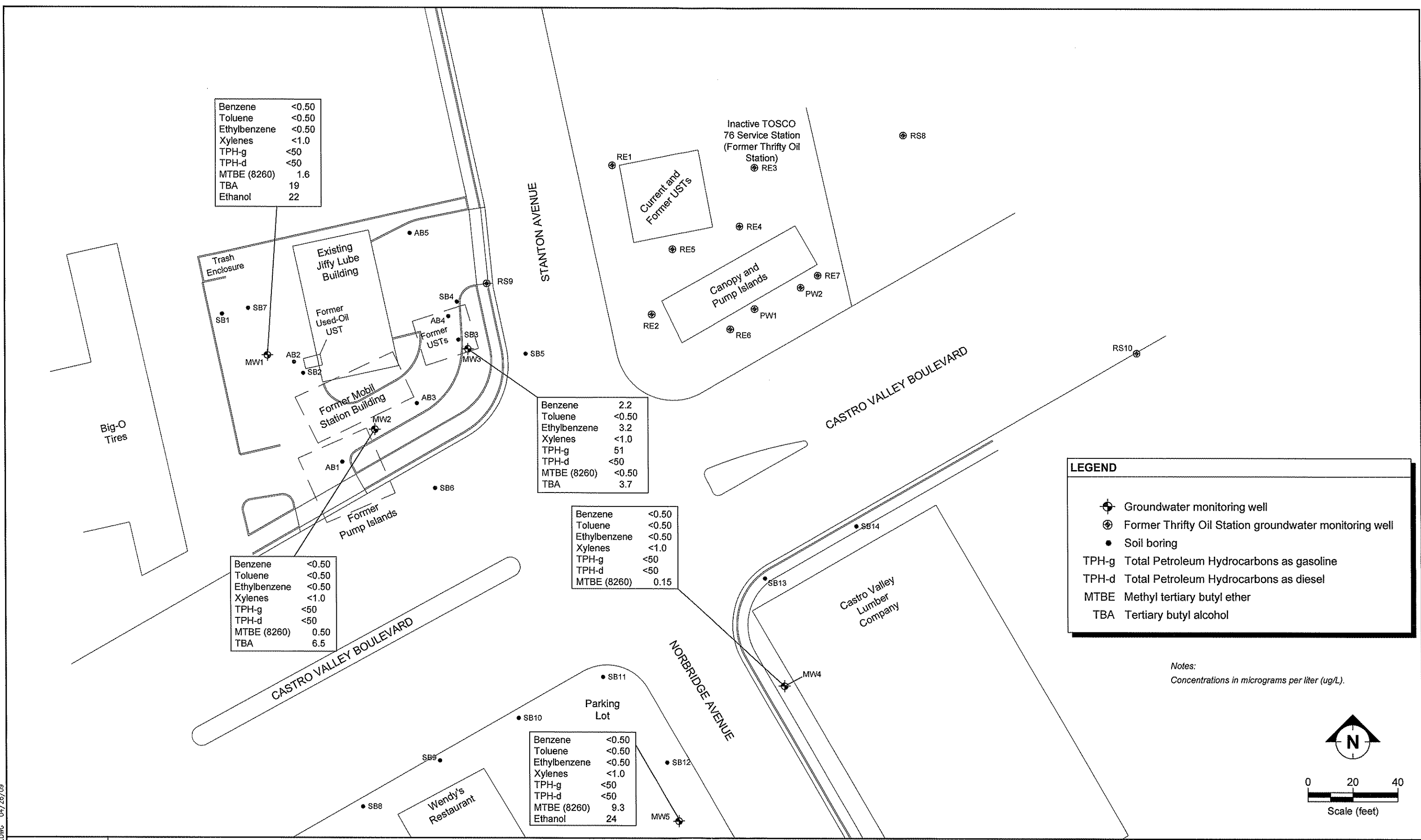


SITE MAP SHOWING GROUNDWATER ELEVATIONS AND CONTOURS  
FORMER MOBIL STATION 04334  
2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA  
15 APRIL 2009

FIGURE:  
**1**



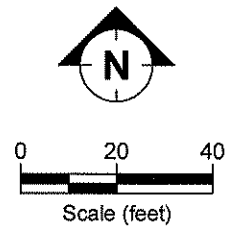
FILENAME: 202009.DWG 04/26/09



**LEGEND**

- Groundwater monitoring well
- Former Thrifty Oil Station groundwater monitoring well
- Soil boring
- TPH-g Total Petroleum Hydrocarbons as gasoline
- TPH-d Total Petroleum Hydrocarbons as diesel
- MTBE Methyl tertiary butyl ether
- TBA Tertiary butyl alcohol

Notes:  
Concentrations in micrograms per liter (ug/L).



**SITE MAP SHOWING GROUNDWATER ANALYTICAL RESULTS**  
**FORMER MOBIL STATION 04334**  
**2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA**  
**15 APRIL 2009**





## **Tables**

TABLE 1 WELL CONSTRUCTION DETAILS, FORMER MOBIL STATION 04334, 2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well Number	Well Installation Date	Elevation TOC (feet)	Casing Material	Total Depth (feet)	Well Depth (feet)	Borehole Diameter (inches)	Casing Diameter (inches)	Screened Interval (feet)	Slot Size (inches)	Filter Pack Interval (feet)	Filter Pack Material
MW1	a 06/24/04	173.23	PVC	20	20	8.25	2	5 - 20	0.010	4.5 - 20	#2/12 Sand
MW2	a 06/25/04	173.63	PVC	20	20	8.25	2	5 - 20	0.010	4.5 - 20	#2/12 Sand
MW3	a 06/25/04	171.91	PVC	20	20	8.25	2	5 - 20	0.010	4.5 - 20	#2/12 Sand
MW4	a 06/24/04	170.48	PVC	15	14	8.25	2	4 - 14	0.010	3.5 - 15	#2/12 Sand
MW5	b 01/30/09	173.80	PVC	15	15	8.25	2	5 - 15	0.010	4.0 - 15	#2/12 Sand

Notes:

- a Well surveyed on 12 July 2004 by Morrow Surveying.
- b Well surveyed on 10 February 2009 by Morrow Surveying.
  
- PVC Polyvinyl chloride.
- TOC Top of casing.

