

**ExxonMobil  
Environmental Services Company**

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**Jennifer C. Sedlachek**  
Project Manager

**ExxonMobil**

August 21, 2014

**RECEIVED**

By Alameda County Environmental Health at 9:28 am, Aug 27, 2014

Ms. Karel Detterman  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Room 250  
Alameda, California 94502-6577

**RE: Former Mobil RAS #99105/6301 San Pablo Avenue, Oakland, California.**

Dear Ms. Detterman:

Attached for your review and comment is a copy of the letter report entitled *Semi-Annual Groundwater Monitoring Report, Third Quarter 2014*, dated August 21, 2014, for the above-referenced site. The report was prepared by Cardno ERI of Petaluma, California, and details activities at the subject site.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

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

Sincerely,



Jennifer C. Sedlachek  
Project Manager

Attachment: Cardno ERI's *Semi-Annual Groundwater Monitoring Report, Third Quarter 2014*,  
dated August 21, 2014

cc: w/ attachment  
Mr. Leroy Griffin, Oakland Fire Department  
Messrs. On Dan and Nathan Lam

w/o attachment  
Mr. Greg Gurss, Cardno ERI

August 21, 2014  
Cardno ERI 2783C.Q143

Ms. Jennifer C. Sedlachek  
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[www.cardnoeri.com](http://www.cardnoeri.com)

**SUBJECT**      **Semi-Annual Groundwater Monitoring Report, Third Quarter 2014**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue, Oakland, California

## INTRODUCTION

At the request of ExxonMobil Environmental Services (EMES), on behalf of ExxonMobil Oil Corporation, Cardno ERI performed third quarter 2014 groundwater monitoring and sampling activities at the subject site. Relevant plates, graphs, tables, and appendices are included at the end of this report. Currently, the site operates as an oil change facility.

## GROUNDWATER MONITORING AND SAMPLING SUMMARY

<b>Gauging and sampling date:</b>	07/14/14
<b>Wells gauged and sampled:</b>	MW2, MW3, MW5
<b>Presence of NAPL:</b>	None
<b>Groundwater flow direction:</b>	West towards well MW3
<b>Laboratory:</b>	Calscience Environmental Laboratories, Inc. Garden Grove, California
<b>Analyses performed:</b>	EPA Method 8015B      TPHd, TPHg EPA Method 8260B      BTEX, MTBE, TAME, TBA, DIPE, EDB, 1,2-DCA, ETBE
<b>Waste disposal:</b>	57 gallons purge and decon water delivered to Instrat, Inc. of Rio Vista, California, on 07/31/14

August 21, 2014  
 Cardno ERI 2783C.Q143 Former Mobil Service Station 99105, Oakland, California

## RESULTS AND CONCLUSIONS

Maximum petroleum hydrocarbon concentrations were reported in well MW5, located downgradient of the former dispenser islands. Sheen was observed in well MW5 during third quarter 2012 and first quarter 2013; however, neither sheen nor NAPL have been observed at the site since. Concentrations of TPHd (88,000 µg/L), TPHg (90,000 µg/L), and benzene (100 µg/L) in well MW5 increased from first quarter 2014 concentrations. The TPHd and TPHg results were footnoted by the laboratory as not matching the specified standard and likely represent weathered fuels. Concentrations in wells MW2 and MW3 show overall stable or decreasing trends (Graphs 2 and 3). Petroleum hydrocarbons are delineated toward the north by former well MW1 and toward the northwest by well MW2. Previous work (B6 through B8 and AB11) adequately delineated dissolved-phase concentrations off site to the west (Cardno ERI, 2012).

## WORK IN PROGRESS

Cardno ERI submitted a *Corrective Action Plan Addendum* (Cardno ERI, 2013a) proposing the installation of an additional well (MW6) and performing a targeted DPE event using well MW5 and proposed well MW6. The Alameda County Health Care Services Agency (County) conditionally approved the work and requested the installation of additional wells in a letter dated September 24, 2013. In response, Cardno ERI submitted the *Second Addendum to Corrective Action Plan* (Cardno ERI, 2013b), proposing the installation of wells MW7 and MW8 and performing a DPE event. The County approved the proposed work in electronic correspondence dated July 9, 2014. Cardno ERI anticipates conducting the work during August 2014. The newly installed wells will be sampled prior to the DPE event. The results of the sampling will be reported along with the DPE results.

## RECOMMENDATIONS

Cardno ERI recommends implementing the proposed DPE event following the installation and sampling of wells MW6 through MW8 and continued groundwater monitoring and sampling.

## LIMITATIONS

For documents cited that were not generated by Cardno ERI, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno ERI does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and workmanlike manner and within all accepted standards pertaining to providers of environmental services in California at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please contact Mr. Greg Gurs, Cardno ERI's project manager for this site, at [greg.gurs@cardno.com](mailto:greg.gurs@cardno.com) or at (916) 692-3130 with any questions regarding this report.

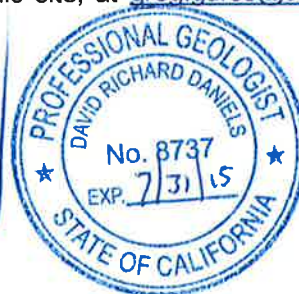
Sincerely,

SCANNED  
 IMAGE  


Christine M. Capwell  
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August 21, 2014

Cardno ERI 2783C.Q143 Former Mobil Service Station 99105, Oakland, California

Enclosures:

References

Acronym List

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Plate 2	Select Analytical Results
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Graph 3	Groundwater Elevations and Concentrations over Time – MW3
Graph 4	Groundwater Elevations and Concentrations over Time – MW4
Graph 5	Groundwater Elevations and Concentrations over Time – MW5
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Table 1B	Additional Cumulative Groundwater Monitoring and Sampling Data
Table 2	Well Construction Details
Appendix A	Groundwater Sampling Protocol
Appendix B	Field Data Sheets
Appendix C	Laboratory Analytical Report
Appendix D	Waste Disposal Documentation

cc: Ms. Karel Detterman, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor, Alameda, California, 94502

Mr. Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa, Suite 3341, Oakland, California, 94612

Messrs. On Dan and Nathan Lam, 200 El Dorado Terrace, San Francisco, California, 94112

August 21, 2014

Cardno ERI 2783C.Q143 Former Mobil Service Station 99105, Oakland, California

## **REFERENCES**

Cardno ERI. July 26, 2012. *Assessment Report, Former Mobil Service Station 99105, 6301 San Pablo Avenue, Oakland, California.*

Cardno ERI. May 14, 2013a. *Corrective Action Plan Addendum, Former Mobil Service Station 99105, 6301 San Pablo Avenue, Oakland, California.*

Cardno ERI. December 12, 2013b. *Second Addendum to Corrective Action Plan, Former Mobil Service Station 99105, 6301 San Pablo Avenue, Oakland, California.*