TABLE 2 GROUNDWATER MONITORING DATA, FORMER MOBIL STATION 04334, 2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Concentration (µg/L)							Other Oxygenates and Additives
					Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE	
MW1	a 08/13/04	173.23	7.32	165.91	<0.5	0.7	<0.5	1.0	<50	71	1.20 <sup>b</sup>	--
MW1	11/09/04	173.23	6.96	166.27	<0.5	0.9	<0.5	0.9	<50	63	1.50 <sup>b</sup>	--
MW1	02/16/05	173.23	6.10	167.13	<0.5	1.0	<0.5	1.5	<50	78	1.30 <sup>b</sup>	--
MW1	05/16/05	173.23	5.81	167.42	<0.5	<0.5	<0.5	<0.5	<50	<50	1.40 <sup>b</sup>	--
MW1	08/17/05	173.23	6.70	166.53	<0.5	<0.5	<0.5	<0.5	<50	<50	1.19 <sup>b</sup>	--
MW1	11/15/05	173.23	7.55	165.68	<0.5	<0.5	<0.5	<0.5	<50	<50	1.13 <sup>b</sup>	--
MW1	02/06/06	173.23	6.40	166.83	<0.5	<0.5	<0.5	<0.5	<50	160	<0.5 <sup>b</sup>	--
MW1	05/03/06	173.23	6.95	166.28	<1.00	<1.00	<1.00	<3.00	<50.0	78	<0.50 <sup>b</sup>	--
MW1	08/04/06	173.23	7.71	165.52	<0.50	<0.50	<0.50	<0.50	<50.0	167	<0.500 <sup>b</sup>	--
MW1	11/06/06	173.23	7.57	165.66	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	0.880 <sup>b</sup>	--
MW1	02/21/07	173.23	7.19	166.04	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	2.42 <sup>b</sup>	--
MW1	08/01/07	173.23	8.00	165.23	3.02	4.18	0.89	3.96	90.8	<47	1.54 <sup>b</sup>	--
MW1	10/25/07	173.23	7.90	165.33	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	1.63 <sup>b</sup>	--
MW1	01/31/08	173.23	6.60	166.63	<0.50	<0.50	<0.50	<0.50	<50	<50	1.8 <sup>b</sup>	--
MW1	05/01/08	173.23	7.80	165.43	<1.00	<1.00	<1.00	<3.00	<50.0	<47.2	1.67 <sup>b</sup>	--
MW1	07/31/08	173.23	8.15	165.08	<0.50	<0.50	<0.50	<0.50	<50	<47	1.7 <sup>b</sup>	--
MW1	11/07/08	173.23	8.11	165.12	<0.50	<0.50	<0.50	<0.50	<50	<47	1.4 <sup>b</sup>	--
MW1	01/29/09	173.23	7.75	165.48	<0.50	0.21 <sup>g,f</sup>	<0.50	0.30 <sup>g,f</sup>	<50	<50	1.6 <sup>b</sup>	--
<b>MW1</b>	<b>04/15/09</b>	<b>173.23</b>	<b>7.55</b>	<b>165.68</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>1.6<sup>b</sup></b>	<b>19<sup>g</sup>, 22<sup>h,e</sup></b>
MW2	a 08/13/04	173.63	6.96	166.67	<0.5	0.8	<0.5	1.0	<50	57	<0.5 <sup>b</sup>	--
MW2	11/09/04	173.63	6.44	167.19	<0.5	1.1	<0.5	1.2	<50	<50	<0.5 <sup>b</sup>	--
MW2	02/16/05	173.63	5.21	168.42	<0.5	0.9	<0.5	1.4	<50	55	<0.5 <sup>b</sup>	--
MW2	05/16/05	173.63	5.86	167.77	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5 <sup>b</sup>	--
MW2	08/17/05	173.63	5.72	167.91	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5 <sup>b</sup>	--
MW2	11/15/05	173.63	7.65	165.98	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5 <sup>b</sup>	--
MW2	02/06/06	173.63	6.24	167.39	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5 <sup>b</sup>	--
MW2	05/03/06	173.63	6.53	167.10	<1.00	<1.00	<1.00	<3.00	<50.0	<50	<0.50 <sup>b</sup>	--
MW2	08/04/06	173.63	7.65	165.98	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	<0.500 <sup>b</sup>	--

TABLE 2 GROUNDWATER MONITORING DATA, FORMER MOBIL STATION 04334, 2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Concentration (µg/L)							Other Oxygenates and Additives
					Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE	
MW2	11/06/06	173.63	6.98	166.65	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	<0.500 <sup>b</sup>	--
MW2	02/21/07	173.63	6.36	167.27	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	1.70 <sup>b</sup>	--
MW2	05/01/07	173.63	7.51	166.12	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	<0.50 <sup>b</sup>	--
MW2	08/01/07	173.63	8.12	165.51	<0.50	<0.50	<0.50	<0.50	<50.0	<47	<0.500 <sup>b</sup>	--
MW2	10/25/07	173.63	7.79	165.84	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW2	01/31/08	173.63	5.89	167.74	<0.50	<0.50	<0.50	<0.50	<50	<50	0.82 <sup>b</sup>	--
MW2	05/01/08	173.63	7.81	165.82	<1.00	<1.00	<1.00	<3.00	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW2	07/31/08	173.63	8.30	165.33	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW2	11/07/08	173.63	8.09	165.54	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW2	01/29/09	173.63	7.65	165.98	<0.50	<0.50	<0.50	<1.0	<50	<50	<0.50 <sup>b</sup>	--
<b>MW2</b>	<b>04/15/09</b>	<b>173.63</b>	<b>7.51</b>	<b>166.12</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>0.50<sup>b,e</sup></b>	<b>6.5<sup>g,e</sup></b>
MW3	a 08/13/04	171.91	5.36	166.55	100	2.0	187	59.6	1,440	352	<0.5 <sup>b</sup>	--
MW3	11/09/04	171.91	4.80	167.11	188	3.6	242	20.0	1,690	461	<0.5 <sup>b</sup>	--
MW3	02/16/05	171.91	3.10	168.81	66.2	1.4	61.1	12.6	575	269	<0.5 <sup>b</sup>	--
MW3	05/16/05	171.91	3.86	168.05	74.2	1.4	61.0	9.0	592	92	<0.5 <sup>b</sup>	--
MW3	08/17/05	171.91	4.75	167.16	231 <sup>c</sup>	2.35	102	11.4	1,130	416	<0.5 <sup>b</sup>	--
MW3	11/15/05	171.91	6.56	165.35	57.4	0.95	62.4	10.5	452	193	<0.5 <sup>b</sup>	--
MW3	02/06/06	171.91	4.00	167.91	69	<5.0	64	10	830	165	<0.5 <sup>b</sup>	--
MW3	05/03/06	171.91	5.44	166.47	52.1	<1.00	37.0	4.81	605	140	<0.50 <sup>b</sup>	--
MW3	08/04/06	171.91	5.25	166.66	15.2	<0.50	5.34	1.25	262	108	<0.500 <sup>b</sup>	--
MW3	11/06/06	171.91	4.11	167.80	60.0	1.04	47.3	3.09	561	106	<0.500 <sup>b</sup>	--
MW3	02/21/07	171.91	4.94	166.97	35.1	<0.50	45.4	1.09	483	125	<0.500 <sup>b</sup>	--
MW3	05/01/07	171.91	5.86	166.05	32.5	1.63	28.7	1.53	539	120	<0.50 <sup>b</sup>	--
MW3	08/01/07	171.91	7.54	164.37	1.26	0.60	<0.50	<0.50	89.2	<47	<0.500 <sup>b</sup>	--
MW3	10/25/07	171.91	6.30	165.61	2.94	<0.50	<0.50	<0.50	50.4	<47.2	<0.500 <sup>b</sup>	--
MW3	01/31/08	171.91	3.75	168.16	10	<0.50	11	<0.50	120	51 <sup>d</sup>	<0.50 <sup>b</sup>	--
MW3	05/01/08	171.91	6.60	165.31	2.38	<1.00	<1.00	<3.00	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW3	07/31/08	171.91	7.77	164.14	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--