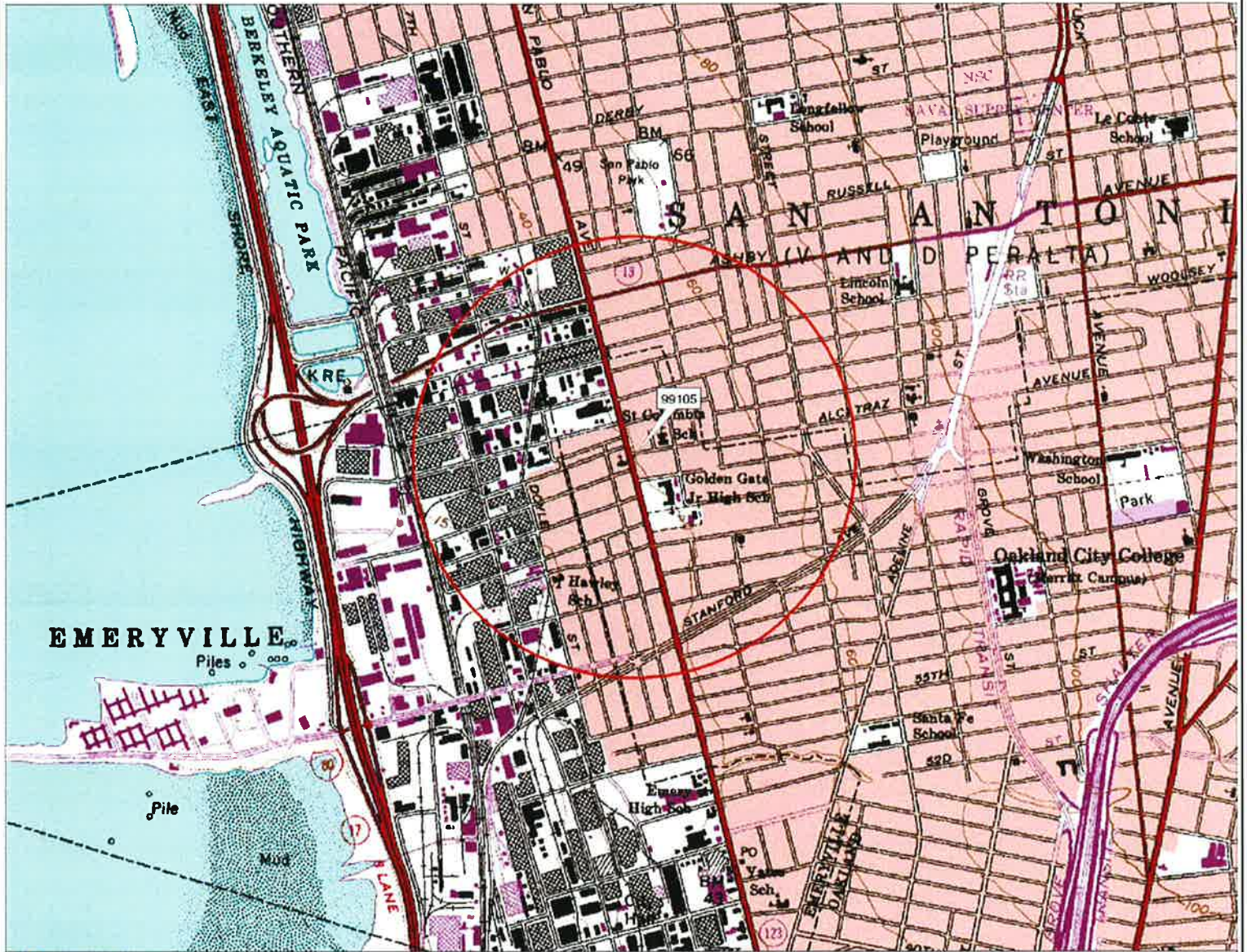
August 21, 2014

Cardno ERI 2783C.Q143 Former Mobil Service Station 99105, Oakland, California

**ACRONYM LIST**

µg/L	Micrograms per liter	NEPA	National Environmental Policy Act
µs	Microsiemens	NGVD	National Geodetic Vertical Datum
1,2-DCA	1,2-dichloroethane	NPDES	National Pollutant Discharge Elimination System
acfm	Actual cubic feet per minute	O&M	Operations and Maintenance
AS	Air sparge	ORP	Oxidation-reduction potential
bgs	Below ground surface	OSHA	Occupational Safety and Health Administration
BTEX	Benzene, toluene, ethylbenzene, and total xylenes	OVA	Organic vapor analyzer
CEQA	California Environmental Quality Act	P&ID	Process & Instrumentation Diagram
cfm	Cubic feet per minute	PAH	Polycyclic aromatic hydrocarbon
COC	Chain of Custody	PCB	Polychlorinated biphenyl
CPT	Cone Penetration (Penetrometer) Test	PCE	Tetrachloroethene or perchloroethylene
DIPE	Di-isopropyl ether	PID	Photo-ionization detector
DO	Dissolved oxygen	PLC	Programmable logic control
DOT	Department of Transportation	POTW	Publicly owned treatment works
DPE	Dual-phase extraction	ppmv	Parts per million by volume
DTW	Depth to water	PQL	Practical quantitation limit
EDB	1,2-dibromoethane	psi	Pounds per square inch
EPA	Environmental Protection Agency	PVC	Polyvinyl chloride
ESL	Environmental screening level	QA/QC	Quality assurance/quality control
ETBE	Ethyl tertiary butyl ether	RBSL	Risk-based screening levels
FID	Flame-ionization detector	RCRA	Resource Conservation and Recovery Act
fpm	Feet per minute	RL	Reporting limit
GAC	Granular activated carbon	scfm	Standard cubic feet per minute
gpd	Gallons per day	SSTL	Site-specific target level
gpm	Gallons per minute	STLC	Soluble threshold limit concentration
GWPTS	Groundwater pump and treat system	SVE	Soil vapor extraction
HVOC	Halogenated volatile organic compound	SVOC	Semivolatile organic compound
J	Estimated value between MDL and PQL (RL)	TAME	Tertiary amyl methyl ether
LEL	Lower explosive limit	TBA	Tertiary butyl alcohol
LPC	Liquid-phase carbon	TCE	Trichloroethene
LRP	Liquid-ring pump	TOC	Top of well casing elevation; datum is msl
LUFT	Leaking underground fuel tank	TOG	Total oil and grease
LUST	Leaking underground storage tank	TPHd	Total petroleum hydrocarbons as diesel
MCL	Maximum contaminant level	TPHg	Total petroleum hydrocarbons as gasoline
MDL	Method detection limit	TPHmo	Total petroleum hydrocarbons as motor oil
mg/kg	Milligrams per kilogram	TPHs	Total petroleum hydrocarbons as stoddard solvent
mg/L	Milligrams per liter	TRPH	Total recoverable petroleum hydrocarbons
mg/m <sup>3</sup>	Milligrams per cubic meter	UCL	Upper confidence level
MPE	Multi-phase extraction	USCS	Unified Soil Classification System
MRL	Method reporting limit	USGS	United States Geologic Survey
msl	Mean sea level	UST	Underground storage tank
MTBE	Methyl tertiary butyl ether	VCP	Voluntary Cleanup Program
MTCA	Model Toxics Control Act	VOC	Volatile organic compound
NAI	Natural attenuation indicators	VPC	Vapor-phase carbon
NAPL	Non-aqueous phase liquid		





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**EXPLANATION**



1/2-mile radius circle

**APPROXIMATE SCALE**



SOURCE:  
Modified from a map  
provided by  
DeLorme 3-D TopoQuads



**SITE VICINITY MAP**

FORMER MOBIL SERVICE STATION 99105  
6301 San Pablo Avenue  
Oakland, California

**PROJECT NO.**

2783

**PLATE**

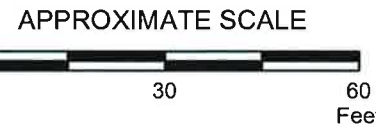
1



Analyte Concentrations in ug/L  
 Sampled July 14, 2014

Total Petroleum Hydrocarbons  
 as diesel  
 Total Petroleum Hydrocarbons  
 as gasoline  
 Benzene  
 Methyl Tertiary Butyl Ether

- < Less Than the Stated Laboratory Reporting Limit
- ug/L Micrograms per Liter
- g Chromatographic pattern does not match that of the specified standard.



FN 2783 14 3QTR QM

**SELECT ANALYTICAL RESULTS  
 July 14, 2014**

FORMER MOBIL SERVICE STATION 99105  
 6301 San Pablo Avenue  
 Oakland, California

**EXPLANATION**

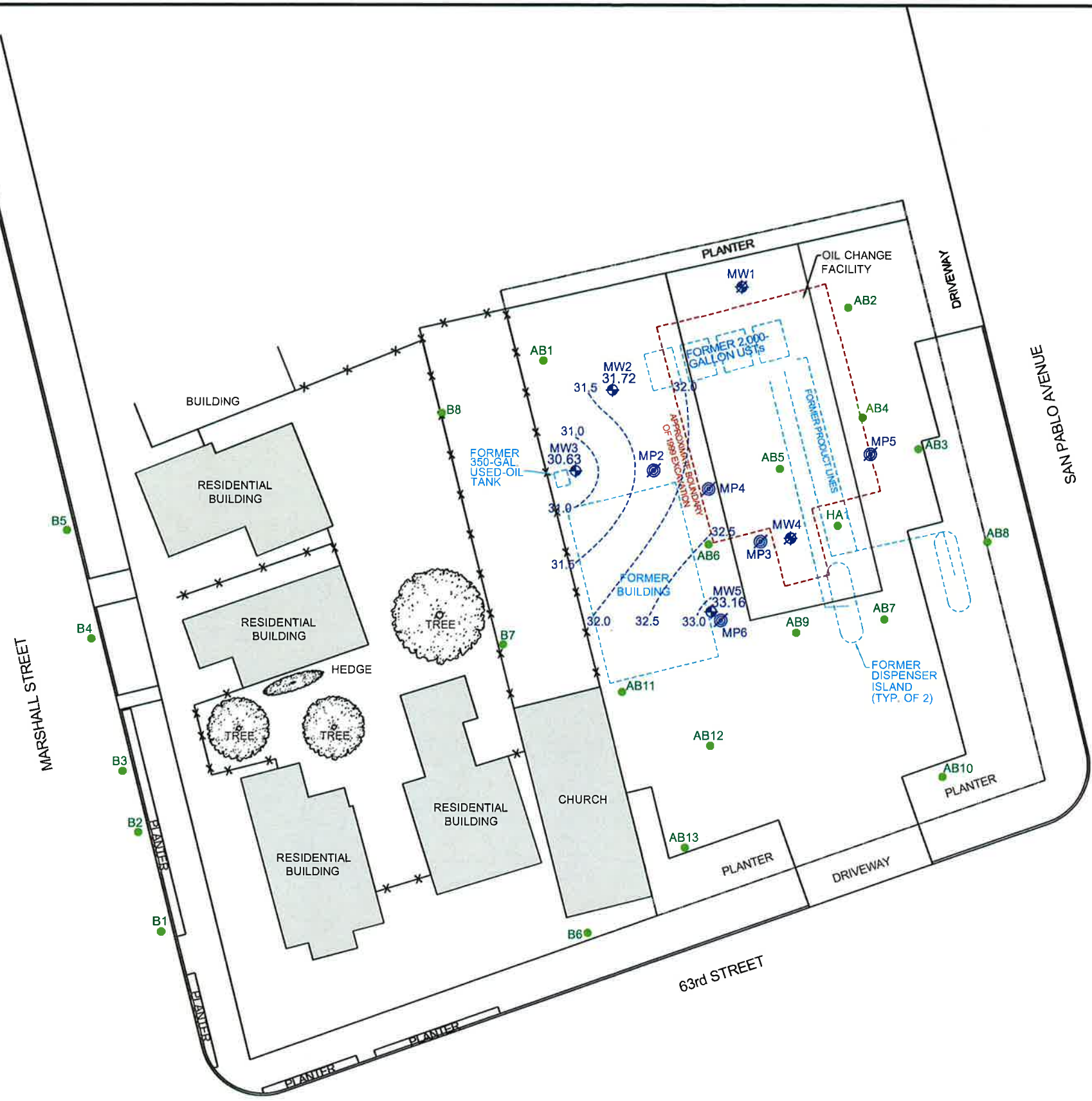
- MW5 Groundwater Monitoring Well
- MW4 Destroyed Groundwater Monitoring Well
- MP6 Destroyed Observation Well
- AB13 Soil Boring

**PROJECT NO.**  
 2783

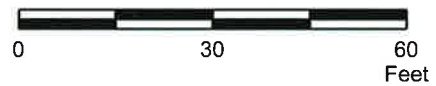
**PLATE**  
 2







APPROXIMATE SCALE



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**GROUNDWATER ELEVATION MAP**  
**July 14, 2014**  
 FORMER MOBIL SERVICE STATION 99105  
 6301 San Pablo Avenue  
 Oakland, California

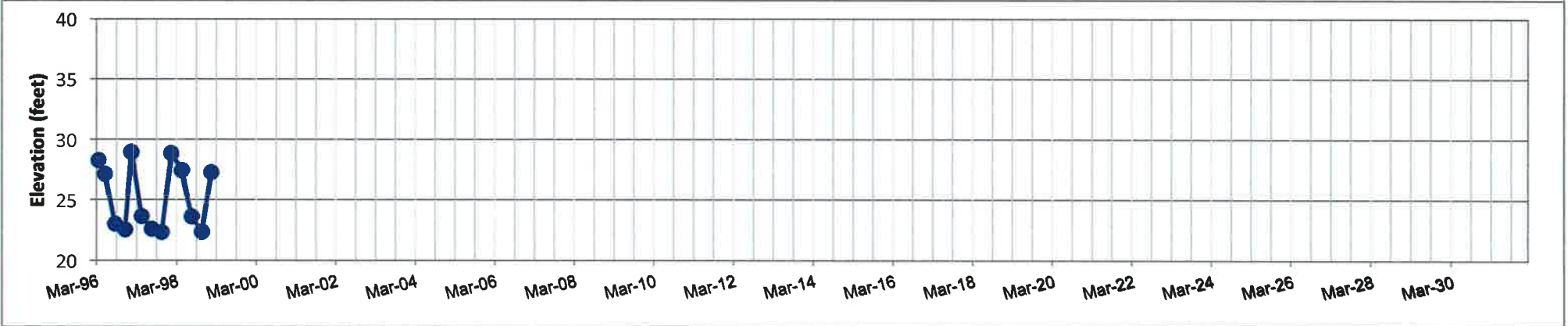
**EXPLANATION**

- MW5 Groundwater Monitoring Well
- 33.16 Groundwater elevation in feet; datum is mean sea level
- MP6 Destroyed Observation Well
- MW4 Destroyed Groundwater Monitoring Well
- AB13 Soil Boring
- 33.0 ----- Line of Equal Groundwater Elevation; datum is mean sea level

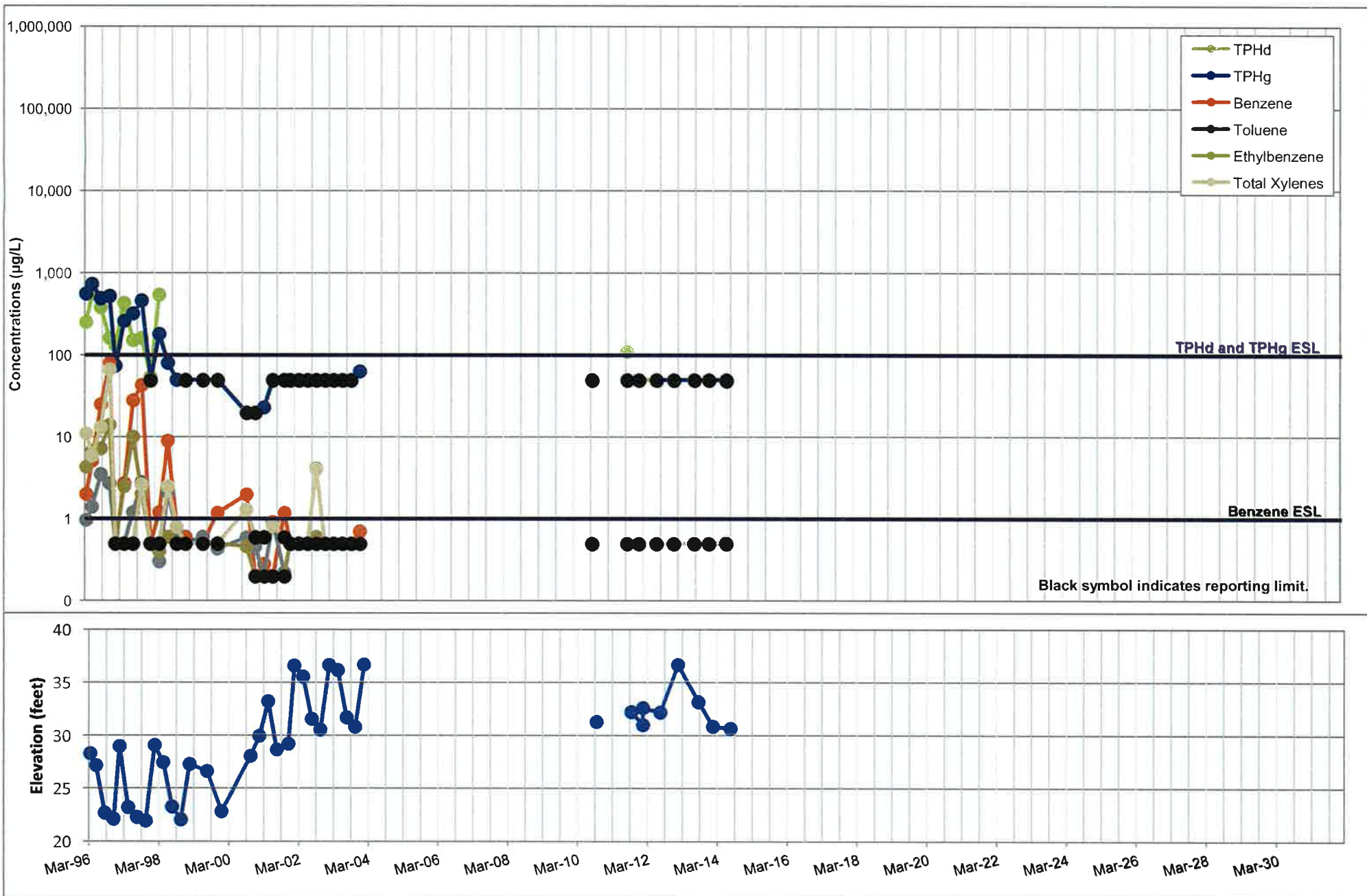
**PROJECT NO.**  
2783

**PLATE**  
3

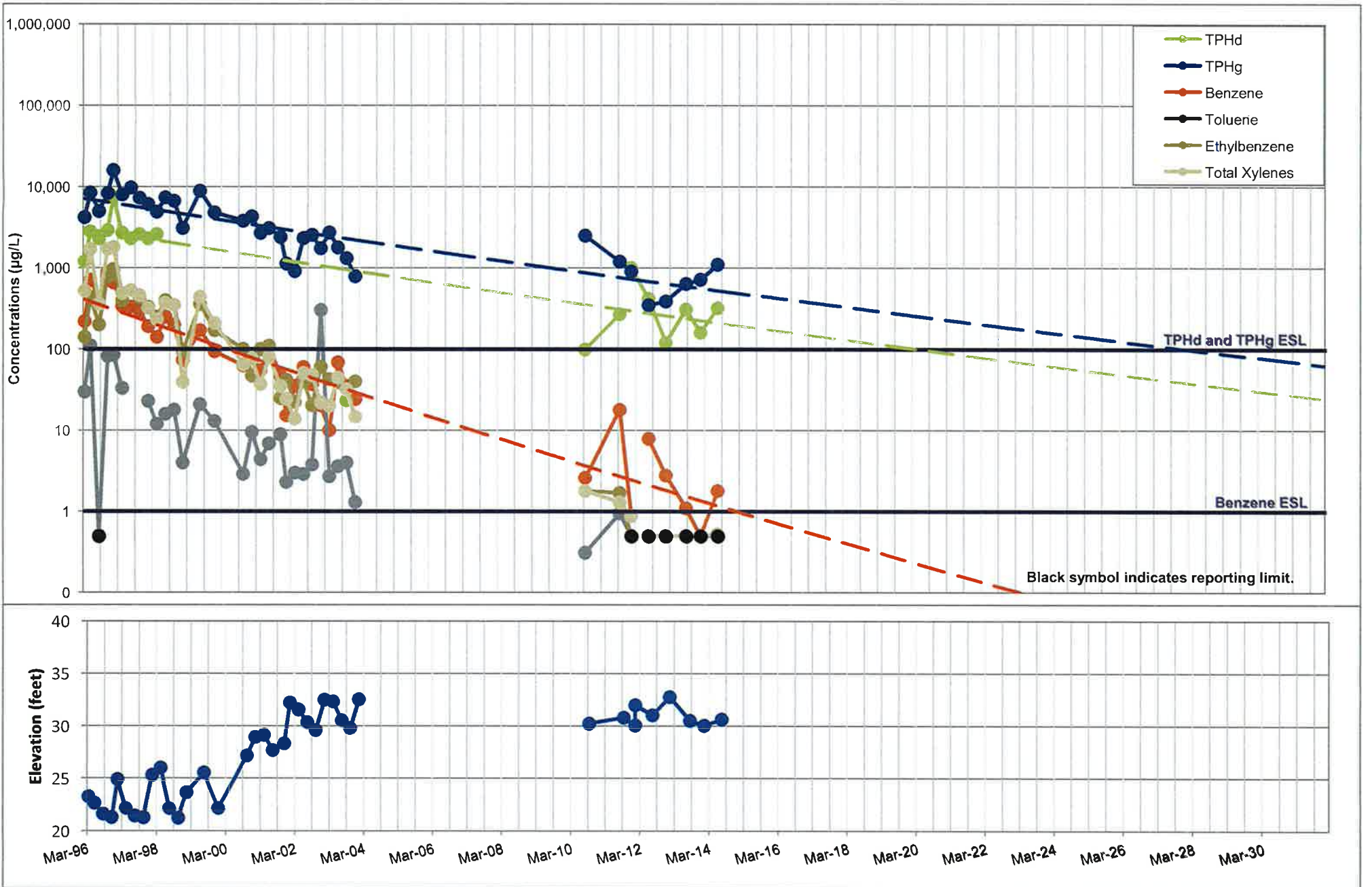
**GRAPH 1**  
**GROUNDWATER ELEVATIONS AND CONCENTRATIONS OVER TIME - MW1**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 1 of 1)



**GRAPH 2**  
**GROUNDWATER ELEVATIONS AND CONCENTRATIONS OVER TIME - MW2**  
 Former Mobil Service Station 99105  
 6301 San Pablo Avenue  
 Oakland, California  
 (Page 1 of 1)

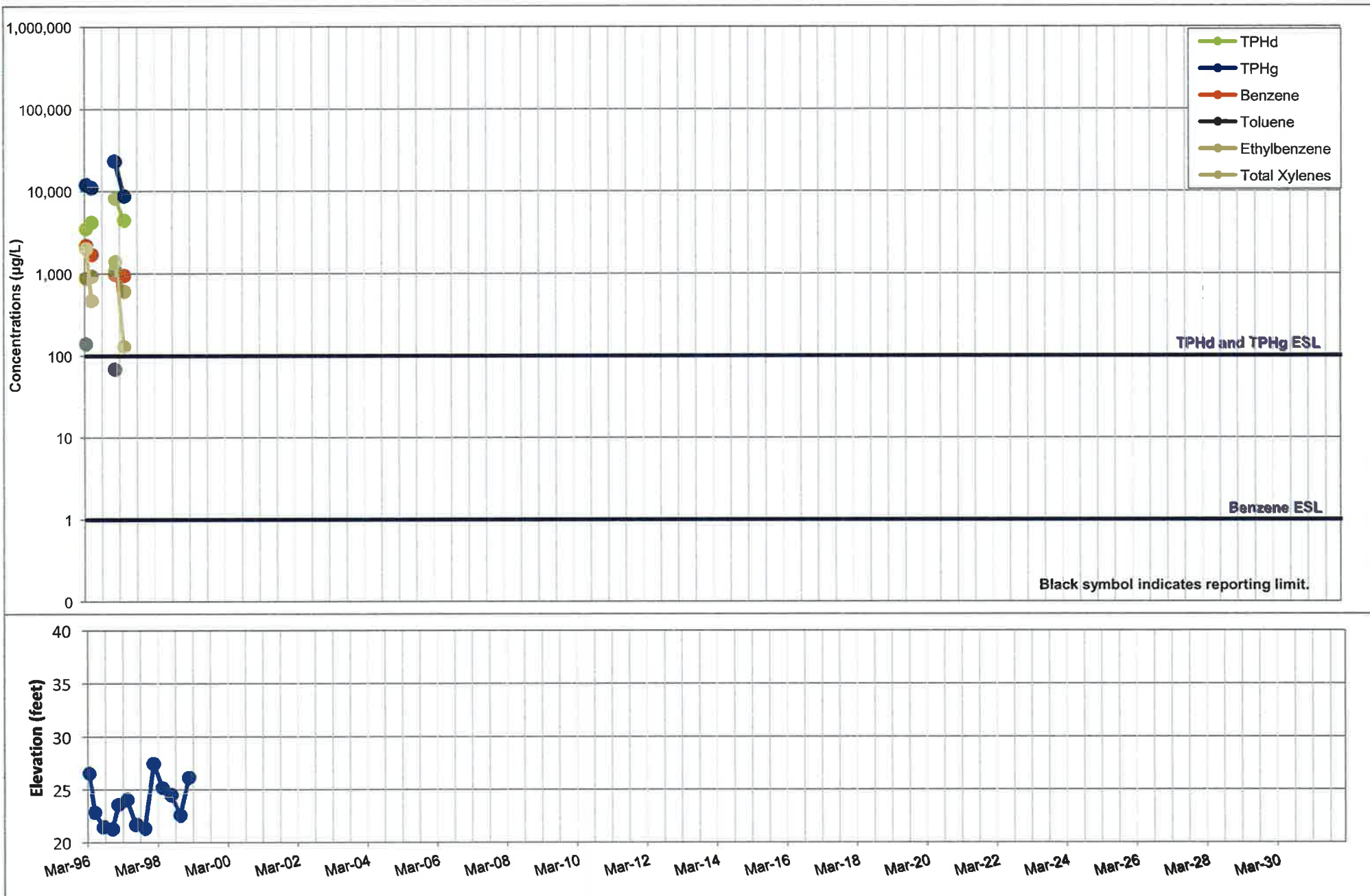


**GRAPH 3**  
**GROUNDWATER ELEVATIONS AND CONCENTRATIONS OVER TIME - MW3**  
 Former Mobil Service Station 99105  
 6301 San Pablo Avenue  
 Oakland, California  
 (Page 1 of 1)