TABLE 2 GROUNDWATER MONITORING DATA, FORMER MOBIL STATION 04334, 2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Concentration (µg/L)							Other Oxygenates and Additives
					Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH-g	TPH-d	MTBE	
MW3	11/07/08	171.91	6.34	165.57	3.6	<0.50	1.4	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW3	01/29/09	171.91	5.86	166.05	13	0.33 <sup>e</sup>	13	0.52 <sup>g,f</sup>	92	<50	<0.50 <sup>b</sup>	--
<b>MW3</b>	<b>04/15/09</b>	<b>171.91</b>	<b>6.14</b>	<b>165.77</b>	<b>2.2</b>	<b>&lt;0.50</b>	<b>3.2</b>	<b>&lt;1.0</b>	<b>51</b>	<b>&lt;50</b>	<b>&lt;0.50<sup>b</sup></b>	<b>3.7<sup>g,e</sup></b>
MW4	a 08/13/04	170.48	6.10	164.38	<0.5	0.8	<0.5	1.1	<50	72	2.80 <sup>b</sup>	--
MW4	11/09/04	170.48	5.54	164.94	<0.5	2.3	0.7	1.5	<50	<50	2.10 <sup>b</sup>	--
MW4	02/16/05	170.48	5.11	165.37	<0.5	1.1	<0.5	1.7	<50	<50	<0.5 <sup>b</sup>	--
MW4	05/16/05	170.48	5.44	165.04	<0.5	<0.5	<0.5	<0.5	<50	<50	<0.5 <sup>b</sup>	--
MW4	08/17/05	170.48	5.71	164.77	<0.5	<0.5	<0.5	<0.5	<50	<50	1.03 <sup>b</sup>	--
MW4	11/15/05	170.48	5.80	164.68	<0.5	<0.5	<0.5	<0.5	<50	<50	0.730 <sup>b</sup>	--
MW4	02/06/06	170.48	5.10	165.38	<0.5	<0.5	<0.5	<0.5	<50	85.2	<0.5 <sup>b</sup>	--
MW4	05/03/06	170.48	5.54	164.94	<1.00	<1.00	<1.00	<3.00	<50.0	<47	<0.50 <sup>b</sup>	--
MW4	08/04/06	170.48	5.75	164.73	<0.50	<0.50	<0.50	<0.50	<50.0	52.7	<0.500 <sup>b</sup>	--
MW4	11/06/06	170.48	5.95	164.53	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW4	02/21/07	170.48	5.56	164.92	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	<0.500 <sup>b</sup>	--
MW4	05/01/07	170.48	5.66	164.82	<0.50	<0.50	<0.50	<0.50	<50.0	<46.9	<0.50 <sup>b</sup>	--
MW4	08/01/07	170.48	6.06	164.42	0.85	<0.50	<0.50	0.97	<50.0	<47	<0.870 <sup>b</sup>	--
MW4	10/25/07	170.48	5.34	165.14	<0.50	<0.50	<0.50	<0.50	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW4	01/31/08	170.48	5.05	165.43	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW4	05/01/08	170.48	5.86	164.62	<1.00	<1.00	<1.00	<3.00	<50.0	<47.2	<0.500 <sup>b</sup>	--
MW4	07/31/08	170.48	6.10	164.38	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW4	11/07/08	170.48	5.65	164.83	<0.50	<0.50	<0.50	<0.50	<50	<47	<0.50 <sup>b</sup>	--
MW4	01/29/09	170.48	5.80	164.68	<0.50	0.19 <sup>g,f</sup>	<0.50	<1.0	<50	<50	<0.50 <sup>b</sup>	--
<b>MW4</b>	<b>04/15/09</b>	<b>170.48</b>	<b>5.90</b>	<b>164.58</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>0.15<sup>b,e</sup></b>	<b>ND</b>
MW5	i 03/04/09	173.80	4.70	169.10	<0.50	<0.50	<0.50	<1.0	150	--	10 <sup>b</sup>	ND <sup>b</sup>
<b>MW5</b>	<b>04/15/09</b>	<b>173.80</b>	<b>5.17</b>	<b>168.63</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;50</b>	<b>&lt;50</b>	<b>9.3<sup>b</sup></b>	<b>24<sup>h,e</sup></b>

Notes: Depth-to-water-level measurements in feet from top-of-casing.  
 Other Oxygenates and Additives include ethyl tertiary butyl ether, tertiary amyl methyl ether, tertiary butyl alcohol, 1,2-dibromoethane, 1,2-dichloroethane,

TABLE 2 GROUNDWATER MONITORING DATA, FORMER MOBIL STATION 04334, 2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Concentration (µg/L)						Other Oxygenates and Additives
					Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPH-g	TPH-d	

diisopropyl ether, and ethanol which are individually identified only if detected above the laboratory reporting limit. Analyzed by EPA Method 8260B.

- a Top-of-casing elevation surveyed by Morrow Surveying on 12 July 2004.
- b Analyzed by EPA Method 8260 or 8260B.
- c Concentration estimated. Analyte exceeded calibration range. Reanalysis not performed due to holding time requirements.
- d Does not match typical pattern.
- e Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
- f Analyte presence was not confirmed by second column or GC/MS analysis.
- g Tertiary butyl alcohol.
- h Ethanol.
- i Top-of-casing elevation surveyed by Morrow Surveying on 10 February 2009.

- MTBE Methyl tertiary butyl ether.
- TPH-d Total Petroleum Hydrocarbons as diesel.
- TPH-g Total Petroleum Hydrocarbons as gasoline.
- ND Not detected at or above laboratory reporting limits.

- µg/L Micrograms per liter.
- Not sampled or not analyzed.

TABLE 3 GROUNDWATER MONITORING PLAN, FORMER MOBIL STATION 04334,  
2492 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

Well Number	Groundwater Gauging Frequency	Groundwater Sampling and Analysis Frequency	
		BTEX, TPH-g, and TPH-d	MTBE
MW1	Q	Q	Q
MW2	Q	Q	Q
MW3	Q	Q	Q
MW4	Q	Q	Q
MW5	Q	Q	Q

Notes:

BTEX Benzene, toluene, ethylbenzene, and xylenes.  
 MTBE Methyl tertiary butyl ether.  
 Q Quarterly.  
 TPH-d Total Petroleum Hydrocarbons as diesel.  
 TPH-g Total Petroleum Hydrocarbons as gasoline.

**Appendix A**  
**Field Protocols**



## **PROTOCOLS FOR QUARTERLY GROUNDWATER MONITORING**

### **GROUNDWATER GAUGING**

Wells are opened prior to gauging to allow the groundwater level in the wells to equilibrate with atmospheric pressure. The depth to groundwater and depth to liquid-phase hydrocarbons, if present, are then measured to the nearest 0.01 feet using an electronic water level meter or optical interface probe. The measurements are made from a permanent reference point at the top of the well casing. If less than 1 foot of water is measured in a well, the water is bailed from the well and, if the well does not recover, the well is considered “functionally dry.” Wells with a sheen or measurable liquid-phase hydrocarbons are generally not purged or sampled.

### **WELL PURGING**

After the wells are gauged, each well is purged of approximately 3 well casing volumes of water to provide representative groundwater samples for analysis. Field parameters of pH, temperature, and electrical conductance are measured during purging to ensure that these parameters have stabilized before groundwater in a well is sampled. Groundwater in each well is purged using an inertial pump (WaTerra), an electric submersible pump, or a bailer. After the well is purged, the water level is checked to ensure that the well has recharged to at least 80 percent of its original water level.

### **GROUNDWATER SAMPLING**

After purging, groundwater in each well is sampled using dedicated tubing and an inertial pump (WaTerra) or a factory-cleaned disposable bailer. Samples from extraction wells are typically collected from sample ports associated with the groundwater remediation system. Samples collected for volatile organic analysis are placed in Teflon septum-sealed 40-milliliter glass vials. Samples collected for diesel analysis are placed in 1-liter amber glass bottles. Each sample bottle is labeled with the site name, well number, date, sampler’s initials, and preservative. The samples are placed in a cooler with ice for delivery to a state-certified laboratory. The information for each sample is entered on a chain-of-custody form prior to transport to the laboratory.