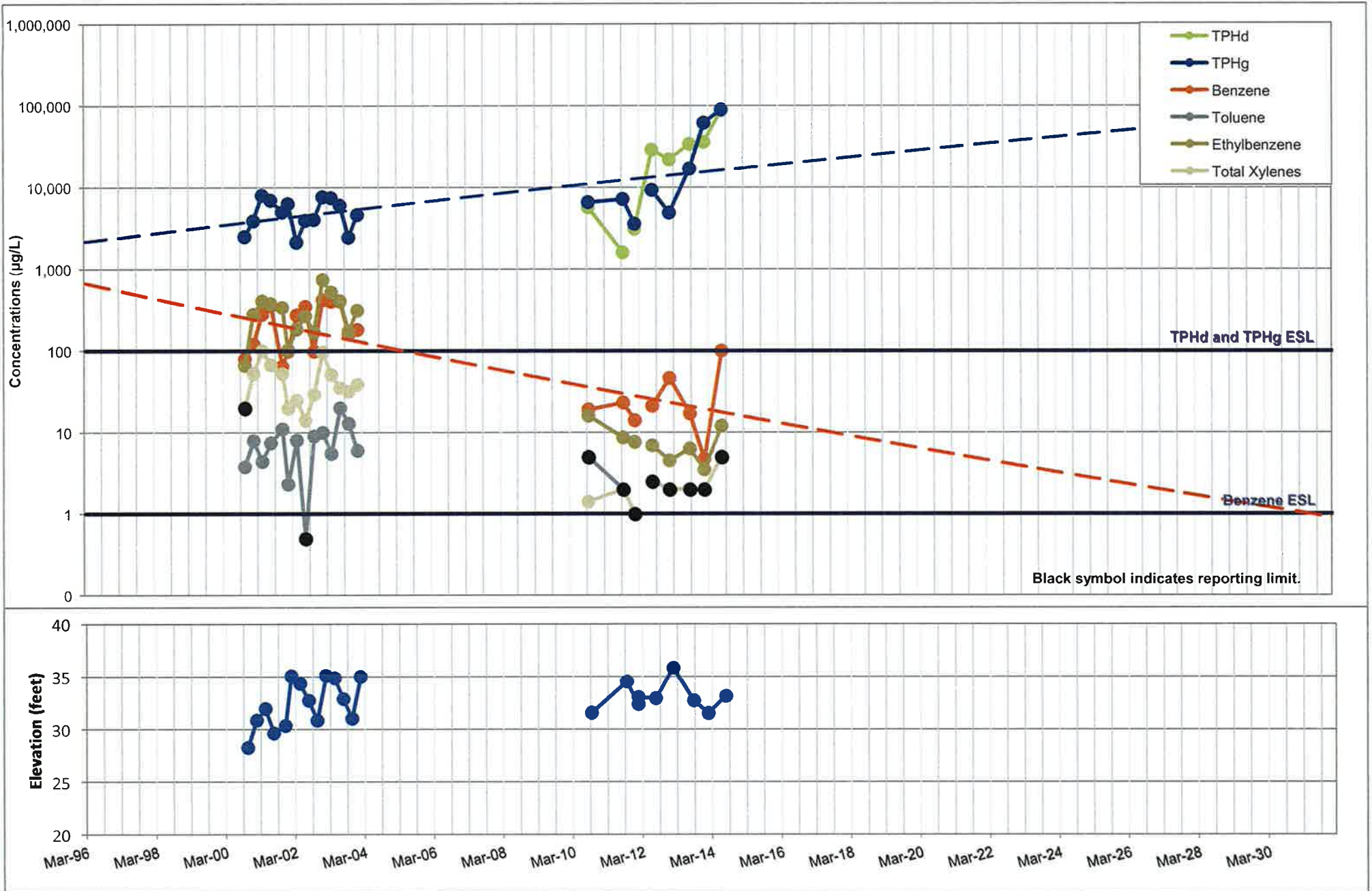




**GRAPH 4**  
**GROUNDWATER ELEVATIONS AND CONCENTRATIONS OVER TIME - MW4**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 1 of 1)



**GRAPH 5**  
**GROUNDWATER ELEVATIONS AND CONCENTRATIONS OVER TIME - MW5**  
 Former Mobil Service Station 99105  
 6301 San Pablo Avenue  
 Oakland, California  
 (Page 1 of 1)



**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 1 of 5)

Well ID	Sampling Date	TOC Elev. (feet)	DTW (feet)	GW Elev. (feet)	NAPL (feet)	TPHd (µg/L)	TPHg (µg/L)	MTBE 8020/8021 (µg/L)	MTBE 8240/8260 (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Environmental Screening Levels (December 2013)</b>						100	100	5	5	1	40	30	20
Groundwater is a current drinking water source (Table F-1a)													
MW1	03/14/96	32.79	4.50	28.29	No	450	610	---	---	0.75	0.54	1.5	59
MW1	05/21/96	32.79	5.64	27.15	No	ND	ND	---	---	ND	ND	ND	ND
MW1	08/13/96	32.79	9.76	23.03	No	ND	ND	---	---	ND	ND	ND	ND
MW1	11/08/96	32.79	10.24	22.55	No	ND	ND	ND	---	ND	0.92	ND	2.1
MW1	01/31/97	32.79	3.83	28.96	No	ND	ND	2.6	ND	ND	0.85	ND	ND
MW1	04/22/97	32.79	9.14	23.65	No	ND	ND	ND	---	ND	ND	ND	ND
MW1	07/29/97	a 32.79	10.18	22.61	No	60e	ND	36	---	0.84	0.95	ND	1.6
MW1	10/09/97	a 32.79	10.46	22.33	No	56e	ND	ND	---	ND	ND	ND	ND
MW1	01/23/98	a 32.79	3.95	28.84	No	33	ND	ND	---	ND	ND	ND	ND
MW1	04/22/98	32.79	5.33	27.46	No	ND	ND	ND	---	ND	ND	ND	ND
MW1	07/21/98	32.79	9.17	23.62	No	---	ND	ND	---	ND	ND	ND	ND
MW1	10/20/98	32.79	10.41	22.38	No	---	ND	ND	---	ND	ND	ND	ND
MW1	01/27/99	32.79	5.51	27.28	No	---	ND	ND	---	ND	ND	ND	ND
MW1	Apr-99	Destroyed during construction activities.											
MW2	03/14/96	32.80	4.51	28.29	No	250	560	---	---	2.0	0.96	4.3	11
MW2	05/21/96	32.80	5.65	27.15	No	560	730	---	---	5.1	1.4	6.7	5.9
MW2	08/13/96	32.80	10.14	22.66	No	380b	490	---	---	25	3.5	7.2	13
MW2	11/08/96	32.80	10.70	22.10	No	160d	520	6.1	---	80	2.7	14	66
MW2	01/31/97	32.80	3.84	28.96	No	130b	74	ND	---	ND	ND	ND	ND
MW2	04/22/97	32.80	9.61	23.19	No	430	260	ND	---	2.7	ND	2.5	ND
MW2	07/29/97	a 32.80	10.53	22.27	No	150d	320	ND	---	28	1.2	10	ND
MW2	10/09/97	a 32.80	10.87	21.93	No	160b	460	2.6	---	43	2.8	2.0	2.6
MW2	01/23/98	a 32.80	3.75	29.05	No	54	ND	ND	---	ND	ND	ND	ND
MW2	04/22/98	32.80	5.36	27.44	No	540	180	ND	---	1.2	0.3	0.4	ND
MW2	07/21/98	32.80	9.55	23.25	No	---	80	ND	---	8.9	2.1	0.6	2.5
MW2	10/20/98	32.80	10.75	22.05	No	---	50	ND	---	0.8	0.7	ND	0.8
MW2	01/27/99	32.80	5.53	27.27	No	---	ND	ND	---	0.6	ND	ND	ND
MW2	07/27/99	32.80	6.20	26.60	No	---	ND	ND	---	ND	0.6	ND	ND
MW2	12/08/99	32.80	9.98	22.82	No	---	ND	ND	---	1.2	0.43	ND	ND
MW2	10/25/00	39.34	11.30	28.04	No	---	<20	<0.30	---	2.0	0.59	0.46	1.3
MW2	01/15/01	39.34	9.41	29.93	No	---	<20	<0.30	---	<0.20	0.46	<0.20	<0.60
MW2	04/10/01	39.34	6.16	33.18	No	---	23	<1.0	---	0.28	<0.20	<0.20	<0.60
MW2	07/24/01	39.34	10.70	28.64	No	---	<50	<0.30	---	<0.20	0.93	<0.20	0.82
MW2	11/27/01	39.34	10.15	29.19	No	---	<50	<0.30	---	1.2	0.22	<0.20	<0.60
MW2	01/18/02	41.99	5.46	36.53	No	---	<50.0	1.40	---	<0.50	<0.50	<0.50	<0.50
MW2	04/10/02	41.99	6.48	35.51	No	---	<50.0	1.80	---	<0.50	<0.50	<0.50	<0.50
MW2	07/12/02	41.99	10.45	31.54	No	---	<50.0	<0.50	---	<0.50	<0.50	<0.50	<0.50
MW2	10/14/02	41.99	11.46	30.53	No	---	<50.0	<0.5	---	<0.5	4.1	0.6	4.0
MW2	01/20/03	41.99	5.39	36.60	No	---	<50.0	0.6	---	<0.50	<0.50	<0.50	<0.50

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 2 of 5)