**Appendix B**  
**Field Documents**



MONITORING WELL DATA FORM

Client: Former Exxon 04334

Date: 04-15-09

Project Number: UP04334.1.6

Station Number: 04334

Site Location: 2492 Castro Valley Boulevard,  
Castro Valley, California

Samplers: ALEX

MONITORING WELL NUMBER	DEPTH TO WATER (TOC) FT.	DEPTH TO PRODUCT (TOC) FT.	APPARENT PRODUCT THICKNESS (FT.)	AMOUNT OF PRODUCT REMOVED (L)	MONITORING WELL INTEGRITY	DEPTH TO BOTTOM (TOC)	WELL CASING DIAMETER
MW1	7.55					19.85	2"
MW2	7.51					20.18	2"
MW3	6.14					19.93	2"
MW4	5.90					13.99	2"
MW5	5.17					15.30	2"

Project Name: Exxon 04334 Well No: MW1 Date: 04-15-09  
 Project No: UP04-334.1.6 Personnel: ALX

**GAUGING DATA**

Water Level Measuring Method: WLM / IP

Measuring Point Description: TOC

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)			
	19.85	-	7.55	=	12.30	X	1	2	4	6	1.94	=
						0.04	0.16	0.64	1.44			

**PURGING DATA**

Purge Method: WATERB / BAILER / SUB

Purge Rate: GPM

Time	0735	0758	0801		
Volume Purge (gal)	2	4	6		
Temperature (°C)	17.4	18.3	18.6		
pH	7.29	7.20	7.23		
Spec Cond. (umhos)	987	980	971		
Turbidity/Color	CLEAR/NONE	CLEAR/NONE	CLEAR/NONE		
Odor (Y/N)	N	N	N		
Casing Volumes	1	2	3		
Dewatered (Y/N)	N	N	N		

Comments/Observations:

**SAMPLING DATA**

Time Sampled: 0810

Approximate Depth to Water During Sampling: 8.0 (feet)

Comments:

Sample Number	Number of Containers	Container Type	Preservative	Volume Filled (mL or L)	Turbidity/Color	Analysis Method
MW1	6	Voa	HCL	40 ml		TPH-g, BTEX, MTBE
MW1	2	AMBERS	HCL	1L		TPH-D

Total Purge Volume: 6 (gallons)

Disposal: SYSTEM

Weather Conditions: OK BOLTS Y / N

Condition of Well Box and Casing at Time of Sampling: OK CAP & LOCK Y / N

Well Head Conditions Requiring Correction: NONE GROUT Y / N

Problems Encountered During Purging and Sampling: NONE WELL BOX. Y / N

Comments: SECURED Y / N

Project Name: Exxon 04334	Well No: MW2	Date: 04-15-09
Project No: UP04-334.1.6	Personnel: AX	

**GAUGING DATA**

Water Level Measuring Method: WLM / IP

Measuring Point Description: TOC

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)			
	20.18	-	7.51	=	12.67	X	1	0	4	6	2.02	=
						0.04	0.16	0.64	1.44			

**PURGING DATA**

Purge Method: WATER / BAILER / SUB

Purge Rate:

GPM

Time	0826	0829	0832			
Volume Purge (gal)	2.5	5	7.5			
Temperature (C)	17.2	18.3	18.4			
pH	7.14	7.12	7.11			
Spec Cond. (umhos)	801	833	827			
Turbidity/Color	CLEAR / NONE	CLEAR / NONE	CLEAR / NONE			
Odor (Y/N)	N	N	N			
Casing Volumes	1	2	3			
Dewatered (Y/N)	N	N	N			

Comments/Observations:

**SAMPLING DATA**

Time Sampled:

1840

Approximate Depth to Water During Sampling:

8.0

(feet)

Comments:

Sample Number	Number of Containers	Container Type	Preservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW2	6	Voa	HCL	40 ml	/	TPH-g, BTEX, MTBE
MW2	2	AMBERS	HCL	1L	/	TPH-D
					/	
					/	

Total Purge Volume: 7.5 (gallons)

Disposal:

SYSTEM

Weather Conditions: OK

BOLTS  / N

Condition of Well Box and Casing at Time of Sampling: OK

CAP & LOCK  / N

Well Head Conditions Requiring Correction:

NONE

GROUT  / N

Problems Encountered During Purging and Sampling:

NONE

WELL BOX.  / N

Comments:

SECURED  / N

Project Name: Exxon 04334 Well No: MW3 Date: 04-15-09  
 Project No: UP04-334.1.6 Personnel: ALX

**GAUGING DATA**

Water Level Measuring Method: WLM / IP Measuring Point Description: TOC

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
		19.93	6.4	13.79	1	2	4	6	2.20
				0.04	0.16	0.64	1.44		

**PURGING DATA**

Purge Method: WATER / BAILER / SUB Purge Rate: GPM

Time	0556	0900	0903			
Volume Purge (gal)	25	5	7.5			
Temperature (C)	18.2	17.9	18.1			
pH	7.07	7.04	7.03			
Spec Cond. (umhos)	1138	1089	1091			
Turbidity/Color	CLEAR/NONE	CLEAR/NONE	CLEAR/NONE			
Odor (Y/N)	N	N	N			
Casing Volumes	1	2	3			
Dewatered (Y/N)	N	N	N			

Comments/Observations:

**SAMPLING DATA**

Time Sampled: 0910 Approximate Depth to Water During Sampling: 20.0 (feet)

Comments:

Sample Number	Number of Containers	Container Type	Preservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW3	6	Voa	HCL	40 ml		TPH-g, BTEX, MTBE
MW3	2	AMBERS	HCL	1L		TPH-D

Total Purge Volume: 7.5 (gallons) Disposal: SYSTEM

Weather Conditions: OK BOLTS Y / N

Condition of Well Box and Casing at Time of Sampling: OK CAP & LOCK Y / N

Well Head Conditions Requiring Correction: NONE GROUT Y / N

Problems Encountered During Purging and Sampling: NONE WELL BOX Y / N

Comments: SECURED Y / N

Project Name: Exxon 04334 Well No: MW4 Date: 04-15-09  
 Project No: UP04-334.1.6 Personnel: AX

**GAUGING DATA**

Water Level Measuring Method: WLM / IP Measuring Point Description: TOC

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)
		13.79	5.90	2.09	1	2	4	6	1.29
				0.04	0.16	0.64	1.44		

**PURGING DATA**

Purge Method: WATERRA / BAILER / SUB Purge Rate: GPM

Time	0953	0956	0959		
Volume Purge (gal)	1.5	3	4.5		
Temperature (C)	17.2	17.4	17.2		
pH	7.69	7.56	7.41		
Spec Cond. (umhos)	897	821	892		
Turbidity/Color	5100 / 100	5100 / 100	5100 / 100		
Odor (Y/N)	N	N	N		
Casing Volumes	1	2	3		
Dewatered (Y/N)	N	N	N		

Comments/Observations:

**SAMPLING DATA**

Time Sampled: 10/0 Approximate Depth to Water During Sampling: 6.0 (feet)

Comments:

Sample Number	Number of Containers	Container Type	Preservative	Volume Filled (mL or L)	Turbidity/ Color	Analysis Method
MW4	6	Voa	HCL	40 ml	/	TPH-g, BTEX, MTBE
MW4	2	AMBERS	HCL	1L	/	TPH-D
					/	

Total Purge Volume: 4.5 (gallons) Disposal: SYSTEM

Weather Conditions: R BOLTS Y / N

Condition of Well Box and Casing at Time of Sampling: OK CAP & LOCK Y / N

Well Head Conditions Requiring Correction: NONE GROUT Y / N

Problems Encountered During Purging and Sampling: NONE WELL BOX. Y / N

Comments: SECURED Y / N

Project Name: Exxon 04334 Well No: MW5 Date: 04-15-09  
 Project No: UP04-334.1.6 Personnel: [Signature]