Well ID	Sampling Date	TOC Elev. (feet)	DTW (feet)	GW Elev. (feet)	NAPL (feet)	TPHd (µg/L)	TPHg (µg/L)	MTBE 8020/8021 (µg/L)	MTBE 8240/8260 (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Environmental Screening Levels (December 2013)</b>						100	100	5	5	1	40	30	20
Groundwater is a current drinking water source (Table F-1a)													
MW2	04/28/03	41.99	5.87	36.12	No	---	<50.0	<0.50	---	<0.50	<0.50	<0.50	<0.50
MW2	07/15/03	41.99	10.31	31.68	No	---	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5
MW2	10/08/03	41.99	11.20	30.79	No	---	<50	<0.5	---	<0.5	<0.5	<0.5	<0.5
MW2	01/15/04	41.99	5.36	36.63	No	---	63.3	1.0	---	0.70	<0.5	<0.5	<0.5
MW2	Well not sampled from 2004 to 2010.												
MW2	09/17/10	41.99	10.72	31.27	No	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	12/15/10	42.24	Well resurveyed.										
MW2	09/14/11	42.24	10.02	32.22	No	<b>110g</b>	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	01/18/12	42.24	11.24	31.00	No	---	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	01/27/12	42.24	9.65	32.59	No	<50	---	---	---	---	---	---	---
MW2	07/09/12	42.24	10.07	32.17	No	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	01/25/13	42.24	5.62	36.62	No	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	08/23/13	42.24	10.76	31.48	No	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	01/10/14	42.24	11.42	30.82	No	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW2	07/14/14	42.24	10.52	31.72	No	<49	<50	---	<0.50	<0.50	<0.50	<0.50	0.52
MW3	03/14/96	32.80	9.55	23.25	No	<b>1,200</b>	<b>4,200</b>	---	---	<b>220</b>	30	<b>140</b>	<b>520</b>
MW3	05/21/96	32.80	10.16	22.64	No	<b>2,800</b>	<b>8,500</b>	---	---	<b>710</b>	<b>110</b>	<b>440</b>	<b>1,700</b>
MW3	08/13/96	32.80	11.18	21.62	No	<b>2,300c</b>	<b>5,000</b>	---	---	<b>430</b>	ND	<b>200</b>	<b>360</b>
MW3	11/08/96	32.80	11.51	21.29	No	<b>2,900b</b>	<b>8,400</b>	<b>73</b>	ND	<b>890</b>	<b>82</b>	<b>790</b>	<b>1,700</b>
MW3	01/31/97	32.80	7.90	24.90	No	<b>7,500b</b>	<b>16,000</b>	ND	---	<b>660</b>	<b>85</b>	<b>960</b>	<b>1,800</b>
MW3	04/22/97	32.80	10.64	22.16	No	<b>2,700</b>	<b>8,000</b>	<b>200</b>	ND	<b>340</b>	33	<b>400</b>	<b>490</b>
MW3	07/29/97	a 32.80	11.36	21.44	No	<b>2,300b</b>	<b>9,800</b>	ND	---	<b>330</b>	ND	<b>530</b>	<b>530</b>
MW3	10/09/97	a 32.80	11.52	21.28	No	<b>2,600b</b>	<b>7,300</b>	<b>270</b>	ND	<b>300</b>	ND	<b>430</b>	<b>460</b>
MW3	01/23/98	a 32.80	7.50	25.30	No	<b>2,300</b>	<b>6,100</b>	ND	---	<b>190</b>	23	<b>330</b>	<b>320</b>
MW3	04/22/98	32.80	6.81	25.99	No	<b>2,600</b>	<b>4,900</b>	ND	ND	<b>140</b>	12	<b>250</b>	<b>230</b>
MW3	07/21/98	32.80	10.65	22.15	No	---	<b>7,400</b>	<b>74</b>	ND	<b>250</b>	16	<b>400</b>	<b>370</b>
MW3	10/20/98	32.80	11.57	21.23	No	---	<b>6,700</b>	ND	ND	<b>200</b>	18	<b>350</b>	<b>350</b>
MW3	01/27/99	32.80	9.11	23.69	No	---	<b>3,100</b>	<b>13</b>	---	<b>74</b>	4	<b>94</b>	<b>39</b>
MW3	07/27/99	32.80	7.27	25.53	No	---	<b>8,900</b>	ND	---	<b>170</b>	21	<b>360</b>	<b>440</b>
MW3	12/08/99	32.80	10.63	22.17	No	---	<b>4,800</b>	ND	---	<b>94</b>	13	<b>170</b>	<b>210</b>
MW3	10/25/00	39.27	12.08	27.19	No	---	<b>3,800</b>	<50	<5	<b>63</b>	2.9	<b>100</b>	<b>65</b>
MW3	01/15/01	39.27	10.29	28.98	No	---	<b>4,300</b>	<5.0	---	<b>76</b>	9.5	<b>47</b>	<b>76</b>
MW3	04/10/01	39.27	10.11	29.16	No	---	<b>2,700</b>	<20	---	<b>55</b>	4.4	<b>100</b>	<b>37</b>
MW3	07/24/01	39.27	11.57	27.70	No	---	<b>3,100</b>	<1.0	---	<b>110</b>	6.9	<b>110</b>	<b>81</b>
MW3	11/27/01	39.27	10.93	28.34	No	---	<b>2,400</b>	<0.30	---	<b>47</b>	8.9	<b>25</b>	<b>35</b>
MW3	01/18/02	41.71	9.47	32.24	No	---	<b>1,130</b>	<b>13.6</b>	---	<b>15.3</b>	2.30	<b>42.0</b>	<b>24.6</b>
MW3	04/10/02	41.71	10.14	31.57	No	---	<b>916</b>	<b>11.2</b>	---	<b>35.1</b>	3.00	<b>22.5</b>	<b>13.8</b>
MW3	07/12/02	41.71	11.34	30.37	No	---	<b>2,330</b>	<b>15.4</b>	---	<b>60.5</b>	2.90	<b>39.8</b>	<b>50.9</b>
MW3	10/14/02	41.71	12.10	29.61	No	---	<b>2,550</b>	<0.5	---	<b>36.9</b>	3.8	<b>20.3</b>	<b>48.0</b>



**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
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Well ID	Sampling Date	TOC Elev. (feet)	DTW (feet)	GW Elev. (feet)	NAPL (feet)	TPHd (µg/L)	TPHg (µg/L)	MTBE 8020/8021 (µg/L)	MTBE 8240/8260 (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Environmental Screening Levels (December 2013)</b>						100	100	5	5	1	40	30	20
Groundwater is a current drinking water source (Table F-1a)													
MW3	01/20/03	41.71	9.20	32.51	No	---	1,750	10.7	---	20.4	304.0	60.7	22.0
MW3	04/28/03	41.71	9.37	32.34	No	---	2,730	11.2	---	10.0	2.7	42.7	20.1
MW3	07/15/03	41.71	11.15	30.56	No	---	1,790	5.6	---	68.8	3.6	39.0	44.7
MW3	10/08/03	41.71	11.89	29.82	No	---	1,320	7.1	---	35.1	4.0	23.6	31.8
MW3	01/15/04	41.71	9.16	32.55	No	---	791	3.4	---	24.4	1.3	40.1	14.7
MW3	Well not sampled from 2004 to 2010.												
MW3	09/17/10	41.71	11.46	30.25	No	99	2,500	---	<0.50	2.6	0.31f	1.8	1.8
MW3	12/15/10	42.18	Well resurveyed.										
MW3	09/14/11	42.18	11.37	30.81	No	270g	1,200	---	<0.50	18	0.95	1.7	1.3
MW3	01/18/12	42.18	12.11	30.07	No	---	910g	---	<0.50	0.89	<0.50	<0.50	0.88
MW3	01/27/12	42.18	10.18	32.00	No	1,000g	---	---	---	---	---	---	---
MW3	07/09/12	42.18	11.15	31.03	No	420g	350g	---	<0.50	7.9	<0.50	<0.50	<0.50
MW3	01/25/13	42.18	9.41	32.77	No	120g	390g	---	<0.50	2.8	<0.50	<0.50	<0.50
MW3	08/23/13	42.18	11.67	30.51	No	310g	640	---	<0.50	1.1	<0.50	<0.50	<0.50
MW3	01/10/14	42.18	12.13	30.05	No	160g	720g	---	<0.50	<0.50	<0.50	<0.50	<0.50
MW3	07/14/14	42.18	11.55	30.63	No	320g	1,100g	---	<0.50	1.8	<0.50	<0.50	0.53
MW4	03/14/96	31.50	4.92	26.58	No	3,500	12,000	---	---	2,200	140	880	2,000
MW4	05/21/96	31.50	8.60	22.90	No	4,200	11,000	---	---	1,700	ND	930	470
MW4	08/13/96	31.50	10.02	21.50	0.02	---	---	---	---	---	---	---	---
MW4	11/08/96	31.50	10.28	21.33	0.15	---	---	---	---	---	---	---	---
MW4	01/31/97	31.50	7.88	23.62	No	8,200b	23,000	ND	---	980	68	1,100	1,400
MW4	04/22/97	31.50	7.40	24.10	No	4,500	8,800	ND	---	950	ND	610	130
MW4	07/29/97	31.50	9.85	21.74	0.12	---	---	---	---	---	---	---	---
MW4	10/09/97	31.50	10.35	21.38	0.30	---	---	---	---	---	---	---	---
MW4	01/23/98	31.50	4.68	27.51	0.92	---	---	---	---	---	---	---	---
MW4	04/22/98	31.50	6.39	25.22	0.14	---	---	---	---	---	---	---	---
MW4	07/21/98	31.50	7.10	24.55	0.20	---	---	---	---	---	---	---	---
MW4	10/20/98	31.50	9.03	22.60	0.17	---	---	---	---	---	---	---	---
MW4	01/27/99	31.50	5.37	26.18	0.07	---	---	---	---	---	---	---	---
MW4	Apr-99	Destroyed during construction activities.											
MW5	10/25/00	39.18	10.92	28.26	No	---	2,500	<20	---	79	3.8	66	<20
MW5	01/15/01	39.18	8.32	30.86	No	---	3,900	<5.0	---	120	7.9	280	52
MW5	04/10/01	39.18	7.21	31.97	No	---	8,000	<50	<5	280	4.4	410	100
MW5	07/24/01	39.18	9.54	29.64	No	---	7,000	<1.0	---	360	7.4	380	67
MW5	11/27/01	39.18	8.84	30.34	No	---	5,000	8.9	<2	64	11	340	52
MW5	01/18/02	41.59	6.52	35.07	No	---	6,330	21.8	---	99.1	2.30	103	19.6
MW5	04/10/02	41.59	7.20	34.39	No	---	2,140	<2.50	---	275	8.00	183	24.5
MW5	07/12/02	41.59	8.83	32.76	No	---	3,940	20	<0.50	350	<0.50	268	14

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
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Well ID	Sampling Date	TOC Elev. (feet)	DTW (feet)	GW Elev. (feet)	NAPL (feet)	TPHd (µg/L)	TPHg (µg/L)	MTBE 8020/8021 (µg/L)	MTBE 8240/8260 (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Environmental Screening Levels (December 2013)</b>						100	100	5	5	1	40	30	20
Groundwater is a current drinking water source (Table F-1a)													
MW5	10/14/02	41.59	10.74	30.85	No	---	4,040	<2.5	---	98.5	9.0	169	29.0
MW5	01/20/03	41.59	6.45	35.14	No	---	7,660	59	<0.50	421	10.0	743	96.0
MW5	04/28/03	41.59	6.68	34.91	No	---	7,510	47	<0.50	403	5.5	524	50.5
MW5	07/15/03	41.59	8.68	32.91	No	---	6,080	52.9	<2.5	406	19.8	412	34.7
MW5	10/08/03	41.59	10.56	31.03	No	---	2,460	54.3	<0.5	160	12.8	173	31.7
MW5	01/15/04	41.59	6.56	35.03	No	---	4,630	37.4	<0.5	181	6.0	312	38.5
MW5	Well not sampled from 2004 to 2010.												
MW5	09/17/10	41.59	9.99	31.60	No	5,700	6,600	---	<5.0	19	<5.0	16	1.4f
MW5	12/15/10	41.86	Well resurveyed.										
MW5	09/14/11	41.86	7.33	34.53	No	1,600g	7,200	---	<2.0	23	<2.0	8.6	<2.0
MW5	01/18/12	41.86	9.46	32.40	No	---	3,600g	---	<1.0	14	<1.0	7.6	<1.0
MW5	01/27/12	41.86	8.81	33.05	No	3,100g	---	---	---	---	---	---	---
MW5	07/09/12	41.86	8.91	32.95	Sheen	29,000g	9,300g	---	<2.5	21	<2.5	6.9	<2.5
MW5	01/25/13	41.86	6.01	35.85	Sheen	22,000g	4,900g	---	<2.0	46	<2.0	4.5	<2.0
MW5	08/23/13	41.86	9.12	32.74	No	34,000g	17,000	---	<2.0	17	<2.0	6.3	<2.0
MW5	01/10/14	41.86	10.30	31.56	No	36,000g	62,000	---	<2.0	4.7	<2.0	3.5	<2.0
MW5	07/14/14	41.86	8.70	33.16	No	88,000g	90,000g	---	<5.0	100	<5.0	12	<5.0
<b>Grab Groundwater Samples</b>													
<i>Former Gasoline Tank Cavity</i>													
TW1	01/04/96	---	6.00	---	No	700	ND	---	---	ND	ND	ND	ND
<i>Used-Oil Tank Cavity</i>													
WW1	01/04/96	---	3.00	---	No	---	ND	---	---	ND	ND	ND	ND
AB1	03/05/98	---	4.5	---	No	---	1,600	ND	---	31	5.3	79	130
AB2	03/05/98	---	8.0	---	No	---	ND	ND	---	ND	2.9	0.9	5.7
AB3	03/05/98	---	5.5	---	No	---	6,800	230	---	680	100	1,500	2,300
AB4	03/05/98	---	4.0	---	No	---	8,500	ND	---	240	ND	260	720
AB6	03/05/98	---	4.5	---	No	---	12,000	ND	---	350	ND	310	100
AB9	03/05/98	---	6.0	---	No	---	1,000	ND	---	57	12	44	93
AB10	03/05/98	---	2.0	---	No	---	200	ND	---	3.0	1.2	3.2	2.8
AB11	03/05/98	---	8.5	---	No	---	ND	ND	---	ND	ND	ND	ND
AB12	03/05/98	---	6.0	---	No	---	8,800	37	---	660	50	630	940
AB13	03/05/98	---	8.0	---	No	---	210	ND	---	11	0.8	10	15
HA1	01/25/00	---	---	---	---	---	<500	<5.0	---	<0.3	<0.3	<0.3	<0.6
B1	11/18/10	---	Dry	---	---	---	---	---	---	---	---	---	---
B2	11/19/10	---	Dry	---	---	---	---	---	---	---	---	---	---
B3	11/19/10	---	8.45	---	---	<50	<50	---	<0.50	<0.50	<0.50	0.053f	0.21f

**TABLE 1A**  
**CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
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Well ID	Sampling Date	TOC Elev. (feet)	DTW (feet)	GW Elev. (feet)	NAPL (feet)	TPHd (µg/L)	TPHg (µg/L)	MTBE 8020/8021 (µg/L)	MTBE 8240/8260 (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)
<b>Environmental Screening Levels (December 2013)</b>													
Groundwater is a current drinking water source (Table F-1a)						100	100	5	5	1	40	30	20
B4	11/19/10	---	Dry	---	---	---	---	---	---	---	---	---	---
B5	11/18/10	---	8.95	---	---	<50	<50	---	<0.50	<0.50	<0.50	0.047f	0.21f
W-15-B6	06/19/12	---	15	---	---	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
W-15-B7	06/19/12	---	15	---	---	<50	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50
W-9.5-B8	06/19/12	---	9.5	---	---	<b>230g</b>	<50	---	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:	Adapted from ETIC's <i>Report of Groundwater Monitoring, Third Quarter 2010</i> .	
TOC Elev.	=	Top of casing elevation.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation.
NAPL	=	Non-aqueous phase liquid.
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015B.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015B.
MTBE 8020/8021	=	Methyl tertiary butyl ether analyzed using EPA Method 8020 or 8021B.
MTBE 8240/8260	=	Methyl tertiary butyl ether analyzed using EPA Method 8260B or 8240.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-dichloroethane analyzed using EPA Method 8260B.
EDB	=	1,2-dibromoethane analyzed using EPA Method 8260B.
Ethanol	=	Ethanol analyzed using EPA Method 8260B.
ND	=	Not detected at or above the laboratory reporting limit.
µg/L	=	Micrograms per liter.
<	=	Less than the stated laboratory reporting limit.
---	=	Not analyzed/Not applicable.
a	=	Well sampled using no-purge method.
b	=	Diesel and unidentified hydrocarbons <C15.
c	=	Diesel and unidentified hydrocarbons <C15>C25.
d	=	Diesel and unidentified hydrocarbons >C20.
e	=	Unidentified hydrocarbons >C18.
f	=	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit.
g	=	Chromatographic pattern does not match that of the specified standard.

**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 1 of 2)

Well ID	Sampling Date	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
<b>Environmental Screening Levels (December 2013)</b>								
Groundwater is a current drinking water sou		---	---	---	12	0.50	0.05	---
MW1	03/14/96 - 01/27/99	Not analyzed for these analytes						
MW1	Apr-99	Destroyed during construction activities.						
MW2	03/14/96 - 01/15/04	Not analyzed for these analytes						
MW2	09/17/10	<0.50	<0.50	<0.50	<10	<0.50	<0.50	---
MW2	09/14/11	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<50
MW2	01/18/12	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<50
MW2	01/27/12	---	---	---	---	---	---	---
MW2	07/09/12	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
MW2	01/25/13	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
MW2	08/23/13	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
MW2	01/10/14	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
MW2	07/14/14	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
MW3	03/14/96 - 01/15/04	Not analyzed for these analytes						
MW3	09/17/10	0.17f	<0.50	<0.50	9.8f	1.9	<0.50	---
MW3	09/14/11	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<50
MW3	01/18/12	<0.50	<0.50	<0.50	23	<0.50	<0.50	<50
MW3	01/27/12	---	---	---	---	---	---	---
MW3	07/09/12	<0.50	<0.50	<0.50	9.1	1.1	<0.50	---
MW3	01/25/13	<0.50	<0.50	<0.50	9.6	1.1	<0.50	---
MW3	08/23/13	<0.50	<0.50	<0.50	7.2	0.90	<0.50	---
MW3	01/10/14	<0.50	<0.50	<0.50	12	1.1	<0.50	---
MW3	07/14/14	<0.50	<0.50	<0.50	11	1.1	<0.50	---
MW4	03/14/96 - 01/27/99	Not analyzed for these analytes						
MW4	Apr-99	Destroyed during construction activities.						
MW5	10/25/00 - 01/15/04	Not analyzed for these analytes						
MW5	09/17/10	<5.0	<5.0	<5.0	<100	<5.0	<5.0	---
MW5	09/14/11	<2.0	<2.0	<2.0	25	<2.0	<2.0	<200
MW5	01/18/12	<1.0	<1.0	<1.0	37	<1.0	<1.0	<100
MW5	01/27/12	---	---	---	---	---	---	---
MW5	07/09/12	<2.5	<2.5	<2.5	36	<2.5	<2.5	---
MW5	01/25/13	<2.0	<2.0	<2.0	45	<2.0	<2.0	---
MW5	08/23/13	<2.0	<2.0	<2.0	42	<2.0	<2.0	---
MW5	01/10/14	<2.0	<2.0	<2.0	36	<2.0	<2.0	---
MW5	07/14/14	<5.0	<5.0	<5.0	<50	<5.0	<5.0	---



**TABLE 1B**  
**ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 2 of 2)

Well ID	Sampling Date	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)
<b>Environmental Screening Levels (December 2013)</b>								
Groundwater is a current drinking water sou		---	---	---	12	0.50	0.05	---
<b>Grab Groundwater Samples</b>								
Not analyzed for these analytes prior to 2010.								
B1	11/18/10	---	---	---	---	---	---	---
B3	11/19/10	---	---	---	---	8.7	---	---
B4	11/19/10	---	---	---	---	---	---	---
B5	11/18/10	---	---	---	---	0.099f	---	---
W-15-B6	06/19/12	<0.50	<0.50	<0.50	<5.0	---	---	---
W-15-B7	06/19/12	<0.50	<0.50	<0.50	<5.0	---	---	---
W-9.5-B8	06/19/12	<0.50	<0.50	<0.50	<5.0	---	---	---

Notes: Adapted from ETIC's *Report of Groundwater Monitoring, Third Quarter 2010*.

TOC Elev.	=	Top of casing elevation.
DTW	=	Depth to water.
GW Elev.	=	Groundwater elevation.
NAPL	=	Non-aqueous phase liquid.
TPHd	=	Total petroleum hydrocarbons as diesel analyzed using EPA Method 8015B.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8015B.
MTBE 8020/8021	=	Methyl tertiary butyl ether analyzed using EPA Method 8020 or 8021B.
MTBE 8240/8260	=	Methyl tertiary butyl ether analyzed using EPA Method 8260B or 8240.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-dichloroethane analyzed using EPA Method 8260B.
EDB	=	1,2-dibromoethane analyzed using EPA Method 8260B.
Ethanol	=	Ethanol analyzed using EPA Method 8260B.
ND	=	Not detected at or above the laboratory reporting limit.
µg/L	=	Micrograms per liter.
<	=	Less than the stated laboratory reporting limit.
---	=	Not analyzed/Not applicable.
a	=	Well sampled using no-purge method.
b	=	Diesel and unidentified hydrocarbons <C15.
c	=	Diesel and unidentified hydrocarbons <C15>C25.
d	=	Diesel and unidentified hydrocarbons >C20.
e	=	Unidentified hydrocarbons >C18.
f	=	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit.
g	=	Chromatographic pattern does not match that of the specified standard.

**TABLE 2**  
**WELL CONSTRUCTION DETAILS**  
Former Mobil Service Station 99105  
6301 San Pablo Avenue  
Oakland, California  
(Page 1 of 1)

Well ID	Well Installation Date	Well Destruction Date	TOC Elevation (feet)	Well 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	03/01/96	Apr-99	32.79	PVC	21.5	21.5	10	4	5-20	0.010	4.5-21.5	#12 Sand
MW2	03/01/96	---	42.24	PVC	21.5	21.5	10	4	5-20	0.010	4.5-21.5	#12 Sand
MW3	03/01/96	---	42.18	PVC	21.5	21.5	10	4	5-20	0.010	4.5-21.5	#12 Sand
MW4	03/01/96	Apr-99	31.50	PVC	26.5	25	10	4	5-25	0.010	4.5-21.5	#12 Sand
MW5	09/06/00	---	41.86	PVC	21.5	21.5	10	4	5-20	0.010	4-21.5	#2/12 Sand
VW1	11/01/10	---	---	Stainless Steel	6	6	4	0.25	5.25-5.75	0.0057	5-6	#2/12 Sand
VW2	11/02/10	---	---	Stainless Steel	6	6	4	0.25	5.25-5.75	0.0057	5-6	#2/12 Sand
VW3	11/01/10	---	---	Stainless Steel	6	6	4	0.25	5.25-5.75	0.0057	5-6	#2/12 Sand
VW4	11/02/10	---	---	Stainless Steel	6	6	4	0.25	5.25-5.75	0.0057	5-6	#2/12 Sand
VW5	11/02/10	---	---	Stainless Steel	6	6	4	0.25	5.25-5.75	0.0057	5-6	#2/12 Sand
MP1	11/16/98	1998	---	PVC	23	23	1.5	1	4-23	0.020	2.5-23	#3 Sand
MP2	11/16/98	1998	---	PVC	20	20	1.5	1	5-20	0.020	4-20	#3 Sand
MP3	11/16/98	1998	---	PVC	18	18	1.5	1	3-18	0.020	2-18	#3 Sand
MP4	11/16/98	1998	---	PVC	18	18	1.5	1	3-18	0.020	2-18	#3 Sand
MP5	11/16/98	1998	---	PVC	18	18	1.5	1	3-18	0.020	2-18	#3 Sand
MP6	11/16/98	1998	---	PVC	17.5	17.5	1.5	1	3.5-17.5	0.020	2.5-17.5	#3 Sand
SVS1	06/18/12	---	38.78	PVC/Stainless Steel	5.5	5	3.25	0.25	4.75-5	0.010	4.5-5	#3 Sand
SVS2	06/18/12	---	41.05	PVC/Stainless Steel	5.5	5	3.25	0.25	4.75-5	0.010	4.5-5	#3 Sand
SVS3	06/18/12	---	42.64	PVC/Stainless Steel	5.5	5	3.25	0.25	4.75-5	0.010	4.5-5	#3 Sand

Notes:

- TOC = Top of casing.
- PVC = Polyvinyl chloride.
- = Not applicable/Not available.