**GAUGING DATA**  
 Water Level Measuring Method: WLM / IP Measuring Point Description: TOC

WELL PURGE VOLUME CALCULATION	Total Depth (feet)	Depth to Water (feet)	Water Column (feet)	Multiplier for Casing Diameter				Casing Volume (gal)	Total Purge Volume (gal)			
	15.30	-	5.17	=	10.13	X	1	2	4	6	1.02	=
						0.04	0.16	0.64	1.44			

**PURGING DATA**  
 Purge Method: WATER / BAILER / SUB Purge Rate: GPM

Time	0718	0723	0728			
Volume Purge (gal)	2	4	6			
Temperature (C)	17.1	16.2	16.5			
pH	6.76	7.23	7.28			
Spec Cond. (umhos)	1449	1423	1480			
Turbidity/Color	SILTY/BRN	SILTY/BRN	SILTY/BRN			
Odor (Y/N)	N	N	N			
Casing Volumes	1	2	3			
Dewatered (Y/N)	N	N	N			

Comments/Observations:

**SAMPLING DATA**  
 Time Sampled: 0735 Approximate Depth to Water During Sampling: 6.0 (feet)

Comments:

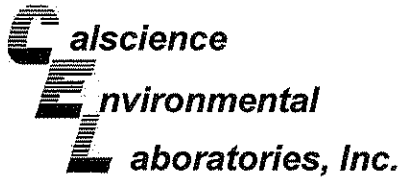
Sample Number	Number of Containers	Container Type	Preservative	Volume Filled (mL or L)	Turbidity/Color	Analysis Method
MW5	6	Voa	HCL	40 ml	/	TPH-g, BTEX, MTBE
MW5	2	AMBERS	HCL	1L	/	TPH-D
					/	
					/	

Total Purge Volume: 6 (gallons) Disposal: SYSTEM  
 Weather Conditions: OK BOLTS (Y) / N  
 Condition of Well Box and Casing at Time of Sampling: OK CAP & LOCK (Y) / N  
 Well Head Conditions Requiring Correction: None GROUT (Y) / N  
 Problems Encountered During Purging and Sampling: None WELL BOX (Y) / N  
 Comments: SECURED (Y) / N



## **Appendix C**

### **Laboratory Analytical Reports and Chain-of-Custody Documentation**



April 23, 2009

Erik Appel  
ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

**Subject: Calscience Work Order No.: 09-04-1369**  
**Client Reference: ExxonMobil 04334**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/16/2009 and analyzed in accordance with the attached chain-of-custody.

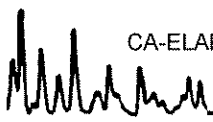
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

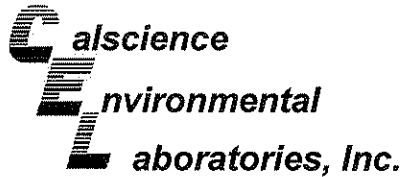
Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental  
Laboratories, Inc.  
Cecile deGuia  
Project Manager





## Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 3510C  
Method: EPA 8015B (M)

Project: ExxonMobil 04334

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW1	09-04-1369-1-G	04/15/09 08:10	Aqueous	GC 48	04/16/09	04/20/09 21:47	090416B14

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

-Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
Decachlorobiphenyl	92	68-140				

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW2	09-04-1369-2-G	04/15/09 08:40	Aqueous	GC 48	04/16/09	04/20/09 22:02	090416B14

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

-Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
Decachlorobiphenyl	84	68-140				

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW3	09-04-1369-3-G	04/15/09 09:10	Aqueous	GC 48	04/16/09	04/20/09 22:19	090416B14

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

-Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
Decachlorobiphenyl	83	68-140				

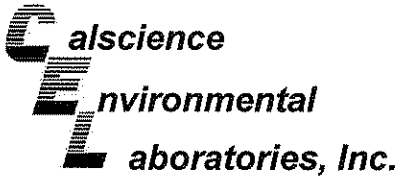
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW4	09-04-1369-4-G	04/15/09 10:10	Aqueous	GC 48	04/16/09	04/20/09 22:35	090416B14

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.

-Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
Decachlorobiphenyl	80	68-140				

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 3510C  
Method: EPA 8015B (M)

Project: ExxonMobil 04334

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW5	09-04-1369-5-G	04/15/09 07:35	Aqueous	GC 48	04/16/09	04/20/09 22:50	090416B14

Comment(s): -The sample extract was subjected to Silica Gel treatment prior to analysis.  
-Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

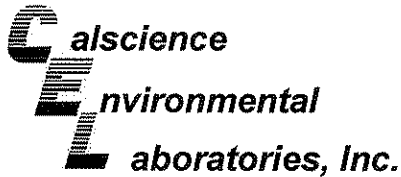
Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>			<u>Qual</u>	
Decachlorobiphenyl	90	68-140				

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-330-1,039	N/A	Aqueous	GC 48	04/16/09	04/20/09 18:04	090416B14

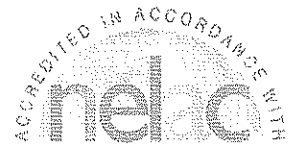
Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Diesel	ND	50	47	1		ug/L
Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>			<u>Qual</u>	
Decachlorobiphenyl	94	68-140				

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ExxonMobil 04334

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW1	09-04-1369-1-E	04/15/09 08:10	Aqueous	GC 24	04/20/09	04/20/09 22:43	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	ND	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	84	38-134				

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW2	09-04-1369-2-E	04/15/09 08:40	Aqueous	GC 24	04/20/09	04/21/09 23:17	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	ND	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	82	38-134				

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW3	09-04-1369-3-E	04/15/09 09:10	Aqueous	GC 24	04/20/09	04/21/09 23:50	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

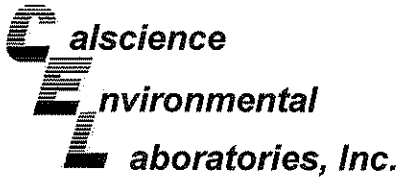
Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	51	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	85	38-134				

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW4	09-04-1369-4-E	04/15/09 10:10	Aqueous	GC 24	04/20/09	04/21/09 00:23	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	ND	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	81	38-134				

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ExxonMobil 04334

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW5	09-04-1369-5-E	04/15/09 07:35	Aqueous	GC-24	04/20/09	04/21/09 00:56	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

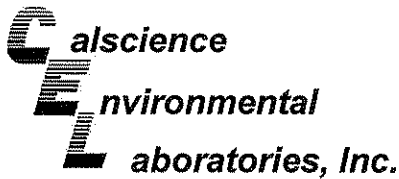
Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	ND	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	84	38-134				

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-436-3,141	N/A	Aqueous	GC-24	04/20/09	04/20/09 12:33	090420B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
TPH as Gasoline	ND	50	48	1		ug/L
Surrogates:	REC (%)	Control Limits			Qual	
1,4-Bromofluorobenzene	100	38-134				

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8021B  
Units: ug/L

Project: ExxonMobil 04334

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW1	09-04-1369-1-D	04/15/09 08:10	Aqueous	GC 21	04/17/09	04/17/09 16:51	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	ND	0.50	0.14	1		Ethylbenzene	ND	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
Surrogates:	REC (%)	Control Limits			Qual						
1,4-Bromofluorobenzene	85	70-130									

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW2	09-04-1369-2-D	04/15/09 08:40	Aqueous	GC 21	04/17/09	04/17/09 17:56	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	ND	0.50	0.14	1		Ethylbenzene	ND	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
Surrogates:	REC (%)	Control Limits			Qual						
1,4-Bromofluorobenzene	82	70-130									

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW3	09-04-1369-3-D	04/15/09 09:10	Aqueous	GC 21	04/17/09	04/17/09 18:29	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

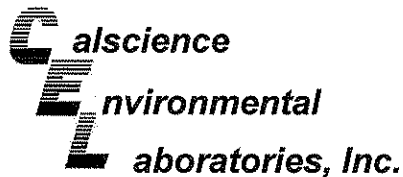
Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	2.2	0.50	0.14	1		Ethylbenzene	3.2	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
Surrogates:	REC (%)	Control Limits			Qual						
1,4-Bromofluorobenzene	83	70-130									

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW4	09-04-1369-4-D	04/15/09 10:10	Aqueous	GC 21	04/17/09	04/17/09 19:02	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	ND	0.50	0.14	1		Ethylbenzene	ND	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
Surrogates:	REC (%)	Control Limits			Qual						
1,4-Bromofluorobenzene	88	70-130									

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8021B  
Units: ug/L

Project: ExxonMobil 04334

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW5	09-04-1369-5-D	04/15/09 07:35	Aqueous	GC 21	04/17/09	04/17/09 21:13	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	ND	0.50	0.14	1		Ethylbenzene	ND	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>			<b>Qual</b>						
1,4-Bromofluorobenzene	82	70-130									

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-667-415	N/A	Aqueous	GC 21	04/17/09	04/17/09 11:35	090417B01

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
Benzene	ND	0.50	0.14	1		Ethylbenzene	ND	0.50	0.17	1	
Toluene	ND	0.50	0.17	1		Xylenes (total)	ND	1.0	0.26	1	
<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>			<b>Qual</b>						
1,4-Bromofluorobenzene	86	70-130									

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 04334

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW1	09-04-1369-1-A	04/15/09 08:10	Aqueous	GC/MS L	04/16/09	04/16/09 21:27	090416L02

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	1.6	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	19	10	2.1	1		Ethanol	22	50	15	1	J
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	112	73-145				Dibromofluoromethane	105	81-135			
Toluene-d8	96	83-119				1,4-Bromofluorobenzene	87	74-110			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW2	09-04-1369-2-A	04/15/09 08:40	Aqueous	GC/MS L	04/16/09	04/16/09 21:54	090416L02

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

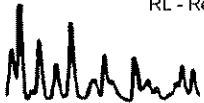
Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	0.50	0.50	0.067	1	J	Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	6.5	10	2.1	1	J	Ethanol	ND	50	15	1	
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	114	73-145				Dibromofluoromethane	101	81-135			
Toluene-d8	93	83-119				1,4-Bromofluorobenzene	85	74-110			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW3	09-04-1369-3-B	04/15/09 09:10	Aqueous	GC/MS L	04/17/09	04/17/09 21:51	090417L03

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	3.7	10	2.1	1	J	Ethanol	ND	50	15	1	
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	118	73-145				Dibromofluoromethane	114	81-135			
Toluene-d8	97	83-119				1,4-Bromofluorobenzene	86	74-110			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 04334

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW4	09-04-1369-4-B	04/15/09 10:10	Aqueous	GC/MS L	04/17/09	04/18/09 03:47	090417L04

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	0.15	0.50	0.067	1	J	Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	ND	10	2.1	1		Ethanol	ND	50	15	1	
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	115	73-145				Dibromofluoromethane	108	81-135			
Toluene-d8	97	83-119				1,4-Bromofluorobenzene	85	74-110			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW5	09-04-1369-5-B	04/15/09 07:35	Aqueous	GC/MS L	04/17/09	04/18/09 04:14	090417L04

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	9.3	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	ND	10	2.1	1		Ethanol	24	50	15	1	J
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	115	73-145				Dibromofluoromethane	105	81-135			
Toluene-d8	97	83-119				1,4-Bromofluorobenzene	83	74-110			

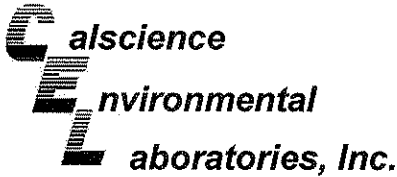
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-10-025-956	N/A	Aqueous	GC/MS L	04/16/09	04/16/09 13:42	090416L02

Comment(s): -Results were evaluated to the MDL, concentrations  $\geq$  to the MDL but  $<$  RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	ND	10	2.1	1		Ethanol	ND	50	15	1	
Surrogates:	REC (%)	Control Limits			Qual	Surrogates:	REC (%)	Limits			Qual
1,2-Dichloroethane-d4	112	73-145				Dibromofluoromethane	102	81-135			
Toluene-d8	97	83-119				1,4-Bromofluorobenzene	87	74-110			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Analytical Report



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 04334

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-10-025-959	N/A	Aqueous	GC/MS L	04/17/09	04/17/09 13:08	090417L03

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

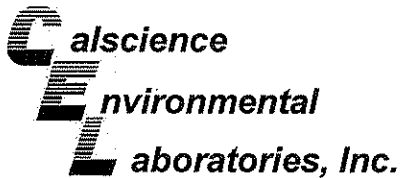
Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	ND	10	2.1	1		Ethanol	ND	50	15	1	
<u>Surrogates:</u>						<u>Surrogates:</u>					
	<u>REC (%)</u>	<u>Control Limits</u>			<u>Qual</u>		<u>REC (%)</u>	<u>Limits</u>			<u>Qual</u>
1,2-Dichloroethane-d4	109	73-145				Dibromofluoromethane	102	81-135			
Toluene-d8	101	83-119				1,4-Bromofluorobenzene	85	74-110			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-10-025-960	N/A	Aqueous	GC/MS L	04/17/09	04/18/09 01:04	090417L04

Comment(s): -Results were evaluated to the MDL, concentrations >= to the MDL but < RL, if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Parameter	Result	RL	MDL	DF	Qual
1,2-Dibromoethane	ND	0.50	0.12	1		Diisopropyl Ether (DIPE)	ND	0.50	0.028	1	
1,2-Dichloroethane	ND	0.50	0.080	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	0.036	1	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	0.067	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	0.030	1	
Tert-Butyl Alcohol (TBA)	ND	10	2.1	1		Ethanol	ND	50	15	1	
<u>Surrogates:</u>						<u>Surrogates:</u>					
	<u>REC (%)</u>	<u>Control Limits</u>			<u>Qual</u>		<u>REC (%)</u>	<u>Limits</u>			<u>Qual</u>
1,2-Dichloroethane-d4	117	73-145				Dibromofluoromethane	101	81-135			
Toluene-d8	95	83-119				1,4-Bromofluorobenzene	82	74-110			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Quality Control - Spike/Spike Duplicate



ETIC Engineering, Inc.  
 2285 Morello Avenue  
 Pleasant Hill, CA 94523-1850

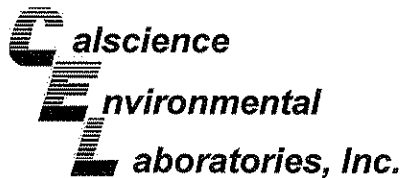
Date Received: 04/16/09  
 Work Order No: 09-04-1369  
 Preparation: EPA 5030B  
 Method: EPA 8015B (M)

Project ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-1427-1	Aqueous	GC 24	04/20/09	04/20/09	090420S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	96	98	68-122	2	0-18	

RPD - Relative Percent Difference, CL - Control Limit



Quality Control - Spike/Spike Duplicate



ETIC Engineering, Inc.  
 2285 Morello Avenue  
 Pleasant Hill, CA 94523-1850

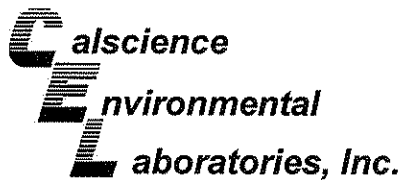
Date Received: 04/16/09  
 Work Order No: 09-04-1369  
 Preparation: EPA 5030B  
 Method: EPA 8021B

Project ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-1406-2	Aqueous	GC 21	04/17/09	04/17/09	090417S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	77	91	57-129	4	0-23	
Toluene	86	91	50-134	3	0-26	
Ethylbenzene	87	90	58-130	3	0-26	
p/m-Xylene	87	90	58-130	2	0-28	
o-Xylene	84	86	57-123	2	0-26	
Methyl-t-Butyl Ether (MTBE)	101	97	44-134	4	0-27	

RPD - Relative Percent Difference, CL - Control Limit



## Quality Control - Spike/Spike Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

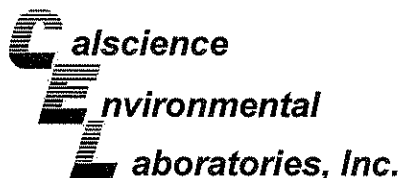
Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B

Project ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-1023-12	Aqueous	GC/MS L	04/16/09	04/16/09	090416S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	103	107	86-122	4	0-8	
Toluene	105	102	85-127	3	0-12	
Ethylbenzene	108	106	70-130	2	0-30	
Methyl-t-Butyl Ether (MTBE)	89	136	64-136	19	0-28	
Tert-Butyl Alcohol (TBA)	98	91	27-183	7	0-60	
Diisopropyl Ether (DIPE)	106	113	78-126	6	0-16	
Ethyl-t-Butyl Ether (ETBE)	100	109	67-133	8	0-21	
Tert-Amyl-Methyl Ether (TAME)	96	102	63-141	6	0-21	
Ethanol	95	80	11-167	17	0-64	
1,1-Dichloroethene	108	95	52-142	12	0-23	
1,2-Dibromoethane	98	96	70-130	2	0-30	
1,2-Dichlorobenzene	102	100	89-119	3	0-10	
Carbon Tetrachloride	107	103	78-138	3	0-9	
Chlorobenzene	105	103	90-120	2	0-9	
Trichloroethene	101	100	78-126	0	0-10	
Vinyl Chloride	110	104	56-140	5	0-21	

RPD - Relative Percent Difference, CL - Control Limit



## Quality Control - Spike/Spike Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

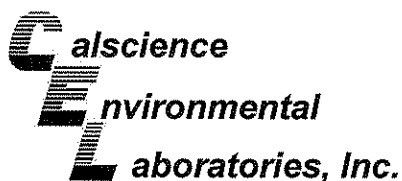
Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B

Project ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-1274-1	Aqueous	GC/MS L	04/17/09	04/17/09	090417S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	95	102	86-122	7	0-8	
Carbon Tetrachloride	102	102	78-138	0	0-9	
Chlorobenzene	100	98	90-120	2	0-9	
1,2-Dibromoethane	89	90	70-130	1	0-30	
1,2-Dichlorobenzene	94	96	89-119	2	0-10	
1,1-Dichloroethene	102	92	52-142	10	0-23	
Ethylbenzene	101	100	70-130	0	0-30	
Toluene	104	96	85-127	8	0-12	
Trichloroethene	98	93	78-126	5	0-10	
Vinyl Chloride	103	94	56-140	9	0-21	
Methyl-t-Butyl Ether (MTBE)	88	99	64-136	12	0-28	
Tert-Butyl Alcohol (TBA)	101	90	27-183	12	0-60	
Diisopropyl Ether (DIPE)	97	115	78-126	18	0-16	4
Ethyl-t-Butyl Ether (ETBE)	92	99	67-133	8	0-21	
Tert-Amyl-Methyl Ether (TAME)	85	92	63-141	8	0-21	
Ethanol	103	40	11-167	88	0-64	4

RPD - Relative Percent Difference, CL - Control Limit



## Quality Control - Spike/Spike Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: 04/16/09  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B

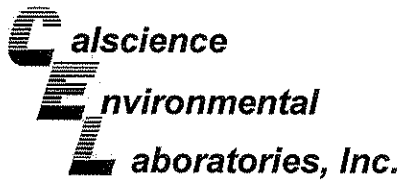
Project ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-04-1370-3	Aqueous	GC/MS L	04/17/09	04/18/09	090417S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	100	99	86-122	1	0-8	
Carbon Tetrachloride	109	108	78-138	1	0-9	
Chlorobenzene	103	103	90-120	1	0-9	
1,2-Dibromoethane	97	95	70-130	2	0-30	
1,2-Dichlorobenzene	99	97	89-119	2	0-10	
1,1-Dichloroethene	108	106	52-142	2	0-23	
Ethylbenzene	103	103	70-130	0	0-30	
Toluene	97	107	85-127	10	0-12	
Trichloroethene	98	97	78-126	1	0-10	
Vinyl Chloride	105	110	56-140	5	0-21	
Methyl-t-Butyl Ether (MTBE)	99	94	64-136	4	0-28	
Tert-Butyl Alcohol (TBA)	106	107	27-183	1	0-60	
Diisopropyl Ether (DIPE)	106	104	78-126	2	0-16	
Ethyl-t-Butyl Ether (ETBE)	103	98	67-133	5	0-21	
Tert-Amyl-Methyl Ether (TAME)	93	89	63-141	5	0-21	
Ethanol	104	107	11-167	3	0-64	

RPD - Relative Percent Difference, CL - Control Limit





Quality Control - LCS/LCS Duplicate



ETIC Engineering, Inc.  
 2285 Morello Avenue  
 Pleasant Hill, CA 94523-1850

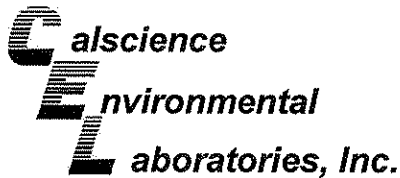
Date Received: N/A  
 Work Order No: 09-04-1369  
 Preparation: EPA 3510C  
 Method: EPA 8015B (M)

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-330-1,039	Aqueous	GC 48	04/16/09	04/20/09	090416B14

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	91	84	75-117	7	0-13	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



ETIC Engineering, Inc.  
 2285 Morello Avenue  
 Pleasant Hill, CA 94523-1850

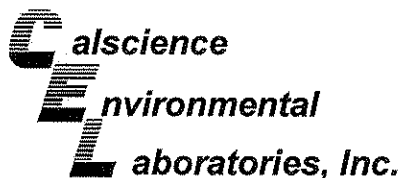
Date Received: N/A  
 Work Order No: 09-04-1369  
 Preparation: EPA 5030B  
 Method: EPA 8015B (M)

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-436-3,141	Aqueous	GC 24	04/20/09	04/20/09	090420B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	99	101	78-120	2	0-10	

RPD - Relative Percent Difference . CL - Control Limit



## Quality Control - LCS/LCS Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

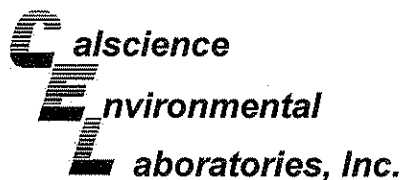
Date Received: N/A  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8021B

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-667-415	Aqueous	GC 21	04/17/09	04/17/09	090417B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	89	90	70-118	1	0-9	
Toluene	91	91	66-114	1	0-9	
Ethylbenzene	92	93	72-114	0	0-9	
p/m-Xylene	93	94	74-116	0	0-9	
o-Xylene	89	89	72-114	0	0-9	
Methyl-t-Butyl Ether (MTBE)	114	103	41-137	10	0-13	

RPD - Relative Percent Difference, CL - Control Limit



## Quality Control - LCS/LCS Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: N/A  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-10-025-956	Aqueous	GC/MS L	04/16/09	04/16/09	090416L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	104	104	87-117	82-122	0	0-7	
Carbon Tetrachloride	99	103	78-132	69-141	4	0-8	
Chlorobenzene	101	103	88-118	83-123	2	0-8	
1,2-Dibromoethane	100	103	80-120	73-127	3	0-20	
1,2-Dichlorobenzene	101	100	88-118	83-123	1	0-8	
1,1-Dichloroethene	102	105	71-131	61-141	3	0-14	
Ethylbenzene	106	107	80-120	73-127	1	0-20	
Toluene	100	101	85-127	78-134	0	0-7	
Trichloroethene	100	101	85-121	79-127	1	0-11	
Vinyl Chloride	106	109	64-136	52-148	3	0-10	
Methyl-t-Butyl Ether (MTBE)	89	92	67-133	56-144	3	0-16	
Tert-Butyl Alcohol (TBA)	97	93	34-154	14-174	4	0-19	
Diisopropyl Ether (DIPE)	92	94	80-122	73-129	2	0-8	
Ethyl-t-Butyl Ether (ETBE)	91	93	73-127	64-136	2	0-11	
Tert-Amyl-Methyl Ether (TAME)	96	96	69-135	58-146	0	0-12	
Ethanol	101	92	34-124	19-139	9	0-44	

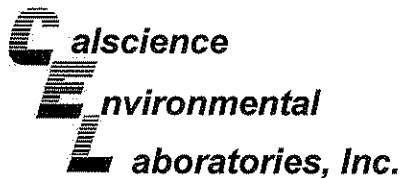
Total number of LCS compounds : 16

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



ETIC Engineering, Inc.  
2285 Morello Avenue  
Pleasant Hill, CA 94523-1850

Date Received: N/A  
Work Order No: 09-04-1369  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-10-025-959	Aqueous	GC/MS L	04/17/09	04/17/09	090417L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	97	101	87-117	82-122	4	0-7	
Carbon Tetrachloride	102	101	78-132	69-141	1	0-8	
Chlorobenzene	97	99	88-118	83-123	2	0-8	
1,2-Dibromoethane	100	100	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	96	96	88-118	83-123	1	0-8	
1,1-Dichloroethene	99	97	71-131	61-141	2	0-14	
Ethylbenzene	99	101	80-120	73-127	2	0-20	
Toluene	96	95	85-127	78-134	1	0-7	
Trichloroethene	97	97	85-121	79-127	1	0-11	
Vinyl Chloride	103	100	64-136	52-148	3	0-10	
Methyl-t-Butyl Ether (MTBE)	90	86	67-133	56-144	5	0-16	
Tert-Butyl Alcohol (TBA)	93	97	34-154	14-174	4	0-19	
Diisopropyl Ether (DIPE)	89	89	80-122	73-129	0	0-8	
Ethyl-t-Butyl Ether (ETBE)	90	91	73-127	64-136	2	0-11	
Tert-Amyl-Methyl Ether (TAME)	93	93	69-135	58-146	1	0-12	
Ethanol	96	90	34-124	19-139	6	0-44	

Total number of LCS compounds : 16  
Total number of ME compounds : 0  
Total number of ME compounds allowed : 1  
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



ETIC Engineering, Inc.  
 2285 Morello Avenue  
 Pleasant Hill, CA 94523-1850

Date Received: N/A  
 Work Order No: 09-04-1369  
 Preparation: EPA 5030B  
 Method: EPA 8260B

Project: ExxonMobil 04334

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number	
099-10-025-960	Aqueous	GC/MS L	04/17/09	17APR030:rr	090417L04	
Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	ME CL	Qualifiers
Benzene	10.0	9.82	98	87-117	82-122	
Carbon Tetrachloride	10.0	10.9	109	78-132	69-141	
Chlorobenzene	10.0	10.3	103	88-118	83-123	
1,2-Dibromoethane	10.0	10.7	107	80-120	73-127	
1,2-Dichlorobenzene	10.0	9.75	97	88-118	83-123	
1,1-Dichloroethene	10.0	11.2	112	71-131	61-141	
Ethylbenzene	10.0	10.4	104	80-120	73-127	
Toluene	10.0	10.7	107	85-127	78-134	
Trichloroethene	10.0	10.9	109	85-121	79-127	
Vinyl Chloride	10.0	10.7	107	64-136	52-148	
Methyl-t-Butyl Ether (MTBE)	10.0	9.66	97	67-133	56-144	
Tert-Butyl Alcohol (TBA)	50.0	47.2	94	34-154	14-174	
Diisopropyl Ether (DIPE)	10.0	9.60	96	80-122	73-129	
Ethyl-t-Butyl Ether (ETBE)	10.0	9.35	94	73-127	64-136	
Tert-Amyl-Methyl Ether (TAME)	10.0	9.02	90	69-135	58-146	
Ethanol	100	87.6	88	34-124	19-139	

Total number of LCS compounds : 16

Total number of ME compounds: 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Work Order Number: 09-04-1369

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
I	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.





**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: ETIC

DATE: 04/16/09

**TEMPERATURE:** (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.9 °C - 0.2 °C (CF) = 1.7 °C     Blank     Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:     Air     Filter     Metals Only     PCBs Only    Initial: NC

**CUSTODY SEALS INTACT:**

Cooler     \_\_\_\_\_     No (Not Intact)     Not Present     N/A    Initial: NC

Sample     \_\_\_\_\_     No (Not Intact)     Not Present    Initial: BP

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> COC not relinquished. <input type="checkbox"/> No date relinquished. <input type="checkbox"/> No time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

**Solid:**  4ozCGJ     8ozCGJ     16ozCGJ     Sleeve     EnCores®     TerraCores®     \_\_\_\_\_

**Water:**  VOA     VOAh     VOAna<sub>2</sub>     125AGB     125AGBh     125AGBp     1AGB     1AGBna<sub>2</sub>     1AGBs

500AGB     500AGJ     500AGJs     250AGB     250CGB     250CGBs     1PB     500PB     500PBna

250PB     250PBn     125PB     125PBz<sub>2</sub>na     100PB     100PBna<sub>2</sub>     \_\_\_\_\_     \_\_\_\_\_     \_\_\_\_\_

**Air:**     Tedlar®     Summa®     \_\_\_\_\_    **Other:**     \_\_\_\_\_    **Checked/Labeled by:** BP

**Container:** C: Clear    A: Amber    P: Plastic    G: Glass    J: Jar (Wide-mouth)    B: Bottle (Narrow-mouth)    **Reviewed by:** PS

**Preservative:** h: HCL    n: HNO<sub>3</sub>    na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>    Na: NaOH    p: H<sub>3</sub>PO<sub>4</sub>    s: H<sub>2</sub>SO<sub>4</sub>    z<sub>2</sub>na: ZnAc<sub>2</sub>+NaOH    f: Field-filtered    **Scanned by:** PS