**APPENDIX A**  
**GROUNDWATER SAMPLING PROTOCOL**

## GROUNDWATER SAMPLING PROTOCOL

The static water level and separate-phase product level, if present, in each well that contained water and/or separate-phase product are measured with a ORS Interface Probe, which is accurate to the nearest 0.01 foot. To calculate groundwater elevations and evaluate groundwater gradient, depth to water (DTW) levels are subtracted from top of casing elevations.

Groundwater samples collected for subjective evaluation are collected by gently lowering approximately half the length of a clean Teflon® or polypropylene bailer past the air-water interface (if possible) and collecting a sample from near the surface of the water in the well. The samples are checked for measurable free-phase hydrocarbons or sheen. If appropriate, free-phase hydrocarbons are removed from the well.

Before water samples are collected from the groundwater monitoring wells, the wells are purged until a minimum of three well casing volumes is purged and stabilization of the temperature, pH, and conductivity is obtained. Water samples from the wells that do not obtain stability of the temperature, pH, and conductivity are considered to be "grab samples." The quantity of water purged from each well is calculated as follows:

1 well casing volume =  $\pi r^2 h(7.48)$  where:

r	=	radius of the well casing in feet
h	=	column of water in the well in feet (depth to bottom - depth to water)
7.48	=	conversion constant from cubic feet to gallons
$\pi$	=	ratio of the circumference of a circle to its diameter

Gallons of water purged/gallons in 1 well casing volume = well casing volumes removed.

The wells are purged using a submersible pump. Prior to use at the site and between wells the pump is cleaned.

Five gallons of water are placed in three 15-gallon tubs. Liquinox detergent is added to the first tub of water. The pump and tubing are submerged in the first tub and the water is pumped through the pump. The process is repeated in the second and third tub.

After purging, each well is allowed to recharge to at least 80% of the initial water level. Water samples from wells that do not recover at least 80% (due to slow recharging of the well) between purging and sampling are considered to be "grab samples." Water samples are collected with a new, disposable Teflon® or polypropylene bailer. The groundwater is carefully poured into selected sample containers (40-milliliter [ml] glass vials, 1,000-ml glass amber bottles, etc.), which are filled so as to produce a positive meniscus.

Depending on the required analysis, each sample container is preserved with hydrochloric acid, nitric acid, etc., or it is preservative free. The type of preservative used for each sample is specified on the Chain-of-Custody record.

Each vial and glass amber bottle is sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace, which would allow volatilization to occur. The samples are promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain-of-Custody record, to a California state-certified laboratory.

Water generated during purging and cleaning is contained and transported off site for treatment and disposal.

**APPENDIX B**  
**FIELD DATA SHEETS**

# Daily Field Report

Project ID #: 2783 Cardno ERI Job # 2783  
 Subject: Monitoring + Sampling Date: 7-14-14  
 Equipment Used: Sub. pump, DTW Tape, bailers Sheet: 1 of 1  
 Name(s): Darin Einhell  
 Time Arrived On Site: \_\_\_\_\_ Time Departed Site: \_\_\_\_\_ Total Travel: \_\_\_\_\_

## Heat Stress Management and Fluid Replacement Chart

Name	Hour 1		Hour 2		Hour 3		Hour 4		Hour 5		Hour 6		Hour 7		Hour 8	
	qty	bpm	qty	bpm	qty	bpm	qty	bpm	qty	bpm	qty	bpm	qty	bpm	qty	bpm
Darin Einhell	32	83	50	90	64	96										

Water = recommended 32 ounces per hour / working pulse = 180 - age beats per minute (bpm)

On Site		6:00
H+S Meeting		6:00-6:15
Open Wells		6:15-6:30
Decon Equipment		6:30-7:00
DTW on Wells		7:00-7:10
Purged Wells	MW 2, MW 3, MW 5	7:15-8:14
Sampled Wells	MW 2, MW 3, MW 5	8:40-9:15
OCBB		9:30
Off Site		9:45

Purge Water: 33 gal  
 Decon Water: 24 gal  
 Total Water: 57 gal



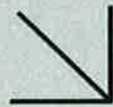






**APPENDIX C**  
**LABORATORY ANALYTICAL REPORT**





**WORK ORDER NUMBER: 14-07-1028**

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** Cardno ERI

**Client Project Name:** ExxonMobil 99105/022783C

**Attention:** Greg Gurss  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

**RECEIVED**  
JUL 28 2014

BY: .....

*Cecile A. de Guia*

Approved for release on 07/25/2014 by:  
Cecile deGuia  
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

# Contents

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Work Order Number: 14-07-1028

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Work Order: 14-07-1028Page 1 of 1

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**Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 07/16/14. They were assigned to Work Order 14-07-1028.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Additional Comments:**

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: [http://www.calscience.com/PDF/New\\_York.pdf](http://www.calscience.com/PDF/New_York.pdf)

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

## Sample Summary

Client: Cardno ERI	Work Order:	14-07-1028
601 North McDowell Blvd.	Project Name:	ExxonMobil 99105/022783C
Petaluma, CA 94954-2312	PO Number:	022783C
	Date/Time Received:	07/16/14 11:00
	Number of Containers:	26

Attn: Greg Gurss

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
QCBB	14-07-1028-1	07/14/14 09:30	2	Aqueous
W-12-MW2	14-07-1028-2	07/14/14 08:40	8	Aqueous
W-13-MW3	14-07-1028-3	07/14/14 08:55	8	Aqueous
W-11-MW5	14-07-1028-4	07/14/14 09:15	8	Aqueous

## Analytical Report

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 3510C  
Method: EPA 8015B (M)  
Units: ug/L

Project: ExxonMobil 99105/022783C

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
W-12-MW2	14-07-1028-2-H	07/14/14 08:40	Aqueous	GC 48	07/17/14	07/19/14 09:16	140717B11
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Diesel		ND		49		1.00	SG
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
n-Octacosane		68		68-140			
W-13-MW3	14-07-1028-3-H	07/14/14 08:55	Aqueous	GC 48	07/17/14	07/19/14 09:32	140717B11
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Diesel		320		49		1.00	HD,SG
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
n-Octacosane		70		68-140			
W-11-MW5	14-07-1028-4-H	07/14/14 09:15	Aqueous	GC 48	07/17/14	07/22/14 00:52	140717B11
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Diesel		88000		1200		25.0	HD,SG
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
n-Octacosane		118		68-140			
Method Blank	099-15-304-767	N/A	Aqueous	GC 48	07/17/14	07/19/14 07:25	140717B11
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Diesel		ND		50		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
n-Octacosane		78		68-140			

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8015B (M)  
Units: ug/L

Project: ExxonMobil 99105/022783C

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
W-12-MW2	14-07-1028-2-F	07/14/14 08:40	Aqueous	GC 57	07/19/14	07/19/14 11:29	140719L026
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
TPH as Gasoline		ND	50	1.00			
<u>Surrogate</u>		<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>			
1,4-Bromofluorobenzene		59	38-134				
W-13-MW3	14-07-1028-3-E	07/14/14 08:55	Aqueous	GC 57	07/19/14	07/19/14 13:04	140719L026
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
TPH as Gasoline		1100	50	1.00	HD		
<u>Surrogate</u>		<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>			
1,4-Bromofluorobenzene		100	38-134				
W-11-MW5	14-07-1028-4-E	07/14/14 09:15	Aqueous	GC 57	07/19/14	07/19/14 21:01	140719L026
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
TPH as Gasoline		90000	1000	20.0	HD		
<u>Surrogate</u>		<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>			
1,4-Bromofluorobenzene		114	38-134				
Method Blank	099-12-436-9444	N/A	Aqueous	GC 57	07/19/14	07/19/14 10:25	140719L026
<u>Parameter</u>		<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>		
TPH as Gasoline		ND	50	1.00			
<u>Surrogate</u>		<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>			
1,4-Bromofluorobenzene		56	38-134				

Return to Contents ↑

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 99105/022783C

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
W-12-MW2	14-07-1028-2-A	07/14/14 08:40	Aqueous	GC/MS L	07/16/14	07/16/14 19:22	140716L024

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Toluene	ND	0.50	1.00	
Ethylbenzene	ND	0.50	1.00	
o-Xylene	ND	0.50	1.00	
p/m-Xylene	0.52	0.50	1.00	
Xylenes (total)	0.52	0.50	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1.00	
Tert-Butyl Alcohol (TBA)	ND	5.0	1.00	
Diisopropyl Ether (DIPE)	ND	0.50	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1.00	
1,2-Dibromoethane	ND	0.50	1.00	
1,2-Dichloroethane	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	68-120	
Dibromofluoromethane	99	80-127	
1,2-Dichloroethane-d4	92	80-128	
Toluene-d8	97	80-120	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 99105/022783C

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
W-13-MW3	14-07-1028-3-A	07/14/14 08:55	Aqueous	GC/MS L	07/16/14	07/16/14 19:50	140716L024

Parameter	Result	RL	DF	Qualifiers
Benzene	1.8	0.50	1.00	
Toluene	ND	0.50	1.00	
Ethylbenzene	ND	0.50	1.00	
o-Xylene	ND	0.50	1.00	
p/m-Xylene	0.53	0.50	1.00	
Xylenes (total)	0.53	0.50	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1.00	
Tert-Butyl Alcohol (TBA)	11	5.0	1.00	
Diisopropyl Ether (DIPE)	ND	0.50	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1.00	
1,2-Dibromoethane	ND	0.50	1.00	
1,2-Dichloroethane	1.1	0.50	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
1,4-Bromofluorobenzene	97	68-120		
Dibromofluoromethane	98	80-127		
1,2-Dichloroethane-d4	99	80-128		
Toluene-d8	99	80-120		


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



## Analytical Report

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ExxonMobil 99105/022783C

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
W-11-MW5	14-07-1028-4-A	07/14/14 09:15	Aqueous	GC/MS L	07/16/14	07/16/14 20:19	140716L024
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Benzene		100		5.0		10.0	
Toluene		ND		5.0		10.0	
Ethylbenzene		12		5.0		10.0	
o-Xylene		ND		5.0		10.0	
p/m-Xylene		ND		5.0		10.0	
Xylenes (total)		ND		5.0		1.00	
Methyl-t-Butyl Ether (MTBE)		ND		5.0		10.0	
Tert-Butyl Alcohol (TBA)		ND		5.0		10.0	
Diisopropyl Ether (DIPE)		ND		5.0		10.0	
Ethyl-t-Butyl Ether (ETBE)		ND		5.0		10.0	
Tert-Amyl-Methyl Ether (TAME)		ND		5.0		10.0	
1,2-Dibromoethane		ND		5.0		10.0	
1,2-Dichloroethane		ND		5.0		10.0	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
1,4-Bromofluorobenzene		90		68-120			
Dibromofluoromethane		91		80-127			
1,2-Dichloroethane-d4		84		80-128			
Toluene-d8		103		80-120			


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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Cardno ERI  
 601 North McDowell Blvd.  
 Petaluma, CA 94954-2312

Date Received: 07/16/14  
 Work Order: 14-07-1028  
 Preparation: EPA 5030C  
 Method: EPA 8260B  
 Units: ug/L

Project: ExxonMobil 99105/022783C

Page 4 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-884-1181	N/A	Aqueous	GC/MS L	07/16/14	07/16/14 12:06	140716L024

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Toluene	ND	0.50	1.00	
Ethylbenzene	ND	0.50	1.00	
o-Xylene	ND	0.50	1.00	
p/m-Xylene	ND	0.50	1.00	
Xylenes (total)	ND	0.50	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	0.50	1.00	
Tert-Butyl Alcohol (TBA)	ND	5.0	1.00	
Diisopropyl Ether (DIPE)	ND	0.50	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1.00	
1,2-Dibromoethane	ND	0.50	1.00	
1,2-Dichloroethane	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	68-120	
Dibromofluoromethane	99	80-127	
1,2-Dichloroethane-d4	100	80-128	
Toluene-d8	97	80-120	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Quality Control - Spike/Spike Duplicate

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ExxonMobil 99105/022783C

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
W-12-MW2	Sample	Aqueous	GC 57	07/19/14	07/19/14 11:29	140719S011
W-12-MW2	Matrix Spike	Aqueous	GC 57	07/19/14	07/19/14 12:01	140719S011
W-12-MW2	Matrix Spike Duplicate	Aqueous	GC 57	07/19/14	07/19/14 12:32	140719S011

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Gasoline	ND	2000	1933	97	1984	99	68-122	3	0-18	

  
Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

## Quality Control - Spike/Spike Duplicate

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ExxonMobil 99105/022783C

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
14-07-0973-2	Sample	Aqueous	GC/MS L	07/16/14	07/16/14 13:03	140716S001
14-07-0973-2	Matrix Spike	Aqueous	GC/MS L	07/16/14	07/16/14 14:29	140716S001
14-07-0973-2	Matrix Spike Duplicate	Aqueous	GC/MS L	07/16/14	07/16/14 14:57	140716S001

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	10.00	9.871	99	9.965	100	75-125	1	0-20	
Toluene	ND	10.00	9.520	95	9.662	97	75-125	1	0-20	
Ethylbenzene	ND	10.00	9.879	99	9.675	97	75-125	2	0-20	
o-Xylene	ND	10.00	10.25	102	10.21	102	75-127	0	0-20	
p/m-Xylene	ND	20.00	20.44	102	20.24	101	75-125	1	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	10.00	8.791	88	9.300	93	71-131	6	0-20	
Tert-Butyl Alcohol (TBA)	ND	50.00	69.92	140	57.47	115	20-180	20	0-40	
Diisopropyl Ether (DIPE)	ND	10.00	9.297	93	9.489	95	64-136	2	0-20	
Ethyl-t-Butyl Ether (ETBE)	ND	10.00	8.943	89	9.379	94	73-133	5	0-20	
Tert-Amyl-Methyl Ether (TAME)	ND	10.00	9.087	91	9.468	95	75-125	4	0-20	
1,2-Dibromoethane	ND	10.00	9.466	95	9.706	97	75-126	3	0-20	
1,2-Dichloroethane	ND	10.00	9.020	90	9.425	94	75-127	4	0-20	


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RPD: Relative Percent Difference. CL: Control Limits

**Quality Control - LCS/LCSD**

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 3510C  
Method: EPA 8015B (M)

Project: ExxonMobil 99105/022783C

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-304-767	LCS	Aqueous	GC 48	07/17/14	07/19/14 07:41	140717B11			
099-15-304-767	LCSD	Aqueous	GC 48	07/17/14	07/19/14 07:57	140717B11			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
TPH as Diesel	2000	2246	112	2181	109	75-117	3	0-13	

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RPD: Relative Percent Difference. CL: Control Limits

## Quality Control - LCS

Cardno ERI	Date Received:	07/16/14
601 North McDowell Blvd.	Work Order:	14-07-1028
Petaluma, CA 94954-2312	Preparation:	EPA 5030C
	Method:	EPA 8015B (M)
Project: ExxonMobil 99105/022783C		Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-436-9444	LCS	Aqueous	GC 57	07/19/14	07/19/14 10:56	140719L026
Parameter		Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Gasoline		2000	1800	90	78-120	

## Quality Control - LCS/LCSD

Cardno ERI  
601 North McDowell Blvd.  
Petaluma, CA 94954-2312

Date Received: 07/16/14  
Work Order: 14-07-1028  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ExxonMobil 99105/022783C

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-884-1181	LCS	Aqueous	GC/MS L	07/16/14	07/16/14 10:26	140716L024
099-12-884-1181	LCSD	Aqueous	GC/MS L	07/16/14	07/16/14 10:55	140716L024

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	10.00	10.15	102	9.813	98	80-120	73-127	3	0-22	
Toluene	10.00	9.492	95	9.552	96	80-120	73-127	1	0-28	
Ethylbenzene	10.00	10.08	101	9.732	97	80-120	73-127	4	0-25	
o-Xylene	10.00	10.58	106	10.40	104	80-120	73-127	2	0-30	
p/m-Xylene	20.00	20.92	105	20.28	101	80-120	73-127	3	0-30	
Methyl-t-Butyl Ether (MTBE)	10.00	8.991	90	9.564	96	75-123	67-131	6	0-27	
Tert-Butyl Alcohol (TBA)	50.00	48.25	96	46.94	94	80-120	73-127	3	0-30	
Diisopropyl Ether (DIPE)	10.00	9.497	95	10.09	101	73-121	65-129	6	0-26	
Ethyl-t-Butyl Ether (ETBE)	10.00	9.009	90	10.02	100	76-124	68-132	11	0-30	
Tert-Amyl-Methyl Ether (TAME)	10.00	9.213	92	9.374	94	80-120	73-127	2	0-24	
1,2-Dibromoethane	10.00	9.666	97	9.656	97	80-120	73-127	0	0-32	
1,2-Dichloroethane	10.00	8.984	90	8.855	89	80-122	73-129	1	0-23	

Total number of LCS compounds: 12

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents ↑

RPD: Relative Percent Difference. CL: Control Limits



<u>Qualifiers</u>	<u>Definition</u>
AZ	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.
B	Analyte was present in the associated method blank.
BA	The MS/MSD RPD was out of control due to suspected matrix interference.
BB	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.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
DF	Reporting limits elevated due to matrix interferences.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
GE	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
HD	Chromat. profile inconsistent with pattern(s) of ref. fuel stdns.
HO	High concentration matrix spike recovery out of limits
HT	Analytical value calculated using results from associated tests.
HX	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS was in control.
IL	Relative percent difference out of control.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
LD	Analyte presence was not confirmed by second column or GC/MS analysis.
LP	The LCS and/or LCSD recoveries for this analyte were above the upper control limit. The associated sample was non-detected. Therefore, the sample data was reported without further clarification.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
ND	Parameter not detected at the indicated reporting limit.
QO	Compound did not meet method-described identification guidelines. Identification was based on additional GC/MS characteristics.
RU	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
SG	A silica gel cleanup procedure was performed.
SN	See applicable analysis comment.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.





< WebShip > >>>>

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CAL SCIENCE CONCORD  
595 COMMERCIAL CIRCLE #H  
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GARDEN GROVE, CA 92841

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GSB:  
80.00



26567403

Reference:  
551

Delivery Instructions:

Signature Type:  
SIGNATURE REQUIRED

Print Date: 07/15/14 16:32 PM

Package 1 of 1

Send Label To Printer  Print All Edit Shipment Finish

LABEL INSTRUCTIONS:

- Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
- Click on the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.
- Print this page in half.
- Securely attach this label to your package, do not cover the barcode.
- Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

ADDITIONAL OPTIONS:

Send Label Via Email Create Return Label

TERMS AND CONDITIONS:

By using our shipment to deliver, you agree to all the service terms and conditions described in this section. Our liability for loss or damage to any package is limited to your actual damages or \$100 whichever is less, unless you pay for a higher declared value. If you declare a higher value and pay the additional charge, our liability will be limited to our declared value or the actual value of your loss or damage. In any event, we will not be liable for any loss, whether direct, incidental, special or consequential, in excess of the declared value of a shipment whether or not we could have judged that such damage might be incurred including but not limited to loss of income or profit. We will not be liable for your acts or omissions, including but not limited to improper or insufficient packaging, securing, marking or labeling. Also, we will not be liable if you or the recipient violates any of the terms of our agreement. We will not be liable for loss, damage or delay caused by events we cannot control, including but not limited to acts of God, perils of the sea, weather conditions, act of public enemies, war, strikes, or civil commotion. The highest declared value for our GSO Priority Package is \$500. For other shipments the highest declared value is \$10,000 unless your shipment contains items of "extraordinary value", in which case the highest declared value we allow is \$500. Items of "extraordinary value" include, but are not limited to, artwork, jewelry, furs, precious metals, tickets, negotiable instruments and items with intrinsic value.

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Calscience

WORK ORDER #: 14-07-1028

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: Cardno EPI

DATE: 07/16/14

**TEMPERATURE:** Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Temperature 2.6 °C - 0.3°C (CF) = 2.3 °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 Checked by: 826

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A Checked by: 826

Sample  \_\_\_\_\_  No (Not Intact)  Not Present Checked by: 802

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"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/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"/>
Proper containers and sufficient 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"/>
Aqueous samples received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfides <input type="checkbox"/> Dissolved Oxygen.....			
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®  \_\_\_\_\_

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

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

250PB  250PBn  125PB  125PBzanna  100PJ  100PJna<sub>2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

**Air:**  Tedlar®  Canister **Other:**  \_\_\_\_\_ **Trip Blank Lot#:** \_\_\_\_\_ **Labeled/Checked by:** 802

**Container:** C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** 739

**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> u: Ultra-pure zanna: ZnAc<sub>2</sub>+NaOH f: Filtered **Scanned by:** 739

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**APPENDIX D**  
**WASTE DISPOSAL DOCUMENTATION**

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No.		Manifest Document No. <b>ER12783</b>	2. Page 1 of 1
3. Generator's Name and Mailing Address <b>EM# 99105 6301 SAN PABLO AVE OAKLAND, CA</b>		<b>CARDNO ERI</b>			
4. Generator's Phone ( )					
5. Transporter 1 Company Name <b>CARDNO ERI</b>		6. US EPA ID Number		A. State Transporter's ID	
7. Transporter 2 Company Name		8. US EPA ID Number		B. Transporter 1 Phone	
9. Designated Facility Name and Site Address <b>ISTRATE, INC. 1105 AIRPORT RD. RID VISTA, CA 94571</b>		10. US EPA ID Number		C. State Transporter's ID	
				D. Transporter 2 Phone	
				E. State Facility's ID	
				F. Facility's Phone <b>925-274-0004</b>	
11. WASTE DESCRIPTION			12. Containers		13. Total Quantity
			No.	Type	14. Unit Wt./Vol.
a. <b>NON-HAZ PURGE WATER</b>			1	Poly	57 GAL
b.					
c.					
d.					
G. Additional Descriptions for Materials Listed Above <b>BROWN, NO ODOR/SOLID</b>			H. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information					
<b>16. GENERATOR'S CERTIFICATION:</b> I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.					
Printed/Typed Name				Signature	
17. Transporter 1 Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name <b>JOE D. LEWIS</b>				Signature <i>Joe P. Lewis</i>	
				Month Day Year <b>7   31   14</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name				Signature	
19. Discrepancy Indication Space					
20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.					
Printed/Typed Name <b>MICHAEL WHITEHEAD</b>				Signature <i>Michael Whitehead</i>	
				Date <b>7   31   14</b>	

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY