SEMS-RM DOCID # 1167079

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Stantec

TESORO REFINING & MARKETING COMPANY LLC
SITE CONCEPTUAL MODEL UPDATE

FIRST HALF 2013

JULY 15, 2013

Former ARCO Station No.: 5110 Address: 5731 East Firestone Boulevard, South Gate, CA
Tesoro Environmental Engineer/Phone No.: Mr. Daniel Monson / (714) 670-5060
Consulting Co./Contact Person/Phone No.: Stantec/ Mr. Randy Couture / (805) 427-4863
Stantec Project No.: 185850152
Primary Agency/Regulatory ID No.: CRWQCB-LA Mr. Gregg Kwey /Case No. I-12074 (Priority B-2)
Other Agencies to Receive Copies: NA

WORK PERFORMED THIS PERIOD [First Half 2013]:

1. Conducted semi-annual groundwater sampling and prepared SCMU Report.
2. Conducted air sparging activities on select monitoring wells.
3. Conducted air sparge and oxygen diffusion O&M activities.

WORK PROPOSED NEXT PERIOD [Second Half 2013]:

1. Conduct groundwater sampling at select wells for Vinvale Los Angeles Terminal (LAT) plume delineation and prepare Semi-Annual Status Report.
2. Conduct air sparging activities on select sparge wells
3. Conduct oxygen diffusion O&M activities.

SUMMARY OF SCMU UPDATES [First Half 2013]:
The following Figures have been updated this half:

1. Figures 10 through 15 have been updated with First Half 2013 monitoring and analytical data.

The following Tables have been updated this half:

1. Table 2 has been updated with First Half 2013 monitoring and analytical data.
2. Table's 9a/b through 13 have been updated with remedial system operation and maintenance data.

The following Graphs have been updated this half:

1. All Graphs have been updated and are included in the Graphs Section.

The following Appendices have been updated this half:

1. Appendix G has been updated with First Half 2013 groundwater monitoring and analytical data.
2. Appendix H has been updated has been updated to include the July 15, 2013 Plume Travel Time Determination Report.
3. Appendix I has been updated with First Half 2013 SVE system information.
4. Appendix N presents First Half 2013 groundwater and First Half 2013 O&M laboratory reports and chain of custody.
5. Appendix O presents First Half 2013 groundwater sampling and First Half 2013 O&M field data sheets.
6. Appendix P includes First Half 2013 waste disposal documentation.

SUMMARY OF SCMU DATA [First Half 2013]:

Current Phase of Project:	Remediation	(Assmnt, Remed. etc)
Frequency of Sampling:	SVE, AS, and iSOC™ Monthly/ GW Quarterly	(Quarterly, etc.)
Frequency of Monitoring:	SVE, AS, and iSOC™ Monthly/ GW Quarterly	(Monthly, etc.)
Separate Phase Hydrocarbons	No	(Yes/No)
Cumulative SPH Recovered to Date:	None	(gallons)
SPH Recovered this Period:	None	(gallons)
Bulk Soil Removed to Date:	~1,422	(cubic yards)
Bulk Soil Removed this Period:	None	(cubic yards)
Water Wells or Surface Waters (4000-ft) radius) Radius & Their Respective Directions:	02S/12W-31Q03 1800'SW 02S/12W-31Q02 1800' SW	(Distance and Direction)
Current Remediation Techniques:	SVE, AS, and iSOC™	(SVES, SPH Removal, etc.)
Permits for Discharge:	N/A	(NPDES, POTW,
Approximate Depth to Groundwater:	Range: 56.13 to 58.31	(Measured Feet)
Groundwater Gradient:	South	(Direction)
	0.0045 feet/foot	(Magnitude)
Wells Purged and Sampled	11	
Total Number of Wells on-Site	5 GW / 4 iSOC™ 6 AS / 5 SVE	
Monitored / Purged / Sampled	11 / 11 / 11	
Date of groundwater monitoring/sampling	May 7 and 8, 2013	
GRO Concentration Range:	<50 to 42,000	µg/L
Well with highest GRO Concentration:	MW-A4	
Benzene Concentration Range:	<0.50 to 16,000	µg/L
Well with highest Benzene Concentration:	MW-A4	
MTBE Concentration Range:	<1.0 to 2.3	µg/L

Well with highest MTBE Concentration:	MW-A3	
TBA Concentration Range:	<10 to 83	µg/L
Well with highest TBA Concentration:	MW-A8d	
Ethanol Concentration Range:	<150 to <30,000	µg/L
Well with highest Ethanol Concentration:	N/A	
Cumulative Hydrocarbons Removed Via AS/SVE system to date: **(04/27/2011)**	50,752	(pounds)
Hydrocarbons Removed Via AS/SVE this Period:	0	(pounds)
AS/SVE System Up-Time this Period	0	(hours)
Percent Up- Time this Period	0%	(percentage)
Co-mingled Plume	N/A	(Site I.D.)

Agency Directive Requirement: CRWQCB-LA letter, Implementation of Final Draft Guidelines for Investigation and Cleanup of MTBE and Other Oxygenates, dated February 28, 2003 and August 27, 2003. CRWQCB-LA letter dated September 17, 2008 granting approval for iSOC™ oxygen diffusion wells but rejecting ORC application in off-Site wells MW-A2 and MW-A5.

Prepared By:

Allison Rubenstein
Project Scientist

Reviewed By:

Randy T. Couture
Project Manager

Approved By:

Andrew J. Modugno
Principal Geologist
P.G. No 7036

cc: Mr. Danny Monson – Tesoro Refining & Marketing Company LLC
Mr. Arnold Mooradian – Station Owner

PROFESSIONAL GEOLOGIST
ANDREW JAMES MODUGNO
No. 7036
Exp 8/31/12
STATE OF CALIFORNIA

ATTACHED:

Figures

Figure 1 – Site Location Map Showing Identified Wells within a One-Mile Radius
Figure 2 – Site Vicinity Map
Figure 3 – Site Map Showing Soil Boring, Remedial Well, and Piping Locations
Figure 4 – Site Map Showing UST and Shoring Sample Locations
Figure 5 – Site Map Showing Former UST, Product Piping, and Dispenser Sample Locations
Figure 6 – Site Map Showing Hydrocarbon Concentrations in Soil
Figure 7 – Site Map Showing Cross-Section Index
Figure 8 – Cross-Section A-A'
Figure 9 – Cross-Section B-B'
Figure 10 – Site Map Showing Groundwater Contour
Figure 11 – Site Map Showing Hydrocarbon Concentration in Groundwater
Figure 12 – GRO Isoconcentration Map
Figure 13 – Benzene Isoconcentration Map
Figure 14 – MTBE Isoconcentration Map
Figure 15 – TBA Isoconcentration Map
Figure 16 – AS/SVE Well Locations and Theoretical Radius of Influence for SVE
Figure 17 – Typical ISOC™ Vault Construction Detail
Figure 18 – Cumulative Pounds of Gasoline Range Organics Removed

Tables

Table 1 – Historical Soil Analytical Results
Table 2 – Summary of Groundwater Analytical & Elevation Results
Table 3 – Well Construction Details
Table 4 – Summary of Wells Identified Within a One-Mile Radius
Table 5 – Summary of Monthly EFR Activities (Discontinued)
Table 6 – SVE System Operation Report
Table 7 – Summary of Process Vapor Sampling Results
Table 8 – Summary of Individual Well Vapor Sample Analytical Results (Discontinued)
Table 9a, b – Individual Well - Field Monitoring Data
Table 10 – Individual Air Sparge Well Monitoring Data
Table 11 – Soil Vapor Extraction Daily Operation Logs
Table 12 – Natural Biodegradation Analytical Data
Table 13 – Summary of Oxygen Diffuser System Field Data

Graphs

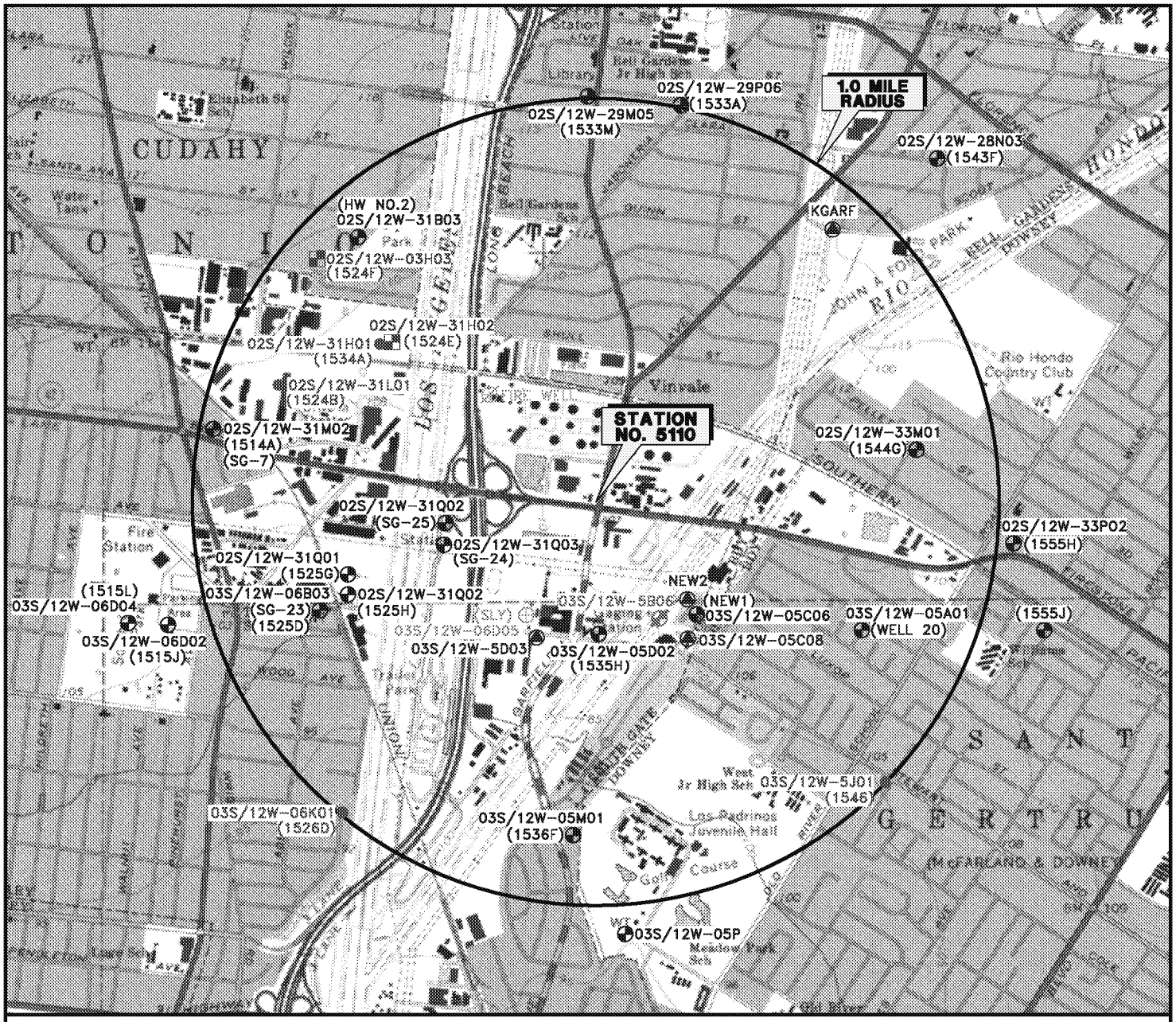
Groundwater Well Hydrographs

Appendices

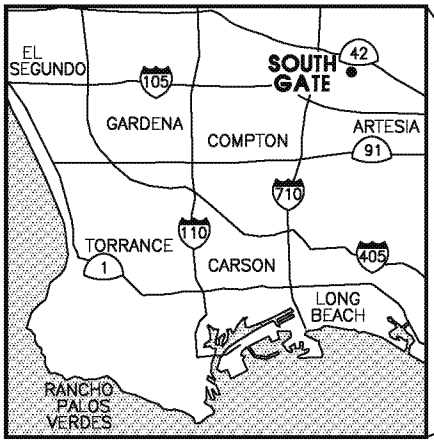
Appendix A – Introduction and Site Description
Appendix B – Site Background
Appendix C – Historic Figures and Boring Logs
Appendix D – Site Geology and Hydrogeology
Appendix E – Municipal Well Survey
Appendix F – Hydrocarbon Impacted Soil
Appendix G – Hydrocarbon Impacted Groundwater
Appendix H – Plume Travel Time Estimate
Appendix I – Historic Source Removal and Remediation Activities
Appendix J – Conclusions and Data Gaps
Appendix K – Standard Limitations

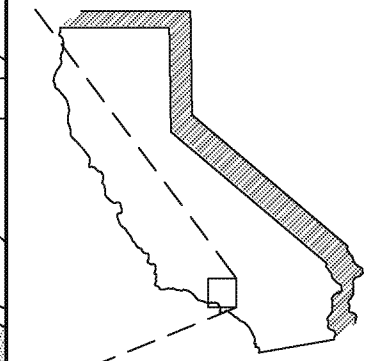
Appendix L – References
Appendix M – Agency Correspondence
Appendix N – Laboratory Reports and Chain of Custody
Appendix O – Groundwater Sampling and O&M Field Data Sheets
Appendix P – Waste Disposal Documents

FIGURES



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, SOUTH GATE QUADRANGLE, 1964
PHOTOREVISED 1981





LEGEND

- PUBLIC SUPPLY WELL
- PUBLIC SUPPLY WELL (ABANDONED)
- OBSERVATION WELL
- WELL
- WELL (ABANDONED)
- INDUSTRIAL
- UNKNOWN

N

0 2000 4000

APPROXIMATE SCALE (FEET)

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FOR:
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SITE LOCATION MAP SHOWING IDENTIFIED WELLS WITHIN A ONE-MILE RADIUS

FIGURE: **1**

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185850152	R. Roman	A. Rubenstein	R. Couture	07/15/13

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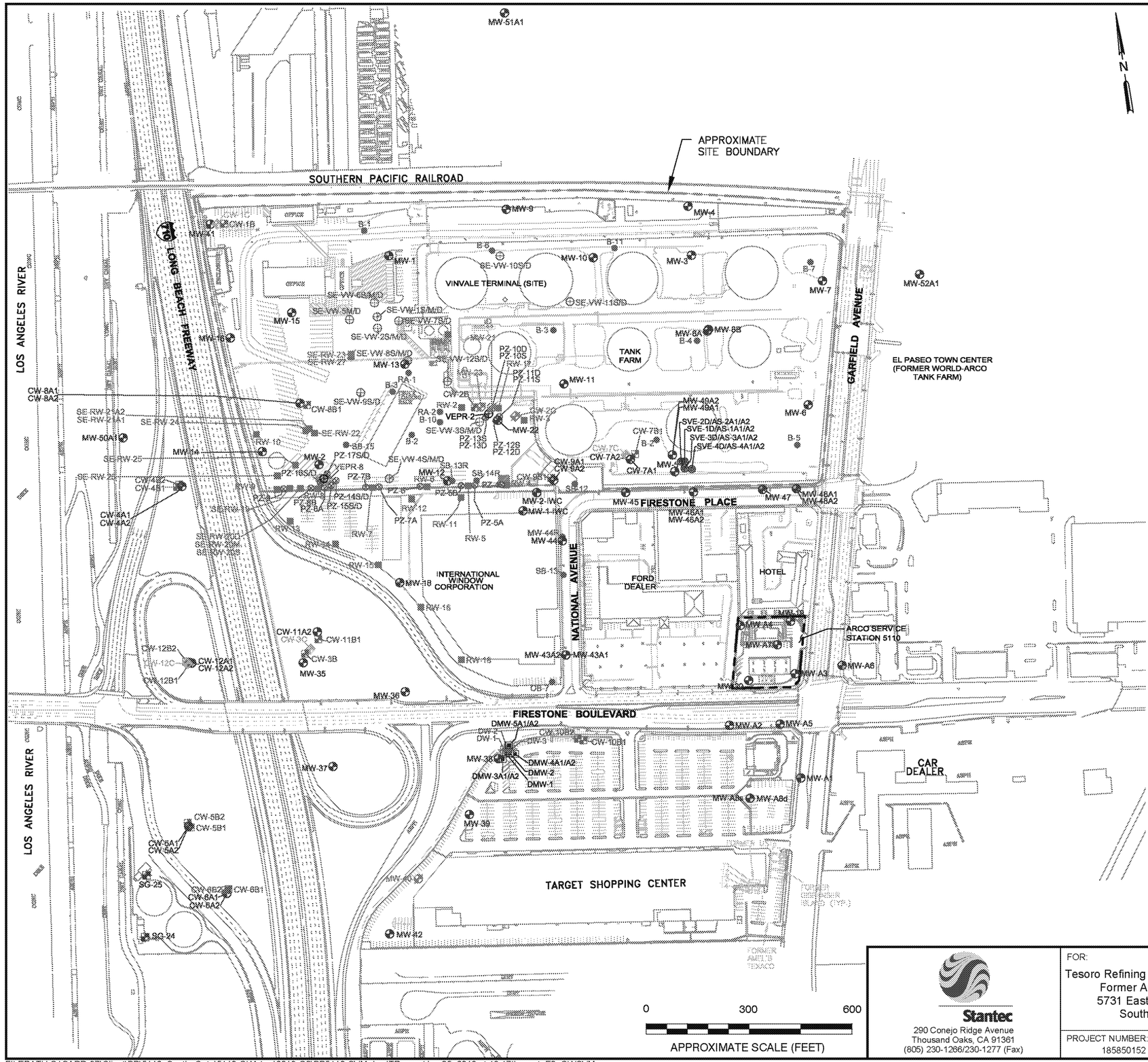

SITE MAP LEGEND

- APPROXIMATE SITE BOUNDARY
- GROUNDWATER MONITORING WELL (SHALLOW HYDROSTRATIGRAPHIC ZONE & SHALLOW UNSATURATED ZONE)
- GROUNDWATER MONITORING WELL (MIDDLE HYDROSTRATIGRAPHIC ZONE)
- GROUNDWATER MONITORING WELL (DEEP HYDROSTRATIGRAPHIC ZONE)
- FLUID RECOVERY WELL (SHALLOW HYDROSTRATIGRAPHIC ZONE)
- PIEZOMETER WELL (SHALLOW HYDROSTRATIGRAPHIC ZONE)
- VAPOR/FLUID EXTRACTION WELL (SHALLOW UNSATURATED ZONE)
- VAPOR EXTRACTION WELL (SHALLOW HYDROSTRATIGRAPHIC ZONE)
- AIR SPARGE/SOIL VAPOR EXTRACTION WELL
- DIFFUSION MONITORING WELL
- DIFFUSION WELL
- CITY OF SOUTH GATE MUNICIPAL SUPPLY WELL
- SOIL BORING LOCATION
- ABANDONED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- ABANDONED GROUNDWATER MONITORING WELL (DEEP HYDROSTRATIGRAPHIC ZONE)
- ABANDONED FLUID RECOVERY WELL
- SOIL VAPOR EXTRACTION UNIT #1 (SVE1) COMPOUND
- TREATMENT PLANT SAMPLES – VEPR–V3P (VEPR–V3EF), VEPR–4AP (VEPR–V4AEF), VEPR–V4BP (VEPR–V4BEF); PART OF MOBILE UNIT

GENERAL SITE NOTES:

1. MAP REFERENCES; BASED ON ORTHOGRAPHICALLY RECTIFIED AERIAL PHOTOGRAPH BY I.K. CURTIS SERVICES INC., DATED MARCH 18, 2003. HISTORICAL DIGITAL DATA FILES FROM PACIFIC ENVIRONMENTAL GROUP INC., DATED AUGUST 10, 1999 AND SLS ASSOCIATES INC., DATED SEPTEMBER 25, 1995. 710 INTERSTATE FREEWAY REFERENCED FROM IWA ENGINEERS, DATED APRIL 4, 1996.
2. GROUNDWATER MONITORING WELLS, VAPOR EXTRACTION WELLS, ON–SITE AND OFF–SITE RECOVERY WELLS, AND PIEZOMETER LOCATIONS SURVEYED BY WM HOLDINGS INC., DATED MARCH 25, 2003, DECEMBER 3, 2004, JANUARY 27, 2005, MAY 2, 2005, JULY 6, 2005, OCTOBER 12, 2005, FEBRUARY 2, 2006, DECEMBER 27, 2006, JUNE 4, 2007, AUGUST 17, 2007, NOVEMBER 29, 2007, JULY 8, 2009, AND OCTOBER 9, 2009. HORIZONTAL DATUM NAD 83 CALIFORNIA STATE PLANE ZONE 5 (FT.), VERTICAL DATUM NAVD 88, SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. SAMPLE LOCATIONS SVE1–VSINF, SVE1–VEFF, AND SVE1–VPEFF LOCATED IN SVE1 COMPOUND.
4. VEPR–V3P (VEPR–V3EF), VEPR–V4AP (VEPR–V4AEF), AND VEPR–V4BP (VEPR–V4BEF) SAMPLE LOCATIONS ARE PART OF MOBILE UNIT, LOCATIONS SURVEYED ON JANUARY 27, 2005.

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SITE VICINITY MAP

FIGURE: **2**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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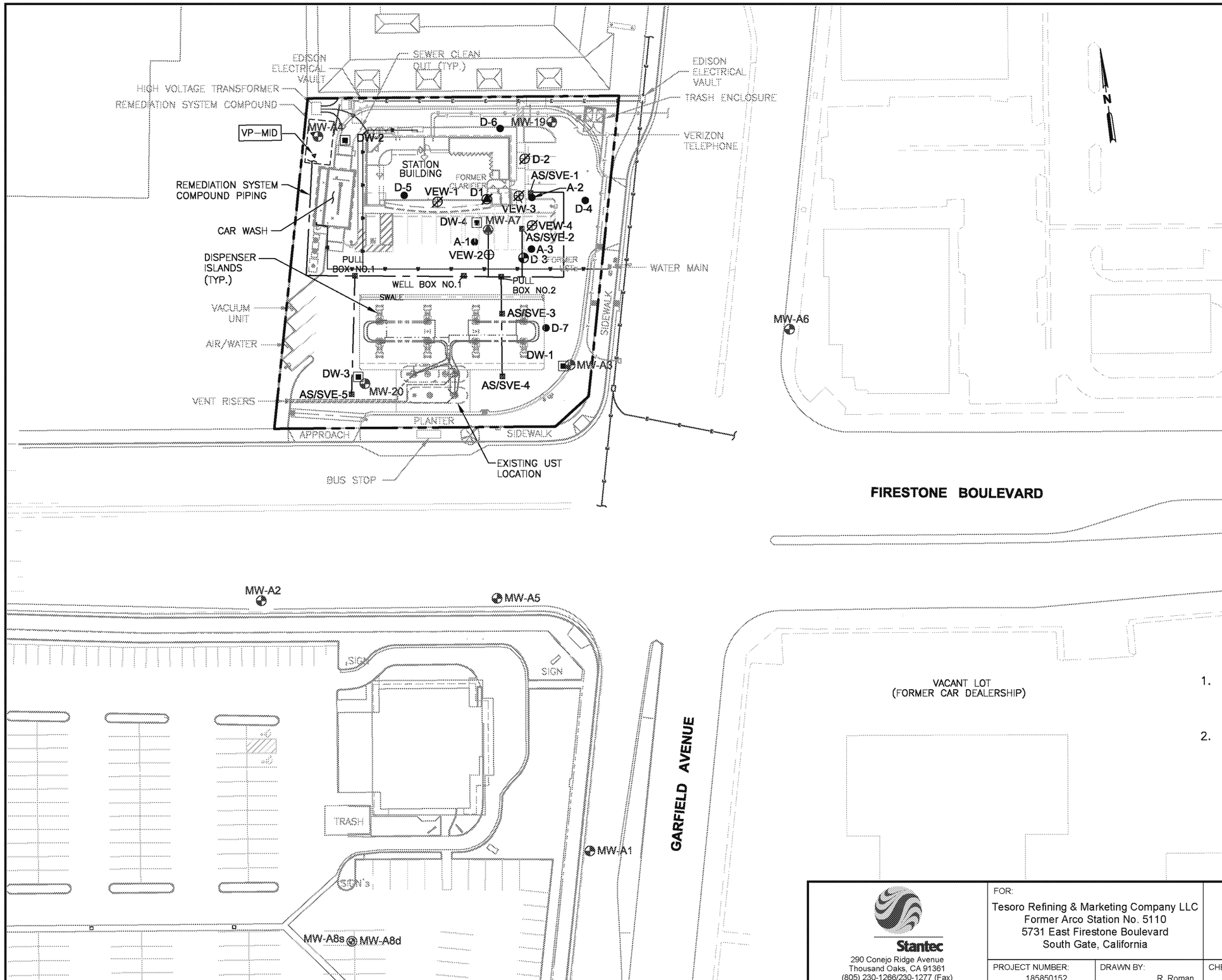

LEGEND

	APPROXIMATE SITE PROPERTY LINE
	2" ENVIRON DOUBLE WALL GEOFLEX-D PRODUCT PIPING
	2" OR 3" F.G. SINGLE WALL VAPOR RECOVERY PIPING
	2" F.G. SINGLE WALL VENT PIPING
	ELECTRICAL LINE
	GAS LINE
	WATER LINE
	TELEPHONE LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL LOCATIONS
VEW-2	SOIL VAPOR EXTRACTION WELL LOCATIONS
D1	ABANDONED DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-1	ABANDONED SOIL VAPOR EXTRACTION WELL LOCATIONS
AS/SVE-1	18" DIAMETER VAULT/NESTED AIR SPARGE/SOIL VAPOR EXTRACTION WELL LOCATIONS
D-4	SOIL BORING LOCATIONS
DW-1	iSOC™ DIFFUSION WELL LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINVALE TERMINAL)

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1-1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 60 120

APPROXIMATE SCALE (FEET)

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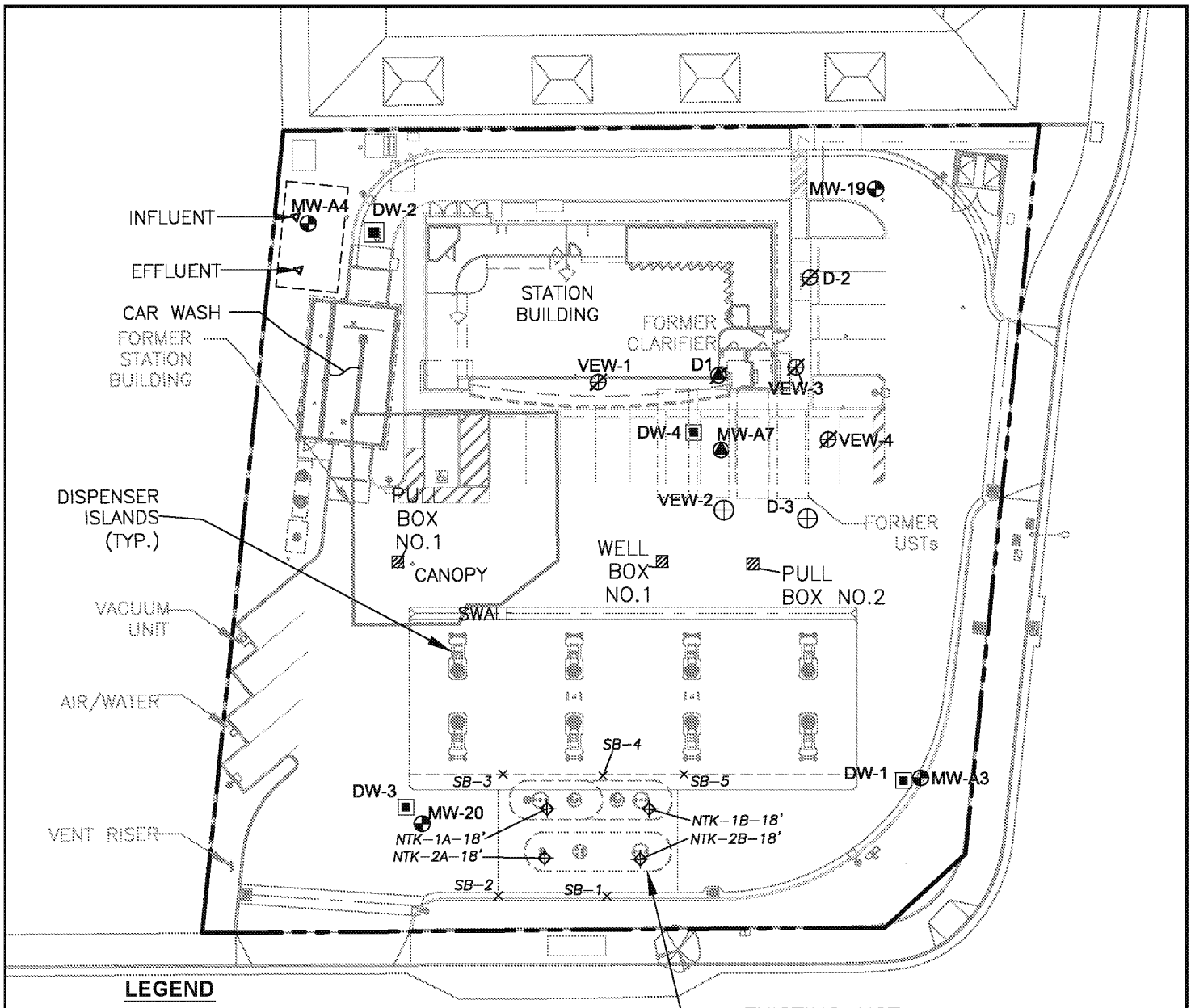
SITE MAP SHOWING SOIL BORING, REMEDIAL WELL, AND PIPING LOCATIONS

FIGURE: **3**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstein	R. Couture	07/15/13



LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
MW-20	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR
VEW-4	EXTRACTION WELL LOCATIONS SOIL VAPOR EXTRACTION WELL LOCATIONS
D1	ABANDONED DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-1	ABANDONED SOIL VAPOR EXTRACTION WELL LOCATIONS
NTK-1A-18'	NEW UST ENCLOSURE SAMPLE LOCATIONS
SB-1	SHORING SAMPLE LOCATIONS
DW-1	iSOC DIFFUSION WELL LOCATIONS

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1-1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 40 80

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SITE MAP SHOWING UST AND SHORING SAMPLE LOCATIONS

FIGURE: **4**

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185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

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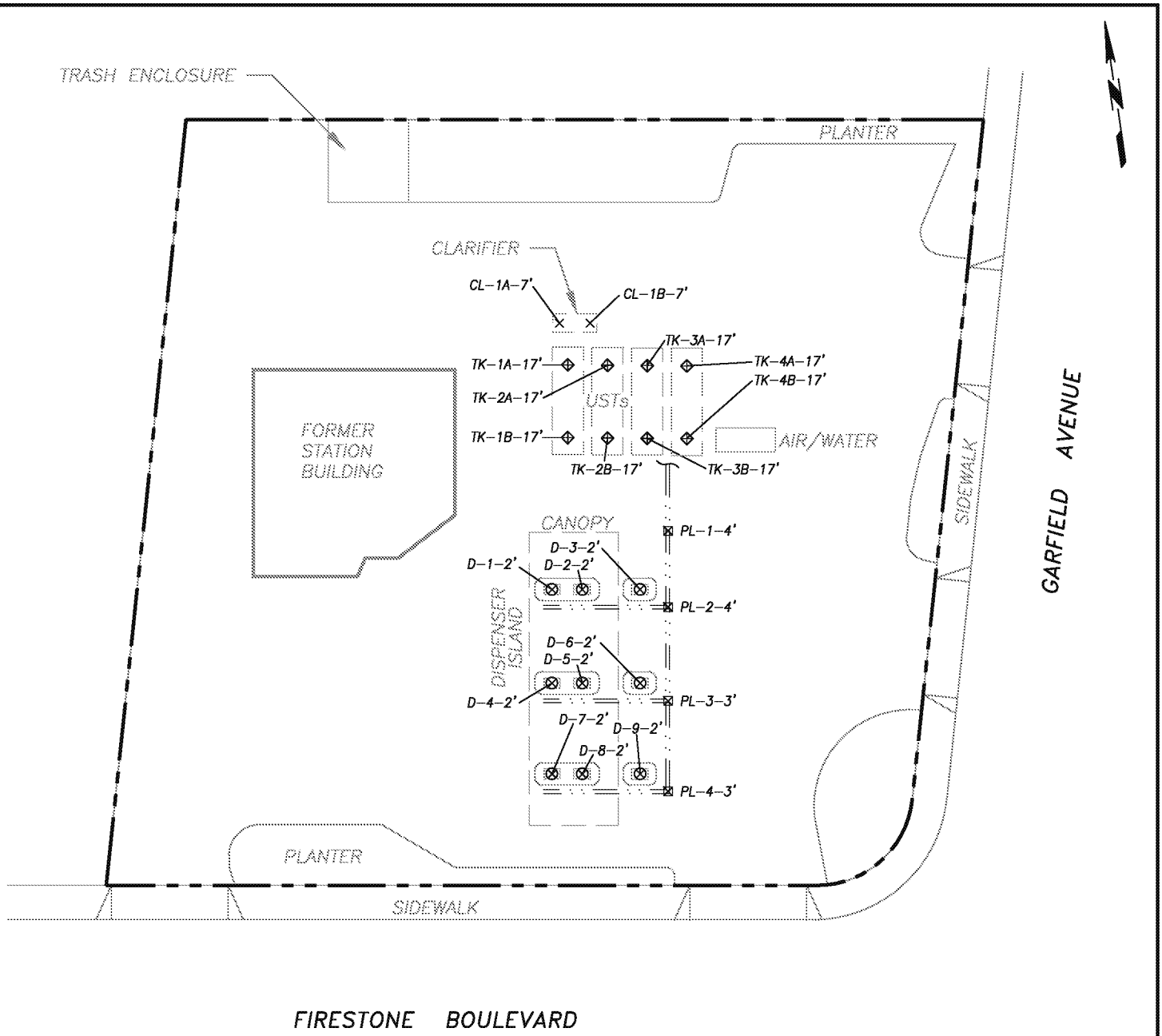

LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
— · · — · · —	PRODUCT PIPING LOCATIONS
D-1-2' ⊗	DISPENSER SAMPLE LOCATIONS
PL-1-4' ⊠	PRODUCT LINE SAMPLE LOCATIONS
TK-1A-17' ⊕	USTs SAMPLE LOCATIONS
CL-1A-7' ×	CLARIFIER SAMPLE LOCATIONS

NOTES:

1. NOT A SURVEYED MAP, SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 40 80

APPROXIMATE SCALE IN FEET

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South Gate, California

SITE MAP SHOWING FORMER UST, PRODUCT PIPING, AND DISPENSER SAMPLE LOCATIONS

FIGURE: **5**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

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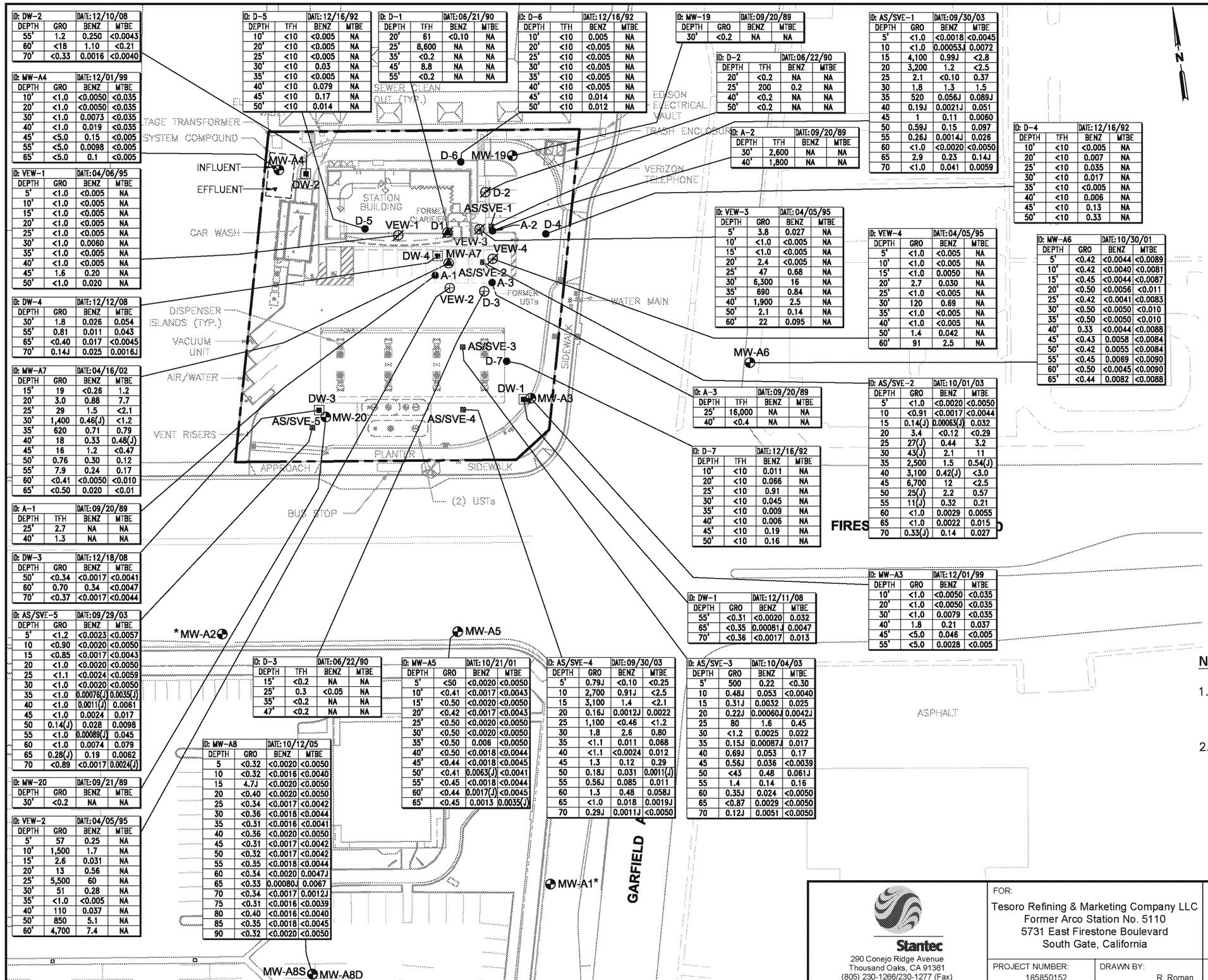


ID: DW-2		DATE: 12/10/08	
DEPTH	GRO	BENZ	MTBE
55'	1.2	0.250	<0.0043
60'	<18	1.10	<0.21
70'	<0.33	0.0016	<0.0040

ID: MW-A4		DATE: 12/01/99	
DEPTH	GRO	BENZ	MTBE
10'	<1.0	<0.0050	<0.035
20'	<1.0	<0.0050	<0.035
30'	<1.0	0.0073	<0.035
40'	<1.0	0.019	<0.035
45'	<5.0	0.15	<0.005
55'	<5.0	0.0098	<0.005
65'	<5.0	0.1	<0.005

ID: VEW-1		DATE: 04/06/95	
DEPTH	GRO	BENZ	MTBE
5'	<1.0	<0.005	NA
10'	<1.0	<0.005	NA
15'	<1.0	<0.005	NA
20'	<1.0	<0.005	NA
25'	<1.0	<0.005	NA
30'	<1.0	0.0060	NA
35'	<1.0	<0.005	NA
40'	<1.0	<0.005	NA
45'	1.6	0.20	NA
50'	<1.0	0.020	NA

ID: DW-4		DATE: 12/12/08	
DEPTH	GRO	BENZ	MTBE
30'	1.8	0.026	0.054
55'	0.81	0.011	0.043
65'	<0.40	0.017	<0.0045
70'	0.14J	0.025	0.0016J

ID: MW-A7		DATE: 04/16/02	
DEPTH	GRO	BENZ	MTBE
15'	19	<0.26	1.2
20'	3.0	0.88	7.7
25'	29	1.5	<2.1
30'	1,400	0.46(J)	<1.2
35'	620	0.71	0.79
40'	18	0.33	0.48(J)
45'	16	1.2	<0.47
50'	0.76	0.30	0.12
55'	7.9	0.24	0.17
60'	<0.41	<0.0050	<0.010
65'	<0.50	0.020	<0.01

ID: A-1		DATE: 09/20/89	
DEPTH	TFH	BENZ	MTBE
25'	2.7	NA	NA
40'	1.3	NA	NA

ID: DW-3		DATE: 12/18/08	
DEPTH	GRO	BENZ	MTBE
50'	<0.34	<0.0017	<0.0041
60'	0.70	0.34	<0.0047
70'	<0.37	<0.0017	<0.0044

ID: AS/SVE-5		DATE: 09/29/03	
DEPTH	GRO	BENZ	MTBE
5'	<1.2	<0.0023	<0.0057
10	<0.90	<0.0020	<0.0050
15	<0.85	<0.0017	<0.0043
20	<1.0	<0.0020	<0.0050
25	<1.1	<0.0024	<0.0059
30	<1.0	<0.0020	<0.0050
35	<1.0	0.00076(J)	0.0035(J)
40	<1.0	0.0011(J)	0.0061
45	<1.0	0.0024	0.017
50	0.14(J)	0.028	0.0098
55	<1.0	0.00089(J)	0.045
60	<1.0	0.0074	0.079
65	0.28(J)	0.19	0.0062
70	<0.89	<0.0017	0.0024(J)

ID: MW-20		DATE: 09/21/89	
DEPTH	GRO	BENZ	MTBE
30'	<0.2	NA	NA

ID: VEW-2		DATE: 04/05/95	
DEPTH	GRO	BENZ	MTBE
5'	57	0.25	NA
10'	1,500	1.7	NA
15'	2.6	0.031	NA
20'	13	0.56	NA
25'	5,500	60	NA
30'	51	0.28	NA
35'	<1.0	<0.005	NA
40'	110	0.037	NA
50'	850	5.1	NA
60'	4,700	7.4	NA

ID: D-5		DATE: 12/16/92	
DEPTH	TFH	BENZ	MTBE
10'	<10	<0.005	NA
20'	<10	<0.005	NA
25'	<10	<0.005	NA
30'	<10	0.03	NA
35'	<10	<0.005	NA
40'	<10	0.079	NA
45'	<10	0.17	NA
50'	<10	0.014	NA

ID: D-1		DATE: 06/21/90	
DEPTH	TFH	BENZ	MTBE
20'	61	<0.10	NA
25'	8,600	NA	NA
35'	<0.2	NA	NA
45'	8.8	NA	NA
55'	<0.2	NA	NA

ID: D-6		DATE: 12/16/92	
DEPTH	TFH	BENZ	MTBE
10'	<10	0.005	NA
20'	<10	<0.005	NA
25'	<10	<0.005	NA
30'	<10	<0.005	NA
35'	<10	<0.005	NA
40'	<10	<0.005	NA
45'	<10	0.014	NA
50'	<10	0.012	NA

ID: MW-19		DATE: 09/20/89	
DEPTH	GRO	BENZ	MTBE
30'	<0.2	NA	NA

ID: D-2		DATE: 06/22/90	
DEPTH	TFH	BENZ	MTBE
20'	<0.2	NA	NA
25'	200	0.2	NA
40'	<0.2	NA	NA
50'	<0.2	NA	NA

ID: A-2		DATE: 09/20/89	
DEPTH	TFH	BENZ	MTBE
30'	2,600	NA	NA
40'	1,800	NA	NA

ID: AS/SVE-1		DATE: 09/30/03	
DEPTH	GRO	BENZ	MTBE
5'	<1.0	<0.0018	<0.0045
10	<1.0	0.00053J	0.0072
15	4,100	0.99J	<2.8
20	3,200	1.2	<2.5
25	2.1	<0.10	0.37
30	1.8	1.3	1.5
35	520	0.056J	0.089J
40	0.19J	0.0021J	0.051
45	1	0.11	0.0060
50	0.59J	0.15	0.097
55	0.26J	0.0014J	0.026
60	<1.0	<0.0020	<0.0050
65	2.9	0.23	0.14J
70	<1.0	0.041	0.0059

ID: D-4		DATE: 12/16/92	
DEPTH	TFH	BENZ	MTBE
10'	<10	<0.005	NA
20'	<10	0.007	NA
25'	<10	0.035	NA
30'	<10	0.017	NA
35'	<10	<0.005	NA
40'	<10	0.006	NA
45'	<10	0.13	NA
50'	<10	0.33	NA

ID: VEW-3		DATE: 04/05/95	
DEPTH	GRO	BENZ	MTBE
5'	3.8	0.027	NA
10'	<1.0	<0.005	NA
15'	<1.0	<0.005	NA
20'	2.4	<0.005	NA
25'	47	0.68	NA
30'	6,300	16	NA
35'	690	0.84	NA
40'	1,900	2.5	NA
50'	2.1	0.14	NA
60'	22	0.095	NA

ID: VEW-4		DATE: 04/05/95	
DEPTH	GRO	BENZ	MTBE
5'	<1.0	<0.005	NA
10'	<1.0	<0.005	NA
15'	<1.0	0.0050	NA
20'	2.7	0.030	NA
25'	<1.0	<0.005	NA
30'	120	0.69	NA
35'	<1.0	<0.005	NA
40'	<1.0	<0.005	NA
50'	1.4	0.042	NA
60'	91	2.5	NA

ID: MW-A6		DATE: 10/30/01	
DEPTH	GRO	BENZ	MTBE
5'	<0.42	<0.0044	<0.0089
10'	<0.42	<0.0040	<0.0081
15'	<0.45	<0.0044	<0.0087
20'	<0.50	<0.0056	<0.011
25'	<0.42	<0.0041	<0.0083
30'	<0.50	<0.0050	<0.010
35'	<0.50	<0.0050	<0.010
40'	0.33	<0.0044	<0.0088
45'	<0.43	0.0058	<0.0084
50'	<0.42	0.0055	<0.0084
55'	<0.45	0.0069	<0.0090
60'	<0.50	<0.0045	<0.0090
65'	<0.44	0.0082	<0.0088

ID: A-3		DATE: 09/20/89	
DEPTH	TFH	BENZ	MTBE
25'	16,000	NA	NA
40'	<0.4	NA	NA

ID: AS/SVE-2		DATE: 10/01/03	
DEPTH	GRO	BENZ	MTBE
5'	<1.0	<0.0020	<0.0050
10	<0.91	<0.0017	<0.0044
15	0.14(J)	0.00063(J)	0.032
20	3.4	<0.12	<0.29
25	27(J)	0.44	3.2
30	43(J)	2.1	11
35	2,500	1.5	0.54(J)
40	3,100	0.42(J)	<3.0
45	6,700	12	<2.5
50	25(J)	2.2	0.57
55	11(J)	0.32	0.21
60	<1.0	0.0029	0.0055
65	<1.0	0.0022	0.015
70	0.33(J)	0.14	0.027

ID: D-7		DATE: 12/16/92	
DEPTH	TFH	BENZ	MTBE
10'	<10	0.011	NA
20'	<10	0.066	NA
25'	<10	0.91	NA
30'	<10	0.045	NA
35'	<10	0.009	NA
40'	<10	0.006	NA
45'	<10	0.19	NA
50'	<10	0.16	NA

ID: MW-A3		DATE: 12/01/99	
DEPTH	GRO	BENZ	MTBE
10'	<1.0	<0.0050	<0.035
20'	<1.0	<0.0050	<0.035
30'	<1.0	0.0079	<0.035
40'	1.8	0.21	0.037
45'	<5.0	0.046	<0.005
55'	<5.0	0.0028	<0.005

ID: DW-1		DATE: 12/11/08	
DEPTH	GRO	BENZ	MTBE
55'	<0.31	<0.0020	0.032
65'	<0.35	0.00081J	0.0047
70'	<0.36	<0.0017	0.013

ID: D-3		DATE: 06/22/90	
DEPTH	TFH	BENZ	MTBE
15'	<0.2	NA	NA
25'	0.3	<0.05	NA
35'	<0.2	NA	NA
47'	<0.2	NA	NA

ID: MW-A5		DATE: 10/21/01	
DEPTH	GRO	BENZ	MTBE
5'	<50	<0.0020	<0.0050
10'	<0.41	<0.0017	<0.0043
15'	<0.50	<0.0020	<0.0050
20'	<0.42	<0.0017	<0.0043
25'	<0.50	<0.0020	<0.0050
30'	<0.50	<0.0020	<0.0050
35'	<0.50	0.006	<0.0050
40'	<0.50	<0.0018	<0.0044
45'	<0.44	<0.0018	<0.0045
50'	<0.41	0.0063(J)	<0.0041
55'	<0.45	<0.0018	<0.0044
60'	<0.44	0.0017(J)	<0.0045
65'	<0.45	0.0013	0.0035(J)

ID: AS/SVE-4		DATE: 09/30/03	
DEPTH	GRO	BENZ	MTBE
5'	0.79J	<0.10	<0.25
10	2,700	0.91J	<2.5
15	3,100	1.4	<2.1
20	0.16J	0.0012J	0.0022
25	1,100	<0.46	<1.2
30	1.8	2.6	0.80
35	<1.1	0.011	0.068
40	<1.1	<0.0024	0.012
45	1.3	0.12	0.29
50	0.18J	0.031	0.0011(J)
55	0.56J	0.085	0.011
60	1.3	0.48	0.058J
65	<1.0	0.018	0.0019J
70	0.29J	0.0011J	<0.0050

ID: AS/SVE-3		DATE: 10/04/03	
DEPTH	GRO	BENZ	MTBE
5'	500	0.22	<0.30
10	0.48J	0.053	<0.0040
15	0.31J	0.0032	0.025
20	0.22J	0.00060J	0.0042J
25	80	1.6	0.45
30	<1.2	0.0025	0.022
35	0.15J	0.00087J	0.017
40	0.69J	0.053	0.17
45	0.56J	0.036	<0.0039
50	<43	0.48	0.061J
55	1.4	0.14	0.16
60	0.35J	0.024	<0.0050
65	<0.87	0.0029	<0.0050
70	0.12J	0.0051	<0.0050

ID: MW-A8		DATE: 10/12/05	
DEPTH	GRO	BENZ	MTBE
5	<0.32	<0.0020	<0.0050
10	<0.32	<0.0016	<0.0040
15	4.7J	<0.0020	<0.0050
20	<0.40	<0.0020	<0.0050
25	<0.34	<0.0017	<0.0042
30	<0.36	<0.0018	<0.0044
35	<0.31	<0.0016	<0.0041
40	<0.36	<0.0020	<0.0050
45	<0.31	<0.0017	<0.0042
50	<0.32	<0.0017	<0.0042
55	<0.35	<0.0018	<0.0044
60	<0.34	<0.0020	0.0047J
65	<0.33	0.00080J	0.0067
70	<0.34	<0.0017	0.0012J
75	<0.31	<0.0016	<0.0039
80	<0.40	<0.0016	<0.0040
85	<0.35	<0.0018	<0.0045
90	<0.32	<0.0020	<0.0050

LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
MW-20	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-2	SOIL VAPOR EXTRACTION WELL LOCATIONS
D1	ABANDONED DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-1	ABANDONED SOIL VAPOR EXTRACTION WELL LOCATIONS
AS/SVE-1	18" DIAMETER VAULT/NESTED AIR SPARGE/SOIL VAPOR EXTRACTION WELL LOCATIONS
D-4	SOIL BORING LOCATIONS
DW-1	ISOC DIFFUSION WELL LOCATIONS

DEPTH	TFH	BENZ	MTBE

SOIL SAMPLE DEPTH WITH CORRESPONDING TOTAL FUEL HYDROCARBONS, BENZENE, AND MTBE CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

DEPTH	GRO	BENZ	MTBE

SOIL SAMPLE DEPTH WITH CORRESPONDING GASOLINE RANGE ORGANICS (C4–C12), BENZENE, AND MTBE CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

NA	NOT AVAILABLE
(J)	ESTIMATED VALUE BELOW THE REPORTING LIMIT
*	DATA NOT AVAILABLE (DRILLED PRIOR TO 01/30/98)

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 60 120

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

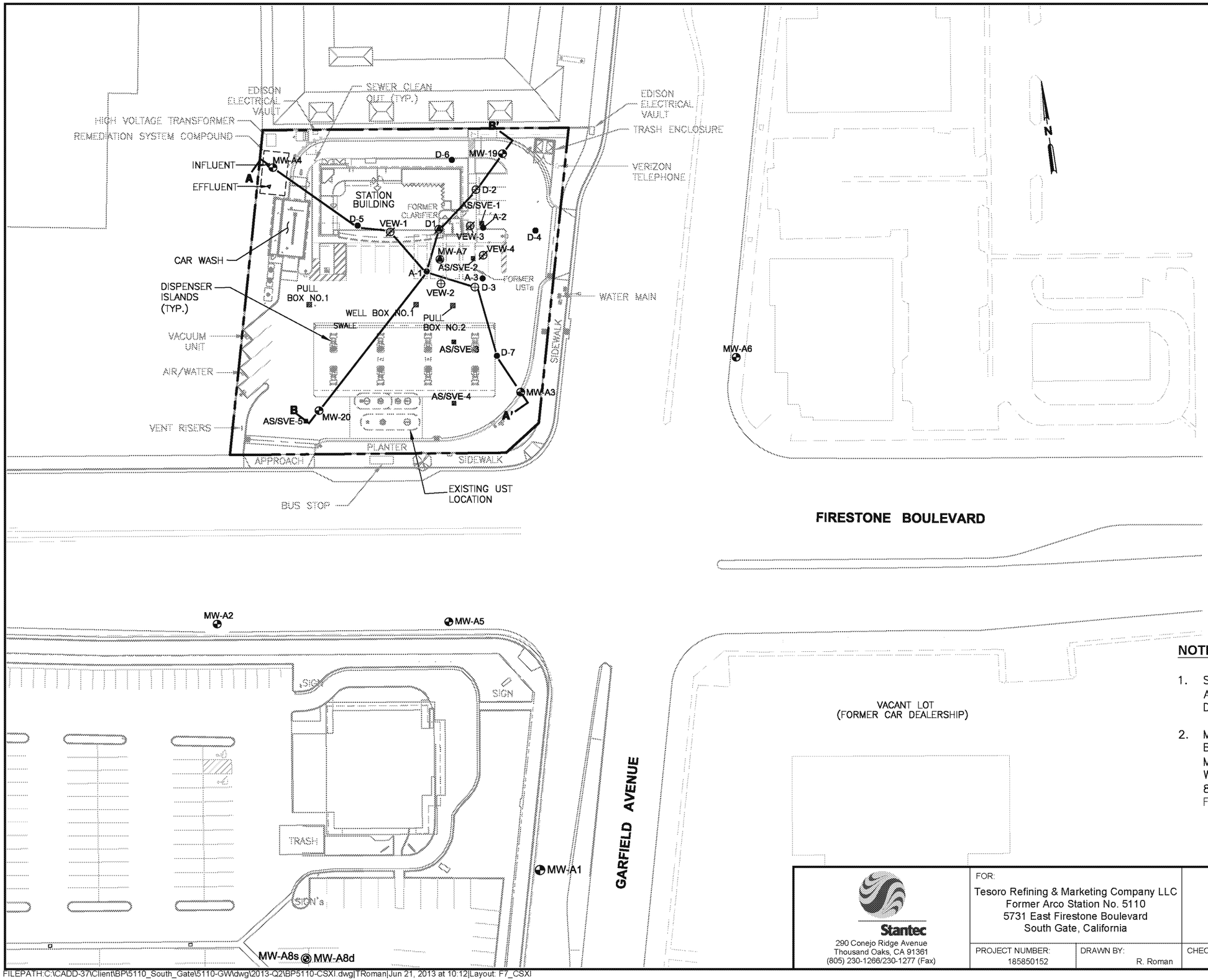
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

SITE MAP SHOWING HYDROCARBON CONCENTRATIONS IN SOIL

FIGURE: **6**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	R. Couture	T. Wong	02/19/09

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110-HYD.dwg|TRoman|Jun 25, 2013 at 10:35|Layout: F6_HYD



LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
A——A'	CROSS-SECTION INDEX LINE
MW-20	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
MW-A8/D	NESTED GROUNDWATER MONITORING WELL LOCATIONS
VEW-2	SOIL VAPOR EXTRACTION WELL LOCATIONS
D1	ABANDONED DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-1	ABANDONED SOIL VAPOR EXTRACTION WELL LOCATIONS
AS/SVE-1	18" DIAMETER VAULT/NESTED AIR SPARGE/SOIL VAPOR EXTRACTION WELL LOCATIONS
D-4	SOIL BORING LOCATIONS

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1-1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 60 120

APPROXIMATE SCALE (FEET)

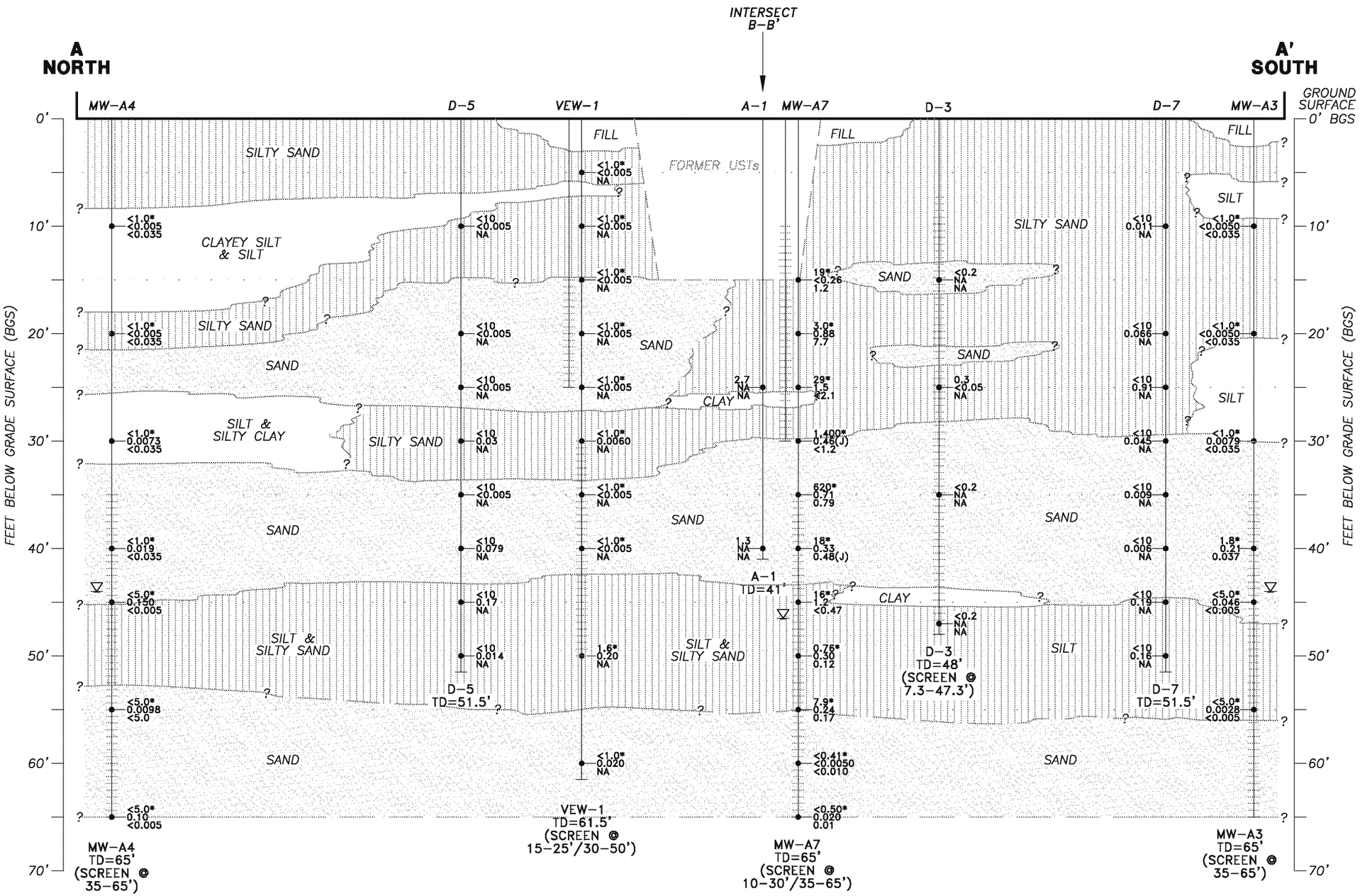
Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

SITE MAP SHOWING CROSS-SECTION INDEX

FIGURE: **7**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13



LEGEND

- SAND TO GRAVELLY SAND
- SAND WITH SILT/SILTY SAND
- SILT/CLAYEY SILT/SILTY CLAY/CLAY
- SW — WELL GRADED SAND
- SP — POORLY GRADED SAND
- SP-SM — POORLY GRADED SAND WITH SILT
- SM — SILTY SAND
- ML — SILT/CLAYEY SILT
- CL — CLAY/SILTY CLAY/SANDY CLAY
- TFH BENZ MTBE — SOIL SAMPLE LOCATIONS WITH TOTAL FUEL HYDROCARBONS, BENZENE AND MTBE CONCENTRATIONS REPORTED IN MILLIGRAMS PER KILOGRAM (mg/Kg)
- TPHg* — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATIONS REPORTED IN MILLIGRAMS PER KILOGRAM (mg/Kg)
- NA — NOT AVAILABLE
- LITHOLOGIC CONTACTS OF LATERALLY CONTINUOUS SOIL HORIZON
- INFERRED LITHOLOGIC CONTACT, DASHED OR QUERIED (?) WHERE APPROXIMATED
- DEPTH TO GROUNDWATER (BGS) ENCOUNTERED DURING DRILLING
- SCREENED INTERVAL OF WELL TOTAL BORING DEPTH

NOTES:

1. GROUND SURFACE NOT ADJUSTED TO DEPICT ACTUAL ELEVATIONS.
2. HORIZONTAL EXAGGERATION OF WELLS DONE FOR CLARITY. FIGURE DOES NOT REFLECT ACTUAL BOREHOLE DIAMETERS.

HORIZONTAL SCALE IN FEET: 20 0 20 40

VERTICAL SCALE IN FEET: 10 0 10 20

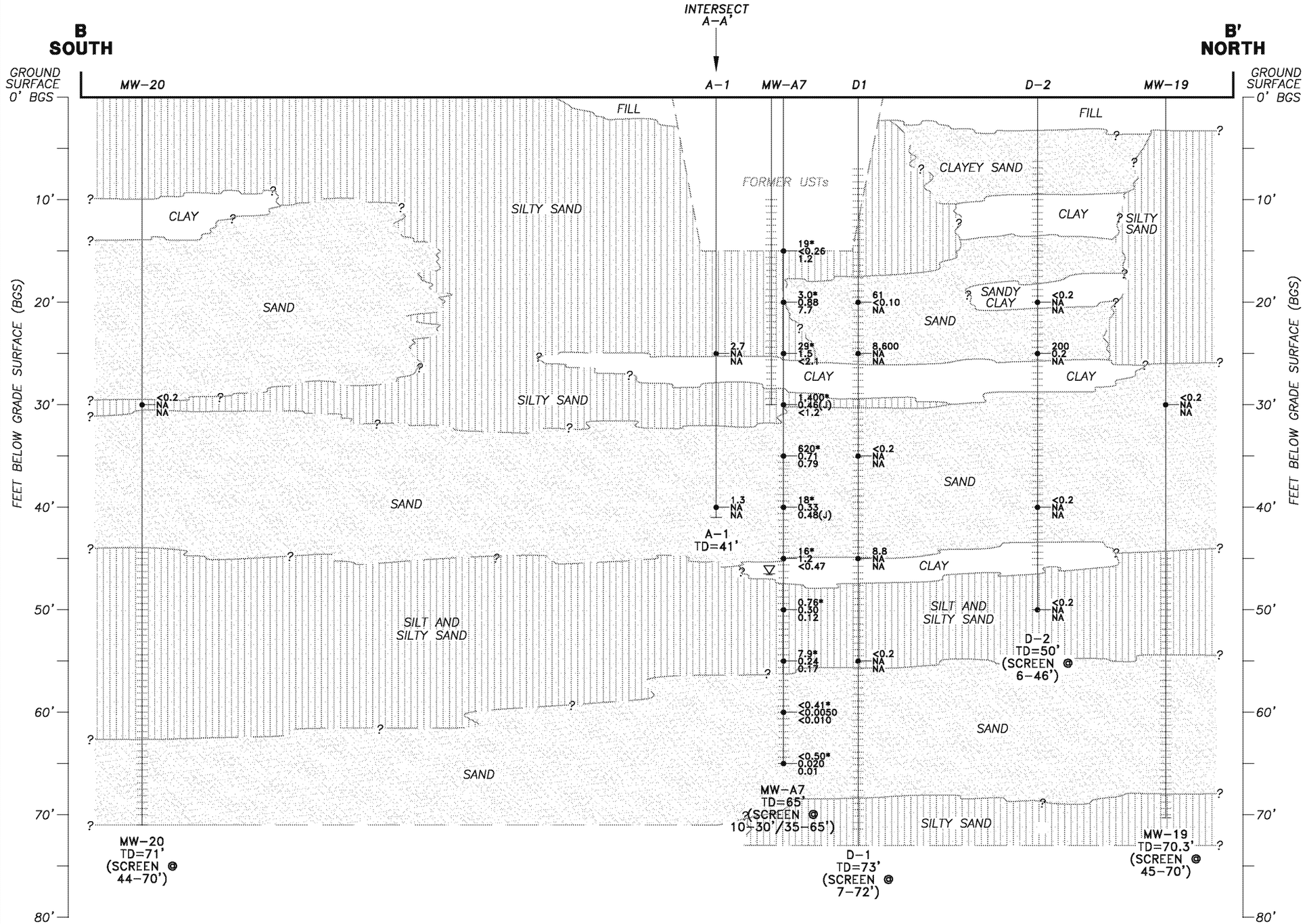
Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

CROSS-SECTION A-A'

FIGURE: **8**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13



LEGEND

- SAND TO GRAVELLY SAND/CLAYEY SAND
- SAND WITH SILT/SILTY SAND
- SILT/CLAYEY SILT/SILTY CLAY/CLAY/SANDY CLAY
- SW — WELL GRADED SAND
- SP — POORLY GRADED SAND
- SP–SM — POORLY GRADED SAND WITH SILT
- SM — SILTY SAND
- ML — SILT/CLAYEY SILT
- CL — CLAY/SILTY CLAY
- TEH / BENZ / MTBE — SOIL SAMPLE LOCATIONS WITH TOTAL FUEL HYDROCARBONS, BENZENE AND MTBE CONCENTRATIONS REPORTED IN MILLIGRAMS PER KILOGRAM (mg/Kg)
- TPHg* — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATIONS REPORTED IN MILLIGRAMS PER KILOGRAM (mg/Kg)
- NA — NOT AVAILABLE
- LITHOLOGIC CONTACTS OF LATERALLY CONTINUOUS SOIL HORIZON
- INFERRED LITHOLOGIC CONTACT, DASHED OR QUERIED (?) WHERE APPROXIMATED
- DEPTH TO GROUNDWATER (BGS) ENCOUNTERED DURING DRILLING
- SCREENED INTERVAL OF WELL TOTAL BORING DEPTH

NOTES:

1. GROUND SURFACE NOT ADJUSTED TO DEPICT ACTUAL ELEVATIONS.
2. HORIZONTAL EXAGGERATION OF WELLS DONE FOR CLARITY. FIGURE DOES NOT REFLECT ACTUAL BOREHOLE DIAMETERS.

HORIZONTAL SCALE IN FEET: 20 0 20 40

VERTICAL SCALE IN FEET: 10 0 10 20

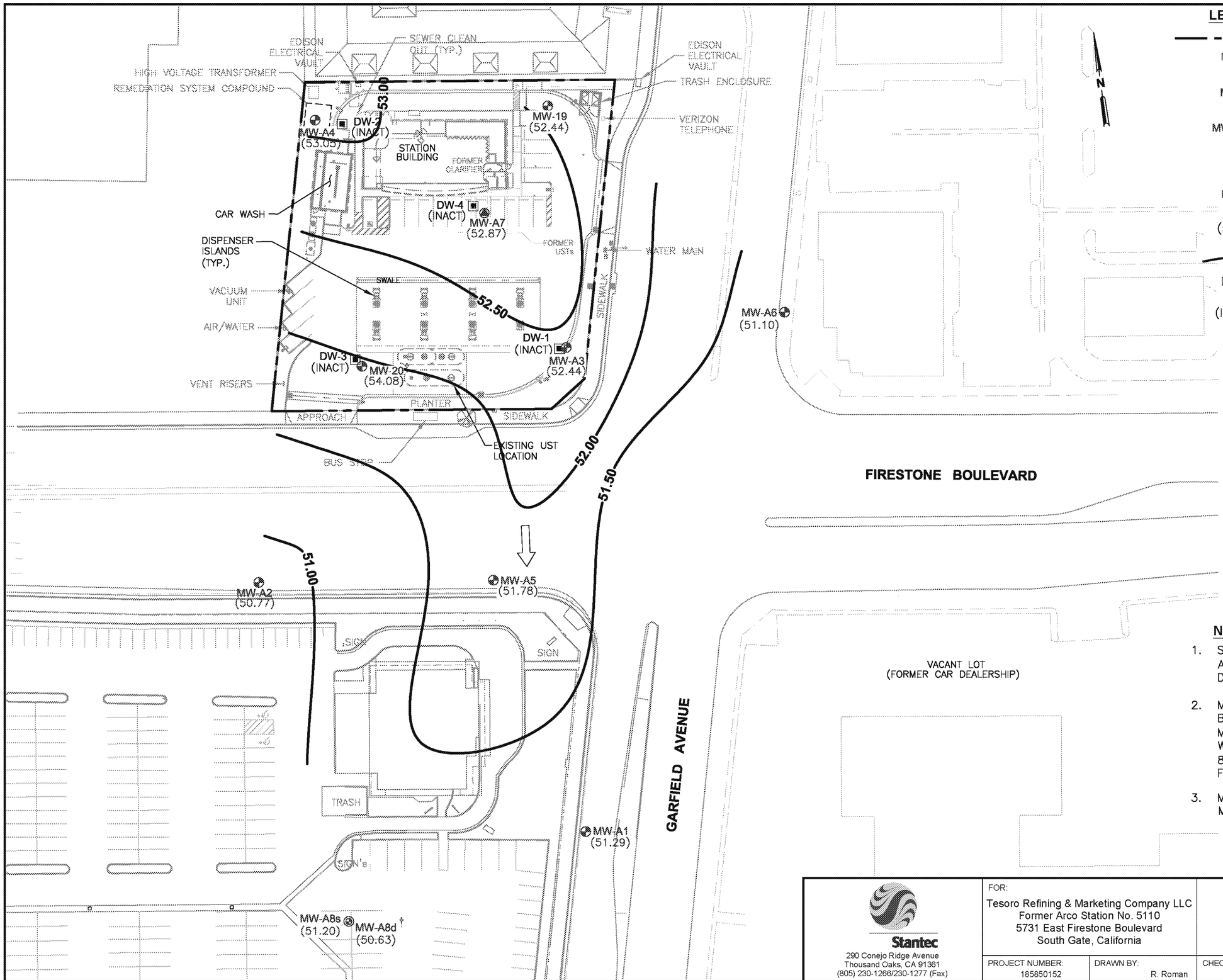
Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

CROSS-SECTION B-B'

FIGURE: **9**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13



LEGEND

— — —	APPROXIMATE SITE PROPERTY LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL LOCATIONS
DW-1	iSOC™ DIFFUSION WELL LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINVALE TERMINAL)
(54.08)	GROUNDWATER ELEVATION (Feet above mean sea level)
	GROUNDWATER ELEVATION CONTOUR LINE (DASHED WHERE INFERRED)
	GROUNDWATER FLOW DIRECTION
(INACT)	WELL INACTIVE; NOT INCLUDED IN GROUNDWATER MONITORING PROGRAM
†	ANOMALOUS DATA; NOT USED FOR CONTOURING PURPOSES
(–)	NOT MEASURED OR ANALYZED

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

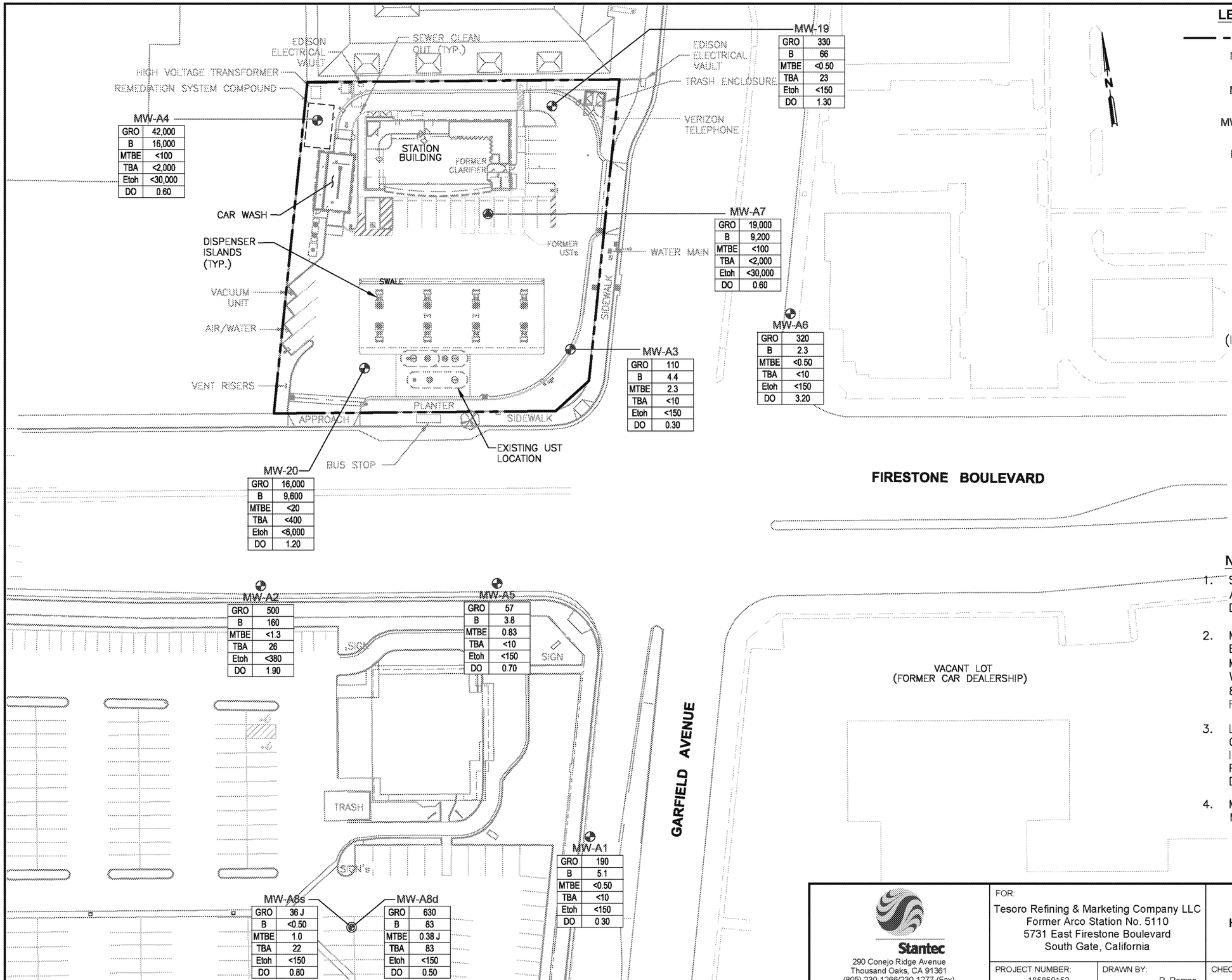
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

SITE MAP SHOWING GROUNDWATER CONTOUR

FIGURE: **10**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110_Q2GW13.dwg|TRoman|Jun 25, 2013 at 9:02|Layout: F10_GW



LEGEND

- APPROXIMATE SITE PROPERTY LINE
- MW-A6 — GROUNDWATER MONITORING WELL LOCATIONS
- MW-A7 — DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
- MW-A8 s/d — NESTED GROUNDWATER MONITORING WELL IN LOCATIONS
- MW-20 — GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINVALE TERMINAL)

GRO	GASOLINE RANGE ORGANICS (µg/L)
B	BENZENE (µg/L)
MTBE	METHYL–TERT–BUTYL ETHER (µg/L)
TBA	TERT–BUTYL ALCOHOL (µg/L)
Etoh	ETHANOL (µg/L)
DO	DISSOLVED OXYGEN (mg/L)

(J) ESTIMATED VALUE; BELOW LABORATORY REPORTING LIMIT AND AT OR ABOVE THE METHOD DETECTION LIMIT.

(INACT) WELL INACTIVE; NOT INCLUDED IN GROUNDWATER MONITORING PROGRAM

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. LABORATORY METHOD DETECTION LIMIT (MDL) CONCENTRATIONS MAY BE USED TO DETERMINE ISOCONTOUR LINE SPACING IF THE LABORATORY REPORTING LIMIT CONCENTRATIONS IS ELEVATED DUE TO DILUTION.
4. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

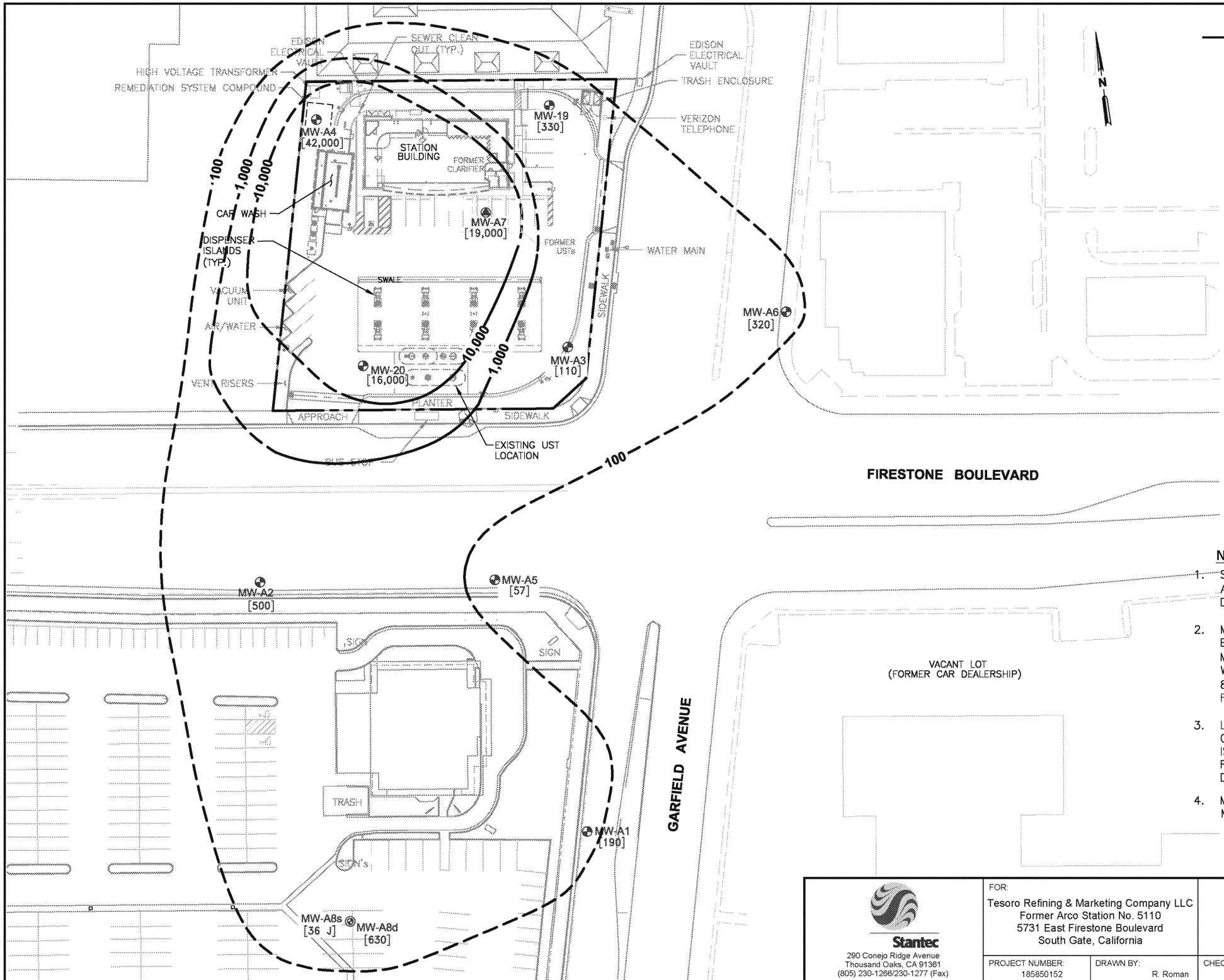
Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

SITE MAP SHOWING HYDROCARBON CONCENTRATION IN GROUNDWATER

FIGURE: **11**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13



LEGEND

— — —	APPROXIMATE SITE PROPERTY LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL IN LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINALE TERMINAL)
[GRO]	GASOLINE RANGE ORGANICS (C4–C12) CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
~	GRO ISOCONCENTRATION CONTOUR LINE (DASHED WHERE INFERRED)
J	ESTIMATED VALUE; BELOW LABORATORY REPORTING LIMIT AND AT OR ABOVE THE METHOD DETECTION LIMIT.

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. LABORATORY METHOD DETECTION LIMIT (MDL) CONCENTRATIONS MAY BE USED TO DETERMINE ISOCONTOUR LINE SPACING IF THE LABORATORY REPORTING LIMIT CONCENTRATIONS IS ELEVATED DUE TO DILUTION.
4. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

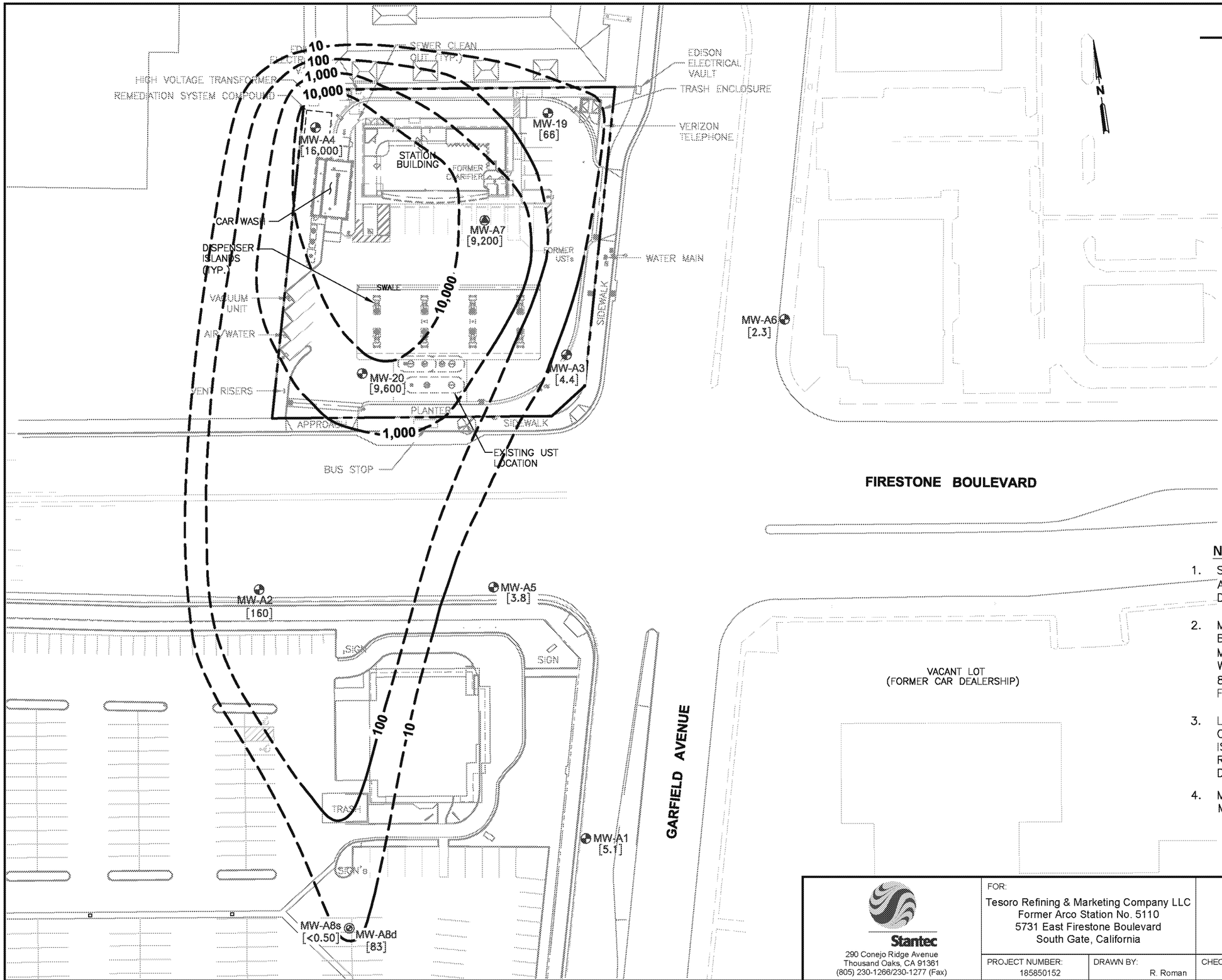
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

GRO ISOCONCENTRATION MAP

FIGURE: **12**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110_Q2GW13.dwg|TRoman|Jun 21, 2013 at 9:48|Layout: F12_GRO



LEGEND

— — —	APPROXIMATE SITE PROPERTY LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL IN LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINALE TERMINAL)
[BENZ]	BENZENE CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
	BENZENE ISOCONCENTRATION CONTOUR LINE (DASHED WHERE INFERRED)
J	ESTIMATED VALUE; BELOW LABORATORY REPORTING LIMIT AND AT OR ABOVE THE METHOD DETECTION LIMIT.

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. LABORATORY METHOD DETECTION LIMIT (MDL) CONCENTRATIONS MAY BE USED TO DETERMINE ISOCONTOUR LINE SPACING IF THE LABORATORY REPORTING LIMIT CONCENTRATIONS IS ELEVATED DUE TO DILUTION.
4. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

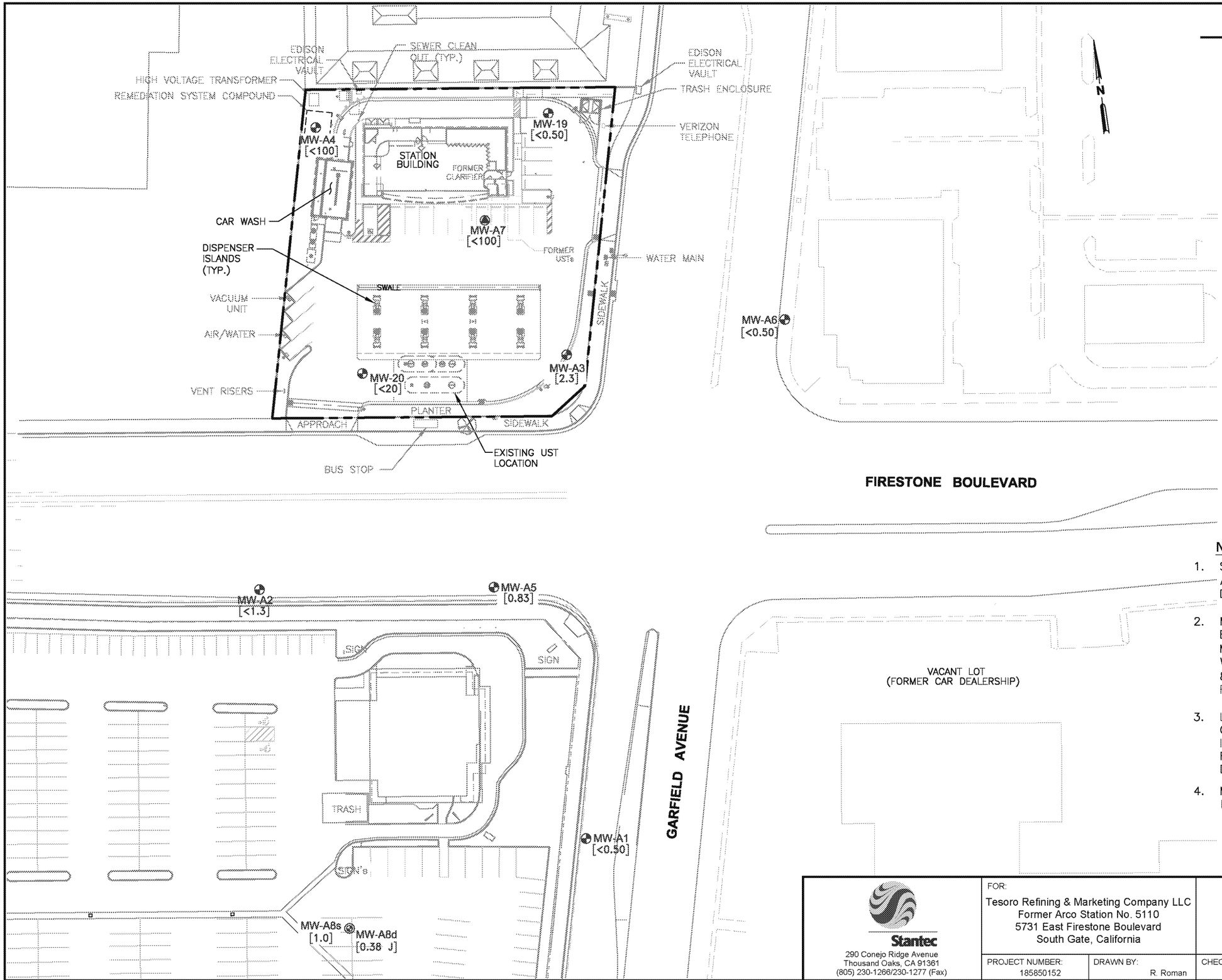
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

BENZENE ISOCONCENTRATION MAP

FIGURE: **13**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110_Q2GW13.dwg|TRoman|Jun 25, 2013 at 9:01|Layout: F13_BENZ



LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL IN LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINALE TERMINAL)
[MTBE]	METHYL–TERTIARY–BUTYL ETHER CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
~~	MTBE ISOCONCENTRATION CONTOUR LINE (DASHED WHERE INFERRED)
J	ESTIMATED VALUE; BELOW LABORATORY REPORTING LIMIT AND AT OR ABOVE THE METHOD DETECTION LIMIT.

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. LABORATORY METHOD DETECTION LIMIT (MDL) CONCENTRATIONS MAY BE USED TO DETERMINE ISOCONTOUR LINE SPACING IF THE LABORATORY REPORTING LIMIT CONCENTRATIONS IS ELEVATED DUE TO DILUTION.
4. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

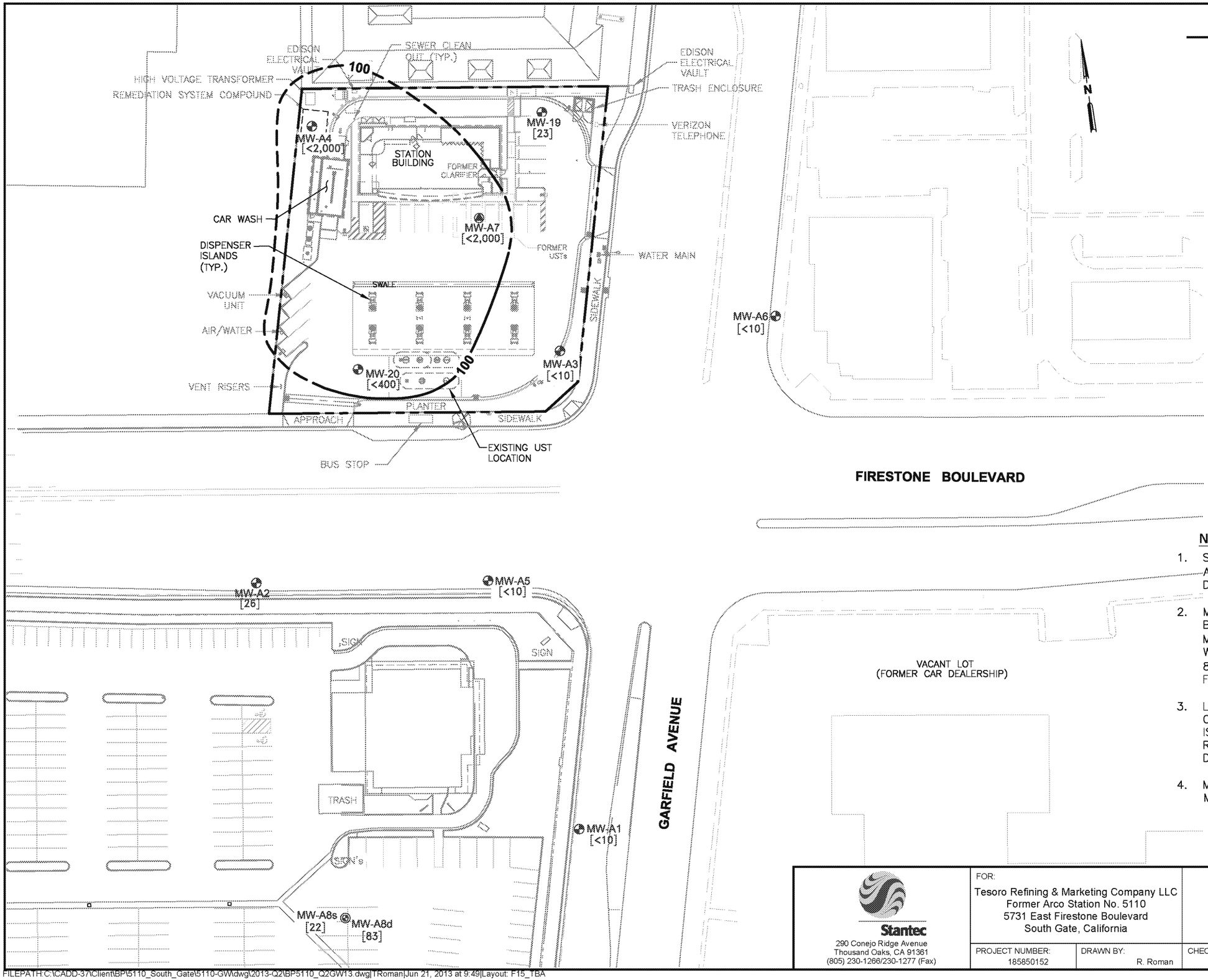
Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

MTBE ISOCONCENTRATION MAP

FIGURE: **14**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13



LEGEND

— — — —	APPROXIMATE SITE PROPERTY LINE
MW-A6	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATIONS
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL IN LOCATIONS
MW-20	GROUNDWATER MONITORING WELL LOCATIONS (ARCO VINALE TERMINAL)
[TBA]	TERTIARY BUTANOL CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
~	TERTIARY BUTANOL ISOCONCENTRATION CONTOUR LINE (DASHED WHERE INFERRED)
J	ESTIMATED VALUE; BELOW LABORATORY REPORTING LIMIT AND AT OR ABOVE THE METHOD DETECTION LIMIT.

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1–1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
3. LABORATORY METHOD DETECTION LIMIT (MDL) CONCENTRATIONS MAY BE USED TO DETERMINE ISOCONTOUR LINE SPACING IF THE LABORATORY REPORTING LIMIT CONCENTRATIONS IS ELEVATED DUE TO DILUTION.
4. MONITORING WELLS GAUGED AND SAMPLED ON MAY 7–8, 2013.

0 60 120

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

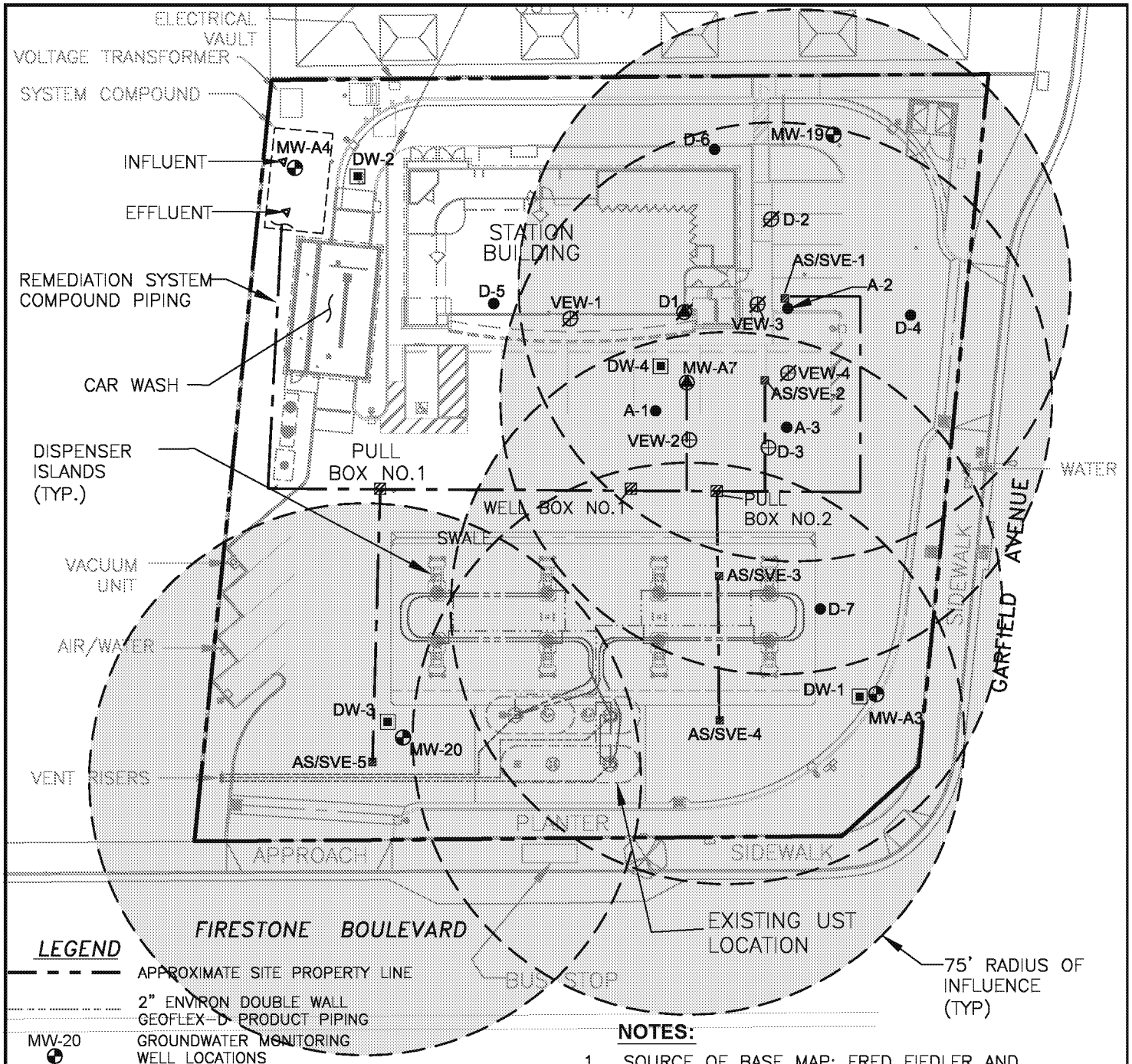
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

TBA ISOCONCENTRATION MAP

FIGURE: **15**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	A. Rubenstain	R. Couture	07/15/13

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110_Q2GW13.dwg|TRoman|Jun 21, 2013 at 9:49|Layout: F15_TBA



LEGEND

— — —	APPROXIMATE SITE PROPERTY LINE
.....	2" ENVIRON DOUBLE WALL GEOFLEX-D PRODUCT PIPING
MW-20	GROUNDWATER MONITORING WELL LOCATIONS
MW-A7	DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
MW-A8 s/d	NESTED GROUNDWATER MONITORING WELL LOCATIONS
VEW-2	SOIL VAPOR EXTRACTION WELL LOCATIONS
D1	ABANDONED DUAL COMPLETION GROUNDWATER MONITORING/SOIL VAPOR EXTRACTION WELL LOCATION
VEW-1	ABANDONED SOIL VAPOR EXTRACTION WELL LOCATIONS

NOTES:

1. SOURCE OF BASE MAP: FRED FIEDLER AND ASSOCIATES, NEW AM/PM FACILITY, SHEET TK1-1, DATED MARCH 4, 2002.
2. MONITORING/EXTRACTION WELLS SURVEYED BY AZIMUTH GROUP, DATED MAY 13, 2002. MONITORING/EXTRACTION/ISOC WELLS SURVEYED BY WM SURVEYS INC., DATED JANUARY 12, 2009. NAD 83 CALIFORNIA STATE PLANES, ZONE 5 (FT.). SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 40 80

APPROXIMATE SCALE (FEET)

Stantec
290 Conejo Ridge Avenue
Thousand Oaks, CA 91361
(805) 230-1266/230-1277 (Fax)

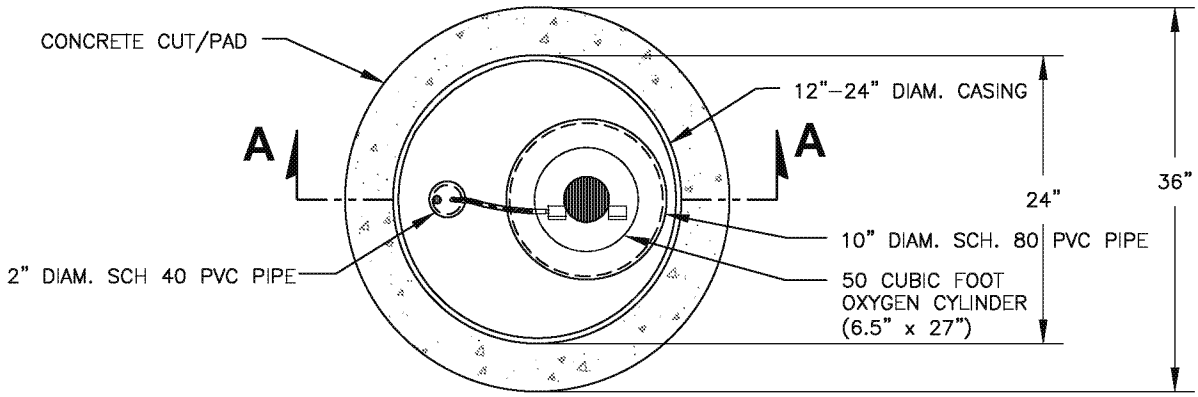
FOR:
Tesoro Refining & Marketing Company LLC
Former Arco Station No. 5110
5731 East Firestone Boulevard
South Gate, California

AS/SVE WELL LOCATIONS AND THEORETICAL ROI FOR SVE

FIGURE: **16**

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185850152	R. Roman	P. Lam	G. Roberts	1/15/09

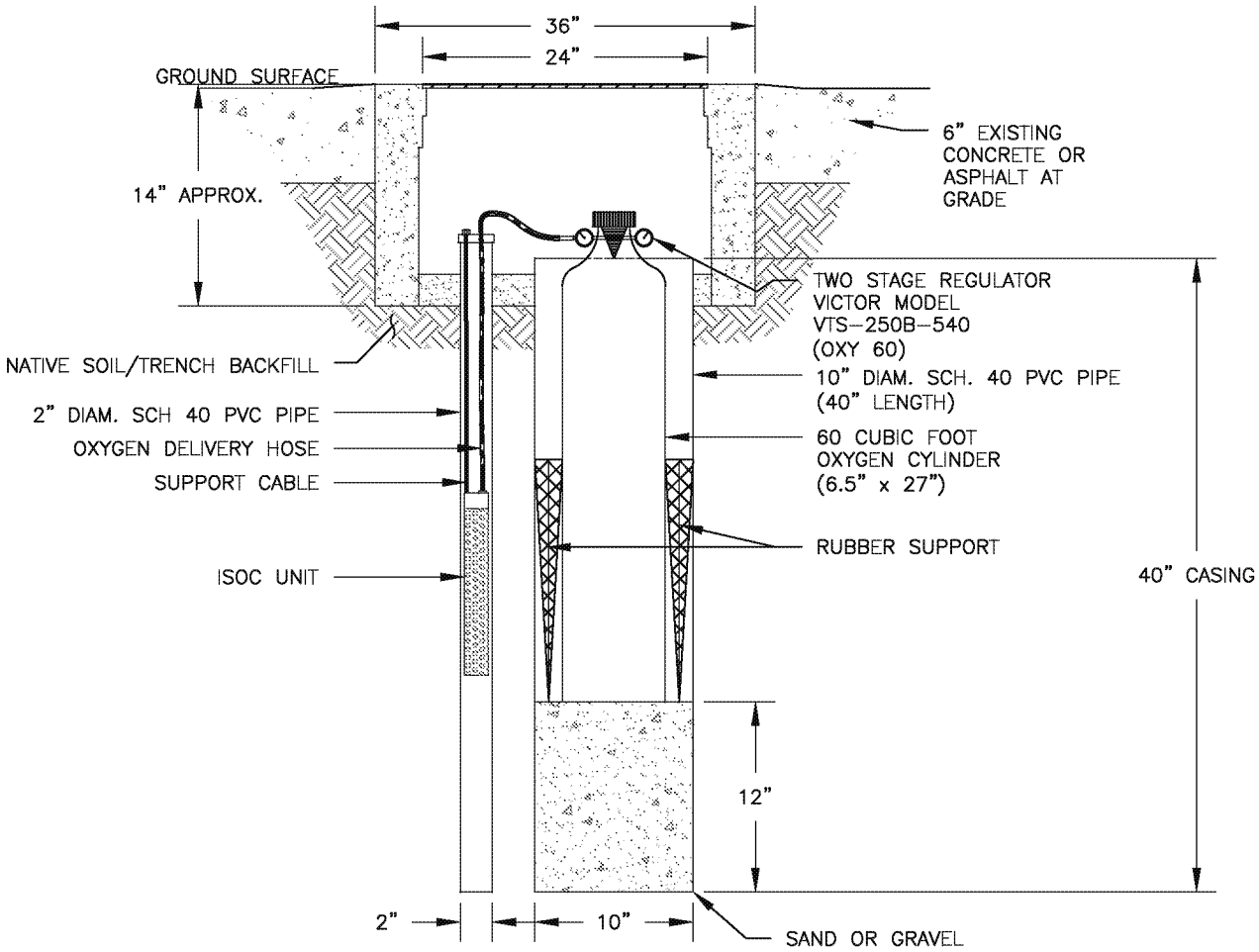
FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110-PWLROL.dwg|TRoman|Jun 25, 2013 at 10:38|Layout: F16_PWLROL



ISOC VAULT COMPLETION DETAIL

PLAN VIEW

SCALE: 1 IN. = 1 FT.



CONSTRUCTION NOTES:

1. ISOC SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL DEPTH PER REPORT.

SECTION A-A
ISOC VAULT COMPLETION DETAIL

ELEVATION VIEW

SCALE: 1 IN. = 1 FT.

0 1 2

APPROXIMATE SCALE (FEET)

Stantec 290 Conejo Ridge Avenue Thousand Oaks, CA 91361 (805) 230-1266/230-1277 (Fax)	FOR: Tesoro Refining & Marketing Company LLC Former Arco Station No. 5110 5731 East Firestone Boulevard South Gate, California	TYPICAL iSOC™ OXYGEN DIFFUSER WELL DIAGRAM		FIGURE: 17
	JOB NUMBER: 211802077	DRAWN BY: R. Roman	CHECKED BY: R. Couture	APPROVED BY: T. Wong	DATE: 10/15/09

FILEPATH:C:\CADD-37\Client\BP\5110_South_Gate\5110-GW\dwg\2013-Q2\BP5110-ISOCWCD.dwg|TRoman|Jun 25, 2013 at 10:24|Layout: F17_ISOC

TABLES

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
Soil Boring Samples																
A-1-25	09/20/89	--	2.7	--	--	--	--	--	--	--	--	--	--	--	--	--
A-1-40	09/20/89	--	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--
A-2-30	09/20/89	--	2,600	--	--	--	--	--	--	--	--	--	--	--	--	--
A-2-40	09/20/89	--	1,800	--	--	--	--	--	--	--	--	--	--	--	--	--
A-3-25	09/20/89	--	16,000	--	--	--	--	--	--	--	--	--	--	--	--	--
A-3-40	09/20/89	--	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--
Well Installation Samples				--												
MW-19-30	09/20/89	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-20-30	09/21/89	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
UST Samples																
1A-17	10/04/89	--	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--
1B-17	10/04/89	--	16	--	--	--	--	--	--	--	--	--	--	--	--	--
2A-17	10/04/89	--	1,400	--	--	--	--	--	--	--	--	--	--	--	--	--
2B-17	10/04/89	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
3A-17	10/04/89	--	1,100	--	--	--	--	--	--	--	--	--	--	--	--	--
3B-17	10/04/89	--	7,900	--	--	--	--	--	--	--	--	--	--	--	--	--
4A-17.5	10/04/89	--	1,400	--	--	--	--	--	--	--	--	--	--	--	--	--
4B-17	10/04/89	--	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--
Well Installation Samples																
D-1-5	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-10	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-15	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-20	06/21/90	--	61 [a]	--	<0.10	<0.10	0.2	1.9	--	--	--	--	--	--	--	--
D-1-25	06/21/90	--	8,600	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-30	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-35	06/21/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-40	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-45	06/21/90	--	8.8	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-47	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-50	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-55	06/21/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-60	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-65	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-1-70	06/21/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
D-2-10	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-15	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-20	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-25	06/22/90	--	200 [a]	--	0.2	10	11	39								
D-2-30	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-35	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-40	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-45	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-47	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-50	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-55	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-60	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-65	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-2-70	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-10	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-15	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-20	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-25	06/22/90	--	0.3	--	<0.05	<0.05	0.05	0.3	--	--	--	--	--	--	--	--
D-3-30	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-35	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-40	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-45	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-47	06/22/90	--	<0.2	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-50	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-55	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-60	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-65	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-3-70	06/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D-4-10	12/16/92	--	<10	--	<0.005	<0.005	<0.005	0.02	--	--	--	--	--	--	--	--
D-4-20	12/16/92	--	<10	--	0.007	0.007	0.007	0.024	--	--	--	--	--	--	--	--
D-4-25	12/16/92	--	<10	--	0.035	0.017	0.017	0.03	--	--	--	--	--	--	--	--
D-4-30	12/16/92	--	<10	--	0.017	0.004	0.004	0.015	--	--	--	--	--	--	--	--
D-4-35	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-4-40	12/16/92	--	<10	--	0.006	0.007	0.007	0.023	--	--	--	--	--	--	--	--
D-4-45	12/16/92	--	<10	--	0.13	0.01	0.01	0.19	--	--	--	--	--	--	--	--
D-4-50	12/16/02	--	<10	--	0.33	0.16	0.16	0.4	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
D-5-10	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-5-20	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-5-25	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-5-30	12/16/92	--	<10	--	0.03	0.006	0.026	0.081	--	--	--	--	--	--	--	--
D-5-35	12/16/92	--	<10	--	<0.005	0.006	<0.005	<0.015	--	--	--	--	--	--	--	--
D-5-40	12/16/92	--	<10	--	0.079	<0.005	0.042	0.064	--	--	--	--	--	--	--	--
D-5-45	12/16/92	--	<10	--	0.17	0.02	0.076	0.13	--	--	--	--	--	--	--	--
D-5-50	12/16/02	--	<10	--	0.014	0.008	0.005	<0.015	--	--	--	--	--	--	--	--
D-6-10	12/16/92	--	<10	--	0.005	0.007	<0.005	<0.015	--	--	--	--	--	--	--	--
D-6-20	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-6-25	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-6-30	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-6-35	12/16/92	--	<10	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
D-6-40	12/16/92	--	<10	--	<0.005	0.007	<0.005	0.018	--	--	--	--	--	--	--	--
D-6-45	12/16/92	--	<10	--	0.014	<0.005	0.056	0.096	--	--	--	--	--	--	--	--
D-6-50	12/16/92	--	<10	--	0.012	<0.005	0.006	<0.015	--	--	--	--	--	--	--	--
D-7-10	12/16/92	--	<10	--	0.011	<0.005	<0.005	0.058	--	--	--	--	--	--	--	--
D-7-20	12/16/92	--	<10	--	0.066	0.014	0.012	0.057	--	--	--	--	--	--	--	--
D-7-25	12/16/92	--	<10	--	0.91	1.4	0.31	1.4	--	--	--	--	--	--	--	--
D-7-30	12/16/92	--	<10	--	0.045	0.074	0.02	0.12	--	--	--	--	--	--	--	--
D-7-35	12/16/92	--	<10	--	0.009	0.011	<0.005	0.024	--	--	--	--	--	--	--	--
D-7-40	12/16/92	--	<10	--	0.006	0.013	<0.005	0.02	--	--	--	--	--	--	--	--
D-7-45	12/16/92	--	<10	--	0.19	0.23	0.057	0.28	--	--	--	--	--	--	--	--
D-7-50	12/16/92	--	<10	--	0.16	0.26	0.063	0.3	--	--	--	--	--	--	--	--
VEW-1-5	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-10	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-15	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-20	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-25	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-30	04/06/95	<1.0	--	--	0.0060	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-35	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-40	04/06/95	<1.0	--	--	<0.005	<0.005	<0.005	<0..015	--	--	--	--	--	--	--	--
VEW-1-50	04/06/95	1.6	--	--	0.2	0.18	0.065	0.22	--	--	--	--	--	--	--	--
VEW-1-60	04/06/95	<1.0	--	--	0.020	0.017	0.0067	0.024	--	--	--	--	--	--	--	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
VEW-2-5	04/05/95	--	--	--	0.25	0.45	0.51	4.3	--	--	--	--	--	--	--	--
VEW-2-10	04/05/95	--	--	--	1.7	6.8	14	94	--	--	--	--	--	--	--	--
VEW-2-15	04/05/95	--	--	--	0.031	0.079	0.019	0.15	--	--	--	--	--	--	--	--
VEW-2-20	04/05/95	--	--	--	0.56	0.61	0.15	0.99	--	--	--	--	--	--	--	--
VEW-2-25	04/05/95	--	--	--	60	370	150	770	--	--	--	--	--	--	--	--
VEW-2-30	04/05/95	--	--	--	0.28	0.14	0.24	1.7	--	--	--	--	--	--	--	--
VEW-2-35	04/05/95	--	--	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
VEW-2-40	04/05/95	--	--	--	0.037	1	1.1	7.3	--	--	--	--	--	--	--	--
VEW-2-50	04/05/95	--	--	--	5.1	20	15	90	--	--	--	--	--	--	--	--
VEW-2-60	04/05/95	--	--	--	7.4	26	35	250	--	--	--	--	--	--	--	--
VEW-3-5	04/05/95	--	--	--	0.027	0.055	0.024	0.2	--	--	--	--	--	--	--	--
VEW-3-10	04/05/95	--	--	--	<0.005	<0.005	<0.005	0.031	--	--	--	--	--	--	--	--
VEW-3-15	04/05/95	--	--	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
VEW-3-20	04/05/95	--	--	--	<0.005	0.005	<0.005	0.053	--	--	--	--	--	--	--	--
VEW-3-25	04/05/95	--	--	--	0.68	2.6	0.93	5.4	--	--	--	--	--	--	--	--
VEW-3-30	04/05/95	--	--	--	16	160	140	940	--	--	--	--	--	--	--	--
VEW-3-35	04/05/95	--	--	--	0.84	5.8	7.2	60	--	--	--	--	--	--	--	--
VEW-3-40	04/05/95	--	--	--	2.5	23	25	190	--	--	--	--	--	--	--	--
VEW-3-50	04/05/95	--	--	--	0.14	0.28	0.070	0.39	--	--	--	--	--	--	--	--
VEW-3-60	04/05/95	--	--	--	0.095	0.94	0.30	1.8	--	--	--	--	--	--	--	--
VEW-4-5	04/05/95	--	--	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
VEW-4-10	04/05/95	--	--	--	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--
VEW-4-15	04/05/95	--	--	--	0.0050	<0.005	0.0060	0.040	--	--	--	--	--	--	--	--
VEW-4-20	04/05/95	--	--	--	0.03	0.076	0.045	0.035	--	--	--	--	--	--	--	--
VEW-4-25	04/05/95	--	--	--	<0.005	0.011	0.0086	0.054	--	--	--	--	--	--	--	--
VEW-4-30	04/05/95	--	--	--	0.69	1.4	1.7	11	--	--	--	--	--	--	--	--
VEW-4-35	04/05/95	--	--	--	<0.005	<0.005	<0.005	0.04	--	--	--	--	--	--	--	--
VEW-4-40	04/05/95	--	--	--	<0.005	0.005	<0.005	0.019	--	--	--	--	--	--	--	--
VEW-4-50	04/05/95	--	--	--	0.042	0.17	0.056	0.39	--	--	--	--	--	--	--	--
VEW-4-60	04/05/95	--	--	--	2.5	8.8	2.3	11	--	--	--	--	--	--	--	--
MW-A3-10	12/01/99	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A3-20	12/01/99	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A3-30	12/01/99	<1.0	--	--	0.0079	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A3-40	12/01/99	1.8	--	--	0.21	0.0061	0.072	0.31	0.037	--	--	--	--	--	--	--
MW-A3-45	12/01/99	--	<5.0	--	0.046	<0.002	0.039	0.208	<0.005	--	--	--	--	--	--	--
MW-A3-55	12/01/99	--	<5.0	--	0.0028	<0.002	<0.002	<0.004	<0.005	--	--	--	--	--	--	--

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HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
MW-A4-10	12/01/99	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A4-20	12/01/99	<1.0	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A4-30	12/01/99	<1.0	--	--	0.0073	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A4-40	12/01/99	<1.0	--	--	0.019	<0.0050	<0.0050	<0.015	<0.035	--	--	--	--	--	--	--
MW-A4-45	12/01/99	--	<5.0	--	0.150	0.17	0.028	0.082	<0.005	--	--	--	--	--	--	--
MW-A4-55	12/01/99	--	<5.0	--	0.0098	<0.002	0.013	0.0066	<0.005	--	--	--	--	--	--	--
MW-A4-65	12/01/99	--	<5.0	--	0.1	<0.002	0.0073	0.0068	<0.005	--	--	--	--	--	--	--
MW-A5-5	10/21/01	<0.50	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A5-10	10/21/01	<0.41	--	--	<0.0017	<0.0017	<0.0017	<0.0017	<0.0043	<0.043	<0.0043	<0.0043	<0.0043	--	--	--
MW-A5-15	10/21/01	<0.50	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A5-20	10/21/01	<0.42	--	--	<0.0017	<0.0017	<0.0017	<0.0035	<0.0043	<0.043	<0.0043	<0.0043	<0.0043	--	--	--
MW-A5-25	10/21/01	<0.50	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A5-30	10/21/01	<0.50	--	--	<0.0020	<0.0020	<0.0020	0.00061[J]	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A5-35	10/21/01	<0.50	--	--	0.0060	<0.0020	0.0016[J]	0.0055	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A5-40	10/21/01	<0.50	--	--	<0.0018	<0.0018	<0.0018	<0.0036	<0.0044	<0.044	<0.0044	<0.0044	<0.0044	--	--	--
MW-A5-45	10/21/01	<0.44	--	--	<0.0018	<0.0018	<0.0018	<0.0036	<0.0045	<0.045	<0.0045	<0.0045	<0.0045	--	--	--
MW-A5-50	10/21/01	<0.41	--	--	0.00063[J]	<0.0017	<0.0017	<0.0033	<0.0041	<0.041	<0.0041	<0.0041	<0.0041	--	--	--
MW-A5-55	10/21/01	<0.45	--	--	<0.0018	<0.0018	<0.0018	<0.0036	<0.0044	<0.044	<0.0044	<0.0044	<0.0044	--	--	--
MW-A5-60	10/21/01	<0.44	--	--	0.0017[J]	0.00043[J]	0.00039[J]	0.0024[J]	<0.0045	<0.045	<0.0045	<0.0045	<0.0045	--	--	--
MW-A5-65	10/21/01	<0.45	--	--	0.0013[J]	0.00029[J]	0.00026[J]	0.0020[J]	0.0035[J]	<0.050	<0.0050	<0.0050	<0.0050	--	--	--
MW-A6-5	10/30/01	<0.42	--	--	<0.0044	<0.0044	<0.0044	<0.0044	<0.0089	<0.044	<0.0089	<0.0089	<0.0089	--	--	--
MW-A6-10	10/30/01	<0.42	--	--	<0.0040	<0.0040	<0.0040	<0.0040	<0.0081	<0.040	<0.0081	<0.0081	<0.0081	--	--	--
MW-A6-15	10/30/01	<0.45	--	--	<0.0044	<0.0044	<0.0044	<0.0044	<0.0087	<0.044	<0.0087	<0.0087	<0.0087	--	--	--
MW-A6-20	10/30/01	<0.50	--	--	<0.0056	<0.0056	<0.0056	<0.0056	<0.011	<0.056	<0.011	<0.011	<0.011	--	--	--
MW-A6-25	10/30/01	<0.42	--	--	<0.0041	<0.0041	<0.0041	<0.0041	<0.0083	<0.041	<0.0083	<0.0083	<0.0083	--	--	--
MW-A6-30	10/30/01	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.050	<0.010	<0.010	<0.010	--	--	--
MW-A6-35	10/30/01	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.050	<0.010	<0.010	<0.010	--	--	--
MW-A6-40	10/30/01	0.33[J]	--	--	<0.0044	<0.0044	<0.0044	<0.0044	<0.0088	<0.044	<0.0088	<0.0088	<0.0088	--	--	--
MW-A6-45	10/30/01	<0.43	--	--	0.0058	<0.0042	<0.0042	<0.0042	<0.0084	<0.042	<0.0084	<0.0084	<0.0084	--	--	--
MW-A6-50	10/30/01	<0.42	--	--	0.0055	<0.0042	<0.0042	<0.0042	<0.0084	<0.042	<0.0084	<0.0084	<0.0084	--	--	--
MW-A6-55	10/30/01	<0.45	--	--	0.0069	<0.0045	<0.0045	<0.0045	<0.0090	<0.045	<0.0090	<0.0090	<0.0090	--	--	--
MW-A6-60	10/30/01	<0.50	--	--	<0.0045	<0.0045	<0.0045	<0.0045	<0.0090	<0.045	<0.0090	<0.0090	<0.0090	--	--	--
MW-A6-65	10/30/01	<0.44	--	--	0.0082	<0.0044	<0.0044	<0.0044	<0.0088	<0.044	<0.0088	<0.0088	<0.0088	--	--	--
MW-A7-15	04/16/02	19	--	--	<0.26	0.23[J]	0.19[J]	1.3	1.2	11	<0.52	<0.52	<0.52	--	--	--
MW-A7-20	04/16/02	3.0	--	--	0.88	2.7	0.57	3.2	7.7	16	<0.50	<0.50	<0.50	--	--	--
MW-A7-25	04/16/02	29	--	--	1.5	30	33	170	<2.1	<11	<2.1	<2.1	<2.1	--	--	--
MW-A7-30	04/16/02	1,400	--	--	0.46[J]	14	22	120	<1.2	<6.1	<1.2	<1.2	<1.2	--	--	--
MW-A7-35	04/16/02	620	--	--	0.71	16	21	120	0.79	<2.6	<0.52	<0.52	<0.52	--	--	--
MW-A7-40	04/16/02	18	--	--	0.33	8.1	13	69	0.48[J]	<2.6	<0.51	<0.51	<0.51	--	--	--
MW-A7-45	04/16/02	16	--	--	1.2	3.9	0.77	4.1	<0.47	<2.4	<0.47	<0.47	<0.47	--	--	--
MW-A7-50	04/16/02	0.76	--	--	0.30	0.81	0.16	0.72	0.12	0.050	<0.0090	<0.0090	<0.0090	--	--	--
MW-A7-55	04/16/02	7.9	--	--	0.24	0.21	0.29	1.2	0.17	0.12	<0.010	<0.010	<0.010	--	--	--
MW-A7-60	04/16/02	<0.41	--	--	<0.0050	0.0025[J]	<0.0050	0.010	<0.010	<0.050	<0.010	<0.010	<0.010	--	--	--
MW-A7-65	04/16/02	<0.50	--	--	0.020	0.022	0.011	0.061	0.01	<0.050	<0.010	<0.010	<0.010	--	--	--

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TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
UST Samples																
TK-1A-17	02/07/02	1.80	--	--	0.098	0.20	0.07	0.30	<0.010	<0.010	0.02	18	1.3	--	--	--
TK-1B-17	02/07/02	4,600	--	--	6.9	69	69	340	<2.2	<2.2	<2.2	6.8[J]	8.1	--	--	--
TK-2A-17	02/07/02	17	--	--	0.29	1.2	0.30	1.8	<0.49	<0.49	<0.49	1.5[J]	3.0	--	--	--
TK-2B-17	02/07/02	1,900	--	--	1.2	6.5	24	110	<0.45	<0.45	<0.45	8.4	4.6	--	--	--
TK-3A-17	02/07/02	3,300	--	--	11	120	71	390	<2.2	<2.2	<2.2	5.9[J]	4.7	--	--	--
TK-3B-17	02/07/02	1.20	--	--	<0.27	0.33	0.14[J]	0.81	<0.54	<0.54	<0.54	23.00	1.30	--	--	--
TK-4A-17	02/07/02	8,800	--	--	16	270	130	820	<27	<27	<27	<140	<27	--	--	--
TK-4B-17	02/07/02	2.10	--	--	<0.26	0.11[J]	<0.26	0.31	<0.52	<0.52	<0.52	24	1.3	--	--	--
Dispenser Samples																
D-1-2	02/01/02	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
D-2-2	02/01/02	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
D-3-2	02/01/02	<0.65	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
D-4-2	02/01/02	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
D-5-2	02/01/02	<1.6	--	--	<0.0067	<0.0067	<0.0067	<0.0067	<0.013	<0.013	<0.013	0.18	0.0099[J]	--	--	--
D-6-2	02/01/02	3,500	--	--	<0.58	3.2	4.1	360	<1.2	<1.2	<1.2	4.7[J]	2.7	--	--	--
D-7-2	02/01/02	<0.79	--	--	<0.0072	<0.0072	<0.0072	0.025	<0.014	<0.014	<0.014	<0.072	0.22	--	--	--
D-8-2	02/01/02	<1.1	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	0.18	--	--	--
D-9-2	02/01/02	<0.50	--	--	<0.0068	<0.0068	<0.0068	<0.0068	<0.014	<0.014	<0.014	<0.068	<0.014	--	--	--
Product Line Samples																
PL-1-4	02/01/02	<0.45	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
PL-2-4	02/01/02	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	0.10	0.04	--	--	--
PL-3-3	02/01/02	<0.57	--	--	<0.0064	<0.0064	<0.0064	<0.0064	<0.013	<0.013	<0.013	<0.064	<0.013	--	--	--
PL-4-3	02/01/02	<0.57	--	--	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<0.0091	<0.0091	<0.045	<0.0091	--	--	--
Confirmation Sample																
CS-1-5	02/04/02	3,200	--	--	<0.26	1.80	2.90	23.00	<0.53	<0.53	<0.53	2.3[J]	6.10	--	--	--
Clarifier Sample																
CL-1A-7	02/05/02	8.90	--	--	<0.0068	<0.0068	<0.0068	<0.0068	<0.014	<0.014	<0.014	0.068	<0.014	--	--	--
CL-1B-7	02/05/02	8.20	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
Shoring Boring Samples																
SB-1-10	02/07/02	<0.50	--	--	<0.0044	0.0021[J]	<0.0044	<0.0044	<0.0088	<0.0088	<0.0088	<0.044	<0.0088	--	--	--
SB-2-5	02/07/02	<0.50	--	--	<0.0045	0.020	0.0046	0.028	<0.0091	<0.0091	<0.0091	<0.045	<0.0091	--	--	--
SB-2-10	02/07/02	<0.42	--	--	<0.0050	0.10	0.019	0.120	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
SB-2-15	02/07/02	<0.50	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
SB-3-5	02/07/02	<0.45	--	--	<0.0050	0.023	0.017	0.092	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
SB-3-10	02/07/02	<0.40	--	--	<0.0041	0.0019[J]	<0.0041	0.0044	<0.0082	<0.0082	<0.0082	<0.041	<0.0082	--	--	--
SB-3-15	02/07/02	<0.45	--	--	<0.0041	<0.0041	<0.0041	<0.0041	<0.0082	<0.0082	<0.0082	<0.041	<0.0082	--	--	--
SB-4-5	02/07/02	<0.50	--	--	<0.0050	0.0023[J]	<0.0050	0.0051	<0.010	<0.010	<0.010	<0.050	<0.010	--	--	--
SB-4-10	02/07/02	<0.40	--	--	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<0.0091	<0.0091	<0.045	<0.0091	--	--	--
SB-4-15	02/07/02	<0.43	--	--	<0.0042	<0.0042	<0.0042	<0.0042	<0.0085	<0.0085	<0.0085	<0.042	<0.0085	--	--	--
SB-5-5	02/07/02	1,200	--	--	<0.85	12	31	200	<1.7	<1.7	<1.7	<8.5	<1.7	--	--	--
SB-5-10	02/07/02	65	--	--	<0.24	0.16[J]	0.39	2.9	<0.48	<0.48	<0.48	<2.4	<0.48	--	--	--
SB-5-15	02/07/02	850	--	--	0.20[J]	7.6	14	89	<0.91	<0.91	<0.91	<4.5	0.55[J]	--	--	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
Air Sparge/Soil Vapor Extraction Well Samples																
AS/SVE-1-5	09/30/03	<1.0	--	--	<0.0018	<0.0018	<0.0018	<0.0036	<0.0045	<0.045	<0.0045	<0.0045	<0.0045	<0.27	--	--
AS/SVE-1-10	09/30/03	<1.0	--	--	0.00053[J]	<0.0018	0.01	<0.0036	0.0072	0.13	<0.0045	<0.0045	<0.0045	<0.27	--	--
AS/SVE-1-15	09/30/03	4,100	--	--	0.99[J]	22	49	350	<2.8	<56	<2.8	<2.8	<2.8	<170	--	--
AS/SVE-1-20	09/30/03	3,200	--	--	1.2	36	76	510	<2.5	<50	<2.5	<2.5	<2.5	<150	--	--
AS/SVE-1-25	09/30/03	2.1	--	--	<0.10	0.18	0.081[J]	0.59	0.37	0.76[J]	<0.25	<0.25	<0.25	<15	--	--
AS/SVE-1-30	09/30/03	1.8	--	--	1.3	14	8.4	46	1.5	<17	<0.83	<0.83	<0.83	<50	--	--
AS/SVE-1-35	09/30/03	520	--	--	0.056[J]	1.40	3.9	23	0.089[J]	<5.9	<0.30	<0.30	<0.30	<18	--	--
AS/SVE-1-40	09/30/03	0.19[J]	--	--	0.0021[J]	0.010	0.013	0.083	0.051	0.23	<0.0058	<0.0058	<0.0058	<0.35	--	--
AS/SVE-1-45	09/30/03	1.0	--	--	0.11	0.051	0.076	0.32	0.0060	<0.044	<0.0044	<0.0044	<0.0044	<0.27	--	--
AS/SVE-1-50	09/30/03	0.59[J]	--	--	0.15	0.011	0.095	0.28	0.097	0.11	0.0012[J]	<0.0044	<0.0044	<0.26	--	--
AS/SVE-1-55	09/30/03	0.26[J]	--	--	0.0014[J]	0.0037	0.014	0.028	0.026	0.061	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-1-60	09/30/03	<1.0	--	--	<0.0020	0.0020	0.0017[J]	0.011	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-1-65	09/30/03	2.9	--	--	0.23	0.53	0.21	1.2	0.14[J]	<5.0	<0.25	<0.25	<0.25	<15	--	--
AS/SVE-1-70	09/30/03	<1.0	--	--	0.041	<0.0017	<0.0017	<0.00082[J]	0.0059	<0.044	<0.0044	<0.0044	<0.0044	<0.26	--	--
AS/SVE-2-5	10/01/03	<1.0	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-2-10	10/01/03	<0.91	--	--	<0.0017	<0.0017	<0.0017	<0.0035	<0.0044	<0.044	<0.0044	<0.0044	<0.0044	<0.26	--	--
AS/SVE-2-15	10/01/03	0.14[J]	--	--	0.00063[J]	<0.0020	0.0011[J]	0.0080	0.032	1.1	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-2-20	10/01/03	3.40	--	--	<0.12	<0.12	<0.12	<0.23	<0.29	12	<0.29	<0.29	<0.29	<17	--	--
AS/SVE-2-25	10/01/03	27[J]	--	--	0.44	1.8	0.37	2.5	3.2	10	<0.22	<0.22	<0.22	<13	--	--
AS/SVE-2-30	10/01/03	43[J]	--	--	2.1	9.0	2.0	11	11	6.4	<0.25	<0.25	0.13[J]	<15	--	--
AS/SVE-2-35	10/01/03	2,500	--	--	1.5	40	65	300	0.54[J]	<28	<1.4	<1.4	<1.4	<85	--	--
AS/SVE-2-40	10/01/03	3,100	--	--	0.42[J]	21	51	290	<3.0	<60	<3.0	<3.0	<3.0	<180	--	--
AS/SVE-2-45	10/01/03	6,700	--	--	12	150	95	430	<2.5	<50	<2.5	<2.5	<2.5	<150	--	--
AS/SVE-2-50	10/01/03	25[J]	--	--	2.2	6.6	1.4	8.3	0.57	<4.5	<0.23	<0.23	<0.23	<14	--	--
AS/SVE-2-55	10/01/03	11[J]	--	--	0.32	0.046	0.17	0.58	0.21	0.73	0.0026[J]	<0.0050	0.00088[J]	<0.30	--	--
AS/SVE-2-60	10/01/03	<1.0	--	--	0.0029	0.0079	0.0040	0.022	0.0055	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-2-65	10/01/03	<1.0	--	--	0.0022	<0.0020	<0.0020	<0.0040	0.015	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-2-70	10/01/03	0.33[J]	--	--	0.14	0.13	0.10	0.48	0.027	0.056	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-3-5	10/04/03	500	--	--	0.22	<0.12	4.1	3.4	<0.30	<6.0	<0.30	<0.30	<0.30	<18	--	--
AS/SVE-3-10	10/04/03	0.48[J]	--	--	0.053	<0.0016	0.047	0.053	<0.0040	0.013[J]	<0.0040	<0.0040	<0.0040	<0.24	--	--
AS/SVE-3-15	10/04/03	0.31[J]	--	--	0.0032	0.0059	0.0023	0.11	0.025	0.013[J]	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-3-20	10/04/03	0.22[J]	--	--	0.00060[J]	0.0015[J]	<0.0024	0.0030[J]	0.0042[J]	<0.060	<0.0060	<0.0060	<0.0060	<0.36	--	--
AS/SVE-3-25	10/04/03	80	--	--	1.6	3.8	0.59	3.3	0.45	<5.0	<0.25	<0.25	<0.25	<15	--	--
AS/SVE-3-30	10/04/03	<1.2	--	--	0.0025	0.011	0.0031	0.022	0.022	0.011[J]	<0.0056	<0.0056	<0.0056	<0.34	--	--
AS/SVE-3-35	10/04/03	0.15[J]	--	--	0.00087[J]	0.0036	0.0013[J]	0.0084	0.017	0.011[J]	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-3-40	10/04/03	0.69[J]	--	--	0.053	0.057	0.023	0.11	0.17	0.058	<0.0050	<0.0050	0.0010[J]	<0.30	--	--
AS/SVE-3-45	10/04/03	0.56[J]	--	--	0.036	0.014	0.024	0.10	<0.0039	<0.039	<0.0039	<0.0039	<0.0039	<0.23	--	--
AS/SVE-3-50	10/04/03	<43	--	--	0.48	0.75	0.18	0.57	0.061[J]	<4.3	<0.21	<0.21	<0.21	<13	--	--
AS/SVE-3-55	10/04/03	1.4	--	--	0.14	0.16	0.093	0.45	0.16	0.081	0.00073[J]	<0.0042	0.00073[J]	<0.25	--	--
AS/SVE-3-60	10/04/03	0.35[J]	--	--	0.024	0.020	0.015	0.059	<0.0050	0.022[J]	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-3-65	10/04/03	<0.87	--	--	0.0029	<0.0020	<0.0020	0.0014[J]	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-3-70	10/04/03	0.12[J]	--	--	0.0051	0.0068	0.0027	0.011	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--

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TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
AS/SVE-4-5	09/30/03	0.79[J]	--	--	<0.10	<0.10	0.075[J]	0.86	<0.25	<5.0	<0.25	<0.25	<0.25	<15	--	--
AS/SVE-4-10	09/30/03	2,700	--	--	0.91[J]	32	54	320	<2.5	<50	<2.5	<2.5	<2.5	<150	--	--
AS/SVE-4-15	09/30/03	3,100	--	--	1.4	45	41	220	<2.1	<43	<2.1	<2.1	<2.1	<130	--	--
AS/SVE-4-20	09/30/03	0.16[J]	--	--	0.0012[J]	0.023	0.022	0.14	0.0022	0.072	<0.0062	<0.0062	<0.0062	<0.37	--	--
AS/SVE-4-25	09/30/03	1,100	--	--	<0.46	8.9	15	84	<1.2	<23	<1.2	<1.2	<1.2	<69	--	--
AS/SVE-4-30	09/30/03	1.8	--	--	2.6	9.4	2.3	12	0.80	<8.9	<0.44	<0.44	<0.44	<27	--	--
AS/SVE-4-35	09/30/03	<1.1	--	--	0.011	0.026	0.0099	0.059	0.068	0.23	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-4-40	09/30/03	<1.1	--	--	<0.0024	<0.0024	<0.0024	0.0022[J]	0.012	0.63	<0.0059	<0.0059	<0.0059	<0.36	--	--
AS/SVE-4-45	09/30/03	1.3	--	--	0.12	0.081	0.028	0.16	0.29	0.22	0.0011[J]	<0.0050	0.0010[J]	<0.30	--	--
AS/SVE-4-50	09/30/03	0.18[J]	--	--	0.031	0.0041	0.0041	0.023	0.0011[J]	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-4-55	09/30/03	0.56[J]	--	--	0.085	0.0062	0.029	0.16	0.011	<0.050	0.00053[J]	<0.0050	<0.0050	<0.30	--	--
AS/SVE-4-60	09/30/03	1.3	--	--	0.48	<0.090	0.16	0.45	0.058[J]	<4.5	<0.23	<0.23	<0.23	<14	--	--
AS/SVE-4-65	09/30/03	<1.0	--	--	0.018	0.0035	0.0086	0.026	0.0019[J]	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-4-70	09/30/03	0.29[J]	--	--	0.0011[J]	0.0014[J]	0.0020	0.012	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-5	09/29/03	<1.2	--	--	<0.0023	<0.0023	<0.0023	<0.0046	<0.0057	<0.057	<0.0057	<0.0057	<0.0057	<0.34	--	--
AS/SVE-5-10	09/29/03	<0.90	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-15	09/29/03	<0.85	--	--	<0.0017	<0.0017	<0.0017	<0.0034	<0.0043	<0.043	<0.0043	<0.0043	<0.0043	<0.26	--	--
AS/SVE-5-20	09/29/03	<1.0	--	--	<0.0020	<0.0020	<0.0020	0.0014[J]	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-25	09/29/03	<1.1	--	--	<0.0024	<0.0024	<0.0024	<0.0047	<0.0059	<0.059	<0.0059	<0.0059	<0.0059	<0.35	--	--
AS/SVE-5-30	09/29/03	<1.0	--	--	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-35	09/29/03	<1.0	--	--	0.00076[J]	<0.0022	<0.0022	0.00089[J]	0.0035[J]	<0.056	<0.0056	<0.0056	<0.0056	<0.33	--	--
AS/SVE-5-40	09/29/03	<1.0	--	--	0.0011[J]	<0.0020	0.0013[J]	0.0026[J]	0.0061	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-45	09/29/03	<1.0	--	--	0.0024	<0.0020	0.0038	0.0072	0.017	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-50	09/29/03	0.14[J]	--	--	0.028	<0.0020	0.0063	0.013	0.0098	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-55	09/29/03	<1.0	--	--	0.00089[J]	<0.0020	<0.0020	<0.0040	0.045	0.026[J]	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-60	09/29/03	<1.0	--	--	0.0074	<0.0020	0.0038	<0.0040	0.079	0.060	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-65	09/29/03	0.28[J]	--	--	0.19	0.011	0.027	0.039	0.0062	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
AS/SVE-5-70	09/29/03	<0.89	--	--	<0.0017	<0.0017	<0.0017	<0.0035	0.0024[J]	<0.044	<0.0044	<0.0044	<0.0044	<0.26	--	--
MW-A8-5	10/12/05	--	--	<0.32	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
MW-A8-10	10/12/05	--	--	<0.32	<0.0016	<0.0016	<0.0016	<0.0032	<0.0040	<0.040	<0.0040	<0.0040	<0.0040	<0.24	--	--
MW-A8-15	10/12/05	--	--	4.7[J]	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
MW-A8-20	10/12/05	--	--	<0.40	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
MW-A8-25	10/12/05	--	--	<0.34	<0.0017	<0.0017	<0.0017	<0.0034	<0.0042	<0.042	<0.0042	<0.0042	<0.0042	<0.25	--	--
MW-A8-30	10/12/05	--	--	<0.36	<0.0018	<0.0018	<0.0018	<0.0035	<0.0044	<0.044	<0.0044	<0.0044	<0.0044	<0.26	--	--
MW-A8-35	10/12/05	--	--	<0.31	<0.0016	<0.0016	<0.0016	<0.0033	<0.0041	<0.041	<0.0041	<0.0041	<0.0041	<0.25	--	--
MW-A8-40	10/12/05	--	--	<0.36	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	<0.050	<0.0050	<0.0050	<0.0050	<0.30	--	--
MW-A8-45	10/12/05	--	--	<0.31	<0.0017	<0.0017	<0.0017	<0.0033	<0.0042	<0.042	<0.0042	<0.0042	<0.0042	<0.25	--	--
MW-A8-50	10/12/05	--	--	<0.32	<0.0017	<0.0017	<0.0017	<0.0034	<0.0042	<0.042	<0.0042	<0.0042	<0.0042	<0.25	--	--
MW-A8-55	10/12/05	--	--	<0.35	<0.0018	<0.0018	<0.0018	<0.0035	<0.0044	<0.044	<0.0044	<0.0044	<0.0044	<0.27	--	--
MW-A8-60	10/12/05	--	--	<0.34	<0.0020	<0.0020	<0.0020	<0.0040	0.0047[J]	0.013[J]	<0.0050	<0.0050	<0.0050	<0.30	--	--

TABLE 1
HISTORICAL SOIL ANALYTICAL RESULTS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CA

EPA Method:		8015B			8020/8260B										HML 939-M	SM2540G
Sample I.D.	Sample Date	TPHg mg/kg	TFH mg/kg	GRO mg/kg	B mg/kg	T mg/kg	E mg/kg	X mg/kg	MTBE mg/kg	TBA mg/kg	DIPE mg/kg	ETBE mg/kg	TAME mg/kg	ETHANOL mg/kg	LEAD mg/kg	PERCENT SOLIDS %
MW-A8-65	10/12/05	--	--	<0.33	0.00080 J	<0.0020	<0.0020	<0.0040	0.0067	0.021 J	<0.0050	<0.0050	<0.0050	<0.30	--	--
MW-A8-70	10/12/05	--	--	<0.34	<0.0017	<0.0017	<0.0017	<0.0034	0.0012 J	<0.042	<0.0042	<0.0042	<0.0042	<0.25	--	--
MW-A8-75	10/12/05	--	--	<0.31	<0.0016	<0.0016	<0.0016	<0.0031	<0.0039	<0.039	<0.0039	<0.0039	<0.0039	<0.23	--	--
MW-A8-80	10/12/05	--	--	<0.40	<0.0016	<0.0016	<0.0016	<0.0032	<0.0040	0.018 J	<0.0040	<0.0040	<0.0040	<0.24	--	--
MW-A8-85	10/12/05	--	--	<0.35	<0.0018	<0.0018	<0.0018	<0.0036	<0.0045	0.014 J	<0.0045	<0.0045	<0.0045	<0.27	--	--
MW-A8-90	10/12/05	--	--	<0.32	<0.0020	<0.0020	<0.0020	<0.0040	<0.0050	0.095	<0.0050	<0.0050	<0.0050	<0.30	--	--
DW-1-S-55	12/11/08	--	--	<0.31	<0.0020	<0.0020	<0.0020	<0.0040	0.032	<0.050	<0.0050	<0.0050	<0.0050	<0.30	<0.025	91
DW-1-S-65	12/11/08	--	--	<0.35	0.00081 J	<0.0017	<0.0017	<0.0034	0.0047	<0.042	<0.0042	<0.0042	<0.0042	<0.25	<0.025	76
DW-1-S-70	12/11/08	--	--	<0.36	<0.0017	<0.0017	<0.0017	<0.0034	0.013	0.011 J	<0.0043	<0.0043	<0.0043	<0.26	<0.025	81
DW-2-S-55	12/10/08	--	--	1.2	0.250	0.0094	0.130	0.130	<0.0043	0.018 J	<0.0043	<0.0043	<0.0043	<0.26	<0.025	79
DW-2-S-60	12/10/08	--	--	<18	1.10	1.40	0.21	0.77	<0.21	<4.2	<0.21	<0.21	<0.21	<13	<0.025	81
DW-2-S-70	12/10/08	--	--	<0.33	0.0016	0.0015 J	<0.0016	<0.0032	<0.0040	0.013 J	<0.0040	<0.0040	<0.0040	<0.24	<0.025	80
DW-3-S-50	12/18/08	--	--	<0.34	<0.0017	<0.0017	<0.0017	<0.0033	<0.0041	<0.041	<0.0041	<0.0041	<0.0041	<0.25	<0.025	87
DW-3-S-60	12/18/08	--	--	0.70	0.34	0.0036	0.060	0.14	<0.0047	<0.047	<0.0047	<0.0047	<0.0047	<0.28	<0.025	82
DW-3-S-70	12/18/08	--	--	<0.37	<0.0017	<0.0017	<0.0017	<0.0035	<0.0044	0.092	<0.0044	<0.0044	<0.0044	<0.26	<0.025	80
DW-4-S-30	12/12/08	--	--	1.8	0.026	0.087	0.096	0.66	0.054	1.5	<0.0041	<0.0041	0.0024 J	<0.24	<0.025	84
DW-4-S-55	12/12/08	--	--	0.81	0.011	0.00041 J	0.036	0.069	0.043	0.0084 J	<0.0041	<0.0041	<0.0041	<0.25	<0.025	83
DW-4-S-65	12/12/08	--	--	<0.40	0.017	<0.0018	0.0045	<0.0036	<0.0045	<0.045	<0.0045	<0.0045	<0.0045	<0.27	<0.025	74
DW-4-S-70	12/12/08	--	--	0.14 J	0.025	0.00083 J	0.0062	0.0067	0.0016 J	0.013 J	<0.0046	<0.0046	<0.0046	<0.28	<0.025	81

Notes:
mg/kg- Milligrams per kilogram
TPHg - Total petroleum hydrocarbons as gasoline
TFH - Total fuel hydrocarbons
GRO - Gasoline Range Organics (C4-C14)
B - Benzene
T - Toluene
E - Ethylbenzene
X - Total xylenes
Prior to 6/22/90 EPA Method 8020 used for BTEX Analysis

-- - Not Analyzed
TBA - Tertiary butanol
DIPE - Di-isopropyl ether
ETBE - Ethyl-tertiary-butyl ether
TAME - Tertiary-amyl-methyl ether
MTBE - Methyl-tertiary-butyl ether
J- estimated value: below the reporting limit and above the method detection limit
<0.0050 - Below reporting limit and method detection limit

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
D-1	06/27/90		107.62	57.06	0.00	50.56	1,600	800	300	77	370	-	-	-	-	-	-	
	06/29/93			56.15	0.00	51.47	1,100	330	45	62	87	-	-	-	-	-	-	
	09/20/93			55.17	0.00	52.45	13,000	1,700	290	430	480	-	-	-	-	-	-	
	11/15/93			54.59	0.00	53.03	8,400	2,400	430	690	1,200	-	-	-	-	-	-	
	04/18/94			51.86	0.00	55.76	7,800	1,400	330	610	1,500	-	-	-	-	-	-	
	11/04/94			50.83	0.00	56.79	15,000	2,400	230	1,400	2,900	-	-	-	-	-	-	
	03/20/95			49.63	0.00	57.99	12,000	1,900	520	240	1,800	-	-	-	-	-	-	
	04/13/95			49.55	0.00	58.07	15,000	1,600	420	1,200	2,000	-	-	-	-	-	-	
	09/08/95			48.14	0.00	59.48	11,000	1,500	220	900	1,300	-	-	-	-	-	-	
	11/15/95			47.87	0.00	59.75	10,000	1,600	310	1,200	1,600	-	-	-	-	-	-	
	01/22/96			50.10	0.00	57.52	3,400	680	51	350	290	-	-	-	-	-	-	
	04/30/96			46.89	0.00	60.73	7,800	1,200	110	930	1,100	-	-	-	-	-	-	
	07/31/96			46.76	0.00	60.86	14,000	1,900	580	1,200	2,600	3,300	-	-	-	-	-	
	11/22/96			46.64	0.00	60.98	12,000	1,500	2,100	620	3,100	790	-	-	-	-	-	
	03/14/97			45.71	0.00	61.91	6,200	780	270	550	1,100	650	-	-	-	-	-	
	05/05/97			45.51	0.00	62.11	2,100	250	53	170	240	200	-	-	-	-	-	
	07/22/97			45.52	0.00	62.10	870	130	2.2	98	95	120	-	-	-	-	-	
	10/10/97			45.68	0.00	61.94	70	8.0	0.78	5.4	9.5	<10	-	-	-	-	-	
	01/30/98			45.35	0.00	62.27	10,000	1,300	350	910	2,600	770	-	-	-	-	-	
	06/05/98			44.34	0.00	63.28	11,000	1,100	150	580	1,800	630	-	-	-	-	-	
	09/14/98			43.70	0.00	63.92	11,000	1,100	150	690	1,700	770	-	-	-	-	-	
	12/18/98			43.40	0.00	64.22	16,000	1,800	520	1,100	3,500	1,300	-	-	-	-	-	
	02/15/99			43.45	0.00	64.17	23,000	2,700	810	1,600	5,300	1,900	-	-	-	-	-	
	05/12/99			43.35	0.00	64.27	18,000	2,200	440	1,300	3,300	1,600	-	-	-	-	-	
	09/29/99			43.24	0.00	64.38	13,000	2,000	1,200	970	3,400	1,900	-	-	-	-	-	
	09/29/99	DUP		-	-	-	13,000	2,100	1,300	1,000	3,500	1,900	-	-	-	-	-	
	12/07/99			45.85	0.00	61.77	5,500	650	210	200	580	11,000	-	-	-	-	-	
	03/21/00		107.65	45.25	0.00	62.40	11,000	1,200	230	690	2,100	2,000	-	-	-	-	-	
	06/14/00			45.69	0.00	61.96	21,000	2,500	490	1,300	4,000	2,300	<1,000	<100	<100	<100	-	
	08/23/00			45.64	0.00	62.01	9,300	2,100	240	950	2,400	1,700	630 J	13 J	<100	12 J	-	
	12/08/00			46.70	0.00	60.95	3,800	490	44	240	500	540	200	3.1 J	<10	2.5 J	-	
	02/15/01			46.89	0.00	60.76	14,000	2,400	380	1,000	4,100	4,000	1,100	<50	<50	<50	-	
	06/14/01			46.98	0.00	60.67	340	25	<1.5	2.6	13	160	78	<5.0	<5.0	<5.0	-	
	09/14/01			47.64	0.00	60.01	250	9.7	4.0	2.2	4.3	180	76	1.6 J	<5.0	<5.0	-	
	12/07/01			48.04	0.00	59.61	7,700	1,800	330	630	1,700	1,100	600	5.4 J	<12	3.9 J	-	
	03/28/02	ABN		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DW-1	02/10/09		108.90	53.63	0.00	55.27	870	480	<20	<20	<40	30 J	190 J	<50	<50	<50	<1,500	
	05/12/09	GAU		53.41	0.00	55.49	-	-	-	-	-	-	-	-	-	-	-	
	08/11/09	GAU		53.61	0.00	55.29	-	-	-	-	-	-	-	-	-	-	-	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
DW-1	05/11/10	INACT	108.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/10/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/09/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12	GAU		56.69	0.00	52.21	-	-	-	-	-	-	-	-	-	-	-	
	08/07/12	GAU		56.69	0.00	52.21	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DW-2	02/10/09		110.89	53.96	0.00	56.93	43,000	4,200	5,000	850	3,100	<500	<5,000	<500	<500	<500	<15,000	
	05/12/09	GAU		53.94	0.00	56.95	-	-	-	-	-	-	-	-	-	-	-	
	08/11/09	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/10/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/09/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12	GAU		57.45	0.00	53.44	-	-	-	-	-	-	-	-	-	-	-	
	08/07/12	GAU		57.45	0.00	53.44	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DW-3	02/10/09		108.66	52.63	0.00	56.03	5,100	1,200	17 J	310	260	73 J	160 J	<120	<120	<120	<3,800	
	05/12/09	GAU		53.16	0.00	55.50	-	-	-	-	-	-	-	-	-	-	-	
	08/11/09	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/10/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/09/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
DW-3	11/08/11	INACT	108.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12	GAU		55.72	0.00	52.94	-	-	-	-	-	-	-	-	-	-	-	
	08/07/12	GAU		55.72	0.00	52.94	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DW-4	02/10/09		110.94	54.67	0.00	56.27	14,000	3,300	56 J	850	1,100	68 J	<2,500	<250	<250	<250	<7,500	
	05/12/09	GAU		54.65	0.00	56.29	-	-	-	-	-	-	-	-	-	-	-	
	08/11/09	GAU		55.05	0.00	55.89	-	-	-	-	-	-	-	-	-	-	-	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/10/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/09/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12	GAU		57.72	0.00	53.22	-	-	-	-	-	-	-	-	-	-	-	
	08/07/12	GAU		57.72	0.00	53.22	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW-A1	01/30/98		107.68	44.38	0.00	63.30	<50	<0.30	<0.30	<0.30	<0.60	<10	-	-	-	-	-	
	06/05/98			43.30	0.00	64.38	<50	<0.30	<0.30	<0.30	<0.60	<10	-	-	-	-	-	
	09/14/98			42.75	0.00	64.93	<50	<0.30	<0.30	<0.30	<0.60	<10	-	-	-	-	-	
	12/18/98			42.65	0.00	65.03	<50	<0.30	<0.30	<0.30	0.93	<10	-	-	-	-	-	
	02/15/99			42.80	0.00	64.88	64	1.0	8.3	1.7	11	<10	-	-	-	-	-	
	05/12/99			42.90	0.00	64.78	<50	<0.3	<0.3	<0.3	<0.6	<10	-	-	-	-	-	
	09/29/99			43.95	0.00	63.73	<50	<2.0	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	12/07/99			44.45	0.00	63.23	<50	<2.0	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	03/21/00		105.52	44.47	0.00	61.05	<50	<2.0	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	06/14/00	INA		-	-	-	-	-	-	-	-	-	-	-	-	-	-	Paved over
	08/23/00	INA		-	-	-	-	-	-	-	-	-	-	-	-	-	-	Paved over
	12/08/00			46.30	0.00	59.22	50	1.5	<0.30	0.33	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	02/15/01			46.45	0.00	59.07	<50	<0.30	<0.30	<0.30	0.99	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/14/01			46.65	0.00	58.87	<50	<0.30	<0.30	0.50	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/14/01			47.25	0.00	58.27	22 J	<0.30	0.23 J	0.32	0.54 J	4.9 J	5.8 J	<5.0	<5.0	<5.0	-	
	12/07/01			47.68	0.00	57.84	<100	<5.0	<5.0	<5.0	1.1 J	8.0	9.5 J	<5.0	<5.0	<5.0	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A1	03/28/02		105.52	47.71	0.00	57.81	<100	<5.0	<5.0	<5.0	<5.0	19	15 J	<5.0	<5.0	<5.0	-	
	06/06/02		107.69	47.93	0.00	59.76	30 J	<2.0	<2.0	<2.0	<4.0	11	20 J	<5.0	<5.0	<5.0	-	
	09/05/02			48.75	0.00	58.94	28 J	<2.0	<2.0	<2.0	<4.0	18	21 J	<5.0	<5.0	<5.0	-	
	12/05/02			49.35	0.00	58.34	50	<2.0	<2.0	<2.0	<4.0	18	28 J	<5.0	<5.0	<5.0	-	
	02/18/03			49.61	0.00	58.08	23 J	<2.0	<2.0	<2.0	<4.0	12	17 J	0.91 J	<5.0	<5.0	<150	
	05/19/03			49.71	0.00	57.98	29 J	<2.0	<2.0	<2.0	<4.0	14	20 J	1.6 J	<5.0	<5.0	<150	
	08/19/03			49.98	0.00	57.71	<50	<2.0	<2.0	<2.0	<4.0	7.2	7.5 J	1.0 J	<5.0	<5.0	<150	
	11/18/03			50.42	0.00	57.27	26 J	<2.0	<2.0	<2.0	<4.0	4.8 J	6.5 J	0.58 J	<5.0	<5.0	<150	
	02/24/04			50.70	0.00	56.99	<50	<2.0	<2.0	<2.0	<4.0	2.7 J	5.4 J	0.69 J	<5.0	<5.0	<150	
	05/25/04			51.01	0.00	56.68	<50	0.94 J	<2.0	<2.0	<4.0	4.1 J	<50	0.56 J	<5.0	<5.0	<150	
	08/24/04			51.57	0.00	56.12	25 J	1.4 J	0.55 J	0.26 J	0.74 J	2.0 J	<50	0.39 J	<5.0	<5.0	<150	
	11/16/04			52.18	0.00	55.51	<50	4.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/08/05			52.00	0.00	55.69	22 J	1.8 J	<2.0	0.42 J	1.5 J	0.86 J	<50	<5.0	<5.0	<5.0	<150	
	05/03/05			52.26	0.00	55.43	<50	1.6 J	<2.0	0.34 J	0.56 J	1.2 J	<50	0.35 J	<5.0	<5.0	<150	
	08/02/05			52.14	0.00	55.55	<50	1.1 J	<2.0	<2.0	<4.0	2.3 J	<50	0.69 J	<5.0	<5.0	<150	
	11/01/05			51.74	0.00	55.95	28 J	1.5 J	<2.0	0.35 J	0.61 J	2.2 J	5.5 J	0.58 J	<5.0	<5.0	<150	
	01/31/06			51.39	0.00	56.30	32 J	<2.0	<2.0	<2.0	<4.0	1.8 J	8.9 J	0.44 J	<5.0	<5.0	<150	
	05/02/06			50.95	0.00	56.74	33 J	1.6 J	<2.0	0.35 J	<4.0	3.0 J	15 J	0.70 J	<5.0	<5.0	<150	
	08/01/06			50.63	0.00	57.06	46 J	0.78 J	<2.0	<2.0	<4.0	4.0 J	19 J	0.93 J	<5.0	<5.0	<150	
	11/07/06			50.21	0.00	57.48	36 J	2.0	<2.0	0.47 J	<4.0	3.7 J	25 J	0.91 J	<5.0	<5.0	<150	
	02/13/07			50.24	0.00	57.45	34 J	2.7	1.0 J	0.76 J	1.2 J	6.2	17 J	1.1 J	<5.0	<5.0	<150	
	05/01/07			50.14	0.00	57.55	43 J	2.6	<2.0	0.49 J	<4.0	7.1	16 J	1.2 J	<5.0	<5.0	<150	
	08/07/07			50.29	0.00	57.40	33 J	2.8	<2.0	<2.0	<4.0	7.7	16 J	1.2 J	<5.0	<5.0	<150	
	11/14/07			50.61	0.00	57.08	31 J	1.6 J	0.58 J	0.29 J	<4.0	8.2	25 J	1.2 J	<5.0	<5.0	<150	
	11/14/07	DUP		-	-	-	<50	1.5 J	0.60 J	<2.0	<4.0	9.2	24 J	1.3 J	<5.0	<5.0	<150	
	02/12/08			50.68	0.00	57.01	36 J	0.30 J	<2.0	<2.0	<4.0	6.8	28 J	1.1 J	<5.0	<5.0	<150	
	05/13/08			51.01	0.00	56.68	30 J	<2.0	<2.0	<2.0	<4.0	11	12 J	1.6 J	<5.0	<5.0	<150	
	08/12/08			51.18	0.00	56.51	34 J	<2.0	<2.0	<2.0	<4.0	9.8	10 J	1.4 J	<5.0	<5.0	<150	
	11/11/08	INA		-	-	-	-	-	-	-	-	-	-	-	-	-	-	well paved over
	02/10/09			52.70	0.00	54.99	40 J	<2.0	<2.0	<2.0	<4.0	5.7	10 J	0.55 J	<5.0	<5.0	<150	
	05/12/09			52.90	0.00	54.79	64	<2.0	<2.0	<2.0	<4.0	5.9	6.9 J	0.35 J	<5.0	<5.0	<150	
	08/11/09			53.58	0.00	54.11	34 J	<2.0	<2.0	<2.0	<4.0	6.1	8.0 J	0.25 J	<5.0	<5.0	<150	
	02/17/10			54.82	0.00	52.87	60	<2.0	<2.0	<2.0	<4.0	9.3	7.2 J	<5.0	<5.0	<5.0	<150	
	05/11/10	MD		55.31	0.00	52.38	-	-	-	-	-	-	-	-	-	-	-	
	05/13/10			-	-	-	110	<2.0	<2.0	<2.0	<4.0	7.3	<50	<5.0	<5.0	<5.0	<150	
	08/10/10			55.42	0.00	52.27	77	<2.0	<2.0	<2.0	<4.0	5.4	<50	<5.0	<5.0	<5.0	<150	
	11/09/10	MD		56.13	0.00	51.56	-	-	-	-	-	-	-	-	-	-	-	
	11/11/10			-	-	-	64	0.72 J	<2.0	<2.0	<4.0	4.6 J	<50	<5.0	<5.0	<5.0	<150	
	02/09/11			56.55	0.00	51.14	37 J	0.99 J	1.6 J	<2.0	0.98 J	1.6 J	6.7 J	<5.0	<5.0	<5.0	<150	
	05/10/11	MD		56.84	0.00	50.85	-	-	-	-	-	-	-	-	-	-	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A1	05/11/11		107.69	-	-	-	210	5.2	<2.0	0.45 J	<4.0	3.1 J	<50	<5.0	<5.0	<5.0	<150	
	08/09/11			56.71	0.00	50.98	210	29	0.61	4.5	<4.0	2.3	<10	<0.50	<0.50	<0.50	<150	
	11/08/11	MD		56.71	0.00	50.98	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	350	36	0.41 J	3.5	<4.0	1.6	<10	<0.50	<0.50	<0.50	<150	
	02/07/12			56.40	0.00	51.29	440	45	0.36 J	2.3	<4.0	1.2	<10	<0.50	<0.50	<0.50	<150	
	05/08/12	MD		56.01	0.00	51.68	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	140	23	0.85	0.48 J	1.6 J	0.49 J	<10	<0.50	<0.50	<0.50	<150	
	08/07/12			55.91	0.00	51.78	220	26	<0.50	<0.50	<4.0	0.38 J	<10	<0.50	<0.50	<0.50	<150	
	11/06/12	MD		56.01	0.00	51.68	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	200	11	<0.50	<0.50	<4.0	0.38 J	<10	<0.50	<0.50	<0.50	<150	
	02/12/13			56.35	0.00	51.34	150	5.1	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/07/13	MD		56.40	0.00	51.29	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	190	5.1	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
MW-A2	01/30/98		107.91	41.76	0.00	66.15	390	15	3.0	1.6	3.2	<10	-	-	-	-	-	
	06/05/98			38.90	0.00	69.01	190	7.8	<0.30	1.3	3.4	13	-	-	-	-	-	
	09/14/98			38.90	0.00	69.01	220	12	0.68	1.3	2.2	<10	-	-	-	-	-	
	12/18/98			37.30	0.00	70.61	250	9.7	1.4	1.4	2.5	<20	-	-	-	-	-	
	02/15/99			36.85	0.00	71.06	350	15	6.6	2.9	12	12	-	-	-	-	-	
	05/12/99			36.45	0.00	71.46	310	7.5	1.5	0.93	2.1	<10	-	-	-	-	-	
	09/29/99			36.57	0.00	71.34	<50	7.6	<2.0	<2.0	<4.0	<10	-	-	-	-	-	
	12/07/99			39.61	0.00	68.30	98	4.9	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	03/21/00		105.25	37.37	0.00	67.88	84	3.9	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	06/14/00			37.95	0.00	67.30	50	2.8	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	08/23/00			38.04	0.00	67.21	<500	2.6	0.34 J	0.42 J	1.2 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/08/00			38.95	0.00	66.30	77	2.3	0.70	0.52	1.6	<5.0	<50	<5.0	<5.0	<5.0	-	
	02/15/01			46.42	0.00	58.83	<50	1.2	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/14/01			39.45	0.00	65.80	<50	0.66	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/14/01			40.86	0.00	64.39	24 J	0.35	0.63	0.15 J	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/07/01			44.18	0.00	61.07	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	03/28/02			45.36	0.00	59.89	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	-	
	03/28/02	DUP	107.40	-	-	-	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	-	
	06/06/02			43.87	0.00	63.53	53	<2.0	0.26 J	<2.0	0.38 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/06/02	DUP		-	-	-	12 J	<2.0	0.14 J	<2.0	0.22 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/05/02			51.20	0.00	56.20	11 J	<2.0	<2.0	<2.0	0.19 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/05/02			45.85	0.00	61.55	34 J	13	<2.0	4.9	0.55 J	2.9 J	2.0 J	<5.0	<5.0	<5.0	-	
	02/18/03			47.68	0.00	59.72	26 J	5.6	<2.0	2.3	<4.0	0.72 J	<50	<5.0	<5.0	<5.0	<150	
	05/19/03			48.51	0.00	58.89	97	19	0.61 J	12	<4.0	1.8 J	<50	<5.0	<5.0	<5.0	<150	
	08/19/03			49.05	0.00	58.35	57	13	0.41 J	5.4	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/18/03			49.46	0.00	57.94	740	270	25	72	21	1.2 J	<50	<5.0	<5.0	<5.0	<150	
	02/24/04			49.85	0.00	57.55	2,700	920	34	200	150	<50	<500	<50	<50	<50	<1,500	

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Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A2	05/25/04		107.40	50.13	0.00	57.27	7,000	2,100	460	420	990	<200	<2,000	<200	<200	<200	<6,000	
	08/24/04			51.03	0.00	56.37	4,300	1,500	260	230	440	<200	<2,000	<200	<200	<200	<6,000	
	11/16/04			51.43	0.00	55.97	2,200	330	46	61	130	<20	<200	<20	<20	<20	<600	
	02/08/05			51.10	0.00	56.30	2,100	290	15	50	100	<20	<200	<20	<20	<20	<600	
	05/03/05			51.39	0.00	56.01	7,100	3,000	43 J	560	1,200	<250	<2,500	<250	<250	<250	<7,500	
	08/02/05			51.39	0.00	56.01	15,000	3,700	36 J	620	1,100	<250	600 J	<250	<250	<250	<7,500	
	11/01/05			50.88	0.00	56.52	3,200	1,800	25	300	480	<50	<500	<50	<50	<50	<1,500	
	01/31/06			50.50	0.00	56.90	3,400	3,700	32 J	510	240	<200	<2,000	<200	<200	<200	<6,000	
	05/02/06			50.15	0.00	57.25	630	680	<100	44 J	<200	3,100	5,300	<250	<250	22 J	<7,500	
	08/01/06			49.82	0.00	57.58	2,900	1,500	6.4 J	150	110	<50	<500	<50	<50	<50	<1,500	
	11/07/06			49.60	0.00	57.80	6,400	3,200	<100	210	110 J	<250	<2,500	<250	<250	<250	<7,500	
	02/13/07			49.40	0.00	58.00	4,200	2,100	8.2	210	240	<20	<200	<20	<20	<20	<600	
	05/01/07			49.36	0.00	58.04	4,300	2,800	<80	250	<160	<200	<2,000	<200	<200	<200	<6,000	
	08/07/07			49.53	0.00	57.87	4,300	2,300	<100	<100	<200	<250	<2,500	<250	<250	<250	<7,500	
	11/14/07			49.80	0.00	57.60	9,300	2,700	<100	280	160 J	<250	<2,500	<250	<250	<250	<7,500	
	02/12/08			49.82	0.00	57.58	3,700	2,100	<80	130	<160	<200	<2,000	<200	<200	<200	<6,000	
	05/13/08			50.13	0.00	57.27	270	130	<4.0	5.7	<8.0	<10	<100	<10	<10	<10	<300	
	08/12/08			50.40	0.00	57.00	460	330	<8.0	23	<16	<20	<200	<20	<20	<20	<600	
	11/11/08			51.32	0.00	56.08	310	270	1.3 J	19	3.9 J	0.68 J	<100	<10	<10	<10	<300	
	02/10/09			52.02	0.00	55.38	2,500	1,100	8.2	31	40	<20	<200	<20	<20	<20	<600	
	05/12/09			52.06	0.00	55.34	2,000	520	4.2 J	12 J	<40	<50	<500	<50	<50	<50	<1,500	
	08/11/09			52.80	0.00	54.60	1,200	510	4.4 J	5.5 J	<40	<50	<500	<50	<50	<50	<1,500	
	02/17/10			54.05	0.00	53.35	1,500	1,400	9.9 J	7.5 J	11 J	<50	66 J	<50	<50	<50	<1,500	
	05/11/10	MD		54.55	0.00	52.85	-	-	-	-	-	-	-	-	-	-	-	
	05/12/10			-	-	-	620	310	<4.0	0.96 J	4.2 J	1.2 J	56 J	<10	<10	<10	<300	
	08/10/10			54.88	0.00	52.52	2,400	1,500	<40	40	35 J	<100	<1,000	<100	<100	<100	<3,000	
	11/09/10	MD		55.36	0.00	52.04	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	930	750	<10	2.7 J	11 J	<25	98 J	<25	<25	<25	<750	
	02/09/11			55.68	0.00	51.72	1,000	480	<20	<20	<40	<50	86 J	<50	<50	<50	<1,500	
	05/10/11	MD		55.94	0.00	51.46	-	-	-	-	-	-	-	-	-	-	-	
	05/11/11			-	-	-	12,000	3,800	330	500	870	<100	<1,000	<100	<100	<100	<3,000	
	08/09/11			55.83	0.00	51.57	17,000	8,100	500	490	1,400	<50	<1,000	<50	<50	<50	<15,000	
	11/08/11	MD		55.86	0.00	51.54	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	12,000	7,600	570	210	1,100	<50	<1,000	<50	<50	<50	<15,000	
	02/07/12			55.57	0.00	51.83	3,000	18	<0.50	0.77	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/08/12	MD		55.28	0.00	52.12	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	12,000	3,600	380	550	1,500	<50	<1,000	<50	<50	<50	<15,000	
	08/07/12			55.03	0.00	52.37	3,800	1,300	20	270	150	<10	<200	<10	<10	<10	<3,000	
	11/06/12	MD		55.28	0.00	52.12	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	2,300	1,200	<10	18	43 J	<10	<200	<10	<10	<10	<3,000	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A2	02/12/13		107.40	55.65	0.00	51.75	380	170	<2.0	<2.0	<4.0	<2.0	<40	<2.0	<2.0	<2.0	<600	
	05/07/13	MD		56.63	0.00	50.77	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	500	160	<1.3	<1.3	<2.5	<1.3	26	<1.3	<1.3	<1.3	<380	
MW-A3	12/07/99		106.00	44.72	0.00	61.28	16,000	2,900	510	1,000	3,800	390	-	-	-	-	-	
	03/21/00		106.76	45.15	0.00	61.61	9,000	3,000	550	810	2,000	180	-	-	-	-	-	
	06/14/00			45.39	0.00	61.37	1,500	190	14	53	210	44	130	<10	<10	<10	-	
	08/23/00			45.17	0.00	61.59	2,500	460	25	230	99	28	25 J	3.6 J	<25	<25	-	
	08/23/00	DUP		-	-	-	3,000	470	42	220	160	32	32 J	3.3 J	<20	<20	-	
	12/08/00			46.04	0.00	60.72	3,000	410	20	150	270	27	20 J	2.3 J	<5.0	<5.0	-	
	02/15/01			46.20	0.00	60.56	2,800	690	14	300	120	39	<50	<5.0	<5.0	<5.0	-	
	06/14/01			46.37	0.00	60.39	2,800	720	<6.0	350	58	42	<50	<5.0	<5.0	<5.0	-	
	09/14/01			46.99	0.00	59.77	4,200	1,300	36	340	510	43	20 J	2.4 J	<5.0	<5.0	-	
	12/07/01			47.46	0.00	59.30	7,700	2,900	51 J	730	1,100	62	18 J	3.0 J	<5.0	<5.0	-	
	03/28/02		108.97	47.75	0.00	61.22	4,200	1,800	<50	420	250	75	21 J	2.8 J	<5.0	<5.0	-	
	06/06/02			47.98	0.00	60.99	5,100	1,900	7.1	500	380	50	54	2.2 J	<5.0	<5.0	-	
	09/05/02			48.75	0.00	60.22	2,800	1,100	10	240	560	120	34 J	<20	<20	<20	-	
	12/05/02			49.47	0.00	59.50	4,200	1,600	3.4 J	670	180	200	51 J	3.6 J	<20	<20	-	
	02/18/03			49.66	0.00	59.31	6,500	1,300	<2.0	660	280	320	100 J	<50	<50	<50	<1,500	
	05/19/03			49.81	0.00	59.16	3,100	910	<20	74	58	240	54 J	<50	<50	<50	<1,500	
	08/19/03			50.04	0.00	58.93	4,700	1,400	<40	260	390	300	<1,000	6.8 J	<100	<100	<3,000	
	11/18/03			50.93	0.00	58.04	4,000	1,300	<40	280	460	280	170 J	12 J	<100	<100	<3,000	
	02/24/04			50.84	0.00	58.13	11,000	3,700	<50	330	800	500	400 J	24 J	<120	<120	<3,800	
	02/24/04	DUP		-	-	-	12,000	3,800	<100	310	760	520	380 J	25 J	<250	<250	<7,500	
	05/25/04			51.17	0.00	57.80	7,900	3,700	<50	210	370	520	520 J	23 J	<120	<120	<3,800	
	05/25/04	DUP		-	-	-	7,400	2,800	<100	160	270	430	380 J	18 J	<250	<250	<7,500	
	08/24/04			51.67	0.00	57.30	9,600	4,000	<50	150	200	720	570 J	23 J	<120	<120	<3,800	
	08/24/04	DUP		-	-	-	9,100	1,900	<100	78 J	98 J	320	290 J	<250	<250	<250	<7,500	
	11/16/04			50.81	0.00	58.16	7,000	2,900	<80	<80	<160	570	<2,000	<200	<200	<200	<6,000	
	11/16/04	DUP		-	-	-	4,900	2,300	<40	<40	<80	520	<1,000	<100	<100	<100	<3,000	
	02/08/05			52.08	0.00	56.89	5,400	2,600	<100	36 J	<200	520	320 J	12 J	<250	<250	<7,500	
	02/08/05	DUP		-	-	-	5,900	2,600	<80	36 J	<160	490	340 J	12 J	<200	<200	<6,000	
	05/03/05			52.45	0.00	56.52	5,300	2,500	<100	28 J	<200	490	<2,500	12 J	<250	<250	<7,500	
	05/03/05	DUP		-	-	-	4,700	1,900	<20	22	<40	440	330 J	13 J	<50	10 J	<1,500	
	08/02/05			52.31	0.00	56.66	2,900	1,000	<50	10 J	<100	270	180 J	7.0 J	<120	<120	<3,800	
	08/02/05	DUP		-	-	-	2,200	950	<20	9.8 J	<40	270	170 J	6.2 J	<50	<50	<1,500	
	11/01/05			51.87	0.00	57.10	2,900	1,300	<50	24 J	<100	320	160 J	6.2 J	<120	<120	<3,800	
	11/01/05	DUP		-	-	-	3,100	1,300	<20	22	<40	420	190 J	7.5 J	<50	<50	<1,500	
	01/31/06			51.63	0.00	57.34	39 J	0.61 J	<2.0	<2.0	<4.0	4.2 J	<50	<5.0	<5.0	<5.0	<150	
	01/31/06	DUP		-	-	-	46 J	0.44 J	<2.0	<2.0	<4.0	4.2 J	<50	<5.0	<5.0	<5.0	<150	
	05/02/06			51.39	0.00	57.58	4,400	1,000	<40	54	<80	<100	<1,000	<100	<100	<100	<3,000	

TABLE 2
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Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A3	05/02/06	DUP	108.97	-	-	-	4,100	1,400	<40	24 J	<80	370	230 J	5.6 J	<100	<100	<3,000	
	08/01/06			51.08	0.00	57.89	3,100	1,200	<80	24 J	<160	290	<2,000	<200	<200	<200	<6,000	
	08/01/06	DUP		-	-	-	2,900	1,200	<20	25	<40	340	140 J	6.1 J	<50	<50	<1,500	
	11/07/06			50.43	0.00	58.54	2,700	1,100	<20	38	<40	230	<500	3.9 J	<50	<50	<1,500	
	11/07/06	DUP		-	-	-	2,400	870	<20	37	<40	210	110 J	3.0 J	<50	<50	<1,500	
	02/13/07			50.68	0.00	58.29	2,000	530	0.73 J	19	2.2 J	300	180	4.9 J	<5.0	2.0 J	<150	
	02/13/07	DUP		-	-	-	2,000	640	0.48 J	16	1.7 J	390	170	5.1	<5.0	2.3 J	<150	
	05/01/07			50.60	0.00	58.37	1,800	730	<40	11 J	<80	370	210 J	<100	<100	<100	<3,000	
	05/01/07	DUP		-	-	-	2,200	610	<20	8.9 J	<40	350	190 J	3.5 J	<50	<50	<1,500	
	08/07/07			50.29	0.00	58.68	390	34	<8.0	<8.0	<16	260	120 J	3.2 J	<20	<20	<600	
	08/07/07	DUP		-	-	-	340	28	<2.0	0.31 J	<4.0	210	150	3.8 J	<5.0	1.1 J	<150	
	11/14/07			50.81	0.00	58.16	220	3.8 J	<4.0	<4.0	<8.0	180	260	2.3 J	<10	1.2 J	<300	
	02/12/08			50.61	0.00	58.36	66	24	<2.0	<2.0	<4.0	0.38 J	<50	<5.0	<5.0	<5.0	<150	
	02/12/08	DUP		-	-	-	66	22	<2.0	<2.0	<4.0	0.43 J	<50	<5.0	<5.0	<5.0	<150	
	05/13/08			51.07	0.00	57.90	58	18	<2.0	<2.0	<4.0	0.71 J	<50	<5.0	<5.0	<5.0	<150	
	05/13/08	DUP		-	-	-	<50	1.9 J	<2.0	<2.0	<4.0	0.37 J	<50	<5.0	<5.0	<5.0	<150	
	08/12/08			51.68	0.00	57.29	220	110	<4.0	<4.0	4.8 J	27	<100	<10	<10	<10	<300	
	08/12/08	DUP		-	-	-	170	81	0.49 J	0.34 J	3.4 J	31	<50	0.44 J	<5.0	<5.0	<150	
	11/11/08			-	-	-	250	130	0.71 J	0.79 J	6.0	0.92 J	<50	0.43 J	<5.0	<5.0	<150	
	11/11/08	DUP		-	-	-	200	110	0.61 J	0.76 J	5.3	1.2 J	<50	0.40 J	<5.0	<5.0	<150	
	11/18/08	MD		52.94	0.00	56.03	-	-	-	-	-	-	-	-	-	-	-	
	02/10/09		109.24	53.30	0.00	55.94	390	160	0.78 J	1.2 J	4.3 J	98	80 J	0.62 J	<10	<10	<300	
	02/10/09	DUP		-	-	-	640	330	1.8 J	2.4 J	10 J	96	94 J	<25	<25	<25	<750	
	05/12/09			53.40	0.00	55.84	140	36	<2.0	<2.0	<4.0	140	42 J	0.75 J	<5.0	0.79 J	<150	
	05/12/09	DUP		-	-	-	640	20	<2.0	<2.0	<4.0	100	18 J	0.58 J	<5.0	0.55 J	<150	
	08/11/09	MD		53.98	0.00	55.26	-	-	-	-	-	-	-	-	-	-	-	
	08/13/09			-	-	-	300	70	<4.0	<4.0	<8.0	120	15 J	0.68 J	<10	<10	<300	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10			55.46	0.00	53.78	140	36	<2.0	<2.0	<4.0	47	<50	0.44 J	<5.0	0.35 J	<150	
	11/09/10			56.52	0.00	52.72	1,600	730	4.9 J	5.7 J	4.8 J	98	<250	<25	<25	<25	<750	
	11/09/10	DUP		-	-	-	1,600	830	5.0 J	6.1 J	5.4 J	96	<250	<25	<25	<25	<750	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11			56.74	0.00	52.50	660	190	1.5 J	1.2 J	1.4 J	44	8.0 J	<5.0	<5.0	0.38 J	<150	
	05/10/11	DUP	-	-	-	-	590	240	1.6 J	1.2 J	<10	44	<120	<12	<12	<12	<380	
	08/09/11	INACT	109.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11			56.85	0.00	52.39	1,100	570	4.4 J	<10	<20	31	<250	<25	<25	<25	<750	
	11/08/11	DUP		-	-	-	1,200	670	5.0 J	<20	<40	31 J	<500	<50	<50	<50	<1,500	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12			56.50	0.00	52.74	240	20	0.95	<0.50	<4.0	12	<10	<0.50	<0.50	<0.50	<150	
	05/08/12	DUP		-	-	-	260	20	0.97	<0.50	<4.0	12	<10	<0.50	<0.50	<0.50	<150	

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Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A3	08/07/12	INACT	109.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12			56.44	0.00	52.80	130	7.4	<0.50	<0.50	<4.0	6.1	<10	<0.50	<0.50	<0.50	<150	
	11/06/12	DUP		-	-	-	120	7.2	<0.50	<0.50	<4.0	6.1	<10	<0.50	<0.50	<0.50	<150	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13			56.80	0.00	52.44	110	4.4	<0.50	<0.50	<4.0	2.3	<10	<0.50	<0.50	<0.50	<150	
	05/07/13	DUP		56.80	0.00	52.44	84	4.0	<0.50	<0.50	<4.0	2.3	<10	<0.50	<0.50	<0.50	<150	
MW-A4	12/07/99		108.48	45.57	0.00	62.91	36,000	6,500	8,400	1,400	4,900	<500	-	-	-	-	-	
	03/21/00		108.56	46.00	0.00	62.56	28,000	7,400	9,800	1,500	4,200	<500	-	-	-	-	-	
	03/21/00	DUP		-	-	-	34,000	7,200	9,700	1,400	4,200	<500	-	-	-	-	-	
	06/14/00			46.45	0.00	62.11	44,000	8,600	11,000	1,700	6,100	<400	<4,000	<400	<400	<400	-	
	06/14/00	DUP		-	-	-	42,000	9,000	12,000	1,800	6,500	<400	<4,000	<400	<400	<400	-	
	08/23/00			46.11	0.00	62.45	49,000	9,000	13,000	1,700	6,300	20 J	<4,000	<400	<400	<400	-	
	12/08/00			47.50	0.00	61.06	45,000	7,900	8,500	1,500	5,000	<20	86 J	<20	<20	<20	-	
	12/08/00	DUP		-	-	-	46,000	8,200	9,000	1,600	5,500	1.1 J	110	<5.0	<5.0	<5.0	-	
	02/15/01			47.66	0.00	60.90	22,000	5,500	4,100	440	3,100	<20	<200	<20	<20	<20	-	
	02/15/01	DUP		-	-	-	23,000	5,300	4,000	120	3,600	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/14/01			47.78	0.00	60.78	29,000	7,200	4,800	1,600	4,800	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/14/01	DUP		-	-	-	29,000	6,600	4,400	1,500	4,400	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/14/01			48.38	0.00	60.18	33,000	7,700	7,100	1,700	4,900	<20	<200	<20	<20	<20	-	
	09/14/01	DUP		-	-	-	33,000	6,600	6,100	1,500	4,200	<5.0	54	<5.0	<5.0	<5.0	-	
	12/07/01			48.85	0.00	59.71	21,000	5,200	2,800	800 J	3,100	<5.0	94	<5.0	<5.0	<5.0	-	
	12/07/01	DUP		-	-	-	24,000	5,200	3,000	790 J	3,200	<5.0	110	<5.0	<5.0	<5.0	-	
	03/28/02			49.10	0.00	59.46	12,000	5,000	640	1,300	1,200	<20	47 J	<20	<20	<20	-	
	06/06/02		110.71	49.30	0.00	61.41	20,000	5,200	1,400	1,200	2,000	<20	56 J	<20	<20	<20	-	
	09/05/02			50.07	0.00	60.64	14,000	5,000	920	910	2,000	<50	<500	<50	<50	<50	-	
	09/05/02	DUP		-	-	-	11,000	3,500	320	740	570	0.31 J	46 J	<5.0	<5.0	<5.0	-	
	12/05/02			50.12	0.00	60.59	11,000	3,200	420	480	1,000	<25	51 J	<25	<25	<25	-	
	12/05/02	DUP		-	-	-	10,000	2,300	310	460	840	<25	59 J	<25	<25	<25	-	
	02/18/03			59.99	0.00	50.72	21,000	3,500	510	800	2,300	<100	<1,000	<100	<100	<100	<3,000	
	02/18/03	DUP		-	-	-	36,000	7,100	1,200	1,600	5,600	<500	<5,000	<500	<500	<500	<15,000	
	05/19/03			51.13	0.00	59.58	23,000	5,400	1,300	1,200	3,800	<500	<5,000	<500	<500	<500	<15,000	
	05/19/03	DUP		-	-	-	21,000	5,000	1,200	1,000	3,400	<500	<5,000	<500	<500	42 J	<15,000	
	08/19/03			61.33	0.00	49.38	11,000	4,400	490	950	2,600	<250	<2,500	<250	<250	<250	<7,500	
	08/19/03	DUP		-	-	-	16,000	5,000	540	960	2,700	<500	<5,000	<500	<500	<500	<15,000	
	11/18/03			51.84	0.00	58.87	16,000	4,500	1,600	880	3,000	<250	<2,500	<250	<250	<250	<7,500	
	11/18/03	DUP		-	-	-	12,000	4,500	1,700	910	3,000	<200	220 J	<200	<200	<200	<6,000	
	02/24/04			52.00	0.00	58.71	9,900	4,000	670	650	1,500	<250	<2,500	<250	<250	<250	<7,500	
	05/25/04			52.37	0.00	58.34	22,000	8,400	1,900	1,500	4,500	<250	<2,500	<250	<250	<250	<7,500	
	08/24/04			52.26	0.00	58.45	20,000	7,000	1,200	1,100	2,700	<250	<2,500	<250	<250	<250	<7,500	
	11/16/04			53.44	0.00	57.27	24,000	7,400	980	1,100	2,700	<500	<5,000	<500	<500	<500	<15,000	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A4	02/08/05		110.71	53.60	0.00	57.11	26,000	9,000	1,400	1,600	4,100	<250	<2,500	<250	<250	<250	<7,500	
	05/03/05			53.49	0.00	57.22	30,000	11,000	1,700	1,800	4,600	<500	<5,000	<500	<500	<500	<15,000	
	08/02/05			53.50	0.00	57.21	34,000	11,000	550	1,400	2,900	<1,000	<10,000	<1,000	<1,000	<1,000	<30,000	
	11/01/05			53.23	0.00	57.48	37,000	11,000	1,300	1,700	4,200	<500	<5,000	<500	<500	<500	<15,000	
	01/31/06			52.88	0.00	57.83	23,000	9,000	770	1,300	2,900	<500	<5,000	<500	<500	<500	<15,000	
	05/02/06			52.63	0.00	58.08	26,000	13,000	<400	220 J	<800	3,400	1,800 J	58 J	<1,000	<1,000	<30,000	
	08/01/06			52.36	0.00	58.35	26,000	9,500	730	1,200	2,500	<500	<5,000	<500	<500	<500	<15,000	
	11/07/06			51.84	0.00	58.87	29,000	12,000	1,300	1,600	3,300	<400	<4,000	<400	<400	<400	<12,000	
	02/13/07			51.90	0.00	58.81	22,000	8,800	550	1,000	1,900	<100	<1,000	<100	<100	<100	<3,000	
	05/01/07			51.90	0.00	58.81	21,000	10,000	920	1,300	2,500	<1,000	<10,000	<1,000	<1,000	<1,000	<30,000	
	08/07/07			51.95	0.00	58.76	20,000	9,000	910	1,100	2,200	<500	<5,000	<500	<500	<500	<15,000	
	11/14/07			52.10	0.00	58.61	16,000	8,100	650	1,000	2,000	<500	<5,000	<500	<500	<500	<15,000	
	02/12/08			52.01	0.00	58.70	16,000	9,000	1,400	940	2,200	<500	<5,000	<500	<500	<500	<15,000	
	05/13/08			52.38	0.00	58.33	1,200	4,100	340	400	700	<500	<5,000	<500	<500	<500	<15,000	
	08/12/08			52.77	0.00	57.94	17,000	5,000	1,000	680	1,500	<250	<2,500	<250	<250	<250	<7,500	
	11/11/08			-	-	-	23,000	3,100	1,100	510	1,600	<250	<2,500	<250	<250	<250	<7,500	
	11/18/08	MD		53.98	0.00	56.73	-	-	-	-	-	-	-	-	-	-	-	
	02/10/09		111.36	54.39	0.00	56.97	21,000	7,700	1,500	980	2,700	<250	<2,500	<250	<250	<250	<7,500	
	05/12/09			54.36	0.00	57.00	25,000	7,000	2,000	1,000	3,500	<500	<5,000	<500	<500	<500	<15,000	
	08/11/09	MD		55.11	0.00	56.25	-	-	-	-	-	-	-	-	-	-	-	
	08/13/09			-	-	-	29,000	10,000	1,900	1,300	3,700	<500	<5,000	<500	<500	<500	<15,000	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10			56.83	0.00	54.53	36,000	11,000	3,900	1,600	5,200	<1,000	<10,000	<1,000	<1,000	<1,000	<30,000	
	11/09/10	MD		57.71	0.00	53.65	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	40,000	17,000	2,900	1,800	5,500	<1,000	<10,000	<1,000	<1,000	<1,000	<30,000	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11	MD		58.18	0.00	53.18	-	-	-	-	-	-	-	-	-	-	-	
	05/11/11			-	-	-	47,000	21,000	3,100	1,900	5,600	<2,500	<25,000	<2,500	<2,500	<2,500	<75,000	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11			58.30	0.00	53.06	42,000	21,000	1,200	1,800	3,900	<2,000	<20,000	<2,000	<2,000	<2,000	<60,000	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12			55.85	0.00	55.51	41,000	13,000	1,500	1,300	3,400	<100	<2,000	<100	<100	<100	<30,000	
	08/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12	MD		57.92	0.00	53.44	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	33,000	16,000	2,900	1,500	4,300	<200	<4,000	<200	<200	<200	<60,000	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13	MD		58.31	0.00	53.05	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	42,000	16,000	4,500	1,800	4,700	<100	<2,000	<100	<100	<100	<30,000	
MW-A5	12/07/01		105.72	47.11	0.00	58.61	<100	1.4 J	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	03/28/02			47.36	0.00	58.36	110	<5.0	<5.0	1.1 J	2.4 J	<5.0	<25	<5.0	<5.0	<5.0	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A5	06/06/02		107.91	47.52	0.00	60.39	23 J	<2.0	<2.0	0.19 J	0.47 J	0.30 J	<50	<5.0	<5.0	<5.0	-	
	09/05/02			48.37	0.00	59.54	120	<2.0	<2.0	0.35 J	0.43 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/05/02			49.05	0.00	58.86	60	<2.0	<2.0	<2.0	<4.0	0.58 J	8.4 J	<5.0	<5.0	<5.0	-	
	02/18/03			49.06	0.00	58.85	300	1.9 J	<2.0	5.8	31	27	15 J	1.6 J	<5.0	<5.0	<150	
	05/19/03			49.41	0.00	58.50	680	35	<10	59	300	100	97 J	7.8 J	<25	<25	<750	
	08/19/03			49.70	0.00	58.21	260	3.9	0.38 J	1.9 J	62	73	61	4.1 J	<5.0	<5.0	<150	
	11/18/03			50.15	0.00	57.76	420	6.4	1.0 J	4.4	140	140	180	7.3	<5.0	<5.0	<150	
	02/24/04			50.43	0.00	57.48	660	16	1.8 J	16	220	160	310	10	<10	<10	<300	
	05/25/04			50.74	0.00	57.17	1,000	26	1.6 J	22	190	290	440	14	<10	<10	<300	
	08/24/04			51.30	0.00	56.61	1,000	74	16	37	250	290	770	15	<10	<10	<300	
	11/16/04			51.90	0.00	56.01	2,400	180	<8.0	93	660	370	790	<20	<20	<20	<600	
	02/08/05			51.84	0.00	56.07	1,100	53	1.4 J	18	210	280	440	11	<10	<10	<300	
	05/03/05			51.95	0.00	55.96	490	37	<5.0	1.9 J	15	190	390	8.3 J	<12	<12	<380	
	08/02/05			51.88	0.00	56.03	250	40	<4.0	0.92 J	3.1 J	140	250	6.1 J	<10	<10	<300	
	11/01/05			51.45	0.00	56.46	180	44	<4.0	0.76 J	3.5 J	140	170	4.4 J	<10	<10	<300	
	01/31/06			51.17	0.00	56.74	140	14	0.92 J	1.3 J	1.9 J	65	92	1.9 J	<5.0	<5.0	<150	
	05/02/06			50.77	0.00	57.14	310	96	0.76 J	2.3	10	110	140	2.1 J	<5.0	<5.0	<150	
	08/01/06			50.45	0.00	57.46	190	31	0.52 J	1.1 J	2.1 J	110	100	2.4 J	<5.0	0.47 J	<150	
	11/07/06			50.21	0.00	57.70	110	26	0.51 J	1.5 J	2.8 J	56	37 J	1.1 J	<5.0	<5.0	<150	
	02/13/07			50.07	0.00	57.84	190	36	<4.0	2.2 J	2.6 J	130	63 J	2.3 J	<10	<10	<300	
	05/01/07			49.99	0.00	57.92	170	35	<2.0	0.69 J	1.3 J	190	92	3.4 J	<5.0	0.79 J	<150	
	08/07/07			50.05	0.00	57.86	160	23	<2.0	0.49 J	1.3 J	210	100	3.0 J	<5.0	1.0 J	<150	
	11/14/07			50.43	0.00	57.48	190	10	<4.0	<4.0	<8.0	270	160	3.9 J	<10	1.4 J	<300	
	02/12/08			50.41	0.00	57.50	170	3.9 J	<8.0	<8.0	<16	250	140 J	3.5 J	<20	<20	<600	
	05/13/08			50.74	0.00	57.17	110	0.62 J	<4.0	<4.0	<8.0	150	140	3.3 J	<10	<10	<300	
	08/12/08			50.95	0.00	56.96	75	<2.0	<2.0	<2.0	<4.0	27	210	3.7 J	<5.0	<5.0	<150	
	11/11/08			51.85	0.00	56.06	82	<2.0	<2.0	<2.0	<4.0	16	190	3.3 J	<5.0	<5.0	<150	
	02/10/09			52.67	0.00	55.24	60	<2.0	<2.0	<2.0	<4.0	18	210	2.3 J	<5.0	<5.0	<150	
	05/12/09			52.65	0.00	55.26	34 J	<2.0	<2.0	<2.0	<4.0	7.1	140	1.2 J	<5.0	<5.0	<150	
	08/11/09			53.29	0.00	54.62	38 J	0.71 J	<2.0	<2.0	<4.0	4.0 J	79	1.1 J	<5.0	<5.0	<150	
	02/17/10			54.52	0.00	53.39	31 J	0.61 J	<2.0	<2.0	<4.0	4.1 J	15 J	<5.0	<5.0	<5.0	<150	
	05/11/10	MD		54.98	0.00	52.93	-	-	-	-	-	-	-	-	-	-	-	
	05/12/10			-	-	-	35 J	3.1	<2.0	<2.0	<4.0	3.4 J	<50	<5.0	<5.0	<5.0	<150	
	08/10/10			55.39	0.00	52.52	36 J	<2.0	<2.0	<2.0	<4.0	3.0 J	<50	<5.0	<5.0	<5.0	<150	
	11/09/10	MD		55.81	0.00	52.10	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	<50	0.46 J	<2.0	<2.0	<4.0	3.4 J	7.0 J	<5.0	<5.0	<5.0	<150	
	02/09/11			56.12	0.00	51.79	41 J	0.80 J	<2.0	<2.0	<4.0	14	28 J	0.34 J	<5.0	<5.0	<150	
	05/10/11	MD		56.41	0.00	51.50	-	-	-	-	-	-	-	-	-	-	-	
	05/11/11			-	-	-	7,100	1.1 J	<2.0	<2.0	<4.0	22	31 J	0.29 J	<5.0	0.89 J	<150	
	08/09/11			57.42	0.00	50.49	37 J	1.4	<0.50	<0.50	<4.0	6.1	9.6 J	<0.50	<0.50	<0.50	<150	

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Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A5	11/08/11	MD	107.91	56.32	0.00	51.59	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	64	2.4	<0.50	<0.50	<4.0	3.4	<10	<0.50	<0.50	<0.50	<150	
	02/07/12			56.10	0.00	51.81	81	15	<0.50	<0.50	<4.0	7.2	13	<0.50	<0.50	<0.50	<150	
	05/08/12	MD		55.80	0.00	52.11	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	55	8.9	<0.50	<0.50	<4.0	2.3	<10	<0.50	<0.50	<0.50	<150	
	08/07/12			55.64	0.00	52.27	75	12	<0.50	<0.50	<4.0	2.0	<10	<0.50	<0.50	<0.50	<150	
	11/06/12	MD		55.80	0.00	52.11	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	130	25	0.54	<0.50	<4.0	3.5	<10	<0.50	<0.50	<0.50	<150	
	02/12/13			56.10	0.00	51.81	74	2.4	<0.50	<0.50	<1.0	1.2	<10	<0.50	<0.50	<0.50	<150	
	05/07/13	MD		56.13	0.00	51.78	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	57	3.8	<0.50	<0.50	<1.0	0.83	<10	<0.50	<0.50	<0.50	<150	
MW-A6	12/07/01		105.78	46.86	0.00	58.92	150	59	<5.0	<5.0	<5.0	<5.0	18 J	<5.0	<5.0	<5.0	-	
	03/28/02			47.06	0.00	58.72	58 J	31	<5.0	<5.0	<5.0	<5.0	10 J	<5.0	<5.0	<5.0	-	
	06/06/02		107.90	47.26	0.00	60.64	77	30	<2.0	0.18 J	0.31 J	<5.0	18 J	<5.0	<5.0	<5.0	-	
	09/05/02			48.20	0.00	59.70	74	22	<2.0	<2.0	<4.0	<5.0	23 J	<5.0	<5.0	<5.0	-	
	12/05/02			48.75	0.00	59.15	78	28	<2.0	<2.0	<4.0	<5.0	18 J	<5.0	<5.0	<5.0	-	
	02/18/03			47.85	0.00	60.05	60	13	<2.0	<2.0	<4.0	<5.0	26 J	<5.0	<5.0	<5.0	<150	
	05/19/03			48.98	0.00	58.92	66	25	<2.0	<2.0	<4.0	<5.0	15 J	<5.0	<5.0	<5.0	<150	
	08/19/03			49.21	0.00	58.69	56	24	<2.0	<2.0	<4.0	<5.0	12 J	<5.0	<5.0	<5.0	<150	
	11/18/03			49.62	0.00	58.28	59	17	<2.0	<2.0	<4.0	<5.0	11 J	<5.0	<5.0	<5.0	<150	
	02/24/04			49.91	0.00	57.99	58	20	<2.0	<2.0	<4.0	<5.0	13 J	<5.0	<5.0	<5.0	<150	
	05/25/04			50.25	0.00	57.65	62	19	<2.0	<2.0	<4.0	<5.0	8.2 J	<5.0	<5.0	<5.0	<150	
	08/24/04			50.87	0.00	57.03	94	24	0.39 J	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/16/04			51.44	0.00	56.46	67	21	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/08/05			51.48	0.00	56.42	62	17	<2.0	0.30 J	1.0 J	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/03/05			51.58	0.00	56.32	78	20	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/02/05			51.49	0.00	56.41	76	11	<2.0	<2.0	<4.0	<5.0	5.0 J	0.25 J	<5.0	0.36 J	<150	
	11/01/05			51.00	0.00	56.90	80	11	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	01/31/06			50.77	0.00	57.13	88	7.0	<2.0	<2.0	<4.0	<5.0	7.1 J	<5.0	<5.0	<5.0	<150	
	05/02/06			52.80	0.00	55.10	130	11	<2.0	0.28 J	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/01/06			50.13	0.00	57.77	140	10	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/08/06			49.87	0.00	58.03	150	7.5	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/13/07			49.75	0.00	58.15	110	6.9	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/01/07			49.72	0.00	58.18	88	3.2	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/07/07			49.77	0.00	58.13	110	3.5	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/15/07			50.03	0.00	57.87	110	2.7	<2.0	<2.0	<4.0	<5.0	5.5 J	<5.0	<5.0	<5.0	<150	
	02/12/08	MD		50.08	0.00	57.82	-	-	-	-	-	-	-	-	-	-	-	
	02/13/08			-	-	-	120	1.9 J	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/13/08			50.46	0.00	57.44	140	3.1	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/12/08			50.71	0.00	57.19	150	4.8	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A6	11/11/08		107.90	51.51	0.00	56.39	180	7.8	0.39 J	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/10/09			52.31	0.00	55.59	170	5.0	<2.0	0.25 J	<4.0	<5.0	12 J	<5.0	<5.0	<5.0	<150	
	05/12/09			52.32	0.00	55.58	180	3.8	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/11/09			53.00	0.00	54.90	170	7.5	<2.0	<2.0	<4.0	<5.0	9.8 J	<5.0	<5.0	<5.0	<150	
	02/17/10	MD		54.02	0.00	53.88	-	-	-	-	-	-	-	-	-	-	-	
	02/18/10			-	-	-	170	5.3	<2.0	0.33 J	<4.0	<5.0	13 J	<5.0	<5.0	<5.0	<150	
	05/11/10	MD		54.48	0.00	53.42	-	-	-	-	-	-	-	-	-	-	-	
	05/13/10			-	-	-	150	6.3	<2.0	0.61 J	<4.0	<5.0	10 J	<5.0	<5.0	<5.0	<150	
	08/10/10			54.89	0.00	53.01	210	9.1	<2.0	1.1 J	<4.0	<5.0	13 J	<5.0	<5.0	<5.0	<150	
	11/09/10	MD		55.34	0.00	52.56	-	-	-	-	-	-	-	-	-	-	-	
	11/11/10			-	-	-	200	13	<2.0	1.1 J	<4.0	<5.0	15 J	<5.0	<5.0	<5.0	<150	
	02/09/11	MD		55.62	0.00	52.28	-	-	-	-	-	-	-	-	-	-	-	
	02/10/11			-	-	-	230	18	<2.0	0.75 J	<4.0	<5.0	20 J	<5.0	<5.0	<5.0	<150	
	05/10/11	MD		55.93	0.00	51.97	-	-	-	-	-	-	-	-	-	-	-	
	05/12/11			-	-	-	240	22	<2.0	0.52 J	<4.0	<5.0	11 J	<5.0	<5.0	<5.0	<150	
	08/09/11	MD		55.91	0.00	51.99	-	-	-	-	-	-	-	-	-	-	-	
	08/10/11			-	-	-	150	14	<0.50	0.45 J	<4.0	<0.50	17	<0.50	<0.50	<0.50	<150	
	11/08/11	MD		55.92	0.00	51.98	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	180	3.2	<0.50	0.28 J	<4.0	<0.50	8.0 J	<0.50	<0.50	<0.50	<150	
	02/07/12			55.76	0.00	52.14	570	10	<0.50	0.46 J	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/08/12	MD		55.46	0.00	52.44	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	310	4.5	<0.50	0.32 J	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/07/12			55.43	0.00	52.47	280	3.0	<0.50	<0.50	<4.0	<0.50	7.9 J	<0.50	<0.50	0.92	<150	
	11/06/12	MD		56.16	0.00	51.74	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	380	5.2	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	0.92	<150	
	02/12/13			55.74	0.00	52.16	300	3.2	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/07/13	MD		56.80	0.00	51.10	-	-	-	-	-	-	-	-	-	-	-	
	05/09/13			-	-	-	320	2.3	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
MW-A7	06/06/02		110.63	49.32	0.00	61.31	55,000	3,500	6,300	2,400	13,000	1,700	1,200	7.1	<5.0	<5.0	-	
	09/05/02			50.12	0.00	60.51	37,000	3,300	3,800	2,400	13,000	2,400	670	<50	<50	16 J	-	
	12/05/02			50.85	0.00	59.78	19,000	2,900	46	1,600	9,100	1,500	630 J	<100	<100	7.4 J	-	
	02/18/03			51.00	0.00	59.63	19,000	2,600	21 J	1,000	4,000	670	400 J	<200	<200	<200	<6,000	
	05/19/03			51.15	0.00	59.48	18,000	2,800	42 J	1,400	6,500	1,700	300 J	<200	<200	<200	<6,000	
	08/19/03			51.37	0.00	59.26	14,000	3,000	<80	1,200	2,400	1,800	530 J	<200	<200	<200	<6,000	
	11/18/03			51.85	0.00	58.78	7,500	1,800	<80	1,200	440	1,700	640 J	<200	<200	<200	<6,000	
	02/24/04			52.07	0.00	58.56	5,800	4,100	15 J	640	210	190 J	<2,000	<200	<200	<200	<6,000	
	05/25/04			52.38	0.00	58.25	4,200	1,800	<80	470	47 J	550	320 J	<200	<200	<200	<6,000	
	08/24/04			52.80	0.00	57.83	4,100	1,600	<80	80	<160	730	890 J	11 J	<200	<200	<6,000	
	11/16/04			53.63	0.00	57.00	2,100	980	<40	<40	<80	210	<1,000	<100	<100	<100	<3,000	
	02/08/05			53.71	0.00	56.92	3,100	1,800	<80	150	140 J	24 J	<2,000	<200	<200	<200	<6,000	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A7	05/03/05		110.63	53.16	0.00	57.47	9,000	4,500	<200	440	440	<500	<5,000	<500	<500	<500	<15,000	
	08/02/05			53.13	0.00	57.50	640	2,100	<80	14 J	190	30 J	490 J	<200	<200	<200	<6,000	
	11/01/05			52.76	0.00	57.87	4,500	2,300	17 J	120	200	54 J	570 J	6.2 J	<120	<120	<3,800	
	01/31/06			52.50	0.00	58.13	3,400	1,500	11 J	92	91	54 J	580 J	5.2 J	<100	<100	<3,000	
	05/02/06			52.23	0.00	58.40	4,600	2,300	9.0 J	170	170	41 J	390 J	<100	<100	<100	<3,000	
	08/01/06			51.87	0.00	58.76	3,300	1,600	8.9 J	110	73	64	530	5.4 J	<50	<50	<1,500	
	11/07/06			51.69	0.00	58.94	5,100	1,700	33	110	140	48 J	420 J	2.5 J	<50	<50	<1,500	
	02/13/07			49.80	0.00	60.83	9,300	4,500	24	310	420	58	270 J	2.9 J	<50	<50	<1,500	
	05/01/07			51.52	0.00	59.11	7,100	3,900	62	260	370	15 J	210 J	<100	<100	<100	<3,000	
	08/07/07			51.46	0.00	59.17	15,000	6,400	56 J	560	920	56 J	<5,000	<500	<500	<500	<15,000	
	11/14/07	MD		51.60	0.00	59.03	-	-	-	-	-	-	-	-	-	-	-	
	11/15/07			-	-	-	10,000	6,000	310	490	1,100	<500	<5,000	<500	<500	<500	<15,000	
	02/12/08			50.69	0.00	59.94	97	18	1.4 J	3.8	4.8	11	<50	<5.0	<5.0	<5.0	<150	
	05/13/08			52.02	0.00	58.61	1,400	410	2.0 J	41	15 J	15 J	<250	<25	<25	<25	<750	
	08/12/08			52.27	0.00	58.36	11,000	5,800	69	500	230 J	180 J	<5,000	<500	<500	<500	<15,000	
	11/11/08			-	-	-	26,000	8,500	94 J	1,200	1,300	25 J	<2,500	<250	<250	<250	<7,500	
	11/18/08	MD		53.62	0.00	57.01	-	-	-	-	-	-	-	-	-	-	-	
	02/10/09		110.49	53.95	0.00	56.54	15,000	9,000	76 J	290	230 J	<500	<5,000	<500	<500	<500	<15,000	
	05/12/09			53.85	0.00	56.64	17,000	9,900	67 J	340	160 J	<500	<5,000	<500	<500	<500	<15,000	
	08/11/09	MD		54.55	0.00	55.94	-	-	-	-	-	-	-	-	-	-	-	
	08/11/09	DUP		-	-	-	25,000	12,000	82 J	560	140 J	<500	<5,000	<500	<500	<500	<15,000	
	08/12/09			-	-	-	20,000	12,000	74 J	510	160 J	<500	<5,000	<500	<500	<500	<15,000	
	02/17/10	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10			56.18	0.00	54.31	21,000	9,700	150 J	140 J	300 J	<500	<5,000	<500	<500	<500	<15,000	
	11/09/10			57.14	0.00	53.35	19,000	9,500	51 J	99 J	140 J	<500	<5,000	<500	<500	<500	<15,000	
	02/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/10/11			57.84	0.00	52.65	20,000	9,900	54 J	110 J	150 J	<500	<5,000	<500	<500	<500	<15,000	
	08/09/11	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/08/11			57.63	0.00	52.86	23,000	13,000	52 J	120 J	180 J	<500	<5,000	<500	<500	<500	<15,000	
	02/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/08/12			57.25	0.00	53.24	25,000	13,000	81 J	130	<800	<100	<2,000	<100	<100	<100	<30,000	
	08/07/12	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11/06/12			57.30	0.00	53.19	19,000	13,000	90 J	110	240 J	<100	<2,000	<100	<100	<100	<30,000	
	02/12/13	INACT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	05/07/13			57.62	0.00	52.87	19,000	9,200	73 J	79 J	200 J	<100	<2,000	<100	<100	79 J	<30,000	
MW-A8d	01/31/06		107.59	51.80	0.00	55.79	85	1.2 J	<2.0	<2.0	<4.0	11	28 J	0.30 J	<5.0	<5.0	<150	
	05/02/06			51.35	0.00	56.24	88	4.7	0.55 J	0.78 J	1.5 J	12	22 J	0.28 J	<5.0	<5.0	<150	
	08/01/06			51.05	0.00	56.54	120	18	1.1 J	0.87 J	1.4 J	17	23 J	0.31 J	<5.0	<5.0	<150	
	11/08/06			50.74	0.00	56.85	130	26	0.50 J	0.41 J	<4.0	8.9	20 J	0.27 J	<5.0	<5.0	<150	
	02/13/07			50.63	0.00	56.96	150	23	0.59 J	0.71 J	<4.0	13	24 J	0.39 J	<5.0	<5.0	<150	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A8d	05/01/07		107.59	50.57	0.00	57.02	90	23	<2.0	0.33 J	<4.0	7.7	27 J	0.32 J	<5.0	<5.0	<150	
	08/07/07			50.85	0.00	56.74	54	4.5	<2.0	<2.0	<4.0	9.3	44 J	0.26 J	<5.0	<5.0	<150	
	11/14/07	MD		51.19	0.00	56.40	-	-	-	-	-	-	-	-	-	-	-	
	11/15/07			-	-	-	59	3.6	0.46 J	<2.0	<4.0	4.7 J	73	0.29 J	<5.0	<5.0	<150	
	02/12/08			51.35	0.00	56.24	50	3.4	0.47 J	<2.0	<4.0	1.0 J	59	<5.0	<5.0	<5.0	<150	
	05/13/08			51.73	0.00	55.86	58	0.59 J	<2.0	<2.0	<4.0	2.3 J	87	<5.0	<5.0	<5.0	<150	
	08/12/08			52.06	0.00	55.53	120	32	<2.0	<2.0	<4.0	5.0	150	0.35 J	<5.0	<5.0	<150	
	11/11/08			53.08	0.00	54.51	100	7.7	<2.0	0.86 J	<4.0	1.6 J	110	0.36 J	<5.0	<5.0	<150	
	02/10/09			53.58	0.00	54.01	120	14	<2.0	1.1 J	1.2 J	1.4 J	210	0.46 J	<5.0	<5.0	<150	
	05/12/09			53.75	0.00	53.84	180	47	<2.0	3.7	3.2 J	0.98 J	210	0.39 J	<5.0	<5.0	<150	
	08/11/09			54.58	0.00	53.01	400	170	1.3 J	14	12	2.0 J	220	0.65 J	<5.0	<5.0	<150	
	02/17/10			55.89	0.00	51.70	880	480	<20	36	37 J	<50	290 J	<50	<50	<50	<1,500	
	05/11/10	MD		56.40	0.00	51.19	-	-	-	-	-	-	-	-	-	-	-	
	05/12/10			-	-	-	1,800	910	<40	66	120	<100	190 J	<100	<100	<100	<3,000	
	08/10/10			56.83	0.00	50.76	1,100	540	3.9 J	40	87	<50	150 J	<50	<50	<50	<1,500	
	08/10/10	DUP		-	-	-	970	500	<20	37	82	<50	140 J	<50	<50	<50	<1,500	
	11/09/10	MD		57.18	0.00	50.41	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	1,900	650	4.9 J	70	130	<25	140 J	<25	<25	<25	<750	
	02/09/11			57.47	0.00	50.12	400	180	1.6 J	20	35	<20	130 J	<20	<20	<20	<600	
	05/10/11	MD		57.68	0.00	49.91	-	-	-	-	-	-	-	-	-	-	-	
	05/11/11			-	-	-	1,600	530	3.4 J	49	100	<25	59 J	<25	<25	<25	<750	
	08/09/11			57.39	0.00	50.20	1,800	900	5.7	86	200	<5.0	130	<5.0	<5.0	<5.0	<1,500	
	11/08/11	MD		57.29	0.00	50.30	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	2,200	1,100	6.6	100	200	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	02/07/12			56.69	0.00	50.90	1,500	1,100	<5.0	<5.0	53	<5.0	71 J	<5.0	<5.0	<5.0	<1,500	
	05/08/12	MD		56.26	0.00	51.33	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	550	110	2.2	1.7	12	<1.0	44	<1.0	<1.0	<1.0	<300	
	08/07/12			56.20	0.00	51.39	400	20	1.7	0.65	2.8 J	<0.50	46	0.52	<0.50	<0.50	<150	
	11/06/12	MD		56.52	0.00	51.07	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	610	6.2	1.5	1.7	1.8 J	0.52	69	1.1	<0.50	<0.50	<150	
	02/12/13			56.85	0.00	50.74	390	68	0.74	0.92	3.1	<0.50	61	0.57	<0.50	<0.50	<150	
	05/07/13	MD		56.96	0.00	50.63	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	630	83	1.5	1.3	2.5	0.38 J	83	0.95	<0.50	<0.50	<150	
MW-A8s	01/31/06		107.58	51.37	0.00	56.21	73	2.6	1.7 J	0.32 J	1.0 J	51	28 J	0.52 J	<5.0	<5.0	<150	
	05/02/06			50.88	0.00	56.70	620	10	1.1 J	0.97 J	1.2 J	96	48 J	0.65 J	<5.0	<5.0	<150	
	08/01/06			50.57	0.00	57.01	290	56	1.7 J	1.8 J	2.4 J	120	40	0.67 J	<5.0	0.80 J	<150	
	11/08/06			50.17	0.00	57.41	190	53	1.0 J	0.87 J	<4.0	48	21 J	<5.0	<5.0	<5.0	<150	
	02/13/07			50.13	0.00	57.45	430	120	2.1	1.4 J	<4.0	120	51	0.4 J	<5.0	0.89 J	<150	
	05/01/07			50.04	0.00	57.54	310	170	1.5 J	1.2 J	<4.0	130	84	0.43 J	<5.0	0.88 J	<150	
	08/07/07			50.29	0.00	57.29	220	110	0.92 J	0.62 J	<4.0	63	80	<5.0	<5.0	0.41 J	<150	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-A8s	11/14/07	MD	107.58	50.65	0.00	56.93	-	-	-	-	-	-	-	-	-	-	-	
	11/15/07			-	-	-	190	72	1.1 J	0.70 J	<4.0	35	79	<5.0	<5.0	<5.0	<150	
	02/12/08			50.74	0.00	56.84	1,100	500	4.6	2.3	1.5 J	31	86	0.40 J	<5.0	<5.0	<150	
	05/13/08			50.98	0.00	56.60	570	190	2.2 J	0.92 J	<10	26	58 J	<12	<12	<12	<380	
	08/12/08			51.30	0.00	56.28	360	100	1.5 J	<4.0	<8.0	10	100	<10	<10	<10	<300	
	11/11/08			52.33	0.00	55.25	470	160	2.1 J	<8.0	5.0 J	5.2 J	140 J	<20	<20	<20	<600	
	02/10/09			52.91	0.00	54.67	210	70	0.92 J	<2.0	1.5 J	3.4 J	210	0.35 J	<5.0	<5.0	<150	
	05/12/09			53.00	0.00	54.58	270	80	0.92 J	<2.0	1.4 J	2.2 J	230	0.25 J	<5.0	<5.0	<150	
	08/11/09			53.74	0.00	53.84	190	62	0.71 J	<2.0	<4.0	2.3 J	280	0.33 J	<5.0	<5.0	<150	
	02/17/10			55.00	0.00	52.58	69	0.88 J	<2.0	<2.0	<4.0	6.6	690	0.92 J	<5.0	<5.0	<150	
	05/11/10	MD		58.48	0.00	49.10	-	-	-	-	-	-	-	-	-	-	-	
	05/12/10			-	-	-	32 J	<2.0	<2.0	<2.0	<4.0	3.7 J	320	0.71 J	<5.0	<5.0	<150	
	08/10/10			55.91	0.00	51.67	43 J	<2.0	<2.0	<2.0	<4.0	3.4 J	330	0.70 J	<5.0	<5.0	<150	
	11/09/10	MD		56.30	0.00	51.28	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	40 J	<2.0	<2.0	<2.0	<4.0	2.8 J	300	0.79 J	<5.0	<5.0	<150	
	02/09/11			56.67	0.00	50.91	<50	<2.0	<2.0	<2.0	<4.0	2.4 J	260	<5.0	<5.0	<5.0	<150	
	05/10/11	MD		56.97	0.00	50.61	-	-	-	-	-	-	-	-	-	-	-	
	05/11/11			-	-	-	45 J	<2.0	<2.0	<2.0	<4.0	8.3	130	0.54 J	<5.0	<5.0	<150	
	08/09/11			56.78	0.00	50.80	63	<0.50	<0.50	<0.50	<4.0	8.5	310	0.63	<0.50	<0.50	<150	
	11/08/11	MD		56.72	0.00	50.86	-	-	-	-	-	-	-	-	-	-	-	
	11/09/11			-	-	-	59	<0.50	<0.50	<0.50	<4.0	2.3	270	0.43 J	<0.50	<0.50	<150	
	02/07/12			56.36	0.00	51.22	65	<0.50	<0.50	<0.50	<4.0	1.5	180	0.35 J	<0.50	<0.50	<150	
	05/08/12	MD		55.99	0.00	51.59	-	-	-	-	-	-	-	-	-	-	-	
	05/09/12			-	-	-	47 J	<0.50	<0.50	<0.50	<4.0	1.1	140	0.33 J	<0.50	<0.50	<150	
	08/07/12			55.85	0.00	51.73	46 J	<0.50	<0.50	<0.50	<4.0	1.3	85	0.31 J	<0.50	<0.50	<150	
	11/06/12	MD		56.04	0.00	51.54	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	44 J	<0.50	<0.50	<0.50	<4.0	1.2	39	0.28 J	<0.50	<0.50	<150	
	02/12/13			56.32	0.00	51.26	30 J	<0.50	<0.50	<0.50	<1.0	0.91	37	<0.50	<0.50	<0.50	<150	
	05/07/13	MD		56.38	0.00	51.20	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	36 J	<0.50	<0.50	<0.50	<1.0	1.0	22	<0.50	<0.50	<0.50	<150	
MW-19	06/26/90		107.07	57.21	0.00	49.86	700	140	<10	<10	<10	-	-	-	-	-	-	
	06/29/93			55.37	0.00	51.70	870	100	0.90	65	18	-	-	-	-	-	-	
	09/20/93			54.48	0.00	52.59	2,100	91	4.1	51	27	-	-	-	-	-	-	
	11/15/93			53.99	0.00	53.08	1,100	65	0.80	20	23	-	-	-	-	-	-	
	04/18/94			51.38	0.00	55.69	1,200	38	4.0	5.0	3.0	-	-	-	-	-	-	
	11/04/94			50.37	0.00	56.70	490	7.0	<0.3	<0.3	<0.5	-	-	-	-	-	-	
	03/20/95			49.05	0.00	58.02	240	1.3	<0.30	<0.30	<0.60	-	-	-	-	-	-	
	04/13/95			48.90	0.00	58.17	230	2.1	<0.30	<0.30	<0.60	-	-	-	-	-	-	
	09/08/95			48.63	0.00	58.44	250	8.1	<0.30	<0.30	<0.60	-	-	-	-	-	-	
	11/15/95			47.33	0.00	59.74	350	7.2	0.34	0.51	<0.60	-	-	-	-	-	-	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-19	01/22/96		107.07	49.53	0.00	57.54	250	5.4	<0.30	29	10	-	-	-	-	-	-	
	04/30/96			46.35	0.00	60.72	250	5.1	<0.30	<0.30	<0.60	-	-	-	-	-	-	
	07/31/96			46.24	0.00	60.83	530	7.4	2.2	0.93	68	<10	-	-	-	-	-	
	11/22/96			46.11	0.00	60.96	350	1.2	0.39	<0.30	<0.60	<10	-	-	-	-	-	
	03/14/97			45.12	0.00	61.95	260	32	1.4	<0.30	2.0	44	-	-	-	-	-	
	05/05/97			44.93	0.00	62.14	190	3.1	<0.30	<0.30	0.86	<10	-	-	-	-	-	
	07/22/97			44.83	0.00	62.24	270	16	0.71	<0.30	1.9	<10	-	-	-	-	-	
	10/10/97			45.05	0.00	62.02	520	29	0.85	0.41	3.7	34	-	-	-	-	-	
	01/30/98			44.75	0.00	62.32	630	31	3.3	0.59	8.2	<10	-	-	-	-	-	
	06/05/98			43.75	0.00	63.32	1,700	230	7.5	73	66	40	-	-	-	-	-	
	09/14/98			43.35	0.00	63.72	3,600	780	120	55	81	<100	-	-	-	-	-	
	12/18/98			42.60	0.00	64.47	15,000	3,700	3,500	500	1,800	<1,000	-	-	-	-	-	
	02/15/99			42.20	0.00	64.87	14,000	3,300	2,800	480	1,600	<1,000	-	-	-	-	-	
	05/12/99			41.65	0.00	65.42	18,000	3,300	2,700	600	2,100	<2,000	-	-	-	-	-	
	09/21/99			41.58	0.00	65.49	14,000	4,400	4,400	800	2,900	<1,000	-	-	-	-	-	
	12/07/99			39.61	0.00	67.46	23,000	3,900	3,800	780	2,800	<250	-	-	-	-	-	
	12/07/99	DUP		-	-	-	20,000	3,800	3,700	770	2,800	<250	-	-	-	-	-	
	03/21/00		107.12	43.38	0.00	63.74	52,000	7,900	6,800	1,300	5,200	<100	-	-	-	-	-	
	06/14/00			43.60	0.00	63.52	39,000	8,700	7,500	1,900	7,400	<250	<2,500	<250	<250	<250	-	
	08/23/00			44.01	0.00	63.11	29,000	9,300	970	2,000	4,900	21 J	<4,000	<400	<400	<400	-	
	12/08/00			44.45	0.00	62.67	27,000	6,800	230	1,300	3,200	7.7 J	85 J	<20	<20	<20	-	
	02/15/01			45.68	0.00	61.44	12,000	3,800	570	610	1,300	<20	<200	<20	<20	<20	-	
	06/14/01			45.58	0.00	61.54	8,100	2,400	250	390	870	25	<200	<20	<20	<20	-	
	09/14/01			46.59	0.00	60.53	10,000	3,000	34	800	400	15 J	<200	<20	<20	<20	-	
	12/07/01			46.88	0.00	60.24	11,000	3,400	<500	980	210 J	14 J	<500	<50	<50	<50	-	
	03/28/02			47.48	0.00	59.64	7,600	2,500	<250	840	140 J	9.0 J	28 J	<10	<10	<10	-	
	06/06/02		109.25	47.74	0.00	61.51	7,700	1,800	2.1 J	720	20	8.4 J	<100	<10	<10	<10	-	
	09/05/02			48.65	0.00	60.60	2,500	770	1.0 J	240	1.9 J	9.7 J	36 J	<10	<10	<10	-	
	12/05/02			49.30	0.00	59.95	480	270	<2.0	23	<4.0	8.0	68	<5.0	<5.0	<5.0	-	
	02/18/03			49.61	0.00	59.64	310	39	<2.0	3.1	<4.0	6.8	87	<5.0	<5.0	<5.0	<150	
	05/19/03			49.63	0.00	59.62	120	4.2	<2.0	3.9	0.59 J	7.7	86	<5.0	<5.0	<5.0	<150	
	08/19/03			49.85	0.00	59.40	140	8.2	<2.0	0.87 J	4.3	4.2 J	70	<5.0	<5.0	<5.0	<150	
	11/18/03			50.41	0.00	58.84	80	4.4	<2.0	0.47 J	<4.0	2.5 J	52	<5.0	<5.0	<5.0	<150	
	02/24/04			50.27	0.00	58.98	140	6.8	0.53 J	0.99 J	0.95 J	3.0 J	35 J	<5.0	<5.0	<5.0	<150	
	05/25/04			50.90	0.00	58.35	76	9.9	0.51 J	0.65 J	0.58 J	2.2 J	36	<5.0	<5.0	<5.0	<150	
	08/24/04			51.38	0.00	57.87	100	12	0.58 J	1.2 J	1.5 J	1.9 J	22 J	<5.0	<5.0	<5.0	<150	
	11/16/04	MD		51.81	0.00	57.44	-	-	-	-	-	-	-	-	-	-	-	
	11/17/04			-	-	-	99	6.4	<2.0	0.50 J	<4.0	3.4 J	22 J	0.25 J	<5.0	<5.0	<150	
	02/08/05			52.09	0.00	57.16	100	8.1	0.37 J	0.68 J	0.94 J	1.7 J	12 J	<5.0	<5.0	<5.0	<150	
	05/03/05			52.05	0.00	57.20	490	290	3.1 J	43	29	1.8 J	<200	<20	<20	<20	<600	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-19	08/02/05		109.25	51.99	0.00	57.26	1,200	680	<20	69	12 J	<50	<500	<50	<50	<50	<1,500	
	11/01/05			51.75	0.00	57.50	260	18	<2.0	0.76 J	0.91 J	3.6 J	13 J	<5.0	<5.0	<5.0	<150	
	01/31/06			51.40	0.00	57.85	190	34	0.59 J	1.8 J	1.7 J	2.6 J	13 J	<5.0	<5.0	0.39 J	<150	
	05/02/06			51.19	0.00	58.06	450	200	0.61 J	3.8	3.5 J	2.3 J	15 J	<5.0	<5.0	<5.0	<150	
	08/01/06			50.88	0.00	58.37	380	120	<4.0	2.3 J	2.5 J	2.4 J	18 J	<10	<10	<10	<300	
	11/07/06			50.66	0.00	58.59	4,900	3,000	6.0	320	22	1.8 J	15 J	<10	<10	<10	<300	
	02/13/07			50.31	0.00	58.94	170	21	<1.0	0.86 J	<1.0	1.2	<25	<2.0	<2.0	<2.0	<500	
	05/01/07			50.49	0.00	58.76	170	28	<1.0	<1.0	<1.0	1.7	26	<2.0	<2.0	<2.0	<500	
	08/07/07			50.50	0.00	58.75	1,300	740	<10	4.8 J	17	<10	<250	<20	<20	<20	<5,000	
	11/14/07			50.55	0.00	58.70	230	54	0.36 J	0.33 J	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/12/08			50.18	0.00	59.07	68	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/13/08			51.12	0.00	58.13	4,000	1,700	<5.0	100	100	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	08/12/08			51.15	0.00	58.10	4,500	2,500	46	<10	68 J	<10	<200	<10	<10	<10	<3,000	
	11/11/08			-	-	-	2,100	1,300	<20	76	<160	<20	<400	<20	<20	<20	<6,000	
	11/18/08	MD		52.40	0.00	56.85	-	-	-	-	-	-	-	-	-	-	-	
	02/10/09		109.56	52.81	0.00	56.75	2,800	1,400	13	47	34 J	<10	<200	<10	<10	<10	<3,000	
	05/12/09			52.67	0.00	56.89	2,500	1,500	13	31	<80	<10	<200	<10	<10	<10	<3,000	
	08/11/09	MD		53.85	0.00	55.71	-	-	-	-	-	-	-	-	-	-	-	
	08/14/09			-	-	-	16,000	6,700	63	440	370	<50	<1,000	<50	<50	<50	<15,000	
	02/10/10			54.03	0.00	55.53	1,700	700	<5.0	4.6 J	<40	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	05/11/10	MD		55.08	0.00	54.48	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10			-	-	-	1,900	870	9.1	19	16 J	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	08/10/10	MD		54.58	0.00	54.98	-	-	-	-	-	-	-	-	-	-	-	
	08/11/10			-	-	-	1,400	570	<5.0	3.5 J	<40	<5.0	73 J	<5.0	<5.0	<5.0	<1,500	
	11/09/10	MD		56.07	0.00	53.49	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	3,000	1,300	12	14	14	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	02/07/11	MD		56.19	0.00	53.37	-	-	-	-	-	-	-	-	-	-	-	
	02/08/11			-	-	-	1,100	600	<5.0	3.9 J	<40	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	05/10/11			56.46	0.00	53.10	1,600	700	<5.0	6.0	<40	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	08/09/11			56.49	0.00	53.07	1,100	570	1.9 J	2.4 J	<20	<2.5	<50	<2.5	<2.5	<2.5	<750	
	11/08/11			56.65	0.00	52.91	1,000	450	<2.5	2.0 J	<20	<2.5	<50	<2.5	<2.5	<2.5	<750	
	02/07/12			56.53	0.00	53.03	1,000	500	<5.0	2.7 J	<40	<5.0	<100	<5.0	<5.0	<5.0	<1,500	
	05/08/12			56.25	0.00	53.31	420	89	<1.0	<1.0	<8.0	<1.0	39	<1.0	<1.0	<1.0	<300	
	08/06/12	MD		56.09	0.00	53.47	-	-	-	-	-	-	-	-	-	-	-	
	08/08/12			-	-	-	430	280	<8.0	1.4 J	<8.0	<4.0	<40	<20	<20	1.5 J	<600	
	11/06/12	MD		56.18	0.00	53.38	-	-	-	-	-	-	-	-	-	-	-	
	11/07/12			-	-	-	440	200	<2.0	1.3 J	<16	<2.0	<40	<2.0	<2.0	<2.0	<600	
	02/12/13	MD		56.46	0.00	53.10	-	-	-	-	-	-	-	-	-	-	-	
	02/13/13			-	-	-	710	290	<2.5	1.8 J	<20	<2.5	<50	<2.5	<2.5	<2.5	<750	
	05/07/13	MD		57.12	0.00	52.44	-	-	-	-	-	-	-	-	-	-	-	

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Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-19	05/08/13		109.56	-	-	-	330	66	<0.50	0.48 J	<4.0	<0.50	23	0.25 J	<0.50	<0.50	<150	
MW-20	06/26/90		110.49	56.65	0.00	53.84	400	10	<2	<2	22	-	-	-	-	-	-	
	06/29/93		106.37	54.95	0.00	51.42	1,400	240	41	37	120	-	-	-	-	-	-	
	09/20/93			54.17	0.00	52.20	2,500	440	160	74	240	-	-	-	-	-	-	
	11/15/93			53.57	0.00	52.80	500	41	120	6.0	15	-	-	-	-	-	-	
	04/18/94			52.47	0.00	53.90	720	90	49	23	81	-	-	-	-	-	-	
	11/04/94			49.97	0.00	56.40	4,900	1,200	72	430	870	-	-	-	-	-	-	
	03/20/95			48.76	0.00	57.61	1,600	330	12	46	150	-	-	-	-	-	-	
	04/13/95			48.49	0.00	57.88	6,100	1,100	18	350	580	-	-	-	-	-	-	
	09/08/95			47.42	0.00	58.95	5,300	1,500	15	420	650	-	-	-	-	-	-	
	11/15/95			47.12	0.00	59.25	6,300	230	6.8	370	540	-	-	-	-	-	-	
	01/22/96			49.31	0.00	57.06	1,900	430	<3.0	220	370	-	-	-	-	-	-	
	04/30/96			46.10	0.00	60.27	3,100	630	<6.0	560	560	-	-	-	-	-	-	
	07/31/96			46.10	0.00	60.27	1,500	200	1.9	140	240	43	-	-	-	-	-	
	11/22/96			45.93	0.00	60.44	1,800	280	3.4	230	310	<10	-	-	-	-	-	
	03/14/97			44.91	0.00	61.46	2,800	350	<3.0	340	500	<10	-	-	-	-	-	
	05/05/97			44.55	0.00	61.82	1,700	130	1.7	220	130	64	-	-	-	-	-	
	07/22/97			44.70	0.00	61.67	960	130	1.8	120	160	<25	-	-	-	-	-	
	10/10/97			44.88	0.00	61.49	4,500	730	<5.1	580	750	96	-	-	-	-	-	
	01/30/98			44.46	0.00	61.91	1,600	310	17	160	100	<20	-	-	-	-	-	
	06/05/98			43.35	0.00	63.02	830	67	3.7	1.6	5.8	48	-	-	-	-	-	
	09/14/98			42.35	0.00	64.02	1,400	170	13	52	140	<50	-	-	-	-	-	
	12/18/98			42.45	0.00	63.92	580	52	5.3	25	31	33	-	-	-	-	-	
	02/15/99			42.35	0.00	64.02	480	39	3.0	24	19	23	-	-	-	-	-	
	05/12/99			42.65	0.00	63.72	170	22	3.2	16	8.5	<10	-	-	-	-	-	
	09/21/99			43.29	0.00	63.08	200	18	<0.30	1.3	0.95	<10	-	-	-	-	-	
	12/07/99			43.76	0.00	62.61	220	16	<2.0	2.7	<4.0	10	-	-	-	-	-	
	03/21/00		106.44	44.14	0.00	62.30	170	18	<1.0	0.46 J	<1.0	11	-	-	-	-	-	
	06/14/00			44.54	0.00	61.90	110	37	<2.0	3.1	<4.0	20	<50	<5.0	<5.0	<5.0	-	
	08/23/00			44.19	0.00	62.25	58	6.8	0.31 J	3.4	5.0	59	82	1.7 J	<5.0	<5.0	-	
	12/08/00			45.67	0.00	60.77	7,200	980	96	450	980	190	360	4.3 J	<5.0	<5.0	-	
	02/15/01			45.85	0.00	60.59	2,700	510	26	52	370	99	120	<5.0	<5.0	<5.0	-	
	06/14/01			46.02	0.00	60.42	14,000	2,500	<60	830	1,700	700	<500	<50	<50	<50	-	
	09/14/01			46.75	0.00	59.69	7,700	1,600	16	650	980	1,000	330	6.2 J	<12	9.0 J	-	
	12/07/01			47.12	0.00	59.32	14,000	3,100	<500	1,500	2,100	1,500	940	6.0 J	<20	7.0 J	-	
	03/28/02			47.59	0.00	58.85	8,100	1,600	<250	750	650	1,500	350	<20	<20	<20	-	
	06/06/02		108.58	47.57	0.00	61.01	7,700	1,400	3.4 J	740	370	1,600	720	5.2 J	<25	7.4 J	-	
	09/05/02			48.35	0.00	60.23	6,800	1,900	3.4 J	900	200	1,500	420	4.9 J	<20	10 J	-	
	12/05/02			49.03	0.00	59.55	6,100	1,800	4.6 J	760	37	2,100	470	5.2 J	<20	8.8 J	-	
	02/18/03			49.30	0.00	59.28	8,800	1,900	<50	680	73 J	2,000	720 J	<120	<120	11 J	<3,800	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-20	05/19/03		108.58	49.46	0.00	59.12	4,600	1,500	<50	520	48 J	1,900	510 J	<120	<120	12 J	<3,800	
	08/19/03			49.70	0.00	58.88	5,500	920	<50	270	39 J	1,900	420 J	<120	<120	10 J	<3,800	
	11/18/03			50.31	0.00	58.27	2,700	430	<50	110	28 J	1,200	410 J	<120	<120	<120	<3,800	
	02/24/04			50.14	0.00	58.44	5,000	1,100	<50	420	110	3,300	660 J	<120	<120	18 J	<3,800	
	05/25/04			50.74	0.00	57.84	4,600	860	<40	420	62 J	3,400	920 J	6.2 J	<100	19 J	<3,000	
	08/24/04			51.26	0.00	57.32	4,600	760	<40	330	56 J	3,600	660 J	6.4 J	<100	28 J	<3,000	
	11/16/04			51.94	0.00	56.64	4,600	93	<10	36	5.8 J	340	61 J	<25	<25	2.5 J	<750	
	02/08/05			52.14	0.00	56.44	4,500	680	<100	220	34 J	3,900	580 J	<250	<250	26 J	<7,500	
	05/03/05			51.93	0.00	56.65	5,600	630	<100	99 J	70 J	4,800	910 J	<250	<250	<250	<7,500	
	08/02/05			52.02	0.00	56.56	7,000	2,600	14 J	400	240	1,400	710 J	<200	<200	<200	<6,000	
	11/01/05			51.57	0.00	57.01	6,700	590	<100	68 J	<200	2,500	1,000 J	<250	<250	16 J	<7,500	
	01/31/06			51.07	0.00	57.51	3,500	560	<20	43	61	2,800	2,200	5.7 J	<50	23 J	<1,500	
	05/02/06			50.93	0.00	57.65	3,500	<50	<50	<50	<100	<120	11,000	<120	<120	<120	<3,800	
	08/01/06			50.61	0.00	57.97	3,400	230	<40	11 J	<80	1,100	3,800	<100	<100	<100	<3,000	
	11/07/06			50.37	0.00	58.21	6,100	2,300	140	290	490	820	1,100	2.8 J	<20	<20	<600	
	02/13/07			50.31	0.00	58.27	810	68	6.4	7.7	13	380	4,000	4.2 J	<10	3.0 J	<2,500	
	05/01/07			49.85	0.00	58.73	1,600	380	11	29	64	210	2,800	<10	<10	<10	<2,500	
	08/07/07			50.00	0.00	58.58	5,800	3,000	39 J	460	740	220	2,300	<100	<100	<100	<25,000	
	11/14/07			50.29	0.00	58.29	2,100	500	3.8	65	130	44	3,700	5.8	<2.5	<2.5	<750	
	02/12/08			50.32	0.00	58.26	2,200	440	<5.0	57	100	<5.0	920	<5.0	<5.0	4.1 J	<1,500	
	05/13/08			50.70	0.00	57.88	1,900	550	<5.0	77	89	<5.0	1,800	2.6 J	<5.0	<5.0	<1,500	
	08/12/08			51.17	0.00	57.41	8,600	3,400	450	<20	600	89	1,400	<20	<20	<20	<6,000	
	11/11/08			-	-	-	6,900	4,000	23 J	520	480	33	530	<25	<25	<25	<7,500	
	11/18/08	MD		52.32	0.00	56.26	-	-	-	-	-	-	-	-	-	-	-	
	02/10/09		110.49	52.69	0.00	57.80	2,300	1,000	9.4 J	120	230	<10	590	<10	<10	<10	<3,000	
	05/12/09			52.80	0.00	57.69	11,000	5,200	<50	620	610	<50	<1,000	<50	<50	<50	<15,000	
	08/11/09	MD		53.48	0.00	57.01	-	-	-	-	-	-	-	-	-	-	-	
	08/13/09			-	-	-	10,000	4,200	62	460	820	<50	<1,000	<50	<50	<50	<15,000	
	02/10/10			53.41	0.00	57.08	21,000	8,500	64	1,100	1,000	<25	<500	<25	<25	<25	<7,500	
	05/11/10	MD		55.45	0.00	55.04	-	-	-	-	-	-	-	-	-	-	-	
	05/11/10			-	-	-	22,000	9,700	100	1,200	830	<50	<1,000	<50	<50	<50	<15,000	
	08/10/10	MD		54.03	0.00	56.46	-	-	-	-	-	-	-	-	-	-	-	
	08/11/10			-	-	-	8,100	5,000	<50	300	<400	<50	<1,000	<50	<50	<50	<15,000	
	11/09/10	MD		56.45	0.00	54.04	-	-	-	-	-	-	-	-	-	-	-	
	11/10/10			-	-	-	23,000	12,000	59	860	390 J	<50	<1,000	<50	<50	<50	<15,000	
	02/07/11	MD		55.99	0.00	54.50	-	-	-	-	-	-	-	-	-	-	-	
	02/08/11			-	-	-	8,000	4,900	<50	200	<400	<50	<1,000	<50	<50	<50	<15,000	
	05/10/11			56.39	0.00	54.10	19,000	13,000	69	300	130 J	<50	<1,000	<50	<50	<50	<15,000	
	08/09/11			56.37	0.00	54.12	3,400	2,500	<20	21	<160	<20	<400	<20	<20	<20	<6,000	
	11/08/11			56.48	0.00	54.01	10,000	3,900	34	76	79 J	<10	<200	<10	<10	<10	<3,000	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
MW-20	02/07/12		110.49	56.24	0.00	54.25	28,000	14,000	79	110	180 J	<25	<500	<25	<25	21 J	<7,500	
	05/08/12			55.70	0.00	54.79	17,000	9,700	45	90	96 J	<25	<500	<25	<25	<25	<7,500	
	08/06/12	MD		56.02	0.00	54.47	-	-	-	-	-	-	-	-	-	-	-	
	08/08/12			-	-	-	6,700	4,300	26 J	50 J	67 J	<50	<500	<250	<250	<250	<7,500	
	11/06/12			56.00	0.00	54.49	15,000	8,900	49 J	150	180 J	<50	<1,000	<50	<50	<50	<15,000	
	02/12/13	MD		56.25	0.00	54.24	-	-	-	-	-	-	-	-	-	-	-	
	02/13/13			-	-	-	9,000	5,100	30	55	59 J	<25	<500	<25	<25	<25	<7,500	
	05/07/13	MD		56.41	0.00	54.08	-	-	-	-	-	-	-	-	-	-	-	
	05/08/13			-	-	-	16,000	9,600	58	170	220	<20	<400	<20	<20	<20	<6,000	
Field Blank	11/18/03		-	-	-	-	24 J	<2.0	<2.0	<2.0	<4.0	<5.0	8.4 J	<5.0	<5.0	<5.0	<150	
	11/16/04			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/08/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/03/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/02/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/01/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	01/31/06			-	-	-	25 J	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/02/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/01/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/07/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/13/07			-	-	-	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<2.0	<2.0	<2.0	<500	
	08/07/07			-	-	-	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<2.0	<2.0	<2.0	<500	
	11/14/07			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/12/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/13/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/12/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	11/11/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/10/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/12/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/13/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/10/10			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/12/10			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/11/10			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	11/09/10			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/08/11			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/10/11			-	-	-	<50	0.28 J	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/09/11			-	-	-	<50	<0.50	0.76	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	11/08/11			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/08/12			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/08/12			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/08/12			-	-	-	<50	<2.0	0.92 J	<2.0	1.1 J	<1.0	10	<5.0	<5.0	<5.0	<150	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
Field Blank	11/06/12		-	-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<1.0	<10	<0.50	<0.50	<0.50	<150	
	02/13/13			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<1.0	<10	<0.50	<0.50	<0.50	<150	
	05/07/13			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<1.0	<10	<0.50	<0.50	<0.50	<150	
Trip Blank	09/29/99		-	-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	12/07/99			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	-	-	-	-	-	
	06/14/00			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	08/23/00			-	-	-	<50	0.19 J	0.31 J	0.084 J	<4.0	<5.0	15 J	<5.0	<5.0	<5.0	-	
	12/08/00			-	-	-	<50	<0.30	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	02/15/01			-	-	-	<50	<0.30	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	06/14/01			-	-	-	<50	<0.30	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/14/01			-	-	-	<50	<0.30	<0.30	<0.30	<0.60	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/07/01			-	-	-	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	03/28/02			-	-	-	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	-	
	06/06/02			-	-	-	9.7 J	<2.0	0.18 J	<2.0	0.20 J	<5.0	<50	<5.0	<5.0	<5.0	-	
	09/05/02			-	-	-	12 J	<2.0	0.47 J	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	12/05/02			-	-	-	15	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	-	
	02/18/03			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/19/03			-	-	-	11 J	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/19/03			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/18/03			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/24/04			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/25/04			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/24/04			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/16/04			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/08/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/03/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/03/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/02/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/01/05			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	01/31/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/02/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/01/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/07/06			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/13/07			-	-	-	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<2.0	<2.0	<2.0	<500	
	05/01/07			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/07/07			-	-	-	<100	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<2.0	<2.0	<2.0	<500	
	08/07/07			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/14/07			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	11/14/07			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/12/08			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	

TABLE 2
Summary of Groundwater Analytical & Elevation Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Blvd., South Gate, California

Well No.	Date	Notes	TOC Elevation (ft-MSL)	Depth to Water (feet)	Measured SPH Thickness (feet)	Calc. GW Elev. (ft-MSL)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	Comments
Trip Blank	02/12/08		-	-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/13/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	05/13/08			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/12/08			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/12/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	11/11/08			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/11/08			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/10/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	02/10/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	02/11/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/12/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	05/12/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/11/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/12/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	08/13/09			-	-	-	<50	<0.50	<0.50	<0.50	<4.0	<0.50	<10	<0.50	<0.50	<0.50	<150	
	08/13/09			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	
	11/08/11			-	-	-	<50	<2.0	<2.0	<2.0	<4.0	<5.0	<50	<5.0	<5.0	<5.0	<150	

Notes:

GRO = Gasoline range organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total xylenes

MTBE = Methyl Tert-Butyl Ether

TBA = Tert-Butyl Alcohol

DIPE = Di-Isopropyl Ether

ETBE = Ethyl Tert-Butyl Ether

TAME = Tert-Amyl Methyl Ether

SPH = Separate phase hydrocarbons

TOC = Top of casing (surveyed)

Calc. GW Elev. = Calculated groundwater elevation = TOC - Depth to Water + 0.75*(Measured SPH Thickness); assuming a specific gravity of 0.75 for SPH

ft-MSL = feet above mean sea level

µg/L = Micrograms per liter

< = Analyte was not detected at or above the specified method detection limit (MDL); except after 2006 Quarter 2 where reporting limits are used.

- = Not measured or analyzed

J = Estimated value (less than the method reporting limit and greater than or equal to the method detection limit)

Refer to the reports in which data was first presented for more information on historical data.

GRO analyzed by EPA Method 8015 Modified. The carbon chain range used for analysis since 2000 Quarter 2 is C4-C12.

BTEX and oxygenates analyzed by EPA Method 8260B since 2000 Quarter 2.

ABN = Well abandoned; no sampling performed

DUP = Duplicate sample

GAU = Well gauged, but not sampled, per monitoring program.

INA = Well inaccessible; not sampled

INACT = Well inactive; not included in groundwater monitoring program

MD = Sampling & gauging performed over mutiple days during this event.

TABLE 3
WELL CONSTRUCTION DETAILS
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD
SOUTH GATE, CALIFORNIA

Well Number	Well Installation Date	Well Destruction Date	Casing Diameter (in)	Casing Slot Size (in)	Total Depth (ft bgs)	Screened Intervals (ft bgs)
MW-19	9/20/1989	-	4	0.020	70.3	45-70
MW-20	9/20/1989	-	4	0.020	69.0	44-69
D-1	6/21/1990	1/24/2002	4	0.020	72.0	7-72
D-2	6/22/1990	1/25/2002	4	0.020	46.9	6.9-46.9
D-3	6/22/1990	-	4	0.020	47.3	7-47
VEW-1	4/6/1995	1/24/2002	2	0.040	50.0	15-25
			2	0.040		30-50
VEW-2	4/7/1995	-	2	0.040	54.0	4-7
			2	0.040		12-29
			2	0.040		34-54
VEW-3	4/8/1995	1/24/2002	2	0.040	50.0	5-11
			2	0.040		15-25
			2	0.040		30-50
VEW-4	4/9/1995	1/25/2002	2	0.040	50.0	5-10
			2	0.040		15-25
			2	0.040		30-50
MW-A1	1998	-	2	0.020	61.4	NA
MW-A2	1998	-	2	0.020	56.6	NA
MW-A3	12/1/1999	-	4	0.020	65.0	35-65
MW-A4	12/1/1999	-	4	0.020	65.0	35-65
MW-A5	10/21/2001	-	4	0.020	65.0	30-65
MW-A6	10/30/2001	-	4	0.020	65.0	30-65
MW-A7	4/16/2002	-	2	0.020	65.0	10-30
			4	0.020		35-65
MW-A8s	10/12/2005	-	2	0.020	94.0	43-63
MW-A8d			2	0.020	67.5	74-94
AS/SVE-1	9/30/2003	-	2	0.020	70.0	8-28
			2	0.020		35-55
			1	0.020		64-66
AS/SVE-2	10/2/2003	-	2	0.020	70.0	7-27
			2	0.020		35-55
			1	0.020		63-65
AS/SVE-3	10/4/2003	-	2	0.020	70.0	8-28
			2	0.020		35-55
			1	0.020		66-68
AS/SVE-4	9/30/2003	-	2	0.020	70.0	7-27
			2	0.020		34-54
			1	0.020		60-62
AS/SVE-5	9/29/2003	-	2	0.020	70.0	7-27
			2	0.020		35-55
			1	0.020		64-66
DW-1	12/11/2008	-	2	0.020	70.0	45-70
DW-2	12/10/2008	-	2	0.020	70.0	45-70
DW-3	12/18/2008	-	2	0.020	70.0	45-70
DW-4	12/12/2008	-	2	0.020	70.0	45-70

Notes:
- - Active

TABLE 4
SUMMARY OF WELLS IDENTIFIED WITHIN A ONE-MILE RADIUS
TESORO (FORMER ARCO STATION NO. 5110)
SOUTHGATE, CALIFORNIA

State Well ID No.	Well ID No.	Usage	Well Operator	Status	Well Location	Distance/Direction From Site (approximate - ft)	Total Depth (ft bgs)	Perforation Intervals (ft bgs)	Well Casing Diam.	Date Last Gauged	Depth to Water (ft bgs)
--	"Fire Well"	Abandoned	ARCO Vinvale Terminal	Destroyed	181 f S of RR tracks 400 ft E of LA River 100 ft E of Long Beach Fwy	2,000 ft NW	575	--	12	--	--
03S/12W-05D02	1535H	--	City of South Gate	Active	160 ft E of Garfield Ave 175 ft N of Southern Ave	1,700 ft S	222	--	6"	4/3/2003	57.2
02S/12W-31Q02	SG-25	Public Supply	City of South Gate	Active	East of Los Angeles Rver and west of Long Beach Freeway	1,800 ft SW	1331	280-350 360-380 400-550	16"	--	90.0
03S/12W-06D05	SLY	Industrial	Lunday-Thagard Oil Company	--	0.1 NW of intersection of Southern Avenue and Garfield	1,800 ft SW	--	--	--	--	--
03S/12W-05C06	1535K/NEW1	Public Supply	Rockview Dairies	In-Active	Luxor St & Mitla Ave	1,900 ft SE	--	--	--	--	--
---	NEW2	Industrial	Rockview Dairies	Active	Luxor St & Mitla Ave	2,000 ft SE	--	--	--	--	--
02S/12W-31Q03	SG-24	Public Supply	City of South Gate	Active	East of Los Angeles Rver and west of Long Beach Freeway	1,900 ft SW	1266	310-390 434-560 570-630	16"	--	87
02S/12W-31Q01	1525G	Public Supply	City of South Gate	Active	Southern Ave & Rayo Ave	3,400 ft SW	--	--	--	4/15/2003	137.0
02S/12W-31H02	1524E	Observation	LA Flood Control District	In-Active	West of the Los Angeles River & south of Fostoria St	3,400 ft NW	220	195-205		3/19/1990	72.8
02S/12W-31Q02	1525H	--	City of South Gate	Active	Southern Ave & Burtis St	3,400 ft SW	--	--	--	4/15/2003	104.0
03S/12W-06B03	1525D/SG-23	Public Supply	City of South Gate	Active	150 ft S of Southern Ave 30 ft W of Salt Lake Ave	3,800 ft SW	856	530-624 662-692 772-799	18"	5/15/2007	107.0
02S/12W-33M01	1544G	Public Supply	Downey Water District	Active	Pellet St & Riverson Ave	4,200 ft NE	454	378-415 426-431	16"	5/15/2007	85.0
03S/12W-05M01	1536F	--	City of South Gate	Active	0.5 Mi N of Imperial 150-200 ft E of Garfield S. of Gate Lee Circle	4,300 ft S	578	50-75 495-595	16"	10/15/2002	77.9
02S/12W-03H03	1524F	--	So. Cal. Water Company	Active	Wilcox Ave & Santa Ana St	4,800 ft NW	--	--	--	11/28/2000	98.0
02S/12W-31M02	SG-7/ 1514A	Public Supply	City of South Gate	Active	300 feet west of Mason St & Nevill Ave	5,100 ft W	883	500-600	16"	5/15/2007	97
02S/12W-29P06	1533A	Public Supply	Private	--	Jaboneria Rd & Priory St	5,300 ft N	--	--	--	12/20/1989	89.4
02S/12W-29M05	1533M	Public Supply	So. Cal. Water Company	--	100 ft S of Priory St 360 ft W of Eastern Ave	5,300 ft N	650	376-368 380-400 422-425 561-581	16"	10/31/2002	253.0

TABLE 4
SUMMARY OF WELLS IDENTIFIED WITHIN A ONE-MILE RADIUS
TESORO (FORMER ARCO STATION NO. 5110)
SOUTHGATE, CALIFORNIA

State Well ID No.	Well ID No.	Usage	Well Operator	Status	Well Location	Distance/Direction From Site (approximate - ft)	Total Depth (ft bgs)	Perforation Intervals (ft bgs)	Well Casing Diam.	Date Last Gauged	Depth to Water (ft bgs)
03S/12W-05A01	Well 20	Public Supply	Downey Water District	In-Active	--	3,800 ft SE	--	--	--	--	--
02S/12W-31B03	Hoffman Well No. 2	Public Supply	So. Cal. Water Company	--	--	4,600 ft NW	--	--	--	--	--
02S/12W28N03	1543F	Public Supply	So. Cal. Water Company	--	40 ft S of Clara St 400 ft E of Perry Rd Opposite 6447 Clara St	>1 mile NE	352	--	12"	4/28/2003	92.3
02S/12W-33P02	1555H	Public Supply	City of South Gate	--	Firestone Blvd & Old River SchoolRoad	>1 mile E	180	--	8"	5/23/2003	59.2
03S/12W-06D04	1515L	Public Supply	City of South Gate	Active	1200 ft N of Tweedy Blvd 150 ft W of Walnut	>1 mile W	815	610-620 626-666 678-746	18"	5/15/2007	106.0
03S/12W-06D02	1515J	Public Supply	City of South Gate	Active	325 ft W of Pinehurst Ave 850 ft N of Tweedy Blvd.	>1 mile W	813	615-745 767-775	18"	5/15/2007	106
03S/12W-04D02	1555J	Public Supply	Downey Water District	Active	0.22 Mi. W of Rives Ave 0.2 Mi E of Old River Rd 100 ft South of Burns Ave	>1 mile E	674	375-412 612-620	16	5/31/2007	82
02S/12W-31H01	1534A	--	Private	In-Active	175 ft N of Southern Pacific RR 450 ft W of LA River	3400 ft NW	875	--	12	9/30/1977	119
02S/12W-31L01	1524B	--	--	In-Active	--	4360 ft W-NW	566	--	16	12/4/1967	--
03S/12W-06K01	1526D	--	Private	In-Active	1500 ft E of Wright Rd 400 ft S of Michigan Ave	5280 ft SW	1054	--	--	2/10/1988	51.9
03S/12W-05J01	1546	--	Private	--	200 ft S of Stewart and Gray Rd 1100 ft E of Old River Rd	5280 ft SE	166	--	12	--	--
03S/12W-05C08	--	Industrial	Private	--	7011 Stewart and Gray Rd	2280 ft SE	600	--	16	7/10/1997	83
03S/12W-05D03	--	Industrial	Private	--	5625 Southern Ave	1960 ft SW	214	--	12	7/1/1963	84
---	KGARF	Industrial	Southern Ca. Edison	Active	--	4,860 ft. NE	--	--	--	--	--

Legend:
-- - Information not available at the time of this report or not available to the public

TABLE 5

SUMMARY OF MONTHLY EFR ACTIVITIES (DISCONTINUED)

TESORO (FORMER ARCO STATION NO. 5110)

5731 EAST FIRESTONE BOULEVARD

SOUTH GATE, CALIFORNIA

WELL NUMBER	DATE OF PURGE	PURGE VOLUME (gallons)
D-1	07/19/99	850.00
	08/13/99	640.00
	09/08/99	750.00
	10/11/99	900.00
	11/08/99	300.00
	12/06/99	900.00
	01/03/00	560.00
	02/02/00	500.00
	03/06/00	800.00
	04/03/00	600.00
	05/01/00	490.00
	06/02/00	260.00
	07/25/00	580.00
	08/14/00	330.00
	09/14/00	600.00
	10/17/00	300.00
	11/13/00	450.00
	12/14/00	600.00
	01/11/01	500.00
	02/20/01	350.00
	03/22/01	600.00
	04/26/01	510.00
	05/24/01	1,000.00
	06/13/01	550.00
	07/19/01	370.00
	08/24/01	400.00
	09/13/01	165.00
	10/26/01	180.00
	11/21/01	400.00
	12/26/01	337.00
	01/17/02	165.00
	01/25/02	ABN

TABLE 5

SUMMARY OF MONTHLY EFR ACTIVITIES (DISCONTINUED)

TESORO (FORMER ARCO STATION NO. 5110)

5731 EAST FIRESTONE BOULEVARD

SOUTH GATE, CALIFORNIA

WELL NUMBER	DATE OF PURGE	PURGE VOLUME (gallons)
MW-20	09/13/01	165.00
	10/26/01	1.00
	11/21/01	300.00
	12/26/01	300.00
	01/17/02	220.00
	DISCONTINUED	DISCONTINUED
MW-A5	01/17/02	220.00
	DISCONTINUED	DISCONTINUED
MW-A6	01/17/02	248.00
	DISCONTINUED	DISCONTINUED
Total Gallons Removed		**17,391.00**

TABLE 6 - SVE SYSTEM OPERATION REPORT
TESORO (FORMER ARCO STATION NO. 5110)
5731 EAST FIRESTONE BOULEVARD, SOUTH GATE, CA
FIRST HALF, 2013

Atlantic Richfield Company Engineer:	Daniel Monson			
Consultant:	Stantec Consulting Corporation			
Lead Agency:	SCAQMD			
Reporting Period:	December 1, 2012 through May 31, 2013			
Equipment Inventory:				
Operating Mode:	Catalytic Oxidation			
SCAQMD Permit #:	SCAQMD Permit-to-Operate No. F93259			
Wells Manifolded to System:	SVE-1S/D through SVE-5S/D, MW-A7S/D			
PROCESS INFLUENT SUMMARY	**GRO (ppmV)**	**Benzene (ppmV)**	**MTBE (ppmV)**	**Sample Date**
Process Concentrations at system startup:	8,400	92	<28	4/7/2004
Process Concentrations at end of previous period:	25	<1.2	<0.28	4/19/2011
EFFLUENT SUMMARY				
Effluent Concentrations at end of previous period:	<2.4	<1.2	<0.28	4/19/2011
Effluent Permit Requirement Concentrations:	30	0.25	0.20	
Percent (%) Conversions:	N/A	N/A	N/A	
HC destroyed this period:	0.0 lb*			
Cumulative Hydrocarbons removed (prior to 5/08/07):	50,283 lb			
Cumulative Hydrocarbons removed (since to 5/08/07):	469 lb			
Cumulative HC Removed:	50,752 lb			
Percent up time during this period:**	0% (Vapor Extraction)			
Hours up time during this period:	9 hours (Must be < 360 hours / month)			
Cumulative Hours up time (prior to 5/08/07):	12,083 hours			
Cumulative Hours up time (since to 5/08/07):	8,478 hours			
Cumulative Hours up time:	20,561 hours			
Number of auto shut downs during this period:	0 (Vapor Extraction)			
Utility usage:				
Electricity:	3,839 kWh			
Natural Gas:	N/A x 1,000 cfm			
Avg. Stack Temperature (Combusion):*	N/A deg. F (Must be > 650'F)			
(Effluent):*	N/A deg. F			
Avg. Source Flow:*	N/A scfm			
Avg. Process Flow:*	N/A scfm (Must be < 100 scfm)			
Avg. Source Vacuum:*	N/A in. H_2O			

Notes:
Average values do not include down time.
* - Denotes averages during run time only.
** - Percent up time calculation treats off-cycle as on time.
NA - Not Applicable
NM - Not measured
GRO - Gasoline Range Organics (C_4 - C_{12})

SVE Remediation System shut down on April 27, 2011, due to low concentrations.

TABLE 7
Summary of Process Vapor Sampling Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	Ethanol (ppmV)	CO_2 (%)	CO (%)	CH_4 (%)	N_2 (%)	O2 (%)
EPA Method:		8015 Mod	8260B										ASTM D1946-90				
4/7/2004	Influent	8,400	92	38	250	170	<24	<27	<28	<24	<330	--	10	<0.10	0.32	83	6.6
	Infl. w/ dil.	1,900	22	19	68	96	<6.0	<6.6	7.1	<6.0	<82	--	1.7	<0.10	<0.10	78	21
	Effluent	3.0	0.19	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.5	<0.10	<0.10	78	19
4/13/2004	Effluent	3.0	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
4/21/2004	Influent	6,200	81	52	250	220	<12	<13	27	<12	<160	--	5.5	<0.10	<0.10	80	14
	Infl. w/ dil.	860	10	9.9	47	51	<2.4	<2.7	4.5	<2.4	<33	--	0.75	<0.10	<0.10	78	21
	Effluent	3.1	<0.061	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	1.8	<0.10	<0.10	80	18
4/27/2004	Influent	7,000	40	24	180	77	<12	<13	15	<12	<160	--	5.3	<0.10	0.13	80	15
	Infl. w/ dil.	2,400	21	28	89	120	<2.4	<2.7	8.9	<2.4	<33	--	1.8	<0.10	<0.10	78	20
	Effluent	3.6	<0.061	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.5	<0.10	<0.10	79	18
5/5/2004	Influent	5,900	54	72	290	300	<12	<13	17	<12	<160	--	3.1	<0.10	<0.10	79	18
	Infl. w/ dil.	1,900	13	18	68	80	<2.4	<2.7	4.2	<2.4	<33	--	1.0	<0.10	<0.10	79	20
	Effluent	<2.4	<0.060	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.1	<0.10	<0.10	80	18
5/12/2004	Influent	4,300	20	15	78	61	<12	<13	7.6	<12	<160	--	2.7	<0.10	<0.10	79	18
	Infl. w/ dil.	1,500	9.7	14	48	68	<2.4	<2.7	2.9	<2.4	<33	--	1.0	<0.10	<0.10	79	20
	Effluent	<2.4	0.093	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.1	<0.10	<0.10	79	19
5/19/2004	Influent	3,400	30	39	150	180	<12	<13	<14	<12	<160	--	2.3	<0.10	<0.10	79	19
	Infl. w/ dil.	1,600	13	23	70	120	<4.8	<5.3	<5.6	<4.8	<66	--	0.92	<0.10	<0.10	79	20
	Effluent	<2.4	0.096	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.0	<0.10	<0.10	80	19
6/2/2004	Influent	3,700	28	44	130	210	<2.4	<2.7	6.6	<2.4	<33	--	2.0	<0.10	<0.10	79	19
	Infl. w/ dil.	1,500	18	36	79	190	<4.8	<5.3	<5.6	<4.8	<66	--	1.2	<0.10	<0.10	79	20
	Effluent	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	2.0	<0.10	<0.10	79	19
7/7/2004	Influent	1,600	17	25	96	130	<2.4	<2.7	2.9	<2.4	<33	--	--	--	--	--	--
	Infl. w/ dil.	1,400	12	22	70	120	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
8/4/2004	Influent	1,200	8.3	16	70	86	<4.8	<5.3	<5.6	<4.8	<66	--	1.2	<0.10	<0.10	79	20
	Infl. w/ dil.	1,200	6.4	15	55	88	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	<2.4	0.082	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
9/9/2004	Influent	900	4.1	13	46	72	<2.4	<2.7	<2.8	<2.4	<33	--	1.3	<0.10	<0.10	79	20
	Effluent	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
9/23/2004	Influent	3,500	10	15	14	75	<2.4	<2.7	7.1	<2.4	<33	--	6.9	<0.10	<0.10	86	7.4
10/7/2004	Influent	1,500	2.1	3.0	9.7	24	<2.4	<2.7	<2.8	<2.4	<33	--	4.7	<0.10	<0.10	83	12
	Effluent	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	3.2	<0.10	<0.10	80	16
11/4/2004	Influent	1,800	<1.2	1.6	6.2	13	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	<2.4	0.062	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--

TABLE 7
Summary of Process Vapor Sampling Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	Ethanol (ppmV)	CO_2 (%)	CO (%)	CH_4 (%)	N_2 (%)	O2 (%)
EPA Method:		TO-3	TO-14A										ASTM D1946				
12/16/2004	Influent	1,700	0.98	2.0	7.0	17	<0.4	<0.4	<0.4	<0.4	<2.0	--	4.4	<0.001	0.23	83	15
	Effluent	2.2	0.029	0.015	0.033	0.12	<0.002	<0.002	<0.002	<0.002	<0.01	--	2.9	0.017	0.0074	82	18
1/5/2005	Influent	1,800	0.62	1.2	3.8	10	<0.050	<0.050	0.23	<0.050	<0.25	--	3.9	<0.001	0.26	79	15
	Effluent	1.3	0.040	0.0040	0.020	0.020	<0.0020	<0.0020	<0.0020	<0.0020	<0.010	--	2.7	0.018	0.0081	79	17
2/2/2005	Influent	1,600	0.54	0.72	2.8	6.6	<0.25	<0.25	<0.25	<0.25	<1.2	--	3.5	<0.001	0.20	80	16
	Effluent	<1.0	0.017	<0.0020	0.0083	0.010	<0.0020	<0.0020	<0.0020	<0.0020	<0.010	--	2.5	0.012	0.0038	80	18
3/2/2005	Influent	1,000	0.81	2.8	8.3	23	<0.10	<0.10	0.27	<0.10	<0.5	--	2.5	<0.001	0.10	79	18
	Effluent	2.0	0.024	0.0077	0.018	0.070	<0.0020	<0.0020	<0.0020	<0.0020	<0.010	--	1.8	0.017	0.0097	79	19
4/6/2005	Influent	170	0.69	2.7	8.8	19	<0.67	<0.67	0.76	<0.67	0.14[J]	--	1	<0.001	0.015	79	19
	Effluent	8.4	0.0088	0.0051	0.018	0.039	<0.0020	<0.0020	0.0011[J]	<0.0020	0.0037[J]	--	0.97	0.00031[J]	0.39	78	20
EPA Method:		8015 Mod	8260B										ASTM D1946-90				
10/5/2005	Influent	590	3.1	4.7	17	31	<2.4	<2.7	5.1	<2.4	<33	--	6.3	<0.10	0.05[J]	84	9.3
	Effluent	14	<1.2	<0.92	<1.1	0.38[J]	<2.4	<2.7	<2.8	<2.4	<33	--	0.09[J]	<0.10	<0.10	78	22
EPA Method:		TO-3	TO-14A										ASTM D1946				
11/8/2005	Influent	1,300	0.55	1.6	5.5	14	<0.10	<0.10	<0.10	<0.10	<0.5	--	4.5	<0.001	0.13	82	14
	Effluent	57	<0.020	<0.020	0.0095[J]	<0.020	<0.020	<0.020	<0.020	<0.020	<0.10	--	1.2	<0.001	0.44	79	20
12/6/2005	Influent	1,100	0.52	1.8	5.2	16	<0.05	<0.05	0.31	<0.05	0.13[J]	--	3.5	<0.001	0.14	79	15
	Effluent	57	<0.010	<0.010	0.0099[J]	<0.010	<0.010	<0.010	<0.010	<0.010	0.0069[J]	--	0.95	0.0004[J]	0.34	77	20
1/3/2006	Influent	220	0.23	1.1	3.1	9.8	<0.05	<0.05	0.13	<0.05	<0.25	--	2.0	<0.001	0.02	80	19
	Effluent	6.4	0.015	0.009	0.019	0.089	<0.002	<0.002	<0.002	<0.002	0.0050[J]	--	0.86	<0.001	0.39	79	20
1/17/2006	Influent	770	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Effluent	61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/16/2006	Influent	580	0.53	1.2	4.2	9.2	--	--	--	--	--	--	4.2	--	0.065	80	14
	Effluent	4.8	0.038	0.011	0.074	0.070	--	--	--	--	--	--	2.2	--	0.019	76	17
6/6/2006	Influent	2,000	0.81	1.0	3.6	8.1	--	--	--	--	--	--	3.0	--	0.20	80	17
	Effluent	4.9	0.040	0.0074	0.044	0.043	--	--	--	--	--	--	2.4	--	0.013	80	18
1/17/2006	Influent	770	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Effluent	61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/16/2006	Influent	580	0.53	1.2	4.2	9.2	--	--	--	--	--	--	4.2	--	0.065	80	14
	Effluent	4.8	0.038	0.011	0.074	0.070	--	--	--	--	--	--	2.2	--	0.019	76	17
6/6/2006	Influent	2,000	0.81	1.0	3.6	8.1	--	--	--	--	--	--	3.0	--	0.20	80	17
	Effluent	4.9	0.040	0.0074	0.044	0.043	--	--	--	--	--	--	2.4	--	0.013	80	18
EPA Method:		8015 Mod	8260B										ASTM D1946-90				
9/19/2006	Influent w/o Dil	49	<1.2	<0.92	<1.1	2.0	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Influent w/ Dil	16	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--

TABLE 7
Summary of Process Vapor Sampling Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	Ethanol (ppmV)	CO_2 (%)	CO (%)	CH_4 (%)	N_2 (%)	O2 (%)
10/3/2006	Effluent	63.0	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
10/17/2006	Influent w/o Dil	140	<1.2	1.0	2.2	8.2	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Influent w/ Dil	110	<1.2	<0.92	1.3	6.0	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	22.0	0.27	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
11/8/2006	Influent w/o Dil	1,500	<1.2	<0.92	2.1	8.4	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Influent w/ Dil	42	<1.2	<0.92	1.3	5.1	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
	Effluent	87	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	--	--	--	--	--	--
EPA Method:		**TO-3**	**TO-14A**										**ASTM D1946**				
5/8/2007	VP-INF	43	0.28	0.21	0.99	2.9	<0.010	<0.010	0.19	<0.010	<0.050	<0.20	--	--	--	--	--
	VP-MID	<1.0	<0.002	<0.002	0.0053	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.040	--	--	--	--	--
	VP-EFF	<1.0	<0.002	<0.002	0.0054	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.040	--	--	--	--	--
EPA Method:		**8015 Mod**	**8260B**										**ASTM D1946**				
12/6/2007	VP-INF	15	0.31	0.29	1.1	1.5	--	--	0.079	--	--	--	--	--	--	--	--
	VP-EFF	1.4	<0.020	<0.020	<0.020	<0.020	--	--	<0.030	--	--	--	--	--	--	--	--
1/22/2008	VP-INF	410	0.40	0.38	1.6	4.0	--	--	0.47	--	--	--	--	--	--	--	--
	VP-EFF	130	0.04	<0.020	<0.020	<0.020	--	--	<0.030	--	--	--	--	--	--	--	--
2/19/2008	VP-INF	350	0.45	0.52	1.9	5.8	--	--	0.34	--	--	--	--	--	--	--	--
	VP-EFF	130	0.058	<0.020	<0.020	<0.020	--	--	<0.030	--	--	--	--	--	--	--	--
4/1/2008	VP-INF	35	0.39	0.14	1.2	1.4	--	--	0.42	--	--	--	--	--	--	--	--
	VP-EFF	16	0.074	<0.020	<0.020	<0.020	--	--	<0.030	--	--	--	--	--	--	--	--
7/30/2008	VP-INF	16	0.12	0.075	0.35	1.1	--	--	0.077	--	--	--	--	--	--	--	--
	VP-EFF	2	0.017J	0.006J	0.033	0.028	--	--	<0.030	--	--	--	--	--	--	--	--
8/21/2008	VP-INF	11	0.08	0.04	0.2	0.3	<0.0028	<0.0028	0.021	<0.0028	<0.021	<0.057	--	--	--	--	--
	VP-EFF	<1.0	<0.0030	<0.0020	0.041	0.0041	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.040	--	--	--	--	--
9/23/2008	VP-INF	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*
	VP-EFF	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*	--'*
10/7/2008	VP-INF	**32**	<1.2	**0.15 J**	**0.79 J**	**1.4 J**	<2.4	<2.7	<2.8	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	<160	--	--	--	--	--
EPA Method:		**TO15 Mod**	**TO15**										**ASTM D1946**				
11/5/2008	VP-INF	**30**	**0.11**	**0.081**	**0.56**	**0.91**	<0.010	<0.010	**0.015**	<0.010	<0.075	<0.25	--	--	--	--	--
	VP-EFF	**0.64**	**0.0020 J**	<0.0020	**0.018**	**0.0032**	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.050	--	--	--	--	--
12/2/2008	VP-INF	**38**	**0.19**	**0.120**	**0.75**	**1.30**	<0.0050	<0.0050	**0.0096**	<0.0050	<0.038	<0.12	--	--	--	--	--
	VP-EFF	**0.63**	<0.0030	<0.0020	**0.0057**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.050	--	--	--	--	--
1/7/2009	VP-INF	**24**	**0.12**	**0.044**	**0.38**	**0.38**	<0.010	<0.010	**0.0098 J**	<0.010	<0.075	<0.25	--	--	--	--	--
	VP-EFF	**0.41 J**	<0.0030	<0.0020	**0.0044 J**	<0.0020	<0.0020	<0.0020	**0.0015 J**	<0.0020	<0.015	<0.050	--	--	--	--	--

TABLE 7
Summary of Process Vapor Sampling Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	Ethanol (ppmV)	CO_2 (%)	CO (%)	CH_4 (%)	N_2 (%)	O2 (%)
2/3/2009	VP-INF	**22**	**0.069**	**0.010**	**0.19**	**0.094**	<0.0050	<0.0050	<0.0050	<0.0050	<0.038	<0.12	--	--	--	--	--
	VP-EFF	**0.52**	**0.0026 J**	<0.0020	**0.0059**	**0.0026**	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.050	--	--	--	--	--
9/17/2009	VP-INF	**9.5**	**0.048**	**0.016**	**0.083**	**0.093**	<0.0020	<0.0020	**0.0051**	<0.0020	**0.035**	<0.050	--	--	--	--	--
	VP-EFF	**0.85**	<0.0030	<0.0020	**0.0071**	<0.0020	<0.0020	**0.0023**	<0.0020	<0.0020	**0.029**	<0.050	--	--	--	--	--
10/15/2009	VP-INF	**23**	**0.23**	**0.15**	**1.0**	**1.3**	<0.0067	<0.0067	**0.0089**	<0.0067	<0.050	<0.17	--	--	--	--	--
	VP-EFF	**0.51**	<0.0030	<0.0020	**0.015**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.050	--	--	--	--	--
10/22/2009	VP-INF	**29**	**0.35**	**0.23**	**1.5**	**1.8**	<0.0020	<0.0020	**0.012**	<0.0020	<0.015	<0.050	--	--	--	--	--
	VP-EFF	**0.24 J**	<0.0030	<0.0020	**0.016**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.015	<0.050	--	--	--	--	--
12/17/2009	VP-INF	**85**	**0.34**	**0.22**	**1.8**	**1.7**	<0.0020	<0.0020	**0.019 J**	<0.0020	<0.15	<0.050	--	--	--	--	--
	VP-EFF	**0.89 J**	<0.0030	<0.0020	**0.016**	**0.0054**	<0.0020	<0.0020	<0.0020	<0.0020	<0.15	<0.050	--	--	--	--	--
1/21/2010	VP-INF	**100**	**0.23**	**0.066**	**1.1**	**1.2**	<0.020	<0.020	**0.021**	<0.020	<0.15	<0.50	--	--	--	--	--
	VP-EFF	**0.68**	<0.0030	<0.0020	**0.092**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	**0.013 J**	<0.050	--	--	--	--	--
EPA Method:		**8015 Mod**	**8260B**										**ASTM D1946-90**				
2/18/2010	VP-INF	**59**	<4.0	<4.0	<4.0	<8.0	<10	<10	<10	<10	<100	<300	--	--	--	--	--
	VP-EFF	**3.4**	<4.0	<4.0	<4.0	<8.0	<10	<10	<10	<10	<100	<300	--	--	--	--	--
3/24/2010	VP-INF	**130**	<1.2	<0.92	**1.2**	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	**2.9**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
4/21/2010	VP-INF	**120**	**0.23 J**	**0.12 J**	**1.2**	**1.1 J**	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	**1.7 J**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
5/20/2010	VP-INF	**110**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
6/22/2010	VP-INF	**120**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
7/20/2010	VP-INF	**170**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	**4.3**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
8/25/2010	VP-INF	**150**	<1.2	<0.92	**1.1**	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	**9.0**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
11/23/2010	VP-INF	**120**	<1.2	<0.92	**1.5**	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
12/21/2010	VP-INF	**190**	<1.2	<0.92	**1.1**	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	**6.2**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
EPA Method:		**TO15 Mod**	**TO15 Mod**										**ASTM D1946**				
1/21/2011	VP-INF	**270**	**0.27**	**0.19**	**1.2**	**1.3**	<0.01	<0.01	**0.0063 J**	<0.01	<0.075	<0.25	--	--	--	--	--
	VP-EFF	**1.5**	<0.003	<0.002	**0.0025 J**	**0.0053**	<0.002	<0.002	<0.002	<0.002	**0.025**	<0.05	--	--	--	--	--

TABLE 7
Summary of Process Vapor Sampling Results
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	Ethanol (ppmV)	CO_2 (%)	CO (%)	CH_4 (%)	N_2 (%)	O2 (%)
EPA Method:		8015 Mod	8260B										ASTM D1946-90				
2/22/2011	VP-INF	**24**	<1.2	<0.92	**1.1**	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
3/23/2011	VP-INF	**83**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
4/19/2011	VP-INF	**25**	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--
	VP-EFF	<2.4	<1.2	<0.92	<1.1	<1.8	<2.4	<2.7	<0.28	<2.4	<33	<160	--	--	--	--	--

Notes:

J = Estimated value (less than the method reporting limit and greater than or equal to the method detection limit)

GRO = Gasoline Range Organics (C_4 - C_{12})

ppmV = Parts per million on a volume basis

-- = Not sampled/Not analyzed

DIPE = Di-Isopropyl ether

ETBE = Ethyl tert-butyl ether

MTBE = Methyl Tertiary Butyl Ether

TAME = Tertiary-amyl methylether

TBA = Tert-butyl alcohol

CO_2 = Carbon dioxide

CO = Carbon monoxide

CH_4 = Methane

N_2 = Nitrogen

O_2 = Oxygen

(%) = Percentage of air volume

--"*" - Samples were collected by Stantec on September 23, 2008 but were not analyzed becsuse the holding time was exceeded (see attached memorundum).

Effluent samples from 4/11/04 to 6/02/04, 8/04/04 to 11/04/04, and 9/19/06 to 11/08/06 were analyzed for Benzene using EPA Method 410A Mod.

SVE Remediation System shut down on April 27, 2011, due to low concentrations.

TABLE 8
Summary of Individual Well Vapor Sample Analytical Results (Discontinued)
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, CA

Sample Date	Sample ID	GRO (ppmV)	Benzene (ppmV)	Ethylbenzene (ppmV)	Toluene (ppmV)	Total Xylenes (ppmV)	DIPE (ppmV)	ETBE (ppmV)	MTBE (ppmV)	TAME (ppmV)	TBA (ppmV)	CO_2 (%)	Methane (%)	O_2 (%)
EPA Method:		**8015 Mod**	**8260B**											
4/7/2004	SVE-1 Shallow	11000	120	100	320	470	<12	<13	23	<12	<160	11	0	<5.5
4/7/2004	SVE-1 Deep	10000	100	100	280	510	<12	<13	43	<12	<160	11	1	<5.5
4/7/2004	SVE-2 Shallow	14000	150	88	360	470	<12	<13	72	<12	<160	12	1	<5.5
4/7/2004	SVE-2 Deep	14000	130	92	350	500	<12	<13	67	<12	<160	12	1	<5.5
4/7/2004	SVE-3 Shallow	14000	270	130	420	570	<24	<27	<28	<24	<330	12	1	<5.5
4/7/2004	SVE-3 Deep	13000	250	130	440	610	<24	<27	46	<24	<330	12	1	<5.5
4/7/2004	SVE-4 Shallow	5900	38	45	190	210	<12	<13	<14	<12	<160	10	0	8
4/7/2004	SVE-4 Deep	8500	82	46	340	200	<24	<27	<28	<24	<330	12	0	<5.5
4/7/2004	SVE-5 Shallow	5100	11	15	3	31	<2.4	<2.7	<2.8	<2.4	<33	7	0	9
4/7/2004	SVE-5 Deep	13000	15	10	3	22	<6.0	<6.6	<7.0	<6.0	<82	6	1	9
4/7/2004	MW-A7	5200	25	31	120	230	<6.0	<6.6	13	<6.0	<82	0	<0.1	23
EPA Method:		**8015 Mod**	**410A**	**8260B**										
10/31/2006	SVE-1 Shallow	**20**	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-1 Deep	**4.3**	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-2 Shallow	**15**	<0.059	<0.92	<1.1	**4.5**	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-2 Deep	**950**	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-3 Shallow	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-3 Deep	**160**	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-4 Shallow	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-4 Deep	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-5 Shallow	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	SVE-5 Deep	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	MW-A7- S	<2.4	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-
10/31/2006	MW-A7- D	**26**	<0.059	<0.92	<1.1	<1.8	<2.4	<2.7	<2.8	<2.4	<33	-	-	-

Notes:

GRO = Gasoline Range Organics (C_4 - C_{12})

ppmV = Parts per million on a volume basis

-- = Not sampled/Not analyzed

DIPE = Di-Isopropyl ether

ETBE = Ethyl tert-butyl ether

MTBE = Methyl Tertiary Butyl Ether

TAME = Tertiary-amyl methylether

TBA = Tert-butyl alcohol

CO_2 = Carbon dioxide

CO = Carbon monoxide

CH_4 = Methane

N_2 = Nitrogen

O_2 = Oxygen

(%) = Percentage of air volume

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
05/18/07	--	100	--	100	178	100	178	100	179	100	179	100
05/23/07	25.1	100	25.1	100	473	100	473	100	521	100	521	100
12/06/07	--	0	--	0	39	100	39	100	105	100	105	100
12/07/07	--	0	--	0	106	100	106	100	343	100	343	100
12/08/07	--	0	--	0	449	100	449	100	388	100	388	100
12/09/07	--	0	--	0	601	100	601	100	413	100	413	100
12/10/07	--	0	--	0	213	100	213	100	681	100	681	100
12/11/07	--	0	--	0	673	100	673	100	541	100	541	100
12/12/07	--	0	--	0	706	100	706	100	596	100	596	100
12/13/07	--	0	--	0	568	100	568	100	529	100	529	100
12/20/07	--	0	--	0	559	100	559	100	521	100	521	100
12/27/07	--	0	--	0	666	100	666	100	544	100	544	100
01/03/08	--	0	--	0	576	100	576	100	529	100	529	100
01/15/08	--	0	--	0	542	100	542	100	509	100	509	100
01/22/08	--	0	--	0	521	100	521	100	474	100	474	100
01/29/08	--	0	--	0	583	100	583	100	501	100	501	100
02/05/08	--	0	--	0	644	100	644	100	562	100	562	100
02/12/08	--	0	--	0	620	100	620	100	562	100	562	100
02/19/08	--	0	--	0	563	100	563	100	421	100	421	100
07/22/08	35.1	100	35.1	100	106.0	100	106.0	100	15.9	100	15.9	100
07/29/08	50.8	100	50.8	100	104.0	100	104.0	100	86.4	100	86.4	100
08/05/08	31.4	100	31.0	100	69.3	100	69.3	100	7.8	100	7.8	100
08/12/08	29.3	100	29.3	100	65.6	100	65.5	100	8.2	100	8.2	100
08/19/08	32.6	100	32.6	100	71.8	100	71.8	100	9.3	100	9.3	100
08/26/08	30.0	100	30.0	100	69.0	100	69.0	100	7.4	100	7.4	100
09/02/08	41.0	100	41.0	100	76.0	100	76.0	100	9.1	100	9.1	100
09/10/08	38.2	100	38.2	100	78.1	100	78.1	100	8.8	100	8.8	100
09/16/08	40.1	100	40.1	100	81.4	100	81.4	100	9.2	100	9.2	100
09/23/08	36.2	100	36.2	100	74.5	100	74.5	100	6.3	100	6.3	100
09/30/08	39.0	100	39.0	100	81.8	100	81.8	100	5.5	100	5.5	100
10/07/08	34.1	100	34.1	100	72.3	100	72.3	100	4.1	100	4.1	100
10/14/08	38.4	100	38.4	100	79.1	100	79.1	100	5.0	100	5.0	100

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
10/21/08	32.4	100	32.4	100	70.1	100	70.1	100	3.2	100	3.2	100
10/29/08	39.0	100	39.0	100	80.5	100	80.5	100	4.1	100	4.1	100
11/04/08	37.4	100	37.4	100	79.1	100	79.1	100	4.0	100	4.0	100
11/12/08	40.1	100	40.1	100	84.6	100	84.6	100	4.2	100	4.2	100
11/25/08	43.2	100	43.2	100	86.1	100	86.1	100	4.0	100	4.0	100
12/02/08	38.2	100	38.2	100	78.1	100	78.1	100	3.9	100	3.9	100
12/09/08	44.6	100	44.6	100	88.7	100	88.7	100	3.9	100	3.9	100
12/16/08	42.3	100	42.3	100	82.4	100	82.4	100	3.5	100	3.5	100
12/23/08	43.2	100	43.2	100	73.8	100	73.8	100	2.6	100	2.6	100
12/30/08	40.1	100	40.1	100	78.3	100	78.3	100	3.0	100	3.0	100
01/06/09	44.6	100	44.6	100	82.3	100	82.3	100	3.4	100	3.4	100
01/13/09	38.6	100	38.6	100	71.0	100	71.0	100	2.0	100	2.0	100
01/20/09	40.4	100	40.4	100	76.3	100	76.3	100	3.1	100	3.1	100
01/27/09	33.2	100	33.2	100	62.1	100	62.1	100	2.0	100	2.0	100
02/03/09	42.6	100	42.6	100	79.4	100	79.4	100	3.5	100	3.5	100
02/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/25/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/04/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/11/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/24/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/31/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/07/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/21/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/05/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/12/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/02/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/09/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
06/16/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/07/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/21/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/28/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/04/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/25/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/03/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/10/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/17/09	13.1	100	13.1	100	37.7	100	37.7	100	2.4	100	2.4	100
09/24/09	47.7	100	47.7	100	41.6	100	41.6	100	12.8	100	12.8	100
10/01/09	86	100	86	100	95	100	95	100	9.0	100	9.0	100
10/08/09	85	100	85	100	90	100	90	100	7.0	100	7.0	100
10/22/09	124	100	124	100	208	100	208	100	28	100	28	100
10/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/05/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/23/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/09/09	118	100	118	100	182	100	182	100	25	100	25	100
12/17/09	--	100	--	100	176	100	176	100	2.7	100	2.7	100
01/06/10	--	100	--	100	115	100	115	100	--	0	--	0
01/14/10	--	100	--	100	180	100	180	100	1.1	100	1.1	100
01/21/10	--	100	--	100	202	100	202	100	10	100	10	100
02/02/10	--	100	--	100	156	100	156	100	2.0	100	2.0	100
02/18/10	--	100	--	100	162	100	162	100	--	0	--	0
03/10/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/19/10	--	100	--	100	229	100	229	100	2.0	0	2.0	0
03/24/10	--	100	--	100	300	100	300	100	7.0	0	7.0	0
04/06/10	--	100	--	100	182	100	182	100	0.0	0	0.0	0
04/13/10	--	100	--	100	155	100	155	100	0.0	0	0.0	0
04/21/10	--	100	--	100	161	100	161	100	1.0	0	1.0	0
04/27/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
05/04/10	--	100	--	100	123	100	123	100	0.0	0	0.0	0
05/13/10	--	100	--	100	101	100	101	100	0.0	0	0.0	0
05/20/10	--	100	--	100	--	100	--	100	--	0	--	0
06/04/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/10/10	--	100	--	100	57	100	57	100	0.0	0	0.0	0
06/16/10	45	100	--	100	50	100	50	100	0.0	0	0.0	0
06/22/10	--	100	25	100	326	100	326	100	6.0	0	6.0	0
07/08/10	--	100	--	100	--	100	--	100	--	0	--	0
07/15/10	166	100	166	100	436	100	436	100	15	0	15	0
07/20/10	155	100	155	100	399	100	399	100	7.0	0	7.0	0
07/27/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/04/10	144	100	144	100	439	100	439	100	11.0	0	11.0	0
08/09/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/19/10	130	100	130	100	392	100	392	100	4.0	0	4.0	0
09/02/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/08/10	66	100	66	100	402	100	402	100	0.0	0	0.0	0
09/16/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/08/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/15/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/29/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/12/10	141	100	141	100	555	100	555	100	0.0	0	0.0	0
11/19/10	168	100	168	100	598	100	598	100	1.0	0	1.0	0
11/23/10	--	100	--	100	322	100	322	100	48	0	48	0
12/06/10	--	100	--	100	240	100	240	100	32	0	32	0
12/15/10	--	100	--	100	261	100	261	100	21	0	21	0
12/21/10	--	100	--	100	245	100	245	100	33	0	33	0
01/04/11	--	100	--	100	190	100	190	100	11	0	11	0
01/13/11	--	100	--	100	298	100	298	100	30	0	30	0
01/21/11	--	100	--	100	240	100	240	100	40	0	40	0
01/26/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/03/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/10/11	--	100	--	100	222	100	222	100	31	0	31	0
02/16/11	--	100	--	100	266	100	266	100	60	0	60	0

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
02/22/11	--	100	--	100	290	100	290	100	75	0	75	0
03/02/11	--	100	--	100	242	100	242	100	65	0	65	0
03/07/11	--	100	--	100	190	100	190	100	44	0	44	0
03/17/11	--	100	--	100	102	100	102	100	20	0	20	0
03/23/11	--	100	--	100	204	100	204	100	65	0	65	0
04/04/11	--	100	--	100	222	100	222	100	55	0	55	0
04/15/11	--	100	--	100	170	100	170	100	40	0	40	0
04/19/11	--	100	--	100	153	100	153	100	44	0	44	0
04/27/11	--	100	--	100	198	100	198	100	60	0	60	0
05/18/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/31/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/06/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/14/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/19/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/05/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/23/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/30/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/13/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/25/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/01/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/15/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/22/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/12/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/28/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/24/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/01/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/01/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/22/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/25/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/07/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9a
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-1S Through SVE-3D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-1S (8 to 28)		SVE-1D (35 to 55)		SVE-2S (7 to 27)		SVE-2D (35 to 55)		SVE-3S (8 to 28)		SVE-3D (35 to 55)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
05/22/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/29/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/30/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/15/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/21/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/29/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/17/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/11/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/06/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/27/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/11/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/02/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/03/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/16/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/21/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Notes:
-- Not measured
ppmv = parts per million on a volume basis as measured by FID or PID
(17 to 25) - Vapor Extraction Well Screen Interval
SVE Remediation System shut down on April 27, 2011, due to low concentrations.

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
05/18/07	--	100	--	100	6.0	100	6.0	100	117	100	117	100
05/23/07	212	100	212	100	15.1	100	15.1	100	324	100	324	100
12/06/07	43.6	100	43.6	100	--	0	--	0	--	0	--	0
12/07/07	37.8	0	37.8	0	--	0	--	0	58.7	100	58.7	100
12/08/07	--	0	--	0	--	0	--	0	1,597	100	1,597	100
12/09/07	--	0	--	0	--	0	--	0	1,673	100	1,673	100
12/10/07	98.7	100	98.7	100	--	0	--	0	909	100	909	100
12/11/07	--	0	--	0	--	0	--	0	1,378	100	1,378	100
12/12/07	--	0	--	0	--	0	--	0	1,417	100	1,417	100
12/13/07	--	0	--	0	--	0	--	0	1,289	100	1,289	100
12/20/07	--	0	--	0	--	0	--	0	1,244	100	1,244	100
12/27/07	--	0	--	0	--	0	--	0	1,221	100	1,221	100
01/03/08	--	0	--	0	--	0	--	0	1,219	100	1,219	100
01/15/08	--	0	--	0	--	0	--	0	1,176	100	1,176	100
01/22/08	--	0	--	0	--	0	--	0	1,133	100	1,133	100
01/29/08	--	0	--	0	--	0	--	0	1,221	100	1,221	100
02/05/08	--	0	--	0	--	0	--	0	1,354	100	1,354	100
02/12/08	--	0	--	0	--	0	--	0	1,331	100	1,331	100
02/19/08	--	0	--	0	--	0	--	0	1,092	100	1,092	100
07/22/08	9.1	100	9.1	100	3.7	100	3.7	100	30.6	100	30.6	100
07/29/08	19.6	100	19.6	100	5.5	100	5.5	100	27.2	100	27.2	100
08/05/08	3.8	100	3.8	100	1.7	100	1.7	100	13.0	100	13.0	100
08/12/08	2.7	100	2.7	100	1.4	100	1.4	100	14.2	100	14.2	100
08/19/08	3.5	100	3.5	100	1.8	100	1.8	100	17.1	100	17.1	100
08/26/08	2.1	100	2.1	100	2.0	100	2.0	100	19.4	100	19.4	100
09/02/08	4.0	100	4.0	100	3.2	100	3.2	100	24.0	100	24.0	100
09/10/08	3.9	100	3.9	100	4.0	100	4.0	100	21.6	100	21.6	100
09/16/08	3.4	100	3.4	100	3.8	100	3.8	100	24.2	100	24.2	100
09/23/08	2.0	100	2.0	100	3.1	100	3.1	100	21.2	100	21.2	100
09/30/08	2.6	100	2.6	100	2.9	100	2.9	100	28.4	100	28.4	100
10/07/08	2.0	100	2.0	100	2.2	100	2.2	100	21.6	100	21.6	100
10/14/08	2.9	100	2.9	100	3.0	100	3.0	100	32.6	100	32.6	100

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
10/21/08	1.6	100	1.6	100	2.0	100	2.0	100	20.0	100	20.0	100
10/29/08	2.4	100	2.4	100	3.0	100	3.0	100	28.3	100	28.3	100
11/04/08	2.1	100	2.1	100	2.7	100	2.7	100	25.0	100	25.0	100
11/12/08	3.0	100	3.0	100	2.6	100	2.6	100	30.0	100	30.0	100
11/25/08	3.3	100	3.3	100	2.5	100	2.5	100	33.2	100	33.2	100
12/02/08	2.0	100	2.0	100	2.4	100	2.4	100	26.3	100	26.3	100
12/09/08	3.1	100	3.1	100	2.1	100	2.1	100	34.0	100	34.0	100
12/16/08	3.0	100	3.0	100	2.0	100	2.0	100	31.6	100	31.6	100
12/23/08	2.4	100	2.4	100	1.0	100	1.0	100	30.2	100	30.2	100
12/30/08	2.9	100	2.9	100	2.0	100	2.0	100	28.3	100	28.3	100
01/06/09	3.0	100	3.0	100	2.2	100	2.2	100	31.3	100	31.3	100
01/13/09	1.4	100	1.4	100	1.0	100	1.0	100	21.6	100	21.6	100
01/20/09	1.9	100	1.9	100	1.8	100	1.8	100	26.2	100	26.2	100
01/27/09	1.6	100	1.6	100	1.4	100	1.4	100	22.3	100	22.3	100
02/03/09	2.4	100	2.4	100	1.9	100	1.9	100	27.3	100	27.3	100
02/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/25/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/04/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/11/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/24/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/31/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/07/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/21/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/05/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/12/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/19/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/02/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/09/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
06/16/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/07/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/14/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/21/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/28/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/04/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/25/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/03/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/10/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/17/09	23.6	100	23.6	100	1.9	100	1.9	100	15.9	100	15.9	100
09/24/09	20.8	100	20.8	100	1.2	100	1.2	100	43.5	100	43.5	100
10/01/09	69.0	100	69.0	100	2.0	100	2.0	100	32.0	100	32.0	100
10/08/09	56	100	56	100	2.0	100	2.0	100	20	100	20	100
10/22/09	146	100	146	100	9.0	100	9.0	100	113	100	113	100
10/29/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/05/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/23/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/09/09	140	100	140	100	5.0	100	5.0	100	99	100	99	100
12/17/09	154	100	154	100	3.9	100	3.9	100	122	100	122	100
01/06/10	7.7	100	7.7	100	--	0	--	0	9.8	100	9.8	100
01/14/10	136	100	136	100	2.0	100	2.0	100	110	100	110	100
01/21/10	166	100	166	100	7.0	100	7.0	100	118	100	118	100
02/02/10	171	100	171	100	10	100	10	100	99	100	99	100
02/18/10	160	100	160	100	3.0	0	3.0	0	111	100	111	100
03/10/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/19/10	312	100	312	100	7.0	0	7.0	0	128	100	128	100
03/24/10	290	100	290	100	18	0	18	0	222	100	222	100
04/06/10	341	100	341	100	14	0	14	0	116	100	116	100
04/13/10	240	100	240	100	10	0	10	0	99	100	99	100
04/21/10	266	100	266	100	14	0	14	0	110	100	110	100
04/27/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
05/04/10	211	100	211	100	17	0	17	0	98	100	98	100
05/13/10	183	100	183	100	8.0	0	8.0	0	63	100	63	100
05/20/10	--	100	--	100	--	0	--	0	--	100	--	100
06/04/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
06/10/10	97	100	97	100	6	0	6	0	71	100	71	100
06/16/10	87	100	87	100	5	0	5	0	66	100	66	100
06/22/10	303	100	303	100	16	0	16	0	265	100	265	100
07/08/10	--	100	--	100	--	0	--	0	--	100	--	100
07/15/10	402	100	402	100	22	0	22	0	311	100	311	100
07/20/10	441	100	441	100	16	0	16	0	300	100	300	100
07/22/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/04/10	502	100	520	100	10	0	10	0	333	100	333	100
08/09/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/19/10	444	100	444	100	2	0	2	0	271	100	271	100
09/02/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/08/10	222	100	222	100	0	0	0	0	190	100	190	100
09/16/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/08/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/15/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/29/10	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/12/10	402	100	402	100	0	0	0	0	136	100	136	100
11/19/10	457	100	457	100	0	0	0	0	190	100	190	100
11/23/10	--	100	--	100	13	0	13	0	219	100	219	100
12/06/10	--	100	--	100	9	0	9	0	190	100	190	100
12/15/10	--	100	--	100	4	0	4	0	177	100	177	100
12/21/10	--	100	--	100	0	0	0	0	154	100	154	100
01/04/11	--	100	--	100	0	0	0	0	121	100	121	100
01/13/11	--	100	--	100	0	0	0	0	212	100	212	100
01/21/11	--	100	--	100	0	0	0	0	195	100	195	100
01/26/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/03/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/10/11	--	100	--	100	0	0	0	0	155	100	155	100
02/16/11	--	100	--	100	0	0	0	0	205	100	205	100

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
02/22/11	--	100	--	100	0	0	0	0	244	100	244	100
03/02/11	--	100	--	100	0	0	0	0	207	100	207	100
03/07/11	--	100	--	100	0	0	0	0	151	100	151	100
03/17/11	--	100	--	100	0	0	0	0	120	100	120	100
03/23/11	--	100	--	100	0	0	0	0	190	100	190	100
04/04/11	--	100	--	100	0	0	0	0	142	100	142	100
04/15/11	--	100	--	100	0	0	0	0	111	100	111	100
04/19/11	--	100	--	100	0	0	0	0	101	100	101	100
04/27/11	--	100	--	100	0	0	0	0	143	100	143	100
05/18/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/31/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/06/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/14/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/19/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/06/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/14/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/19/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/05/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/23/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/30/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/13/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/25/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/01/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/15/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/22/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/12/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/28/11	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/24/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/01/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/01/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

TABLE 9b
INDIVIDUAL WELL - FIELD MONITORING DATA (SVE-4S Through MW-A7D)
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	SVE Well											
	SVE-4S (7 to 27)		SVE-4D (34 to 54)		SVE-5S (7 to 27)		SVE-5D (35 to 55)		MW-A7S (10 to 30)		MW-A7D (35 to 65)	
	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)	VOC Conc. (ppmv)	Status Departure (% Open)
03/22/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/25/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/07/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/22/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/29/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
07/30/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/15/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
08/21/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/06/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
09/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
10/18/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11/29/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
12/17/12	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01/11/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/06/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02/27/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
03/11/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
04/02/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/03/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/16/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/21/13	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Notes:
-- Not measured
ppmv = parts per million on a volume basis as measured by FID or PID
(17 to 25) - Vapor Extraction Well Screen Interval
SVE Remediation System shut down on April 27, 2011, due to low concentrations.

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
05/18/07	2.0	25	2.0	25	2.0	25	--	--	2.0	25	2.0	25
05/21/07	2.0	25	2.0	25	2.0	25	--	--	2.0	25	2.0	25
05/23/07	2.0	25	2.0	25	2.0	25	--	--	2.0	25	2.0	25
05/30/07	2.0	25	2.0	25	2.0	25	--	--	2.0	25	2.0	25
07/10/08	C	OFF	8.0	15	OFF	C	OFF	C	8.0	14	OFF	C
07/15/08	2.8	7.0	0.0	20	OFF	C	OFF	C	OFF	C	OFF	C
07/22/08	2.5	7.0	0.0	23	2.5	7.0	0.0	22	2.5	7.0	0.0	19
08/05/08	3.0	7.0	0.0	20	3.0	8.0	0.0	13	3.2	7.0	0.0	18
08/12/08	3.0	8.0	0.0	20	3.5	9.0	0.0	20	3.0	7.0	0.0	19
08/19/08	3.0	7.5	0.0	20	3.0	7.5	0.0	20	3.0	7.0	0.0	19
08/26/08	3.0	7.5	0.0	20	3.0	7.5	0.0	20	3.0	7.0	0.0	19
09/02/08	3.0	7.5	0.0	20	3.0	7.5	0.0	20	3.0	7.0	0.0	19
09/10/08	7.5	8.0	0.0	20	3.0	8.0	0.0	18	3.0	7.0	0.0	20
09/16/08	7.0	7.0	0.0	23	3.0	8.0	0.0	21	3.5	7.0	0.0	20
09/23/08	8.0	8.0	0.0	22	3.0	8.0	0.0	21	3.0	7.0	0.0	20
09/30/08	8.0	9.0	0.0	22	3.0	7.5	0.0	21	3.2	6.5	0.0	20
10/07/08	8.0	8.0	0.0	21	3.0	7.0	0.0	20	3.5	7.0	0.0	20
10/14/08	8.0	9.0	0.0	23	3.0	7.5	0.0	20	3.5	7.0	0.0	21
10/21/08	8.0	9.0	0.0	22	3.0	7.0	0.0	21	3.5	7.0	0.0	20
10/29/08	7.5	9.0	0.0	23	3.0	7.0	0.0	15	3.2	7.0	0.0	21
11/04/08	8.0	9.0	0.0	24	2.5	7.0	0.0	18	3.2	7.0	0.0	20
11/12/08	8.0	9.0	0.0	22	2.5	7.0	0.0	19	3.5	8.0	0.0	20
11/25/08	7.5	8.0	0.0	23	2.5	7.5	0.0	19	3.0	7.0	0.0	22
12/02/08	8.0	9.0	0.0	21	3.0	7.0	0.0	18	3.5	8.0	0.0	20
12/09/08	7.0	8.0	0.0	22	2.5	7.0	0.0	20	3.0	7.0	0.0	21
12/16/08	7.0	9.0	0.0	21	2.5	7.0	0.0	20	3.0	7.0	0.0	21
12/23/08	7.0	9.0	0.0	21	2.6	7.0	0.0	20	3.0	7.0	0.0	21
12/30/08	7.0	8.0	0.0	21	3.0	7.0	0.0	20	3.0	7.0	0.0	22
01/06/09	7.0	8.0	0.0	22	3.0	7.0	0.0	20	2.5	7.0	0.0	23
01/13/09	7.0	8.0	0.0	24	2.0	7.0	0.0	20	2.5	7.0	0.0	22
01/20/09	7.0	8.0	0.0	24	3.0	7.0	0.0	20	3.0	7.0	0.0	21

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
01/27/09	7.0	8.0	0.0	23	3.0	7.0	0.0	21	2.5	7.0	0.0	20
02/03/09	6.5	8.0	0.0	23	3.0	7.0	0.0	20	2.5	7.0	0.0	22
02/19/09	7.0	8.0	0.0	22	3.0	7.0	0.0	20	2.5	7.0	0.0	23
02/25/09	2.0	6.5	0.0	20	1.5	5.0	0.0	20	2.0	6.0	0.0	22
03/04/09	7.0	8.0	0.0	20	2.0	5.5	0.0	21	2.0	6.5	0.0	22
03/11/09	7.0	7.5	0.0	20	2.0	5.0	0.0	21	2.5	7.0	0.0	23
03/19/09	7.5	8.0	0.0	20	2.0	5.0	0.0	22	3.0	7.0	0.0	22
03/24/09	7.0	8.0	0.0	19	2.5	6.0	0.0	20	3.0	7.0	0.0	22
03/31/09	7.0	8.0	0.0	20	2.5	7.0	0.0	20	3.0	7.0	0.0	21
04/07/09	7.0	7.5	0.0	20	2.5	7.0	0.0	21	3.0	7.0	0.0	22
04/14/09	7.0	7.5	0.0	20	0.6	7.0	0.0	20	3.0	7.0	0.0	22
04/21/09	7.0	8.0	0.0	19	0.6	8.0	0.0	20	3.0	7.0	0.0	21
04/29/09	7.0	8.0	0.0	20	0.0	20	--	--	3.0	7.0	0.0	22
05/05/09	7.0	8.0	0.0	20	0.0	20	--	--	3.0	7.5	0.0	21
05/12/09	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
05/14/09	7.5	8.0	0.0	20	0.0	21	--	--	3.0	7.5	0.0	22
05/19/09	7.0	8.0	0.0	19	0.0	21	--	--	3.0	7.0	0.0	21
05/29/09	7.0	8.0	0.0	20	0.0	21	--	--	3.0	6.5	0.0	22
06/02/09	7.5	8.0	0.0	19	0.0	20	--	--	2.5	6.0	0.0	21
06/09/09	7.0	8.0	0.0	18	0.0	20	--	--	2.5	6.0	0.0	22
06/16/09	7.0	8.0	0.0	17	2.2	6.5	--	--	2.5	6.0	0.0	19
07/07/09	6.5	7.0	0.0	19	3.0	7.0	0.0	21	3.0	6.0	0.0	20
07/14/09	7.0	7.0	0.0	20	3.0	7.0	0.0	20	3.0	7.0	0.0	18
07/21/09	7.0	7.0	0.0	19	3.5	7.0	0.0	22	3.0	7.0	0.0	20
07/28/09	7.0	7.0	0.0	20	3.0	7.0	0.0	20	3.0	7.0	0.0	20
08/04/09	2.0	5.0	0.0	17	2.0	6.0	0.0	15	3.0	4.0	0.0	17
08/25/09	2.0	5.0	--	--	2.0	6.0	--	--	3.0	4.0	--	--
09/10/09	2.0	5.0	--	--	2.0	6.0	--	--	2.0	5.0	--	--
09/17/09	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF
09/24/09	2.0	6.0	OFF	OFF	2.0	6.5	OFF	OFF	2.0	6.0	OFF	OFF
10/01/09	2.0	6.0	OFF	OFF	2.0	7	OFF	OFF	2.0	6.0	OFF	OFF

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
10/08/09	2.0	6.0	OFF	OFF	2.0	6.5	OFF	OFF	2.0	6.0	OFF	OFF
10/22/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
10/29/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
11/05/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
11/23/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
12/09/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
12/17/09	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
01/06/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
01/14/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
01/21/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
02/02/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
02/18/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
03/10/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
03/19/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
03/24/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
04/06/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
04/13/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
04/21/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
04/27/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
05/04/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
05/13/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
05/20/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
06/04/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
06/10/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
06/16/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
06/22/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
07/08/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
07/15/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
07/20/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
07/27/10	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
08/04/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
08/09/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
08/19/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
08/25/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
09/02/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
09/08/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
09/16/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
10/08/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
10/15/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
10/29/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	5.0	OFF	OFF
11/12/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
11/19/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
11/23/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
12/06/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
12/15/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
12/21/10	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/04/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/13/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/21/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/26/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/03/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/10/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/16/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/22/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/02/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/07/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/17/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/23/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/04/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/15/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/19/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/27/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
05/18/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/31/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
07/06/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
07/14/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
07/19/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
08/05/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
08/23/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
09/30/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
10/13/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
10/25/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
11/01/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
11/15/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
11/22/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
12/12/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
12/28/11	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/06/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/18/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
01/24/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/01/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/01/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/06/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/22/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/25/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/07/12	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/22/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
05/29/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
07/30/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
08/15/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
08/21/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
09/06/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
09/18/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF

TABLE 10
INDIVIDUAL AIR SPARGE WELL MONITORING DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA

Monitoring Date	Air Sparge Well											
	AS-1		AS-2		AS-3		AS-A7		AS-4		AS-5	
	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)	Flow (scfh)	Pressure (psi)
10/18/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
11/29/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
12/17/12	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF	2.0	6.0	OFF	OFF
01/11/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/06/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
02/27/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
03/11/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
04/02/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/03/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/16/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF
05/21/13	2.0	6.0	OFF	OFF	2.0	5.0	OFF	OFF	2.0	6.0	OFF	OFF

Notes:
C = Cycle
-- = Not measured.
scfh = Standard cubic feet per hour
psi = Pounds per square inch

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
05/01/07									50,283	0	12,083
05/02/07									50,283	0	12,083
05/03/07									50,283	0	12,083
05/04/07									50,283	0	12,083
05/05/07									50,283	0	12,083
05/06/07									50,283	0	12,083
05/07/07	SVE system started under Site Specific South Coast AQMD Permit-to-Operate No. F77737								50,283	0	12,083
5/08/07**	**43.0**	**43**	**<1.0**	**98.8**	**120**	**20**	**78**	**85**	**50,283**	**1**	**12,084**
05/09/07	Shut off system after collection of certified vapor samples.								50,283	0	12,084
05/10/07									50,283	0	12,084
05/11/07									50,283	0	12,084
05/12/07									50,283	0	12,084
05/13/07									50,283	0	12,084
05/14/07									50,283	0	12,084
05/15/07									50,283	0	12,084
05/16/07									50,283	0	12,084
05/17/07									50,283	0	12,084
05/18/07	**104.0**	**1.2**	**0.0**	**100.0**	**120**	**20**	**75**	**90**	**50,284**	**14**	**12,098**
05/19/07	104.0	1.2	0.0	100.0	120	20	75	90	50,286	24	12,122
05/20/07	104.0	1.2	0.0	100.0	120	20	75	90	50,288	24	12,146
05/21/07	**155.0**	**1.0**	**0.0**	**100.0**	**120**	**20**	**74**	**92**	**50,289**	**24**	**12,170**
05/22/07	155.0	1.0	0.0	100.0	120	20	74	92	50,291	24	12,194
05/23/07	**281.0**	**0.0**	**0.0**	**100.0**	**120**	**20**	**68**	**89**	**50,293**	**24**	**12,218**
05/24/07	281.0	0.0	0.0	100.0	120	20	68	89	50,294	24	12,242
05/25/07	281.0	0.0	0.0	100.0	120	20	68	89	50,296	24	12,266
05/26/07	281.0	0.0	0.0	100.0	120	20	68	89	50,298	24	12,290
05/27/07	281.0	0.0	0.0	100.0	120	20	68	89	50,299	24	12,314
05/28/07	281.0	0.0	0.0	100.0	120	20	68	89	50,301	24	12,338
05/29/07	281.0	0.0	0.0	100.0	120	20	68	89	50,303	24	12,362
05/30/07	**50.3**	**25.0**	**1.0**	**96.0**	**120**	**20**	**69**	**95**	**50,303**	**7**	**12,369**
05/31/07	Shut off system due to high vapor concentrations in influent and mid samples.								50,303	0	12,369
06/01/07									50,303	0	12,369
06/02/07									50,303	0	12,369
06/03/07									50,303	0	12,369
06/04/07									50,303	0	12,369
06/05/07									50,303	0	12,369
06/06/07									50,303	0	12,369
06/07/07									50,303	0	12,369
06/08/07									50,303	0	12,369
06/09/07									50,303	0	12,369
06/10/07									50,303	0	12,369
06/11/07									50,303	0	12,369
06/12/07									50,303	0	12,369
06/13/07									50,303	0	12,369
06/14/07									50,303	0	12,369
06/15/07									50,303	0	12,369
06/16/07									50,303	0	12,369
06/17/07									50,303	0	12,369
06/18/07									50,303	0	12,369
06/19/07									50,303	0	12,369
06/20/07									50,303	0	12,369
06/21/07									50,303	0	12,369
06/22/07									50,303	0	12,369
06/23/07									50,303	0	12,369
06/24/07									50,303	0	12,369
06/25/07									50,303	0	12,369
06/26/07									50,303	0	12,369
06/27/07									50,303	0	12,369
06/28/07									50,303	0	12,369
06/29/07									50,303	0	12,369
06/30/07									50,303	0	12,369
07/01/07									50,303	0	12,369
07/02/07									50,303	0	12,369
07/03/07									50,303	0	12,369
07/04/07									50,303	0	12,369
07/05/07									50,303	0	12,369
07/06/07									50,303	0	12,369

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
07/07/07	System down pending optmization.								50,303	0	12,369
07/08/07									50,303	0	12,369
07/09/07									50,303	0	12,369
07/10/07									50,303	0	12,369
07/11/07									50,303	0	12,369
07/12/07									50,303	0	12,369
07/13/07									50,303	0	12,369
07/14/07									50,303	0	12,369
07/15/07									50,303	0	12,369
07/16/07									50,303	0	12,369
07/17/07									50,303	0	12,369
07/18/07									50,303	0	12,369
07/19/07									50,303	0	12,369
07/20/07									50,303	0	12,369
07/21/07									50,303	0	12,369
07/22/07									50,303	0	12,369
07/23/07									50,303	0	12,369
07/24/07									50,303	0	12,369
07/25/07									50,303	0	12,369
07/26/07									50,303	0	12,369
07/27/07									50,303	0	12,369
07/28/07									50,303	0	12,369
07/29/07									50,303	0	12,369
07/30/07									50,303	0	12,369
07/31/07									50,303	0	12,369
08/01/07									50,303	0	12,369
08/02/07									50,303	0	12,369
08/03/07									50,303	0	12,369
08/04/07									50,303	0	12,369
08/05/07									50,303	0	12,369
08/06/07									50,303	0	12,369
08/07/07									50,303	0	12,369
08/08/07									50,303	0	12,369
08/09/07									50,303	0	12,369
08/10/07									50,303	0	12,369
08/11/07									50,303	0	12,369
08/12/07									50,303	0	12,369
08/13/07									50,303	0	12,369
08/14/07									50,303	0	12,369
08/15/07									50,303	0	12,369
08/16/07									50,303	0	12,369
08/17/07									50,303	0	12,369
08/18/07									50,303	0	12,369
08/19/07									50,303	0	12,369
08/20/07									50,303	0	12,369
08/21/07									50,303	0	12,369
08/22/07									50,303	0	12,369
08/23/07									50,303	0	12,369
08/24/07									50,303	0	12,369
08/25/07									50,303	0	12,369
08/26/07									50,303	0	12,369
08/27/07									50,303	0	12,369
08/28/07									50,303	0	12,369
08/29/07									50,303	0	12,369
08/30/07									50,303	0	12,369
08/31/07									50,303	0	12,369
09/01/07									50,303	0	12,369
09/02/07									50,303	0	12,369
09/03/07									50,303	0	12,369
09/04/07									50,303	0	12,369
09/05/07									50,303	0	12,369
09/06/07									50,303	0	12,369
09/07/07									50,303	0	12,369
09/08/07									50,303	0	12,369
09/09/07									50,303	0	12,369
09/10/07									50,303	0	12,369
09/11/07									50,303	0	12,369
09/12/07									50,303	0	12,369
09/13/07									50,303	0	12,369

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
09/14/07	System down pending optmization.								50,303	0	12,369
09/15/07									50,303	0	12,369
09/16/07									50,303	0	12,369
09/17/07									50,303	0	12,369
09/18/07									50,303	0	12,369
09/19/07									50,303	0	12,369
09/20/07									50,303	0	12,369
09/21/07									50,303	0	12,369
09/22/07									50,303	0	12,369
09/23/07									50,303	0	12,369
09/24/07									50,303	0	12,369
09/25/07									50,303	0	12,369
09/26/07									50,303	0	12,369
09/27/07									50,303	0	12,369
09/28/07									50,303	0	12,369
09/29/07									50,303	0	12,369
09/30/07									50,303	0	12,369
10/01/07									50,303	0	12,369
10/02/07									50,303	0	12,369
10/03/07									50,303	0	12,369
10/04/07									50,303	0	12,369
10/05/07									50,303	0	12,369
10/06/07									50,303	0	12,369
10/07/07									50,303	0	12,369
10/08/07									50,303	0	12,369
10/09/07									50,303	0	12,369
10/10/07									50,303	0	12,369
10/11/07									50,303	0	12,369
10/12/07									50,303	0	12,369
10/13/07									50,303	0	12,369
10/14/07									50,303	0	12,369
10/15/07									50,303	0	12,369
10/16/07									50,303	0	12,369
10/17/07									50,303	0	12,369
10/18/07									50,303	0	12,369
10/19/07									50,303	0	12,369
10/20/07									50,303	0	12,369
10/21/07									50,303	0	12,369
10/22/07									50,303	0	12,369
10/23/07									50,303	0	12,369
10/24/07									50,303	0	12,369
10/25/07									50,303	0	12,369
10/26/07									50,303	0	12,369
10/27/07									50,303	0	12,369
10/28/07									50,303	0	12,369
10/29/07									50,303	0	12,369
10/30/07									50,303	0	12,369
10/31/07									50,303	0	12,369
11/01/07									50,303	0	12,369
11/02/07									50,303	0	12,369
11/03/07									50,303	0	12,369
11/04/07									50,303	0	12,369
11/05/07									50,303	0	12,369
11/06/07									50,303	0	12,369
11/07/07									50,303	0	12,369
11/08/07									50,303	0	12,369
11/09/07									50,303	0	12,369
11/10/07									50,303	0	12,369
11/11/07									50,303	0	12,369
11/12/07									50,303	0	12,369
11/13/07									50,303	0	12,369
11/14/07									50,303	0	12,369
11/15/07									50,303	0	12,369
11/16/07									50,303	0	12,369
11/17/07									50,303	0	12,369
11/18/07									50,303	0	12,369
11/19/07									50,303	0	12,369
11/20/07									50,303	0	12,369
11/21/07									50,303	0	12,369

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
11/22/07	System down pending start-up of new catalytic oxidizer SVE system.								50,303	0	12,369
11/23/07									50,303	0	12,369
11/24/07									50,303	0	12,369
11/25/07									50,303	0	12,369
11/26/07									50,303	0	12,369
11/27/07									50,303	0	12,369
11/28/07									50,303	0	12,369
11/29/07									50,303	0	12,369
11/30/07									50,303	0	12,369
12/01/07									50,303	0	12,369
12/02/07									50,303	0	12,369
12/03/07									50,303	0	12,369
12/04/07									50,303	0	12,369
12/05/07	Start-up of new catalytic oxidizer SVE system with SCAQMD Permit-to-Operate No. F93259 on 12/06/2007 .								50,303	0	12,369
12/06/07**	**15.0**	**15**	**1.4**	**90.7**	**75**	**16**	**653**	**642**	**50,304**	**17**	**12,386**
12/07/07	**216.0**	**216**	**9.4**	**95.6**	**84**	**21**	**700**	**698**	**50,304**	**23**	**12,409**
12/08/07	**123.6**	**1,238**	**18.6**	**98.5**	**72**	**26**	**700**	**703**	**50,304**	**24**	**12,433**
12/09/07	**1,433.0**	**1,433**	**17.7**	**98.8**	**70**	**28**	**702**	**703**	**50,305**	**24**	**12,457**
12/10/07	**754.0**	**754**	**29.6**	**96.1**	**60**	**20**	**816**	**844**	**50,305**	**24**	**12,481**
12/11/07	**886.0**	**886**	**9.3**	**99.0**	**80**	**32**	**850**	**867**	**50,305**	**24**	**12,505**
12/12/07	**859.0**	**859**	**11.6**	**98.6**	**64**	**30**	**849**	**872**	**50,306**	**24**	**12,529**
12/13/07	**931.0**	**931**	**13.7**	**98.5**	**62**	**30**	**850**	**879**	**50,306**	**8**	**12,537**
12/14/07	System shut down manually on 12/13/2007 .								50,306	0	12,537
12/15/07									50,306	0	12,537
12/16/07									50,306	0	12,537
12/17/07									50,306	0	12,537
12/18/07									50,306	0	12,537
12/19/07									50,306	0	12,537
12/20/07	**874.0**	**874**	**10.9**	**98.8**	**66**	**32**	**852**	**866**	**50,306**	**17**	**12,554**
12/21/07	874.0	874	10.9	98.8	66	32	852	866	50,306	24	12,578
12/22/07	874.0	874	10.9	98.8	66	32	852	866	50,307	24	12,602
12/23/07	874.0	874	10.9	98.8	66	32	852	866	50,307	24	12,626
12/24/07	874.0	874	10.9	98.8	66	32	852	866	50,307	24	12,650
12/25/07	874.0	874	10.9	98.8	66	32	852	866	50,308	24	12,674
12/26/07	874.0	874	10.9	98.8	66	32	852	866	50,308	24	12,698
12/27/07	**902.0**	**902**	**12.0**	**98.7**	**60**	**30**	**849**	**883**	**50,308**	**12**	**12,710**
12/28/07	System shut down manually on 12/27/2007 .								50,308	0	12,710
12/29/07									50,308	0	12,710
12/30/07									50,308	0	12,710
12/31/07									50,308	0	12,710
01/01/08									50,308	0	12,710
01/02/08									50,308	0	12,710
01/03/08	**912.0**	**912**	**11.6**	**98.7**	**64**	**30**	**851**	**886**	**50,308**	**11**	**12,720**
01/04/08	912.0	912	11.6	98.7	64	30	851	886	50,309	24	12,744
01/05/08	912.0	912	11.6	98.7	64	30	851	886	50,309	24	12,768
01/06/08	912.0	912	11.6	98.7	64	30	851	886	50,309	24	12,792
01/07/08	912.0	912	11.6	98.7	64	30	851	886	50,309	20	12,812
01/08/08	System shut down automatically due to low temperature alarm.								50,309	0	12,812
01/09/08									50,309	0	12,812
01/10/08									50,309	0	12,812
01/11/08									50,309	0	12,812
01/12/08									50,309	0	12,812
01/13/08									50,309	0	12,812
01/14/08									50,309	0	12,812
01/15/08	**898.0**	**898**	**10.4**	**98.8**	**62**	**32**	**804**	**796**	**50,310**	**17**	**12,829**
01/16/08	898.0	898	10.4	98.8	62	32	804	796	50,310	24	12,853
01/17/08	898.0	898	10.4	98.8	62	32	804	796	50,310	24	12,877
01/18/08	898.0	898	10.4	98.8	62	32	804	796	50,311	24	12,901
01/19/08	898.0	898	10.4	98.8	62	32	804	796	50,311	24	12,925
01/20/08	898.0	898	10.4	98.8	62	32	804	796	50,311	24	12,949
01/21/08	898.0	898	10.4	98.8	62	32	804	796	50,311	24	12,973
1/22/08**	**410.0**	**410**	**130.0**	**68.3**	**60**	**32**	**849**	**884**	**50,317**	**16**	**12,989**
01/23/08	System shut down manually on 1/22/2008 for cycling.								50,317	0	12,989
01/24/08									50,317	0	12,989
01/25/08									50,317	0	12,989
01/26/08									50,317	0	12,989
01/27/08									50,317	0	12,989
01/28/08									50,317	0	12,989
01/29/08	**902.0**	**902**	**13.1**	**98.5**	**62**	**32**	**798**	**791**	**50,322**	**15**	**13,004**

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
01/30/08	902.0	902	13.1	98.5	62	32	798	791	50,330	24	13,028
01/31/08	902.0	902	13.1	98.5	62	32	798	791	50,339	24	13,052
02/01/08	902.0	902	13.1	98.5	62	32	798	791	50,347	24	13,076
02/02/08	902.0	902	13.1	98.5	62	32	798	791	50,355	24	13,100
02/03/08	902.0	902	13.1	98.5	62	32	798	791	50,364	24	13,124
02/04/08	902.0	902	13.1	98.5	62	32	798	791	50,372	24	13,148
02/05/08	**973.0**	**973**	**11.2**	**98.8**	**60**	**32**	**837**	**860**	**50,375**	**10**	**13,158**
02/06/08	System shut down manually on 2/05/2008 for cycling.								50,375	0	13,158
02/07/08									50,375	0	13,158
02/08/08									50,375	0	13,158
02/09/08									50,375	0	13,158
02/10/08									50,375	0	13,158
02/11/08									50,375	0	13,158
02/12/08	**962.0**	**962**	**11.6**	**98.8**	**62**	**32**	**815**	**795**	**50,380**	**15**	**13,173**
02/13/08	962.0	962	11.6	98.8	62	32	815	795	50,389	24	13,197
02/14/08	962.0	962	11.6	98.8	62	32	815	795	50,397	24	13,221
02/15/08	962.0	962	11.6	98.8	62	32	815	795	50,405	24	13,245
02/16/08	962.0	962	11.6	98.8	62	32	815	795	50,414	24	13,269
02/17/08	962.0	962	11.6	98.8	62	32	815	795	50,422	24	13,293
02/18/08	962.0	962	11.6	98.8	62	32	815	795	50,430	24	13,317
02/19/08**	**350.0**	**350**	**130.0**	**62.9**	**60**	**32**	**837**	**859**	**50,431**	**4**	**13,321**
02/20/08	System shut down manually due to high concentration in effluent.								50,431	0	13,321
02/21/08									50,431	0	13,321
02/22/08									50,431	0	13,321
02/23/08									50,431	0	13,321
02/24/08									50,431	0	13,321
02/25/08									50,431	0	13,321
02/26/08									50,431	0	13,321
02/27/08									50,431	0	13,321
02/28/08									50,431	0	13,321
02/29/08									50,431	0	13,321
03/01/08	System Off-line to replace catalyst unit.								50,431	0	13,321
03/02/08									50,431	0	13,321
03/03/08									50,431	0	13,321
03/04/08									50,431	0	13,321
03/05/08									50,431	0	13,321
03/06/08									50,431	0	13,321
03/07/08									50,431	0	13,321
03/08/08									50,431	0	13,321
03/09/08									50,431	0	13,321
03/10/08									50,431	0	13,321
03/11/08									50,431	0	13,321
03/12/08									50,431	0	13,321
03/13/08									50,431	0	13,321
03/14/08									50,431	0	13,321
03/15/08									50,431	0	13,321
03/16/08									50,431	0	13,321
03/17/08									50,431	0	13,321
03/18/08									50,431	0	13,321
03/19/08									50,431	0	13,321
03/20/08									50,431	0	13,321
03/21/08									50,431	0	13,321
03/22/08									50,431	0	13,321
03/23/08									50,431	0	13,321
03/24/08									50,431	0	13,321
03/25/08									50,431	0	13,321
03/26/08									50,431	0	13,321
03/27/08									50,431	0	13,321
03/28/08									50,431	0	13,321
03/29/08									50,431	0	13,321
03/30/08									50,431	0	13,321
03/31/08									50,431	0	13,321
04/01/08									50,431	0	13,321
04/02/08									50,431	0	13,321
04/03/08									50,431	0	13,321
04/04/08									50,431	0	13,321
04/05/08									50,431	0	13,321
04/06/08									50,431	0	13,321
04/07/08									50,431	0	13,321

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
04/08/08	System Off-line to replace catalyst unit.								50,431	0	13,321
04/09/08									50,431	0	13,321
04/10/08									50,431	0	13,321
04/11/08									50,431	0	13,321
04/12/08									50,431	0	13,321
04/13/08									50,431	0	13,321
04/14/08									50,431	0	13,321
04/15/08									50,431	0	13,321
04/16/08									50,431	0	13,321
04/17/08									50,431	0	13,321
04/18/08									50,431	0	13,321
04/19/08									50,431	0	13,321
04/20/08									50,431	0	13,321
04/21/08									50,431	0	13,321
04/22/08									50,431	0	13,321
04/23/08									50,431	0	13,321
04/24/08									50,431	0	13,321
04/25/08									50,431	0	13,321
04/26/08									50,431	0	13,321
04/27/08									50,431	0	13,321
04/28/08									50,431	0	13,321
04/29/08									50,431	0	13,321
04/30/08									50,431	0	13,321
05/01/08									50,431	0	13,321
05/02/08									50,431	0	13,321
05/03/08									50,431	0	13,321
05/04/08									50,431	0	13,321
05/05/08									50,431	0	13,321
05/06/08									50,431	0	13,321
05/07/08									50,431	0	13,321
05/08/08									50,431	0	13,321
05/09/08									50,431	0	13,321
05/10/08									50,431	0	13,321
05/11/08									50,431	0	13,321
05/12/08									50,431	0	13,321
05/13/08									50,431	0	13,321
05/14/08									50,431	0	13,321
05/15/08									50,431	0	13,321
05/16/08									50,431	0	13,321
05/17/08									50,431	0	13,321
05/18/08									50,431	0	13,321
05/19/08									50,431	0	13,321
05/20/08									50,431	0	13,321
05/21/08									50,431	0	13,321
05/22/08									50,431	0	13,321
05/23/08									50,431	0	13,321
05/24/08									50,431	0	13,321
05/25/08									50,431	0	13,321
05/26/08									50,431	0	13,321
05/27/08									50,431	0	13,321
05/28/08									50,431	0	13,321
05/29/08									50,431	0	13,321
05/30/08									50,431	0	13,321
05/31/08									50,431	0	13,321
06/01/08									50,431	0	13,321
06/02/08									50,431	0	13,321
06/03/08									50,431	0	13,321
06/04/08									50,431	0	13,321
06/05/08									50,431	0	13,321
06/06/08									50,431	0	13,321
06/07/08									50,431	0	13,321
06/08/08									50,431	0	13,321
06/09/08									50,431	0	13,321
06/10/08									50,431	0	13,321
06/11/08									50,431	0	13,321
06/12/08									50,431	0	13,321
06/13/08									50,431	0	13,321
06/14/08									50,431	0	13,321
06/15/08									50,431	0	13,321

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
06/16/08	System Off-line to replace catalyst unit.								50,431	0	13,321
06/17/08									50,431	0	13,321
06/18/08									50,431	0	13,321
06/19/08									50,431	0	13,321
06/20/08									50,431	0	13,321
06/21/08									50,431	0	13,321
06/22/08									50,431	0	13,321
06/23/08									50,431	0	13,321
06/24/08									50,431	0	13,321
06/25/08									50,431	0	13,321
06/26/08									50,431	0	13,321
06/27/08									50,431	0	13,321
06/28/08									50,431	0	13,321
06/29/08									50,431	0	13,321
06/30/08									50,431	0	13,321
07/01/08									50,431	0	13,321
07/02/08									50,431	0	13,321
07/03/08									50,431	0	13,321
07/04/08									50,431	0	13,321
07/05/08									50,431	0	13,321
07/06/08									50,431	0	13,321
07/07/08									50,431	0	13,321
07/08/08									50,431	0	13,321
07/09/08									50,431	0	13,321
07/10/08									50,431	0	13,321
07/11/08									50,431	0	13,321
07/12/08									50,431	0	13,321
07/13/08									50,431	0	13,321
07/14/08									50,431	0	13,321
07/15/08	System down, Installed KO tank.								**50,431**	**0**	**13,321**
07/16/08									50,431	0	13,321
07/17/08									50,431	0	13,321
07/18/08									50,431	0	13,321
07/19/08									50,431	0	13,321
07/20/08									50,431	0	13,321
07/21/08									50,431	0	13,321
07/22/08	**31.9**	**31.9**	**1.0**	**96.9**	**60**	**10**	**689**	**651**	**50,432**	**14**	**13,335**
07/23/08	31.9	31.9	1.0	96.9	60	10	689	651	50,432	24	13,359
07/24/08	31.9	31.9	1.0	96.9	60	10	689	651	50,433	24	13,383
07/25/08	31.9	31.9	1.0	96.9	60	10	689	651	50,434	24	13,407
07/26/08	31.9	31.9	1.0	96.9	60	10	689	651	50,435	24	13,431
07/27/08	31.9	31.9	1.0	96.9	60	10	689	651	50,435	24	13,455
07/28/08	31.9	31.9	1.0	96.9	60	10	689	651	50,436	24	13,479
07/29/08	**120.0**	**120.0**	**3.9**	**96.8**	**52**	**20**	**851**	**812**	**50,436**	**13**	**13,492**
07/30/08	Shut down the system.								50,436	0	13,492
07/31/08									50,436	0	13,492
08/01/08									50,436	0	13,492
08/02/08									50,436	0	13,492
08/03/08									50,436	0	13,492
08/04/08									50,436	0	13,492
08/05/08	**58.6**	**58.6**	**4.5**	**92.3**	**52**	**20**	**848**	**811**	**50,436**	**15**	**13,507**
08/06/08	58.6	58.6	4.5	92.3	52	20	848	811	50,437	24	13,531
08/07/08	58.6	58.6	4.5	92.3	52	20	848	811	50,437	24	13,555
08/08/08	58.6	58.6	4.5	92.3	52	20	848	811	50,437	24	13,579
08/09/08	58.6	58.6	4.5	92.3	52	20	848	811	50,437	24	13,603
08/10/08	58.6	58.6	4.5	92.3	52	20	848	811	50,438	24	13,627
08/11/08	58.6	58.6	4.5	92.3	52	20	848	811	50,438	24	13,651
08/12/08	**38.6**	**38.6**	**3.9**	**89.9**	**54**	**19**	**850**	**814**	**50,438**	**11**	**13,661**
08/13/08	Completed Weekly O&M, Shut down the system.								50,438	0	13,661
08/14/08									50,438	0	13,661
08/15/08									50,438	0	13,661
08/16/08									50,438	0	13,661
08/17/08									50,438	0	13,661
08/18/08									50,438	0	13,661
08/19/08	**73.4**	**73.4**	**4.2**	**94.3**	**52**	**20**	**850**	**808**	**50,438**	**14**	**13,676**
08/20/08	73.4	73.4	4.2	94.3	52	20	850	808	50,438	24	13,700
08/21/08	73.4	73.4	4.2	94.3	52	20	850	808	50,439	24	13,724
08/22/08	73.4	73.4	4.2	94.3	52	20	850	808	50,439	24	13,748
08/23/08	73.4	73.4	4.2	94.3	52	20	850	808	50,439	24	13,772

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
08/24/08	73.4	73.4	4.2	94.3	52	20	850	808	50,439	24	13,796
08/25/08	73.4	73.4	4.2	94.3	52	20	850	808	50,439	24	13,820
08/26/08	**70.0**	**70.0**	**4.1**	**94.1**	**51**	**19**	**857**	**818**	**50,439**	**8**	**13,828**
08/27/08	Completed Weekly O&M, Shut down the system.								50,439	0	13,828
08/28/08									50,439	0	13,828
08/29/08									50,439	0	13,828
08/30/08									50,439	0	13,828
08/31/08									50,439	0	13,828
09/01/08									50,439	0	13,828
09/02/08	**77.0**	**77.0**	**3.8**	**95.1**	**51**	**18**	**850**	**805**	**50,440**	**15**	**13,843**
09/03/08	77.0	77.0	3.8	95.1	51	18	850	805	50,440	24	13,867
09/04/08	77.0	77.0	3.8	95.1	51	18	850	805	50,440	24	13,891
09/05/08	77.0	77.0	3.8	95.1	51	18	850	805	50,440	24	13,915
09/06/08	77.0	77.0	3.8	95.1	51	18	850	805	50,440	24	13,939
09/07/08	77.0	77.0	3.8	95.1	51	18	850	805	50,441	24	13,963
09/08/08	77.0	77.0	3.8	95.1	51	18	850	805	50,441	24	13,987
09/09/08	77.0	77.0	3.8	95.1	51	18	850	805	50,441	24	14,011
09/10/08	**74.0**	**74.0**	**4.2**	**94.3**	**50**	**19**	**849**	**830**	**50,441**	**11**	**14,022**
09/11/08	Shut down the system.								50,441	0	14,022
09/12/08									50,441	0	14,022
09/13/08									50,441	0	14,022
09/14/08									50,441	0	14,022
09/15/08									50,441	0	14,022
09/16/08	**79.6**	**79.6**	**4.4**	**94.5**	**51**	**19**	**849**	**809**	**50,441**	**14**	**14,037**
09/17/08	79.6	79.6	4.4	94.5	51	19	849	809	50,441	24	14,061
09/18/08	79.6	79.6	4.4	94.5	51	19	849	809	50,441	24	14,085
09/19/08	79.6	79.6	4.4	94.5	51	19	849	809	50,442	24	14,109
09/20/08	79.6	79.6	4.4	94.5	51	19	849	809	50,442	24	14,133
09/21/08	79.6	79.6	4.4	94.5	51	19	849	809	50,442	24	14,157
09/22/08	79.6	79.6	4.4	94.5	51	19	849	809	50,442	24	14,181
09/23/08	**71.4**	**71.4**	**3.2**	**95.5**	**50**	**20**	**850**	**830**	**50,442**	**11**	**14,192**
09/24/08	Shut down the system.								50,442	0	14,192
09/25/08									50,442	0	14,192
09/26/08									50,442	0	14,192
09/27/08									50,442	0	14,192
09/28/08									50,442	0	14,192
09/29/08									50,442	0	14,192
09/30/08	**88.6**	**88.6**	**4.4**	**95.0**	**51**	**19**	**852**	**817**	**50,442**	**16**	**14,208**
10/01/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,232
10/02/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,256
10/03/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,280
10/04/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,304
10/05/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,328
10/06/08	88.6	88.6	4.4	95.0	51	19	852	817	50,443	24	14,352
10/07/08	**71.6**	**71.6**	**3.5**	**95.1**	**50**	**19**	**851**	**815**	**50,444**	**10**	**14,362**
10/08/08	Shut down the system.								50,444	0	14,362
10/09/08									50,444	0	14,362
10/10/08									50,444	0	14,362
10/11/08									50,444	0	14,362
10/12/08									50,444	0	14,362
10/13/08									50,444	0	14,362
10/14/08	**90.3**	**90.3**	**4.8**	**94.7**	**50**	**20**	**850**	**814**	**50,444**	**10**	**14,372**
10/15/08	90.3	90.3	4.8	94.7	50	20	850	814	50,444	24	14,396
10/16/08	90.3	90.3	4.8	94.7	50	20	850	814	50,445	24	14,420
10/17/08	90.3	90.3	4.8	94.7	50	20	850	814	50,445	24	14,444
10/18/08	90.3	90.3	4.8	94.7	50	20	850	814	50,446	24	14,468
10/19/08	90.3	90.3	4.8	94.7	50	20	850	814	50,447	24	14,492
10/20/08	90.3	90.3	4.8	94.7	50	20	850	814	50,447	24	14,516
10/21/08	**68.3**	**68.3**	**5.6**	**91.8**	**48**	**20**	**851**	**819**	**50,447**	**10**	**14,526**
10/22/08	Shut down the system.								50,447	0	14,526
10/23/08									50,447	0	14,526
10/24/08									50,447	0	14,526
10/25/08									50,447	0	14,526
10/26/08									50,447	0	14,526
10/27/08									50,447	0	14,526
10/28/08									50,447	0	14,526
10/29/08	**78.9**	**78.9**	**6.0**	**92.4**	**51**	**19**	**848**	**820**	**50,448**	**14**	**14,541**
10/30/08	78.9	78.9	6.0	92.4	51	19	848	820	50,448	24	14,565
10/31/08	78.9	78.9	6.0	92.4	51	19	848	820	50,449	24	14,589

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
11/01/08	78.9	78.9	6.0	92.4	51	19	848	820	50,449	24	14,613
11/02/08	78.9	78.9	6.0	92.4	51	19	848	820	50,450	24	14,637
11/03/08	78.9	78.9	6.0	92.4	51	19	848	820	50,450	24	14,661
11/04/08	**73.2**	**73.2**	**4.4**	**94.0**	**48**	**19**	**850**	**820**	**50,451**	**16**	**14,677**
11/05/08	Shut down the system.								50,451	0	14,677
11/06/08									50,451	0	14,677
11/07/08									50,451	0	14,677
11/08/08									50,451	0	14,677
11/09/08									50,451	0	14,677
11/10/08									50,451	0	14,677
11/11/08									50,451	0	14,677
11/12/08	**84.3**	**84.3**	**6.4**	**92.4**	**51**	**19**	**848**	**814**	**50,451**	**14**	**14,691**
11/13/08	84.3	84.3	6.4	92.4	51	19	848	814	50,451	24	14,715
11/14/08	84.3	84.3	6.4	92.4	51	19	848	814	**50,451**	**3**	**14,718**
11/15/08	Shut down the system.								50,451	0	14,718
11/16/08									50,451	0	14,718
11/17/08									50,451	0	14,718
11/18/08	Shut down the system and Restarted Compressor for Air Sparge.								**50,451**	**0**	**14,718**
11/19/08									50,451	0	14,718
11/20/08									50,451	0	14,718
11/21/08									50,451	0	14,718
11/22/08									50,451	0	14,718
11/23/08									50,451	0	14,718
11/24/08									50,451	0	14,718
11/25/08	**86.4**	**86.4**	**5.2**	**94.0**	**50**	**20**	**852**	**817**	**50,452**	**16**	**14,733**
11/26/08	86.4	86.4	5.2	94.0	50	20	852	817	50,452	24	14,757
11/27/08	86.4	86.4	5.2	94.0	50	20	852	817	50,453	24	14,781
11/28/08	86.4	86.4	5.2	94.0	50	20	852	817	50,453	24	14,805
11/29/08	86.4	86.4	5.2	94.0	50	20	852	817	50,454	24	14,829
11/30/08	86.4	86.4	5.2	94.0	50	20	852	817	50,454	24	14,853
12/01/08	86.4	86.4	5.2	94.0	50	20	852	817	50,455	24	14,877
12/02/08	**72.1**	**72.1**	**3.2**	**95.6**	**42**	**21**	**849**	**815**	**50,455**	**11**	**14,889**
12/03/08	Shut down the system.								50,455	0	14,889
12/04/08									50,455	0	14,889
12/05/08									50,455	0	14,889
12/06/08									50,455	0	14,889
12/07/08									50,455	0	14,889
12/08/08									50,455	0	14,889
12/09/08	**87.6**	**87.6**	**4.4**	**95.0**	**50**	**21**	**850**	**813**	**50,455**	**16**	**14,904**
12/10/08	87.6	87.6	4.4	95.0	50	21	850	813	50,456	24	14,928
12/11/08	87.6	87.6	4.4	95.0	50	21	850	813	50,457	24	14,952
12/12/08	87.6	87.6	4.4	95.0	50	21	850	813	50,457	24	14,976
12/13/08	87.6	87.6	4.4	95.0	50	21	850	813	50,458	24	15,000
12/14/08	87.6	87.6	4.4	95.0	50	21	850	813	50,458	24	15,024
12/15/08	87.6	87.6	4.4	95.0	50	21	850	813	50,459	24	15,048
12/16/08	**82.0**	**82.0**	**3.2**	**96.1**	**44**	**20**	**860**	**816**	**50,459**	**8**	**15,056**
12/17/08	Shut down the system.								50,459	0	15,056
12/18/08									50,459	0	15,056
12/19/08									50,459	0	15,056
12/20/08									50,459	0	15,056
12/21/08									50,459	0	15,056
12/22/08									50,459	0	15,056
12/23/08	**80.1**	**80.1**	**3.0**	**96.3**	**50**	**20**	**849**	**811**	**50,460**	**14**	**15,070**
12/24/08	80.1	80.1	3.0	96.3	50	20	849	811	50,460	24	15,094
12/25/08	80.1	80.1	3.0	96.3	50	20	849	811	50,461	24	15,118
12/26/08	80.1	80.1	3.0	96.3	50	20	849	811	50,461	24	15,142
12/27/08	80.1	80.1	3.0	96.3	50	20	849	811	50,462	24	15,166
12/28/08	80.1	80.1	3.0	96.3	50	20	849	811	50,463	24	15,190
12/29/08	80.1	80.1	3.0	96.3	50	20	849	811	50,463	24	15,214
12/30/08	**76.3**	**76.3**	**4.1**	**94.6**	**40**	**21**	**852**	**812**	**50,464**	**11**	**15,225**
12/31/08	Shut down the system.								50,464	0	15,225
01/01/09									50,464	0	15,225
01/02/09									50,464	0	15,225
01/03/09									50,464	0	15,225
01/04/09									50,464	0	15,225
01/05/09									50,464	0	15,225
01/06/09	**81.4**	**81.4**	**5.2**	**93.6**	**44**	**20**	**848**	**810**	**50,464**	**10**	**15,235**
01/07/09	81.4	81.4	5.2	93.6	44	20	848	810	50,464	24	15,259
01/08/09	81.4	81.4	5.2	93.6	44	20	848	810	50,464	24	15,283

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
01/09/09	81.4	81.4	5.2	93.6	44	20	848	810	50,465	24	15,307
01/10/09	81.4	81.4	5.2	93.6	44	20	848	810	50,465	24	15,331
01/11/09	81.4	81.4	5.2	93.6	44	20	848	810	50,465	24	15,355
01/12/09	81.4	81.4	5.2	93.6	44	20	848	810	50,466	24	15,379
01/13/09	**62.4**	**62.4**	**3.1**	**95.0**	**42**	**20**	**852**	**813**	**50,466**	**11**	**15,390**
01/14/09	Shut down the system.								50,466	0	15,390
01/15/09									50,466	0	15,390
01/16/09									50,466	0	15,390
01/17/09									50,466	0	15,390
01/18/09									50,466	0	15,390
01/19/09									50,466	0	15,390
01/20/09	**74.5**	**74.5**	**4.7**	**93.7**	**44**	**20**	**849**	**810**	**50,466**	**14**	**15,404**
01/21/09	74.5	74.5	4.7	93.7	44	20	849	810	50,466	24	15,428
01/22/09	74.5	74.5	4.7	93.7	44	20	849	810	50,467	24	15,452
01/23/09	74.5	74.5	4.7	93.7	44	20	849	810	50,467	24	15,476
01/24/09	74.5	74.5	4.7	93.7	44	20	849	810	50,468	24	15,500
01/25/09	74.5	74.5	4.7	93.7	44	20	849	810	50,468	24	15,524
01/26/09	74.5	74.5	4.7	93.7	44	20	849	810	50,468	24	15,548
01/27/09	**62.3**	**62.3**	**3.2**	**94.9**	**42**	**20**	**851**	**818**	**50,468**	**10**	**15,559**
01/28/09	Shut down the system.								50,468	0	15,559
01/29/09									50,468	0	15,559
01/30/09									50,468	0	15,559
01/31/09									50,468	0	15,559
02/01/09									50,468	0	15,559
02/02/09									50,468	0	15,559
02/03/09	**81.3**	**81.3**	**5.2**	**93.6**	**44**	**20**	**846**	**806**	**50,469**	**15**	**15,574**
02/04/09	81.3	81.3	5.2	93.6	44	20	846	806	50,469	24	15,598
02/05/09	81.3	81.3	5.2	93.6	44	20	846	806	50,469	24	15,622
02/06/09	81.3	81.3	5.2	93.6	44	20	846	806	**50,469**	**9**	**15,631**
02/07/09	Shut down the system and Air Sparge Unit For Quarterly Ground Water Event								50,469	0	15,631
02/08/09	(Visit the site but no data collected)								50,469	0	15,631
02/09/09									50,469	0	15,631
02/10/09									50,469	0	15,631
02/11/09									50,469	0	15,631
02/12/09									50,469	0	15,631
02/13/09									50,469	0	15,631
02/14/09									50,469	0	15,631
02/15/09									50,469	0	15,631
02/16/09									50,469	0	15,631
02/17/09									50,469	0	15,631
02/18/09									50,469	0	15,631
02/19/09	Restart Air Sparge System.								**50,469**	**0**	**15,631**
02/20/09									50,469	0	15,631
02/21/09									50,469	0	15,631
02/22/09									50,469	0	15,631
02/23/09									50,469	0	15,631
02/24/09									50,469	0	15,631
02/25/09	System down for Rebound.								**50,469**	**0**	**15,631**
02/26/09									50,469	0	15,631
02/27/09									50,469	0	15,631
02/28/09									50,469	0	15,631
03/01/09									50,469	0	15,631
03/02/09									50,469	0	15,631
03/03/09									50,469	0	15,631
03/04/09									50,469	0	15,631
03/05/09									50,469	0	15,631
03/06/09									50,469	0	15,631
03/07/09									50,469	0	15,631
03/08/09									50,469	0	15,631
03/09/09									50,469	0	15,631
03/10/09									50,469	0	15,631
03/11/09									50,469	0	15,631
03/12/09									50,469	0	15,631
03/13/09									50,469	0	15,631
03/14/09									50,469	0	15,631
03/15/09									50,469	0	15,631
03/16/09									50,469	0	15,631
03/17/09									50,469	0	15,631
03/18/09									50,469	0	15,631

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
03/19/09	System down for Rebound.								50,469	0	15,631
03/20/09									50,469	0	15,631
03/21/09									50,469	0	15,631
03/22/09									50,469	0	15,631
03/23/09									50,469	0	15,631
03/24/09									50,469	0	15,631
03/25/09									50,469	0	15,631
03/26/09									50,469	0	15,631
03/27/09									50,469	0	15,631
03/28/09									50,469	0	15,631
03/29/09									50,469	0	15,631
03/30/09									50,469	0	15,631
03/31/09									50,469	0	15,631
04/01/09									50,469	0	15,631
04/02/09									50,469	0	15,631
04/03/09									50,469	0	15,631
04/04/09									50,469	0	15,631
04/05/09									50,469	0	15,631
04/06/09									50,469	0	15,631
04/07/09									50,469	0	15,631
04/08/09									50,469	0	15,631
04/09/09									50,469	0	15,631
04/10/09									50,469	0	15,631
04/11/09									50,469	0	15,631
04/12/09									50,469	0	15,631
04/13/09									50,469	0	15,631
04/14/09									50,469	0	15,631
04/15/09									50,469	0	15,631
04/16/09									50,469	0	15,631
04/17/09									50,469	0	15,631
04/18/09									50,469	0	15,631
04/19/09									50,469	0	15,631
04/20/09									50,469	0	15,631
04/21/09									50,469	0	15,631
04/22/09									50,469	0	15,631
04/23/09									50,469	0	15,631
04/24/09									50,469	0	15,631
04/25/09									50,469	0	15,631
04/26/09									50,469	0	15,631
04/27/09									50,469	0	15,631
04/28/09									50,469	0	15,631
04/29/09									50,469	0	15,631
04/30/09									50,469	0	15,631
05/01/09									50,469	0	15,631
05/02/09									50,469	0	15,631
05/03/09									50,469	0	15,631
05/04/09									50,469	0	15,631
05/05/09									50,469	0	15,631
05/06/09									50,469	0	15,631
05/07/09									50,469	0	15,631
05/08/09									50,469	0	15,631
05/09/09									50,469	0	15,631
05/10/09									50,469	0	15,631
05/11/09									50,469	0	15,631
05/12/09									50,469	0	15,631
05/13/09									50,469	0	15,631
05/14/09									50,469	0	15,631
05/15/09									50,469	0	15,631
05/16/09									50,469	0	15,631
05/17/09									50,469	0	15,631
05/18/09									50,469	0	15,631
05/19/09									50,469	0	15,631
05/20/09									50,469	0	15,631
05/21/09									50,469	0	15,631
05/22/09									50,469	0	15,631
05/23/09									50,469	0	15,631
05/24/09									50,469	0	15,631
05/25/09									50,469	0	15,631
05/26/09									50,469	0	15,631

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
05/27/09	System down for Rebound.								50,469	0	15,631
05/28/09									50,469	0	15,631
05/29/09									50,469	0	15,631
05/30/09									50,469	0	15,631
05/31/09									50,469	0	15,631
06/01/09									50,469	0	15,631
06/02/09									**50,469**	0	15,631
06/03/09									50,469	0	15,631
06/04/09									50,469	0	15,631
06/05/09									50,469	0	15,631
06/06/09									50,469	0	15,631
06/07/09									50,469	0	15,631
06/08/09									50,469	0	15,631
06/09/09									**50,469**	0	15,631
06/10/09									50,469	0	15,631
06/11/09									50,469	0	15,631
06/12/09									50,469	0	15,631
06/13/09									50,469	0	15,631
06/14/09									50,469	0	15,631
06/15/09									50,469	0	15,631
06/16/09									**50,469**	0	15,631
06/17/09									50,469	0	15,631
06/18/09									50,469	0	15,631
06/19/09									50,469	0	15,631
06/20/09									50,469	0	15,631
06/21/09									50,469	0	15,631
06/22/09									50,469	0	15,631
06/23/09									50,469	0	15,631
06/24/09									50,469	0	15,631
06/25/09									50,469	0	15,631
06/26/09									50,469	0	15,631
06/27/09									50,469	0	15,631
06/28/09									50,469	0	15,631
06/29/09									50,469	0	15,631
06/30/09									50,469	0	15,631
07/01/09									50,469	0	15,631
07/02/09									50,469	0	15,631
07/03/09									50,469	0	15,631
07/04/09									50,469	0	15,631
07/05/09									50,469	0	15,631
07/06/09									50,469	0	15,631
07/07/09									**50,469**	0	15,631
07/08/09									50,469	0	15,631
07/09/09									50,469	0	15,631
07/10/09									50,469	0	15,631
07/11/09									50,469	0	15,631
07/12/09									50,469	0	15,631
07/13/09									50,469	0	15,631
07/14/09									**50,469**	0	15,631
07/15/09									50,469	0	15,631
07/16/09									50,469	0	15,631
07/17/09									50,469	0	15,631
07/18/09									50,469	0	15,631
07/19/09									50,469	0	15,631
07/20/09									50,469	0	15,631
07/21/09									**50,469**	0	15,631
07/22/09									50,469	0	15,631
07/23/09									50,469	0	15,631
07/24/09									50,469	0	15,631
07/25/09									50,469	0	15,631
07/26/09									50,469	0	15,631
07/27/09									50,469	0	15,631
07/28/09									**50,469**	0	15,631
07/29/09									50,469	0	15,631
07/30/09									50,469	0	15,631
07/31/09									50,469	0	15,631
08/01/09									50,469	0	15,631
08/02/09									50,469	0	15,631
08/03/09									50,469	0	15,631

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
08/04/09	System down for Rebound/Groundwater Sampling Event								**50,469**	0	15,631
08/05/09									50,469	0	15,631
08/06/09									50,469	0	15,631
08/07/09									50,469	0	15,631
08/08/09									50,469	0	15,631
08/09/09									50,469	0	15,631
08/10/09									50,469	0	15,631
08/11/09									50,469	0	15,631
08/12/09									50,469	0	15,631
08/13/09									50,469	0	15,631
08/14/09									50,469	0	15,631
08/15/09									50,469	0	15,631
08/16/09									50,469	0	15,631
08/17/09									50,469	0	15,631
08/18/09									50,469	0	15,631
08/19/09									50,469	0	15,631
08/20/09									50,469	0	15,631
08/21/09									50,469	0	15,631
08/22/09									50,469	0	15,631
08/23/09									50,469	0	15,631
08/24/09									50,469	0	15,631
08/25/09									50,469	0	15,631
08/26/09									50,469	0	15,631
08/27/09									50,469	0	15,631
08/28/09									50,469	0	15,631
08/29/09									50,469	0	15,631
08/30/09									50,469	0	15,631
08/31/09									50,469	0	15,631
09/01/09									50,469	0	15,631
09/02/09									50,469	0	15,631
09/03/09									50,469	0	15,631
09/04/09									50,469	0	15,631
09/05/09									50,469	0	15,631
09/06/09									50,469	0	15,631
09/07/09									50,469	0	15,631
09/08/09									50,469	0	15,631
09/09/09									50,469	0	15,631
09/10/09									**50,469**	**2**	**15,633**
09/11/09									50,469	0	15,633
09/12/09									50,469	0	15,633
09/13/09									50,469	0	15,633
09/14/09									50,469	0	15,633
09/15/09									50,469	0	15,633
09/16/09									50,469	0	15,633
09/17/09	**81.3**	**81.3**	**5.2**	**93.6**	**43**	**19**	**842**	**827**	**50,469**	**17**	**15,650**
09/18/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,674
09/19/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,698
09/20/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,722
09/21/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,746
09/22/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,770
09/23/09	81.3	81.3	5.2	93.6	43	19	842	827	50,470	24	15,794
09/24/09	**47.5**	**47.5**	**1.1**	**97.7**	**44**	**19**	**860**	**849**	**50,470**	**24**	**15,818**
09/25/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,842
09/26/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,866
09/27/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,890
09/28/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,914
09/29/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,938
09/30/09	47.5	47.5	1.1	97.7	44	19	860	849	50,471	24	15,962
10/01/09	**70.0**	**70.0**	**1.1**	**98.4**	**43**	**18**	**861**	**849**	**50,471**	**9**	**15,972**
10/02/09	System down for Rebound								50,471	0	15,972
10/03/09									50,471	0	15,972
10/04/09									50,471	0	15,972
10/05/09									50,471	0	15,972
10/06/09									50,471	0	15,972
10/07/09									50,471	0	15,972
10/08/09	**55**	**55**	**1.0**	**98.2**	**42**	**19**	**857**	**842**	**50,471**	**14**	**15,986**
10/09/09	55	55	1.0	**98.2**	42	19	857	842	50,471	24	16,010
10/10/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,034
10/11/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,058

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
10/12/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,082
10/13/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,106
10/14/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,130
10/15/09	55	55	1.0	**98.2**	42	19	857	842	50,472	24	16,154
10/16/09	55	55	1.0	**98.2**	42	19	857	842	50,473	24	16,178
10/17/09	55	55	1.0	**98.2**	42	19	857	842	50,473	24	16,202
10/18/09	55	55	1.0	**98.2**	42	19	857	842	50,473	24	16,226
10/19/09	55	55	1.0	**98.2**	42	19	857	842	50,474	24	16,250
10/20/09	55	55	1.0	**98.2**	42	19	857	842	50,474	24	16,274
10/21/09	55	55	1.0	**98.2**	42	19	857	842	50,474	24	16,298
10/22/09	**260**	**260**	**7.0**	**97.3**	**40**	**21**	**849**	**809**	**50,475**	**10**	**16,308**
10/23/09	System down for Rebound.								50,475	0	16,308
10/24/09									50,475	0	16,308
10/25/09									50,475	0	16,308
10/26/09									50,475	0	16,308
10/27/09									50,475	0	16,308
10/28/09									50,475	0	16,308
10/29/09									50,475	0	16,308
10/30/09									50,475	0	16,308
10/31/09									50,475	0	16,308
11/01/09									50,475	0	16,308
11/02/09									50,475	0	16,308
11/03/09									50,475	0	16,308
11/04/09									50,475	0	16,308
11/05/09									50,475	0	16,308
11/06/09									50,475	0	16,308
11/07/09									50,475	0	16,308
11/08/09									50,475	0	16,308
11/09/09									50,475	0	16,308
11/10/09									50,475	0	16,308
11/11/09									50,475	0	16,308
11/12/09									50,475	0	16,308
11/13/09									50,475	0	16,308
11/14/09									50,475	0	16,308
11/15/09									50,475	0	16,308
11/16/09									50,475	0	16,308
11/17/09									50,475	0	16,308
11/18/09									50,475	0	16,308
11/19/09									50,475	0	16,308
11/20/09									50,475	0	16,308
11/21/09									50,475	0	16,308
11/22/09									50,475	0	16,308
11/23/09									50,475	1	16,309
11/24/09									50,475	0	16,309
11/25/09									50,475	0	16,309
11/26/09									50,475	0	16,309
11/27/09									50,475	0	16,309
11/28/09									50,475	0	16,309
11/29/09									50,475	0	16,309
11/30/09									50,475	0	16,309
12/01/09									50,475	0	16,309
12/02/09									50,475	0	16,309
12/03/09									50,475	0	16,309
12/04/09									50,475	0	16,309
12/05/09									50,475	0	16,309
12/06/09									50,475	0	16,309
12/07/09									50,475	0	16,309
12/08/09									50,475	0	16,309
12/09/09	**201**	**201**	**4.0**	**98.0**	**60**	**20**	**877**	**852**	**50,475**	**15**	**16,324**
12/10/09	201	201	4.0	**98.0**	60	20	877	852	50,475	24	16,348
12/11/09	201	201	4.0	**98.0**	60	20	877	852	50,476	24	16,372
12/12/09	201	201	4.0	**98.0**	60	20	877	852	50,477	24	16,396
12/13/09	201	201	4.0	**98.0**	60	20	877	852	50,477	24	16,420
12/14/09	201	201	4.0	**98.0**	60	20	877	852	50,478	24	16,444
12/15/09	201	201	4.0	**98.0**	60	20	877	852	50,478	24	16,468
12/16/09	201	201	4.0	**98.0**	60	20	877	852	50,479	24	16,492
12/17/09	**137**	**137**	**3.3**	**97.6**	**39**	**21**	**850**	**819**	**50,479**	**11**	**16,503**

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
12/18/09	System down for cycling.								50,479	0	16,503
12/19/09									50,479	0	16,503
12/20/09									50,479	0	16,503
12/21/09									50,479	0	16,503
12/22/09									50,479	0	16,503
12/23/09									50,479	0	16,503
12/24/09									50,479	0	16,503
12/25/09									50,479	0	16,503
12/26/09									50,479	0	16,503
12/27/09									50,479	0	16,503
12/28/09									50,479	0	16,503
12/29/09									50,479	0	16,503
12/30/09									50,479	0	16,503
12/31/09									50,479	0	16,503
01/01/10									50,479	0	16,503
01/02/10									50,479	0	16,503
01/03/10									50,479	0	16,503
01/04/10									50,479	0	16,503
01/05/10									50,479	0	16,503
01/06/10	**90.4**	**90.4**	**2.3**	**97.5**	**39**	**20**	**850**	**792**	**50,480**	**14**	**16,516**
01/07/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,481	24	16,540
01/08/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,482	24	16,564
01/09/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,483	24	16,588
01/10/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,484	24	16,612
01/11/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,485	24	16,636
01/12/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,486	24	16,660
01/13/10	90.4	90.4	2.3	**97.5**	39	20	850	792	50,488	24	16,684
01/14/10	**122**	**122**	**2.0**	**98.4**	**40**	**19**	**850**	**820**	**50,489**	**24**	**16,708**
01/15/10	122	122	2.0	**98.4**	40	19	850	820	50,490	24	16,732
01/16/10	122	122	2.0	**98.4**	40	19	850	820	50,491	24	16,756
01/17/10	122	122	2.0	**98.4**	40	19	850	820	50,492	24	16,780
01/18/10	122	122	2.0	**98.4**	40	19	850	820	50,493	24	16,804
01/19/10	122	122	2.0	**98.4**	40	19	850	820	50,494	24	16,828
01/20/10	122	122	2.0	**98.4**	40	19	850	820	50,495	24	16,852
01/21/10	**168**	**168**	**10.0**	**94.0**	**39**	**20**	**850**	**838**	**50,496**	**11**	**16,863**
01/22/10	System down for two week cycling.								50,496	0	16,863
01/23/10									50,496	0	16,863
01/24/10									50,496	0	16,863
01/25/10									50,496	0	16,863
01/26/10									50,496	0	16,863
01/27/10									50,496	0	16,863
01/28/10									50,496	0	16,863
01/29/10									50,496	0	16,863
01/30/10									50,496	0	16,863
01/31/10									50,496	0	16,863
02/01/10									50,496	0	16,863
02/02/10	**111**	**111**	**6.0**	**94.6**	**39**	**20**	**850**	**786**	**50,497**	**14**	**16,877**
02/03/10	111	111	6.0	94.6	39	20	850	786	50,497	24	16,901
02/04/10	111	111	6.0	94.6	39	20	850	786	50,497	24	16,925
02/05/10	111	111	6.0	94.6	39	20	850	786	50,497	24	16,949
02/06/10	111	111	6.0	94.6	39	20	850	786	50,498	24	16,973
02/07/10	111	111	6.0	94.6	39	20	850	786	50,498	24	16,997
02/08/10	111	111	6.0	94.6	39	20	850	786	50,498	24	17,021
02/09/10	111	111	6.0	94.6	39	20	850	786	50,499	24	17,045
02/10/10	111	111	6.0	94.6	39	20	850	786	50,499	24	17,069
02/11/10	111	111	6.0	94.6	39	20	850	786	50,499	24	17,093
02/12/10	111	111	6.0	94.6	39	20	850	786	50,499	24	17,117
02/13/10	111	111	6.0	94.6	39	20	850	786	50,500	24	17,141
02/14/10	111	111	6.0	94.6	39	20	850	786	50,500	24	17,165
02/15/10	111	111	6.0	94.6	39	20	850	786	50,500	24	17,189
02/16/10	111	111	6.0	94.6	39	20	850	786	50,501	24	17,213
02/17/10	111	111	6.0	94.6	39	20	850	786	50,501	24	17,237
02/18/10	**131**	**131**	**1.0**	**99.2**	**30**	**20**	**851**	**804**	**50,501**	**10**	**17,247**
02/19/10	System down for two week cycling.								50,501	0	17,247
02/20/10									50,501	0	17,247
02/21/10									50,501	0	17,247
02/22/10									50,501	0	17,247
02/23/10									50,501	0	17,247
02/24/10									50,501	0	17,247

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
02/25/10	System down for two week cycling.								50,501	0	17,247
02/26/10									50,501	0	17,247
02/27/10									50,501	0	17,247
02/28/10									50,501	0	17,247
03/01/10									50,501	0	17,247
03/02/10									50,501	0	17,247
03/03/10									50,501	0	17,247
03/04/10									50,501	0	17,247
03/05/10									50,501	0	17,247
03/06/10									50,501	0	17,247
03/07/10									50,501	0	17,247
03/08/10									50,501	0	17,247
03/09/10									50,501	0	17,247
03/10/10	**131**	**131**	**1.0**	**99.2**	**30**	**20**	**851**	**804**	**50,501**	**14**	**17,261**
03/11/10	131	131	1.0	99.2	30	20	851	804	50,502	24	17,285
03/12/10	131	131	1.0	99.2	30	20	851	804	50,503	24	17,309
03/13/10	131	131	1.0	99	30	20	851	804	50,503	24	17,333
03/14/10	131	131	1.0	99	30	20	851	804	50,504	24	17,357
03/15/10	131	131	1.0	99	30	20	851	804	50,504	24	17,381
03/16/10	131	131	1.0	99	30	20	851	804	50,505	24	17,405
03/18/10	131	131	1.0	99	30	20	851	804	50,505	11	17,416
03/19/10	**211**	**211**	**1.0**	**100**	**39**	**21**	**849**	**824**	**50,505**	**11**	**17,427**
03/20/10	211	211	1.0	100	39	21	849	824	50,506	24	17,451
03/21/10	211	211	1.0	100	39	21	849	824	50,507	24	17,475
03/22/10	211	211	1.0	100	39	21	849	824	50,508	24	17,499
03/23/10	211	211	1.0	100	39	21	849	824	50,508	24	17,523
03/24/10	**190**	**190**	**3.0**	**98**	**39**	**21**	**849**	**826**	**50,509**	**14**	**17,536**
03/25/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/26/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/27/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/28/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/29/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/30/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
03/31/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/01/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/02/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/03/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/04/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/05/10	190	190	3.0	98	39	21	849	826	50,509	0	17,536
04/06/10	**161**	**161**	**3.0**	**98**	**39**	**20**	**850**	**782**	**50,510**	**12**	**17,548**
04/07/10	161	161	3.0	98	39	20	850	782	50,512	24	17,572
04/08/10	161	161	3.0	98	39	20	850	782	50,514	24	17,596
04/09/10	161	161	3.0	98	39	20	850	782	50,514	0	17,597
04/10/10	161	161	3.0	98	39	20	850	782	50,514	0	17,597
04/11/10	161	161	3.0	98	39	20	850	782	50,514	0	17,597
04/12/10	161	161	3.0	98	39	20	850	782	50,514	0	17,597
04/13/10	**121**	**121**	**0.0**	**100**	**39**	**21**	**851**	**777**	**50,515**	**15**	**17,612**
04/14/10	121	121	0.0	100	39	21	851	777	50,516	24	17,636
04/15/10	121	121	0.0	100	39	21	851	777	50,518	24	17,660
04/16/10	121	121	0.0	100	39	21	851	777	50,520	24	17,684
04/17/10	121	121	0.0	100	39	21	851	777	50,521	24	17,708
04/18/10	121	121	0.0	100	39	21	851	777	50,523	24	17,732
04/19/10	121	121	0.0	100	39	21	851	777	50,525	24	17,756
04/20/10	121	121	0.0	100	39	21	851	777	50,525	9	17,765
04/21/10	**231**	**231**	**3.1**	**99**	**39**	**20**	**840**	**760**	**50,525**	**1**	**17,765**
04/22/10	System down for two week cycling.								50,525	0	17,765
04/23/10									50,525	0	17,765
04/24/10									50,525	0	17,765
04/25/10									50,525	0	17,765
04/26/10									50,525	0	17,765
04/27/10									**50,525**	**0**	**17,765**
04/28/10									50,525	0	17,765
04/29/10									50,525	0	17,765
04/30/10									50,525	0	17,765
05/01/10									50,525	0	17,765
05/02/10									50,525	0	17,765
05/03/10									50,525	0	17,765
05/04/10	**177**	**177**	**0.0**	**100**	**39**	**20**	**833**	**755**	**50,526**	**16**	**17,781**
05/05/10	177	177	0.0	100	39	20	833	755	50,528	24	17,805

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
05/06/10	177	177	0.0	100	39	20	833	755	50,529	24	17,829
05/07/10	177	177	0.0	100	39	20	833	755	50,531	24	17,853
05/08/10	177	177	0.0	100	39	20	833	755	50,532	24	17,877
05/09/10	177	177	0.0	100	39	20	833	755	50,534	24	17,901
05/10/10	177	177	0.0	100	39	20	833	755	50,535	24	17,925
05/11/10	177	177	0.0	100	39	20	833	755	50,537	24	17,949
05/12/10	177	177	0.0	100	39	20	833	755	50,538	24	17,973
05/13/10	**103**	**103**	**0.0**	**100**	**39**	**20**	**850**	**777**	**50,540**	**18**	**17,991**
05/14/10	103	103	0.0	100	39	20	850	777	50,541	24	18,015
05/15/10	103	103	0.0	100	39	20	850	777	50,543	24	18,039
05/16/10	103	103	0.0	100	39	20	850	777	50,544	24	18,063
05/17/10	103	103	0.0	100	39	20	850	777	50,546	24	18,087
05/18/10	103	103	0.0	100	39	20	850	777	50,547	24	18,111
05/19/10	103	103	0.0	100	39	20	850	777	50,549	24	18,135
05/20/10	**221**	**221**	**2.0**	**99**	**39**	**20**	**849**	**823**	**50,550**	**13**	**18,148**
05/21/10	System down for two week cycling.								50,550	0	18,148
05/22/10									50,550	0	18,148
05/23/10									50,550	0	18,148
05/24/10									50,550	0	18,148
05/25/10									50,550	0	18,148
05/26/10									50,550	0	18,148
05/27/10									50,550	0	18,148
05/28/10									50,550	0	18,148
05/29/10									50,550	0	18,148
05/30/10									50,550	0	18,148
05/31/10									50,550	0	18,148
06/01/10									50,550	0	18,148
06/02/10									50,550	0	18,148
06/03/10									50,550	0	18,148
06/04/10									50,550	**0**	**18,148**
06/05/10									50,550	0	18,148
06/06/10									50,550	0	18,148
06/07/10									50,550	0	18,148
06/08/10									50,550	0	18,148
06/09/10									50,550	0	18,148
06/10/10	**77**	**77**	**0.0**	**100**	**40**	**21**	**827**	**817**	**50,551**	**17**	**18,165**
06/11/10	77	77	0.0	100	40	21	827	817	50,552	24	18,189
06/12/10	77	77	0.0	100	40	21	827	817	50,553	24	18,213
06/13/10	77	77	0.0	100	40	21	827	817	50,555	24	18,237
06/14/10	77	77	0.0	100	40	21	827	817	50,556	24	18,261
06/15/10	77	77	0.0	100	40	21	827	817	50,558	24	18,285
06/16/10	**66**	**66**	**0.0**	**100**	**39**	**20**	**860**	**850**	**50,559**	**23**	**18,308**
06/17/10	66	66	0.0	100	39	20	860	850	50,560	24	18,332
06/18/10	66	66	0.0	100	39	20	860	850	50,562	24	18,356
06/19/10	66	66	0.0	100	39	20	860	850	50,563	24	18,380
06/20/10	66	66	0.0	100	39	20	860	850	50,565	24	18,404
06/21/10	66	66	0.0	100	39	20	860	850	50,566	24	18,428
06/22/10	**240**	**240**	**4.0**	**98**	**39**	**20**	**889**	**828**	**50,567**	**11**	**18,438**
06/23/10	System down for two week cycling.								50,567	0	18,438
06/24/10									50,567	0	18,438
06/25/10									50,567	0	18,438
06/26/10									50,567	0	18,438
06/27/10									50,567	0	18,438
06/28/10									50,567	0	18,438
06/29/10									50,567	0	18,438
06/30/10									50,567	0	18,438
07/01/10									50,567	0	18,438
07/02/10									50,567	0	18,438
07/03/10									50,567	0	18,438
07/04/10									50,567	0	18,438
07/05/10									50,567	0	18,438
07/06/10									50,567	0	18,438
07/07/10									50,567	0	18,438
07/08/10	**163**	**163**	**1.0**	**99**	**39**	**20**	**877**	**820**	**50,568**	**16**	**18,454**
07/09/10	163	163	1.0	99	39	20	877	820	50,569	24	18,478
07/10/10	163	163	1.0	99	39	20	877	820	50,571	24	18,502
07/11/10	163	163	1.0	99	39	20	877	820	50,572	24	18,526
07/12/10	163	163	1.0	99	39	20	877	820	50,574	24	18,550
07/13/10	163	163	1.0	99	39	20	877	820	50,575	24	18,574

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
07/14/10	163	163	1.0	99	39	20	877	820	50,577	24	18,598
07/15/10	**703**	**703**	**2.0**	**100**	**39**	**20**	**849**	**825**	**50,578**	**23**	**18,621**
07/16/10	703	703	2.0	100	39	20	849	825	50,580	24	18,645
07/17/10	703	703	2.0	100	39	20	849	825	50,581	24	18,669
07/18/10	703	703	2.0	100	39	20	849	825	50,583	24	18,693
07/19/10	703	703	2.0	100	39	20	849	825	50,585	24	18,717
07/20/10	**282**	**282**	**2.0**	**99**	**40**	**20**	**850**	**833**	**50,586**	**11**	**18,728**
07/21/10	System down for two week cycling.								50,586	0	18,728
07/22/10									50,586	0	18,728
07/23/10									50,586	0	18,728
07/24/10									50,586	0	18,728
07/25/10									50,586	0	18,728
07/26/10									50,586	0	18,728
07/27/10									**50,586**	**0**	**18,728**
07/28/10									50,586	0	18,728
07/29/10									50,586	0	18,728
07/30/10									50,586	0	18,728
07/31/10									50,586	0	18,728
08/01/10									50,586	0	18,728
08/02/10									50,586	0	18,728
08/03/10									50,586	0	18,728
08/04/10	**320**	**320**	**1.0**	**100**	**40**	**20**	**842**	**820**	**50,587**	**21**	**18,749**
08/05/10	320	320	1.0	100	40	20	842	820	50,590	24	18,773
08/06/10	System down for Groundwater Sampling.								50,590	0	18,774
08/07/10									50,590	0	18,774
08/08/10									50,590	0	18,774
08/09/10									50,590	2	18,776
08/10/10									50,590	0	18,776
08/11/10									50,590	0	18,776
08/12/10									50,590	0	18,776
08/13/10									50,590	0	18,776
08/14/10									50,590	0	18,776
08/15/10									50,590	0	18,776
08/16/10									50,590	0	18,776
08/17/10									50,590	0	18,776
08/18/10									50,590	0	18,776
08/19/10	**222**	**222**	**0**	**100**	**40**	**NM**	**817**	**800**	**50,592**	**23**	**18,799**
08/20/10	222	222	0	100	40	NM	817	800	50,594	24	18,823
08/21/10	222	222	0	100	40	NM	817	800	50,596	24	18,847
08/22/10	222	222	0	100	40	NM	817	800	50,598	24	18,871
08/23/10	222	222	0	100	40	NM	817	800	50,601	24	18,895
08/24/10	222	222	0	100	40	NM	817	800	50,603	24	18,919
08/25/10	**186**	**186**	**1**	**99**	**40**	**NM**	**850**	**821**	**50,605**	**24**	**18,943**
08/26/10	System down for two week cycling.								50,605	0	18,943
08/27/10									50,605	0	18,943
08/28/10									50,605	0	18,943
08/29/10									50,605	0	18,943
08/30/10									50,605	0	18,943
08/31/10									50,605	0	18,943
09/01/10									50,605	0	18,943
09/02/10									**50,605**	**0**	18,943
09/03/10									50,605	0	18,943
09/04/10									50,605	0	18,943
09/05/10									50,605	0	18,943
09/06/10									50,605	0	18,943
09/07/10									50,605	0	18,943
09/08/10	**141**	**141**	**0**	**100**	**40**	**20**	**842**	**810**	**50,605**	**0**	**18,943**
09/09/10	System down for removal and replacement of blower.								50,605	0	18,943
09/10/10									50,605	0	18,943
09/11/10									50,605	0	18,943
09/12/10									50,605	0	18,943
09/13/10									50,605	0	18,943
09/14/10									50,605	0	18,943
09/15/10									50,605	0	18,943
09/16/10									**50,605**	**0**	**18,943**
09/17/10									50,605	0	18,943
09/18/10									50,605	0	18,943
09/19/10									50,605	0	18,943
09/20/10									50,605	0	18,943

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
09/21/10	System down for removal and replacement of blower.								50,605	0	18,943
09/22/10									50,605	0	18,943
09/23/10									50,605	0	18,943
09/24/10									50,605	0	18,943
09/25/10									50,605	0	18,943
09/26/10									50,605	0	18,943
09/27/10									50,605	0	18,943
09/28/10									50,605	0	18,943
09/29/10									50,605	0	18,943
09/30/10									50,605	0	18,943
10/01/10									50,605	0	18,943
10/02/10									50,605	0	18,943
10/03/10									50,605	0	18,943
10/04/10									50,605	0	18,943
10/05/10									50,605	0	18,943
10/06/10									50,605	0	18,943
10/07/10									50,605	0	18,943
10/08/10									**50,605**	**0**	**18,943**
10/09/10									50,605	0	18,943
10/10/10									50,605	0	18,943
10/11/10									50,605	0	18,943
10/12/10									50,605	0	18,943
10/13/10									50,605	0	18,943
10/14/10									50,605	0	18,943
10/15/10									**50,605**	**0**	**18,943**
10/16/10									50,605	0	18,943
10/17/10									50,605	0	18,943
10/18/10									50,605	0	18,943
10/19/10									50,605	0	18,943
10/20/10									50,605	0	18,943
10/21/10									50,605	0	18,943
10/22/10									50,605	0	18,943
10/23/10									50,605	0	18,943
10/24/10									50,605	0	18,943
10/25/10									50,605	0	18,943
10/26/10									50,605	0	18,943
10/27/10									50,605	0	18,943
10/28/10									50,605	0	18,943
10/29/10									**50,605**	**0**	**18,943**
10/30/10									50,605	0	18,943
10/31/10									50,605	0	18,943
11/01/10									50,605	0	18,943
11/02/10									50,605	0	18,943
11/03/10									50,605	0	18,943
11/04/10									50,605	0	18,943
11/05/10									50,605	0	18,943
11/06/10									50,605	0	18,943
11/07/10									50,605	0	18,943
11/08/10									50,605	0	18,943
11/09/10									50,605	0	18,943
11/10/10									50,605	0	18,943
11/11/10									50,605	0	18,943
11/12/10	**222**	**222**	**3**	**99**	**40**	**NM**	**821**	**805**	**50,606**	**18**	**18,961**
11/13/10	222	222	3	99	40	NM	821	805	50,608	24	18,985
11/14/10	222	222	3	99	40	NM	821	805	50,610	24	19,009
11/15/10	222	222	3	99	40	NM	821	805	50,612	24	19,033
11/16/10	222	222	3	99	40	NM	821	805	50,614	24	19,057
11/17/10	222	222	3	99	40	NM	821	805	50,616	24	19,081
11/18/10	222	222	3	99	40	NM	821	805	50,618	24	19,105
11/19/10	**245**	**245**	**3**	**99**	**48**	**26**	**850**	**833**	**50,620**	**22**	**19,127**
11/20/10	245	245	3	99	48	26	850	833	50,623	24	19,151
11/21/10	245	245	3	99	48	26	850	833	50,625	24	19,175
11/22/10	245	245	3	99	48	26	850	833	50,627	24	19,199
11/23/10	**346**	**346**	**1**	**100**	**50**	**30**	**850**	**844**	**50,628**	**6**	**19,205**
11/24/10	System down for two week cycling.								50,628	0	19,205
11/25/10									50,628	0	19,205
11/26/10									50,628	0	19,205
11/27/10									50,628	0	19,205
11/28/10									50,628	0	19,205

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
11/29/10	System down for two week cycling.								50,628	0	19,205
11/30/10									50,628	0	19,205
12/01/10									50,628	0	19,205
12/02/10									50,628	0	19,205
12/03/10									50,628	0	19,205
12/04/10									50,628	0	19,205
12/05/10									50,628	0	19,205
12/06/10	**245**	**245**	**0**	**100**	**55**	**30**	**810**	**801**	**50,629**	**18**	**19,223**
12/07/10	245	245	0	100	55	30	810	801	50,632	24	19,247
12/08/10	245	245	0	100	55	30	810	801	50,634	24	19,271
12/09/10	245	245	0	100	55	30	810	801	50,636	24	19,295
12/10/10	245	245	0	100	55	30	810	801	50,638	24	19,319
12/11/10	245	245	0	100	55	30	810	801	50,640	24	19,343
12/12/10	245	245	0	100	55	30	810	801	50,642	24	19,367
12/13/10	245	245	0	100	55	30	810	801	50,645	24	19,391
12/14/10	245	245	0	100	55	30	810	801	50,647	24	19,415
12/15/10	**211**	**211**	**0**	**100**	**50**	**30**	**857**	**850**	**50,648**	**20**	**19,434**
12/16/10	211	211	0	100	50	30	857	850	50,650	24	19,458
12/17/10	211	211	0	100	50	30	857	850	50,652	24	19,482
12/18/10	211	211	0	100	50	30	857	850	50,654	24	19,506
12/19/10	211	211	0	100	50	30	857	850	50,656	24	19,530
12/20/10	211	211	0	100	50	30	857	850	50,658	24	19,554
12/21/10	**176**	**176**	**0**	**100**	**50**	**30**	**867**	**860**	**50,660**	**11**	**19,566**
12/22/10	System down for two week cycling.								50,660	0	19,566
12/23/10									50,660	0	19,566
12/24/10									50,660	0	19,566
12/25/10									50,660	0	19,566
12/26/10									50,660	0	19,566
12/27/10									50,660	0	19,566
12/28/10									50,660	0	19,566
12/29/10									50,660	0	19,566
12/30/10									50,660	0	19,566
12/31/10									50,660	0	19,566
01/01/11									50,660	0	19,566
01/02/11									50,660	0	19,566
01/03/11									50,660	0	19,566
01/04/11	**100**	**100**	**0**	**100**	**50**	**30**	**786**	**751**	**50,661**	**15**	**19,581**
01/05/11	100	100	0	100	50	30	786	751	50,665	24	19,605
01/06/11	100	100	0	100	50	30	786	751	50,668	24	19,629
01/07/11	100	100	0	100	50	30	786	751	50,671	24	19,653
01/08/11	100	100	0	100	50	30	786	751	50,674	24	19,677
01/09/11	100	100	0	100	50	30	786	751	50,677	24	19,701
01/10/11	100	100	0	100	50	30	786	751	50,680	24	19,725
01/11/11	100	100	0	100	50	30	786	751	50,683	24	19,749
01/12/11	100	100	0	100	50	30	786	751	50,686	24	19,773
01/13/11	**181**	**181**	**0**	**100**	**50**	**30**	**866**	**898**	**50,690**	**27**	**19,799**
01/14/11	181	181	0	100	50	30	866	898	50,693	24	19,823
01/15/11	181	181	0	100	50	30	866	898	50,696	24	19,847
01/16/11	181	181	0	100	50	30	866	898	50,699	24	19,871
01/17/11	181	181	0	100	50	30	866	898	50,702	24	19,895
01/18/11	181	181	0	100	50	30	866	898	50,705	24	19,919
01/19/11	181	181	0	100	50	30	866	898	50,708	24	19,943
01/20/11	181	181	0	100	50	30	866	898	50,711	24	19,967
01/21/11	**143**	**143**	**0**	**100**	**50**	**30**	**873**	**850**	**50,713**	**6**	**19,973**
01/22/11	System down for two week cycling.								50,713	0	19,973
01/23/11									50,713	0	19,973
01/24/11									50,713	0	19,973
01/25/11									50,713	0	19,973
01/26/11	Onsite to check on system.								**50,713**	**0**	**19,973**
01/27/11									50,713	0	19,973
01/28/11									50,713	0	19,973
01/29/11									50,713	0	19,973
01/30/11									50,713	0	19,973
01/31/11									50,713	0	19,973
02/01/11									50,713	0	19,973
02/02/11									50,713	0	19,973
02/03/11	Onsite to check on system.								**50,713**	**0**	**19,973**
02/04/11									50,713	0	19,973
02/05/11									50,713	0	19,973

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
02/06/11	System down for two week cycling.								50,713	0	19,973
02/07/11									50,713	0	19,973
02/08/11									50,713	0	19,973
02/09/11									50,713	0	19,973
02/10/11	**101**	**101**	**0**	**100**	**50**	**30**	**850**	**833**	**50,715**	**14**	**19,987**
02/11/11	101	101	0	100	50	30	850	833	50,720	24	20,011
02/12/11	101	101	0	100	50	30	850	833	50,724	24	20,035
02/13/11	101	101	0	100	50	30	850	833	50,728	24	20,059
02/14/11	101	101	0	100	50	30	850	833	50,733	24	20,083
02/15/11	101	101	0	100	50	30	850	833	50,737	24	20,107
02/16/11	**198**	**198**	**0**	**100**	**50**	**30**	**882**	**850**	**50,741**	**22**	**20,129**
02/17/11	198	198	0	100	50	30	882	850	50,746	24	20,153
02/18/11	198	198	0	100	50	30	882	850	50,747	9	20,162
02/19/11	System down for unknown reasons.								50,747	0	20,162
02/20/11									50,747	0	20,162
02/21/11									50,747	0	20,162
02/22/11	**221**	**221**	**0**	**100**	**60**	**30**	**820**	**801**	**50,747**	**2**	**20,163**
02/23/11	System down for one week cycling.								50,747	0	20,163
02/24/11									50,747	0	20,163
02/25/11									50,747	0	20,163
02/26/11									50,747	0	20,163
02/27/11									50,747	0	20,163
02/28/11									50,747	0	20,163
03/01/11									50,747	0	20,163
03/02/11	**170**	**170**	**0**	**100**	**60**	**30**	**815**	**801**	**50,747**	**1**	**20,164**
03/03/11	Scheduled power outage by Southern California Edison.								50,747	0	20,164
03/04/11									50,747	0	20,164
03/05/11									50,747	0	20,164
03/06/11									50,747	0	20,164
03/07/11	**101**	**101**	**0**	**100**	**60**	**30**	**833**	**820**	**50,748**	**15**	**20,179**
03/08/11	Possible power outage cause system to shut off.								50,748	0	20,179
03/09/11									50,748	0	20,179
03/10/11									50,748	0	20,179
03/11/11									50,748	0	20,179
03/12/11									50,748	0	20,179
03/13/11									50,748	0	20,179
03/14/11									50,748	0	20,179
03/15/11									50,748	0	20,179
03/16/11									50,748	0	20,179
03/17/11	**98**	**98**	**0**	**100**	**30**	**15**	**660**	**650**	**50,748**	**17**	**20,196**
03/18/11	98	98	0	100	30	15	660	650	50,748	24	20,220
03/19/11	98	98	0	100	30	15	660	650	50,748	24	20,244
03/20/11	98	98	0	100	30	15	660	650	50,748	24	20,268
03/21/11	98	98	0	100	30	15	660	650	50,749	24	20,292
03/22/11	98	98	0	100	30	15	660	650	50,749	24	20,316
03/23/11	**90**	**90**	**0**	**100**	**40**	**30**	**757**	**769**	**50,750**	**18**	**20,334**
03/24/11	System down for two week cycling.								50,750	0	20,334
03/25/11									50,750	0	20,334
03/26/11									50,750	0	20,334
03/27/11									50,750	0	20,334
03/28/11									50,750	0	20,334
03/29/11									50,750	0	20,334
03/30/11									50,750	0	20,334
03/31/11									50,750	0	20,334
04/01/11									50,750	0	20,334
04/02/11									50,750	0	20,334
04/03/11									50,750	0	20,334
04/04/11	Onsite to check on system.								**50,750**	**0**	**20,334**
04/05/11									50,750	0	20,334
04/06/11									50,750	0	20,334
04/07/11									50,750	0	20,334
04/08/11									50,750	0	20,334
04/09/11									50,750	0	20,334
04/10/11									50,750	0	20,334
04/11/11									50,750	0	20,334
04/12/11									50,750	0	20,334
04/13/11									50,750	0	20,334
04/14/11									50,750	0	20,334
04/15/11	**42**	**42**	**0**	**100**	**30**	**20**	**655**	**666**	**50,750**	**16**	**20,350**

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
04/16/11	42	42	0	100	30	20	655	666	50,750	6	20,356
04/17/11	System down; possible power outage.								50,750	0	20,356
04/18/11									50,750	0	20,356
04/19/11	**40**	**40**	**0**	**100**	**30**	**25**	**660**	**665**	**50,751**	**17**	**20,373**
04/20/11	40	40	0	100	30	25	660	665	50,751	24	20,397
04/21/11	40	40	0	100	30	25	660	665	50,751	24	20,421
04/22/11	40	40	0	100	30	25	660	665	50,751	24	20,445
04/23/11	40	40	0	100	30	25	660	665	50,752	24	20,469
04/24/11	40	40	0	100	30	25	660	665	50,752	24	20,493
04/25/11	40	40	0	100	30	25	660	665	50,752	24	20,517
04/26/11	40	40	0	100	30	25	660	665	50,752	24	20,541
04/27/11	**59**	**59**	**0**	**100**	**45**	**25**	**777**	**740**	**50,752**	**11**	**20,552**
04/28/11	System shut down due to low concentrations.								50,752	0	20,552
04/29/11									50,752	0	20,552
04/30/11									50,752	0	20,552
05/01/11									50,752	0	20,552
05/02/11									50,752	0	20,552
05/03/11									50,752	0	20,552
05/04/11									50,752	0	20,552
05/05/11									50,752	0	20,552
05/06/11									50,752	0	20,552
05/07/11									50,752	0	20,552
05/08/11									50,752	0	20,552
05/09/11									50,752	0	20,552
05/10/11									50,752	0	20,552
05/11/11									50,752	0	20,552
05/12/11									50,752	0	20,552
05/13/11									50,752	0	20,552
05/14/11									50,752	0	20,552
05/15/11									50,752	0	20,552
05/16/11									50,752	0	20,552
05/17/11									50,752	0	20,552
05/18/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
05/19/11									50,752	0	20,552
05/20/11									50,752	0	20,552
05/21/11									50,752	0	20,552
05/22/11									50,752	0	20,552
05/23/11									50,752	0	20,552
05/24/11									50,752	0	20,552
05/25/11									50,752	0	20,552
05/26/11									50,752	0	20,552
05/27/11									50,752	0	20,552
05/28/11									50,752	0	20,552
05/29/11									50,752	0	20,552
05/30/11									50,752	0	20,552
05/31/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
06/01/11									50,752	0	20,552
06/02/11									50,752	0	20,552
06/03/11									50,752	0	20,552
06/04/11									50,752	0	20,552
06/05/11									50,752	0	20,552
06/06/11									50,752	0	20,552
06/07/11									50,752	0	20,552
06/08/11									50,752	0	20,552
06/09/11									50,752	0	20,552
06/10/11									50,752	0	20,552
06/11/11									50,752	0	20,552
06/12/11									50,752	0	20,552
06/13/11									50,752	0	20,552
06/14/11									50,752	0	20,552
06/15/11									50,752	0	20,552
06/16/11									50,752	0	20,552
06/17/11									50,752	0	20,552
06/18/11									50,752	0	20,552
06/19/11									50,752	0	20,552
06/20/11									50,752	0	20,552
06/21/11									50,752	0	20,552
06/22/11									50,752	0	20,552
06/23/11									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
06/24/11	System shut down due to low concentrations.								50,752	0	20,552
06/25/11									50,752	0	20,552
06/26/11									50,752	0	20,552
06/27/11									50,752	0	20,552
06/28/11									50,752	0	20,552
06/29/11									50,752	0	20,552
06/30/11									50,752	0	20,552
07/01/11									50,752	0	20,552
07/02/11									50,752	0	20,552
07/03/11									50,752	0	20,552
07/04/11									50,752	0	20,552
07/05/11									50,752	0	20,552
07/06/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
07/07/11									50,752	0	20,552
07/08/11									50,752	0	20,552
07/09/11									50,752	0	20,552
07/10/11									50,752	0	20,552
07/11/11									50,752	0	20,552
07/12/11									50,752	0	20,552
07/13/11									50,752	0	20,552
07/14/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
07/15/11									50,752	0	20,552
07/16/11									50,752	0	20,552
07/17/11									50,752	0	20,552
07/18/11									50,752	0	20,552
07/19/11	On site to check system.								**50,752**	**0**	**20,552**
07/20/11									50,752	0	20,552
07/21/11									50,752	0	20,552
07/22/11									50,752	0	20,552
07/23/11									50,752	0	20,552
07/24/11									50,752	0	20,552
07/25/11									50,752	0	20,552
07/26/11									50,752	0	20,552
07/27/11									50,752	0	20,552
07/28/11									50,752	0	20,552
07/29/11									50,752	0	20,552
07/30/11									50,752	0	20,552
07/31/11									50,752	0	20,552
08/01/11									50,752	0	20,552
08/02/11									50,752	0	20,552
08/03/11									50,752	0	20,552
08/04/11									50,752	0	20,552
08/05/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
08/06/11									50,752	0	20,552
08/07/11									50,752	0	20,552
08/08/11									50,752	0	20,552
08/09/11									50,752	0	20,552
08/10/11									50,752	0	20,552
08/11/11									50,752	0	20,552
08/12/11									50,752	0	20,552
08/13/11									50,752	0	20,552
08/14/11									50,752	0	20,552
08/15/11									50,752	0	20,552
08/16/11									50,752	0	20,552
08/17/11									50,752	0	20,552
08/18/11									50,752	0	20,552
08/19/11									50,752	0	20,552
08/20/11									50,752	0	20,552
08/21/11									50,752	0	20,552
08/22/11									50,752	0	20,552
08/23/11	On site to check/bump start system.								**50,752**	**0**	**20,552**
08/24/11									50,752	0	20,552
08/25/11									50,752	0	20,552
08/26/11									50,752	0	20,552
08/27/11									50,752	0	20,552
08/28/11									50,752	0	20,552
08/29/11									50,752	0	20,552
08/30/11									50,752	0	20,552
08/31/11									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
09/01/11	System shut down due to low concentrations.								50,752	0	20,552
09/02/11									50,752	0	20,552
09/03/11									50,752	0	20,552
09/04/11									50,752	0	20,552
09/05/11									50,752	0	20,552
09/06/11									50,752	0	20,552
09/07/11									50,752	0	20,552
09/08/11									50,752	0	20,552
09/09/11									50,752	0	20,552
09/10/11									50,752	0	20,552
09/11/11									50,752	0	20,552
09/12/11									50,752	0	20,552
09/13/11									50,752	0	20,552
09/14/11									50,752	0	20,552
09/15/11									50,752	0	20,552
09/16/11									50,752	0	20,552
09/17/11									50,752	0	20,552
09/18/11									50,752	0	20,552
09/19/11									50,752	0	20,552
09/20/11									50,752	0	20,552
09/21/11									50,752	0	20,552
09/22/11									50,752	0	20,552
09/23/11									50,752	0	20,552
09/24/11									50,752	0	20,552
09/25/11									50,752	0	20,552
09/26/11									50,752	0	20,552
09/27/11									50,752	0	20,552
09/28/11									50,752	0	20,552
09/29/11									50,752	0	20,552
09/30/11	On site to check system.								**50,752**	**0**	**20,552**
10/01/11									50,752	0	20,552
10/02/11									50,752	0	20,552
10/03/11									50,752	0	20,552
10/04/11									50,752	0	20,552
10/05/11									50,752	0	20,552
10/06/11									50,752	0	20,552
10/07/11									50,752	0	20,552
10/08/11									50,752	0	20,552
10/09/11									50,752	0	20,552
10/10/11									50,752	0	20,552
10/11/11									50,752	0	20,552
10/12/11									50,752	0	20,552
10/13/11	On site to check system.								**50,752**	**0**	**20,552**
10/14/11									50,752	0	20,552
10/15/11									50,752	0	20,552
10/16/11									50,752	0	20,552
10/17/11									50,752	0	20,552
10/18/11									50,752	0	20,552
10/19/11									50,752	0	20,552
10/20/11									50,752	0	20,552
10/21/11									50,752	0	20,552
10/22/11									50,752	0	20,552
10/23/11									50,752	0	20,552
10/24/11									50,752	0	20,552
10/25/11	On site to check system.								**50,752**	**0**	**20,552**
10/26/11									50,752	0	20,552
10/27/11									50,752	0	20,552
10/28/11									50,752	0	20,552
10/29/11									50,752	0	20,552
10/30/11									50,752	0	20,552
10/31/11									50,752	0	20,552
11/01/11	On site to check system.								**50,752**	**0**	**20,552**
11/02/11									50,752	0	20,552
11/03/11									50,752	0	20,552
11/04/11									50,752	0	20,552
11/05/11									50,752	0	20,552
11/06/11									50,752	0	20,552
11/07/11									50,752	0	20,552
11/08/11									**50,752**	**0**	**20,552**

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
11/09/11	System shut down due to low concentrations.								50,752	0	20,552
11/10/11									50,752	0	20,552
11/11/11									50,752	0	20,552
11/12/11									50,752	0	20,552
11/13/11									50,752	0	20,552
11/14/11									50,752	0	20,552
11/15/11	On site to check system.								**50,752**	**0**	**20,552**
11/16/11									50,752	0	20,552
11/17/11									50,752	0	20,552
11/18/11									50,752	0	20,552
11/19/11									50,752	0	20,552
11/20/11									50,752	0	20,552
11/21/11									50,752	0	20,552
11/22/11	On site to check system.								**50,752**	**0**	**20,552**
11/23/11									50,752	0	20,552
11/24/11									50,752	0	20,552
11/25/11									50,752	0	20,552
11/26/11									50,752	0	20,552
11/27/11									50,752	0	20,552
11/28/11									50,752	0	20,552
11/29/11									50,752	0	20,552
11/30/11									50,752	0	20,552
12/01/11									50,752	0	20,552
12/02/11									50,752	0	20,552
12/03/11									50,752	0	20,552
12/04/11									50,752	0	20,552
12/05/11									50,752	0	20,552
12/06/11									50,752	0	20,552
12/07/11									50,752	0	20,552
12/08/11									50,752	0	20,552
12/09/11									50,752	0	20,552
12/10/11									50,752	0	20,552
12/11/11									50,752	0	20,552
12/12/11	On site to check system.								**50,752**	**0**	**20,552**
12/13/11									50,752	0	20,552
12/14/11									50,752	0	20,552
12/15/11									50,752	0	20,552
12/16/11									50,752	0	20,552
12/17/11									50,752	0	20,552
12/18/11									50,752	0	20,552
12/19/11									50,752	0	20,552
12/20/11									50,752	0	20,552
12/21/11									50,752	0	20,552
12/22/11									50,752	0	20,552
12/23/11									50,752	0	20,552
12/24/11									50,752	0	20,552
12/25/11									50,752	0	20,552
12/26/11									50,752	0	20,552
12/27/11									50,752	0	20,552
12/28/11	On site to check system.								**50,752**	**0**	**20,552**
12/29/11									50,752	0	20,552
12/30/11									50,752	0	20,552
12/31/11									50,752	0	20,552
01/01/12									50,752	0	20,552
01/02/12									50,752	0	20,552
01/03/12									50,752	0	20,552
01/04/12									50,752	0	20,552
01/05/12									50,752	0	20,552
01/06/12	On site to check system.								**50,752**	**0**	**20,552**
01/07/12									50,752	0	20,552
01/08/12									50,752	0	20,552
01/09/12									50,752	0	20,552
01/10/12									50,752	0	20,552
01/11/12									50,752	0	20,552
01/12/12									50,752	0	20,552
01/13/12									50,752	0	20,552
01/14/12									50,752	0	20,552
01/15/12									50,752	0	20,552
01/16/12									50,752	0	20,552
01/17/12									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
01/18/12	System shut down due to low concentrations.								**50,752**	**0**	**20,552**
01/19/12									50,752	0	20,552
01/20/12									50,752	0	20,552
01/21/12									50,752	0	20,552
01/22/12									50,752	0	20,552
01/23/12									50,752	0	20,552
01/24/12	On site to check system.								**50,752**	**0**	**20,552**
01/25/12									50,752	0	20,552
01/26/12									50,752	0	20,552
01/27/12									50,752	0	20,552
01/28/12									50,752	0	20,552
01/29/12									50,752	0	20,552
01/30/12									50,752	0	20,552
01/31/12									50,752	0	20,552
02/01/12	On site to check system.								**50,752**	**0**	**20,552**
02/02/12									50,752	0	20,552
02/03/12									50,752	0	20,552
02/04/12									50,752	0	20,552
02/05/12									50,752	0	20,552
02/06/12									50,752	0	20,552
02/07/12									50,752	0	20,552
02/08/12									50,752	0	20,552
02/09/12									50,752	0	20,552
02/10/12									50,752	0	20,552
02/11/12									50,752	0	20,552
02/12/12									50,752	0	20,552
02/13/12									50,752	0	20,552
02/14/12									50,752	0	20,552
02/15/12									50,752	0	20,552
02/16/12									50,752	0	20,552
02/17/12									50,752	0	20,552
02/18/12									50,752	0	20,552
02/19/12									50,752	0	20,552
02/20/12									50,752	0	20,552
02/21/12									50,752	0	20,552
02/22/12									50,752	0	20,552
02/23/12									50,752	0	20,552
02/24/12									50,752	0	20,552
02/25/12									50,752	0	20,552
02/26/12									50,752	0	20,552
02/27/12									50,752	0	20,552
02/28/12									50,752	0	20,552
02/29/12									50,752	0	20,552
03/01/12	On site to check system.								**50,752**	**0**	**20,552**
03/02/12									50,752	0	20,552
03/03/12									50,752	0	20,552
03/04/12									50,752	0	20,552
03/05/12									50,752	0	20,552
03/06/12	On site to check system.								**50,752**	**0**	**20,552**
03/07/12									50,752	0	20,552
03/08/12									50,752	0	20,552
03/09/12									50,752	0	20,552
03/10/12									50,752	0	20,552
03/11/12									50,752	0	20,552
03/12/12									50,752	0	20,552
03/13/12									50,752	0	20,552
03/14/12									50,752	0	20,552
03/15/12									50,752	0	20,552
03/16/12									50,752	0	20,552
03/17/12									50,752	0	20,552
03/18/12									50,752	0	20,552
03/19/12									50,752	0	20,552
03/20/12									50,752	0	20,552
03/21/12									50,752	0	20,552
03/22/12	On site to check system.								**50,752**	**0**	**20,552**
03/23/12									50,752	0	20,552
03/24/12									50,752	0	20,552
03/25/12									50,752	0	20,552
03/26/12									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
03/27/12	System shut down due to low concentrations.								50,752	0	20,552
03/28/12									50,752	0	20,552
03/29/12									50,752	0	20,552
03/30/12									50,752	0	20,552
03/31/12									50,752	0	20,552
04/01/12									50,752	0	20,552
04/02/12									50,752	0	20,552
04/03/12									50,752	0	20,552
04/04/12									50,752	0	20,552
04/05/12									50,752	0	20,552
04/06/12									50,752	0	20,552
04/07/12									50,752	0	20,552
04/08/12									50,752	0	20,552
04/09/12									50,752	0	20,552
04/10/12									50,752	0	20,552
04/11/12									50,752	0	20,552
04/12/12									50,752	0	20,552
04/13/12									50,752	0	20,552
04/14/12									50,752	0	20,552
04/15/12									50,752	0	20,552
04/16/12									50,752	0	20,552
04/17/12									50,752	0	20,552
04/18/12									50,752	0	20,552
04/19/12									50,752	0	20,552
04/20/12									50,752	0	20,552
04/21/12									50,752	0	20,552
04/22/12									50,752	0	20,552
04/23/12									50,752	0	20,552
04/24/12									50,752	0	20,552
04/25/12	On site to check system.								**50,752**	**0**	**20,552**
04/26/12									50,752	0	20,552
04/27/12									50,752	0	20,552
04/28/12									50,752	0	20,552
04/29/12									50,752	0	20,552
04/30/12									50,752	0	20,552
05/01/12									50,752	0	20,552
05/02/12									50,752	0	20,552
05/03/12									50,752	0	20,552
05/04/12									50,752	0	20,552
05/05/12									50,752	0	20,552
05/06/12									50,752	0	20,552
05/07/12	On site to check system.								**50,752**	**0**	**20,552**
05/08/12									50,752	0	20,552
05/09/12									50,752	0	20,552
05/10/12									50,752	0	20,552
05/11/12									50,752	0	20,552
05/12/12									50,752	0	20,552
05/13/12									50,752	0	20,552
05/14/12									50,752	0	20,552
05/15/12									50,752	0	20,552
05/16/12									50,752	0	20,552
05/17/12									50,752	0	20,552
05/18/12									50,752	0	20,552
05/19/12									50,752	0	20,552
05/20/12									50,752	0	20,552
05/21/12									50,752	0	20,552
05/22/12	On site to check system.								**50,752**	**0**	**20,552**
05/23/12									50,752	0	20,552
05/24/12									50,752	0	20,552
05/25/12									50,752	0	20,552
05/26/12									50,752	0	20,552
05/27/12									50,752	0	20,552
05/28/12									50,752	0	20,552
05/29/12									50,752	0	20,552
05/30/12	On site to check system.								**50,752**	**0**	**20,552**
05/31/12									50,752	0	20,552
06/01/12									50,752	0	20,552
06/02/12									50,752	0	20,552
06/03/12									50,752	0	20,552
06/04/12									50,752	0	20,552
06/05/12									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
06/06/12	System shut down due to low concentrations.								50,752	0	20,552
06/07/12									50,752	0	20,552
06/08/12									50,752	0	20,552
06/09/12									50,752	0	20,552
06/10/12									50,752	0	20,552
06/11/12									50,752	0	20,552
06/12/12									50,752	0	20,552
06/13/12									50,752	0	20,552
06/14/12									50,752	0	20,552
06/15/12									50,752	0	20,552
06/16/12									50,752	0	20,552
06/17/12									50,752	0	20,552
06/18/12									50,752	0	20,552
06/19/12									50,752	0	20,552
06/20/12									50,752	0	20,552
06/21/12									50,752	0	20,552
06/22/12									50,752	0	20,552
06/23/12									50,752	0	20,552
06/24/12									50,752	0	20,552
06/25/12									50,752	0	20,552
06/26/12									50,752	0	20,552
06/27/12									50,752	0	20,552
06/28/12									50,752	0	20,552
06/29/12									50,752	0	20,552
06/30/12									50,752	0	20,552
07/01/12									50,752	0	20,552
07/02/12									50,752	0	20,552
07/03/12									50,752	0	20,552
07/04/12									50,752	0	20,552
07/05/12									50,752	0	20,552
07/06/12									50,752	0	20,552
07/07/12									50,752	0	20,552
07/08/12									50,752	0	20,552
07/09/12									50,752	0	20,552
07/10/12									50,752	0	20,552
07/11/12									50,752	0	20,552
07/12/12									50,752	0	20,552
07/13/12									50,752	0	20,552
07/14/12									50,752	0	20,552
07/15/12									50,752	0	20,552
07/16/12									50,752	0	20,552
07/17/12									50,752	0	20,552
07/18/12									50,752	0	20,552
07/19/12									50,752	0	20,552
07/20/12									50,752	0	20,552
07/21/12									50,752	0	20,552
07/22/12									50,752	0	20,552
07/23/12									50,752	0	20,552
07/24/12									50,752	0	20,552
07/25/12									50,752	0	20,552
07/26/12									50,752	0	20,552
07/27/12									50,752	0	20,552
07/28/12									50,752	0	20,552
07/29/12									50,752	0	20,552
07/30/12	On site to check system.								**50,752**	**0**	**20,552**
07/31/12									50,752	0	20,552
08/01/12									50,752	0	20,552
08/02/12									50,752	0	20,552
08/03/12									50,752	0	20,552
08/04/12									50,752	0	20,552
08/05/12									50,752	0	20,552
08/06/12									50,752	0	20,552
08/07/12									50,752	0	20,552
08/08/12									50,752	0	20,552
08/09/12									50,752	0	20,552
08/10/12									50,752	0	20,552
08/11/12									50,752	0	20,552
08/12/12									50,752	0	20,552
08/13/12									50,752	0	20,552
08/14/12									50,752	0	20,552
08/15/12	On site to check system.								**50,752**	**0**	**20,552**

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
08/16/12	System shut down due to low concentrations.								50,752	0	20,552
08/17/12									50,752	0	20,552
08/18/12									50,752	0	20,552
08/19/12									50,752	0	20,552
08/20/12									50,752	0	20,552
08/21/12	On site to check system.								**50,752**	**0**	**20,552**
08/22/12									50,752	0	20,552
08/23/12									50,752	0	20,552
08/24/12									50,752	0	20,552
08/25/12									50,752	0	20,552
08/26/12									50,752	0	20,552
08/27/12									50,752	0	20,552
08/28/12									50,752	0	20,552
08/29/12									50,752	0	20,552
08/30/12									50,752	0	20,552
08/31/12									50,752	0	20,552
09/01/12									50,752	0	20,552
09/02/12									50,752	0	20,552
09/03/12									50,752	0	20,552
09/04/12									50,752	0	20,552
09/05/12									50,752	0	20,552
09/06/12	On site to check system.								**50,752**	**0**	**20,552**
09/07/12									50,752	0	20,552
09/08/12									50,752	0	20,552
09/09/12									50,752	0	20,552
09/10/12									50,752	0	20,552
09/11/12									50,752	0	20,552
09/12/12									50,752	0	20,552
09/13/12									50,752	0	20,552
09/14/12									50,752	0	20,552
09/15/12									50,752	0	20,552
09/16/12									50,752	0	20,552
09/17/12									50,752	0	20,552
09/18/12	On site to check system.								**50,752**	**0**	**20,552**
09/19/12									50,752	0	20,552
09/20/12									50,752	0	20,552
09/21/12									50,752	0	20,552
09/22/12									50,752	0	20,552
09/23/12									50,752	0	20,552
09/24/12									50,752	0	20,552
09/25/12									50,752	0	20,552
09/26/12									50,752	0	20,552
09/27/12									50,752	0	20,552
09/28/12									50,752	0	20,552
09/29/12									50,752	0	20,552
09/30/12									50,752	0	20,552
10/01/12									50,752	0	20,552
10/02/12									50,752	0	20,552
10/03/12									50,752	0	20,552
10/04/12									50,752	0	20,552
10/05/12									50,752	0	20,552
10/06/12									50,752	0	20,552
10/07/12									50,752	0	20,552
10/08/12									50,752	0	20,552
10/09/12									50,752	0	20,552
10/10/12									50,752	0	20,552
10/11/12									50,752	0	20,552
10/12/12									50,752	0	20,552
10/13/12									50,752	0	20,552
10/14/12									50,752	0	20,552
10/15/12									50,752	0	20,552
10/16/12									50,752	0	20,552
10/17/12									50,752	0	20,552
10/18/12	On site to check system.								**50,752**	**0**	**20,552**
10/19/12									50,752	0	20,552
10/20/12									50,752	0	20,552
10/21/12									50,752	0	20,552
10/22/12									50,752	0	20,552
10/23/12									50,752	0	20,552
10/24/12									50,752	0	20,552
10/25/12									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
10/26/12	System shut down due to low concentrations.								50,752	0	20,552
10/27/12									50,752	0	20,552
10/28/12									50,752	0	20,552
10/29/12									50,752	0	20,552
10/30/12									50,752	0	20,552
10/31/12									50,752	0	20,552
11/01/12									50,752	0	20,552
11/02/12									50,752	0	20,552
11/03/12									50,752	0	20,552
11/04/12									50,752	0	20,552
11/05/12									50,752	0	20,552
11/06/12									50,752	0	20,552
11/07/12									50,752	0	20,552
11/08/12									50,752	0	20,552
11/09/12									50,752	0	20,552
11/10/12									50,752	0	20,552
11/11/12									50,752	0	20,552
11/12/12									50,752	0	20,552
11/13/12									50,752	0	20,552
11/14/12									50,752	0	20,552
11/15/12									50,752	0	20,552
11/16/12									50,752	0	20,552
11/17/12									50,752	0	20,552
11/18/12									50,752	0	20,552
11/19/12									50,752	0	20,552
11/20/12									50,752	0	20,552
11/21/12									50,752	0	20,552
11/22/12									50,752	0	20,552
11/23/12									50,752	0	20,552
11/24/12									50,752	0	20,552
11/25/12									50,752	0	20,552
11/26/12									50,752	0	20,552
11/27/12									50,752	0	20,552
11/28/12									50,752	0	20,552
11/29/12									50,752	0	20,552
11/30/12									50,752	0	20,552
12/01/12									50,752	0	20,552
12/02/12									50,752	0	20,552
12/03/12									50,752	0	20,552
12/04/12									50,752	0	20,552
12/05/12									50,752	0	20,552
12/06/12									50,752	0	20,552
12/07/12									50,752	0	20,552
12/08/12									50,752	0	20,552
12/09/12									50,752	0	20,552
12/10/12									50,752	0	20,552
12/11/12									50,752	0	20,552
12/12/12									50,752	0	20,552
12/13/12									50,752	0	20,552
12/14/12									50,752	0	20,552
12/15/12									50,752	0	20,552
12/16/12									50,752	0	20,552
12/17/12	On site to check system.								**50,752**	**0**	**20,552**
12/18/12									50,752	0	20,552
12/19/12									50,752	0	20,552
12/20/12									50,752	0	20,552
12/21/12									50,752	0	20,552
12/22/12									50,752	0	20,552
12/23/12									50,752	0	20,552
12/24/12									50,752	0	20,552
12/25/12									50,752	0	20,552
12/26/12									50,752	0	20,552
12/27/12									50,752	0	20,552
12/28/12									50,752	0	20,552
12/29/12									50,752	0	20,552
12/30/12									50,752	0	20,552
12/31/12									50,752	0	20,552
01/01/13									50,752	0	20,552
01/02/13									50,752	0	20,552
01/03/13									50,752	0	20,552
01/04/13									50,752	0	20,552

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
01/05/13	System shut down due to low concentrations.								50,752	0	20,552
01/06/13									50,752	0	20,552
01/07/13									50,752	0	20,552
01/08/13									50,752	0	20,552
01/09/13									50,752	0	20,552
01/10/13									50,752	0	20,552
01/11/13	On site to check system.								**50,752**	**0**	**20,552**
01/12/13									50,752	0	20,552
01/13/13									50,752	0	20,552
01/14/13									50,752	0	20,552
01/15/13									50,752	0	20,552
01/16/13									50,752	0	20,552
01/17/13									50,752	0	20,552
01/18/13									50,752	0	20,552
01/19/13									50,752	0	20,552
01/20/13									50,752	0	20,552
01/21/13									50,752	0	20,552
01/22/13									50,752	0	20,552
01/23/13									50,752	0	20,552
01/24/13									50,752	0	20,552
01/25/13									50,752	0	20,552
01/26/13									50,752	0	20,552
01/27/13									50,752	0	20,552
01/28/13									50,752	0	20,552
01/29/13									50,752	0	20,552
01/30/13									50,752	0	20,552
01/31/13									50,752	0	20,552
02/01/13									50,752	0	20,552
02/02/13									50,752	0	20,552
02/03/13									50,752	0	20,552
02/04/13									50,752	0	20,552
02/05/13									50,752	0	20,552
02/06/13	Turned VES system on and got up to tempurature.								**50,752**	**6**	**20,558**
02/07/13									50,752	0	20,558
02/08/13									50,752	0	20,558
02/09/13									50,752	0	20,558
02/10/13									50,752	0	20,558
02/11/13									50,752	0	20,558
02/12/13									50,752	0	20,558
02/13/13									50,752	0	20,558
02/14/13									50,752	0	20,558
02/15/13									50,752	0	20,558
02/16/13									50,752	0	20,558
02/17/13									50,752	0	20,558
02/18/13									50,752	0	20,558
02/19/13									50,752	0	20,558
02/20/13									50,752	0	20,558
02/21/13									50,752	0	20,558
02/22/13									50,752	0	20,558
02/23/13									50,752	0	20,558
02/24/13									50,752	0	20,558
02/25/13									50,752	0	20,558
02/26/13									50,752	0	20,558
02/27/13	On site to check system.								**50,752**	**0**	**20,558**
02/28/13									50,752	0	20,558
03/01/13									50,752	0	20,558
03/02/13									50,752	0	20,558
03/03/13									50,752	0	20,558
03/04/13									50,752	0	20,558
03/05/13									50,752	0	20,558
03/06/13									50,752	0	20,558
03/07/13									50,752	0	20,558
03/08/13									50,752	0	20,558
03/09/13									50,752	0	20,558
03/10/13									50,752	0	20,558
03/11/13	On site to check system.								**50,752**	**0**	**20,558**
03/12/13									50,752	0	20,558
03/13/13									50,752	0	20,558
03/14/13									50,752	0	20,558
03/15/13									50,752	0	20,558
03/16/13									50,752	0	20,558

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
03/17/13	System shut down due to low concentrations.								50,752	0	20,558
03/18/13									50,752	0	20,558
03/19/13									50,752	0	20,558
03/20/13									50,752	0	20,558
03/21/13									50,752	0	20,558
03/22/13									50,752	0	20,558
03/23/13									50,752	0	20,558
03/24/13									50,752	0	20,558
03/25/13									50,752	0	20,558
03/26/13									50,752	0	20,558
03/27/13									50,752	0	20,558
03/28/13									50,752	0	20,558
03/29/13									50,752	0	20,558
03/30/13									50,752	0	20,558
03/31/13									50,752	0	20,558
04/01/13									50,752	0	20,558
04/02/13	Turned on system and got to temperature using Dil. Air only								**50,752**	**3**	**20,561**
04/03/13									50,752	0	20,561
04/04/13									50,752	0	20,561
04/05/13									50,752	0	20,561
04/06/13									50,752	0	20,561
04/07/13									50,752	0	20,561
04/08/13									50,752	0	20,561
04/09/13									50,752	0	20,561
04/10/13									50,752	0	20,561
04/11/13									50,752	0	20,561
04/12/13									50,752	0	20,561
04/13/13									50,752	0	20,561
04/14/13									50,752	0	20,561
04/15/13									50,752	0	20,561
04/16/13									50,752	0	20,561
04/17/13									50,752	0	20,561
04/18/13									50,752	0	20,561
04/19/13									50,752	0	20,561
04/20/13									50,752	0	20,561
04/21/13									50,752	0	20,561
04/22/13									50,752	0	20,561
04/23/13									50,752	0	20,561
04/24/13									50,752	0	20,561
04/25/13									50,752	0	20,561
04/26/13									50,752	0	20,561
04/27/13									50,752	0	20,561
04/28/13									50,752	0	20,561
04/29/13									50,752	0	20,561
04/30/13									50,752	0	20,561
05/01/13									50,752	0	20,561
05/02/13									50,752	0	20,561
05/03/13	On site to check system.								**50,752**	**0**	**20,561**
05/04/13									50,752	0	20,561
05/05/13									50,752	0	20,561
05/06/13									50,752	0	20,561
05/07/13									50,752	0	20,561
05/08/13									50,752	0	20,561
05/09/13									50,752	0	20,561
05/10/13									50,752	0	20,561
05/11/13									50,752	0	20,561
05/12/13									50,752	0	20,561
05/13/13									50,752	0	20,561
05/14/13									50,752	0	20,561
05/15/13									50,752	0	20,561
05/16/13									**50,752**	**0**	**20,561**
05/17/13									50,752	0	20,561
05/18/13									50,752	0	20,561
05/19/13									50,752	0	20,561
05/20/13									50,752	0	20,561
05/21/13									**50,752**	**0**	**20,561**
05/22/13									50,752	0	20,561
05/23/13									50,752	0	20,561
05/24/13									50,752	0	20,561
05/25/13									50,752	0	20,561
05/26/13									50,752	0	20,561

TABLE 11
SOIL VAPOR EXTRACTION DAILY OPERATION LOGS
TESORO (FORMER ARCO STATION NO. 5110)
5731 E. FIRESTONE BOULEVARD, SOUTH GATE, CA
SCAQMD PERMIT-TO-OPERATE NO. F77737

Date	Field Inlet Concentration (PPMV)	Field Midpoint Concentration (PPMV)	Field Outlet Concentration (PPMV)	GRO Destruction Efficiency (%)	Process Flow (SCFM)	Manifold Vacuum (Inches H20)	Inlet Temperature (Degrees F)	Outlet Temperature (Degrees F)	Cumulative Hydrocarbons Removed * (LB)	Daily Hours On-Line	Cumulative Operating Hours
05/27/13	System shut down due to low concentrations.								50,752	0	20,561
05/28/13									50,752	0	20,561
05/29/13									50,752	0	20,561
05/30/13									50,752	0	20,561
05/31/13									50,752	0	20,561

Notes:
* Mass removal determined using laboratory analytical data (See Table 8)
NM - Not Measured
BOLD - Indicates technician-monitored event.

** - Concentrations shown on this date are from laboratory analytical results (see Table 7) not field readings.

SVE Remediation System shut down on April 27, 2011, due to low concentrations.

TABLE 12
NATURAL BIODEGRADATION ANALYTICAL DATA
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, California

Well I.D.	Date Sampled	BOD EPA 405.1 (mg/l)	Ferrous Iron SM 3500-Fe-D (mg/l)	Nitrate-N EPA 300.0 (mg/l)	Sulfate EPA 300.0 (mg/l)	TDS SM2540C (mg/l)	TOC EPA 415.1 (mg/l)	Plate Count EPA 9215B (CFU/ml)	Dissolved Oxygen (mg/l)	Methane (mg/l)	Ph (pH Units)
DW-1	02/12/09	19	0.10	0.50	64	840	5.6	>7,380	--	0.045	7.56
DW-2	02/12/09	21	0.10	0.40	99	1,200	15	>7,380	--	0.068	7.51
DW-3	02/12/09	12	0.40	0.12	190	1,200	6.1	>7,380	--	0.12	7.41
DW-4	02/12/09	26	0.50	<0.11	3.3	1,300	7.3	>7,380	--	0.97	7.50
MW-A1	05/13/10	0.91 J	0.10	<0.11	100	1,100	13	860	3.27	0.24	7.83
MW-A2	05/12/10	9.5	5.0	<0.11	440	1,500	19	1,890	3.05	0.87	7.36
MW-A3	02/10/09	1.6 J	<0.10	0.20	120	700	2.1	150	0.43	0.032	7.47
	05/12/09	--	<0.10	0.099 J	100	--	--	--	5.8	--	--
	08/13/09	--	<0.10	0.29	77	--	--	--	--	0.22	--
	05/12/10	0.51 J	<0.10	0.15	190	760	2.0	450	3.25	0.083	7.55
	11/09/10	--	<0.10	0.12	170	--	--	--	--	--	--
	05/10/11	2.2	0.40	0.072 J	240	870	4.5	680	2.3	0.0.29	7.4
	11/08/11	--	<0.10	0.083 J	220	--	--	--	--	--	--
	05/08/12	1.7 J	<0.10	<0.15	250	890	5.4	3,000	--	0.47	7.47
	11/06/12	--	0.30	<0.15	240	--	--	--	--	--	--
	05/07/13	2.6	<0.10	<0.15	230	930	2.1	450	0.3	0.78	7.59
MW-A4	02/10/09	19	0.30	0.43	6.0	1,200	13	5,070	0.00	1.6	7.37
	05/12/09	--	0.40	0.33	13	--	--	--	1.3	--	--
	08/13/09	--	1.0	0.92	20	--	--	--	--	1.2	--
	05/12/10	46	4.0	0.4	26	1,200	14	6,230	2.74	1.6	7.48
	11/10/10	--	3.0	1.0	18	--	--	--	--	--	--
	05/11/11	37	4.0	0.57	13	1,300	19	2,570	6.4	0.59	7.4
	11/08/11	--	1.0	0.13	5.0	--	--	--	--	--	--
	05/08/12	63	0.40	<0.15	17	1,200	23	4,400	--	3.2	7.37
	11/06/12	--	1.0	<0.15	12	--	--	--	--	--	--
	05/08/13	43	0.3	0.51	15	1,200	14	970	0.6	2.8	7.61
MW-A5	05/13/10	1.3 J	0.40	<0.11	230	810	2.5	1,830	2.58	0.15	7.67
MW-A6	05/13/10	<2.0	0.30	<0.11	84	1,200	14	450	2.52	0.039	7.57
MW-A7	02/10/09	5.6	<0.10	<0.11	1.2	1,300	9.3	2,230	0.00	2.7	7.32
	05/12/09	--	0.30	<0.11	1.6	--	--	--	0.9	--	--
	08/12/09	--	0.60	<0.11	1.4	--	--	--	--	3.0	--
	05/12/10	30	6.0	<0.11	5.0	1,300	8.2	>7,380	2.39	4.4	7.37
	11/09/10	--	1.0	0.13	7.2	--	--	--	--	--	--

TABLE 12
NATURAL BIODEGRADATION ANALYTICAL DATA
Tesoro (Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, California

Well I.D.	Date Sampled	BOD EPA 405.1 (mg/l)	Ferrous Iron SM 3500-Fe-D (mg/l)	Nitrate-N EPA 300.0 (mg/l)	Sulfate EPA 300.0 (mg/l)	TDS SM2540C (mg/l)	TOC EPA 415.1 (mg/l)	Plate Count EPA 9215B (CFU/ml)	Dissolved Oxygen (mg/l)	Methane (mg/l)	Ph (pH Units)
MW-A7	05/10/11	27	5.0	<0.11	4.2	1,200	8.8	>7,380	2.3	1.9	7.2
	11/08/11	--	1.0	<0.11	1.1	--	--	--	--	--	--
	05/08/12	20	0.40	<0.15	3.4	1,200	13	7,400	--	6.7	7.33
	11/06/12	--	1.0	<0.15	2.8	--	--	--	--	--	--
	05/07/13	26	0.1	<0.15	3.0	1,300	5.7	1300	0.6	8.3	7.49
MW-A8s	05/12/10	4.7	<0.10	<0.11	340	1,300	12	--	3.09	0.39	7.67
MW-A8d	05/12/10	2.7	0.40	<0.11	34	1,100	26	--	2.75	0.11	7.78
MW-19	05/12/10	5.5	3.0	<0.11	47	1,300	17	>7,380	2.77	1.0	7.37
	11/10/10	--	1.0	<0.11	96	--	--	--	--	1.2	--
MW-20	05/12/09	--	0.20	<0.11	39	--	--	--	4.2	--	--
	08/13/09	--	0.90	<0.11	88	--	--	--	--	0.88	--
	05/12/10	32	2.0	0.073 J	19	1,200	9.3	>7,380	2.69	2.4	7.51
	11/10/10	--	2.0	0.11	3.9	--	--	--	--	--	--
	05/10/11	28	1.0	0.12	9.1	1,200	11	>7,380	6.5	0.81	7.3
	11/08/11	--	0.40	0.085 J	31	--	--	--	--	--	--
	05/08/12	14	0.30	<0.15	6.5	1,100	12	7,300	--	1.5	7.42
	11/06/12	--	1.0	<0.15	9.9	--	--	--	--	--	--
	05/08/13	25	0.1	<0.15	11	1,200	5.4	6200	1.2	3.6	7.54

Notes:
EPA = Environmental Protection Agency
mg/L = Milligrams per liter
TOC = Total Organic Carbon
CFU/ml = Colony Forming Unit per milliliter
BOD = Biochemical Oxygen Demand
TDS = Total Dissolved Solids
J = Estimated value (less than the method reporting limit and greater than or equal to the method detection limit)
-- = Not Analyzed

TABLE 13
SUMMARY OF OXYGEN DIFFUSER SYSTEM FIELD DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 FIRESTONE BOULEVARD, SOUTH GATE, CA

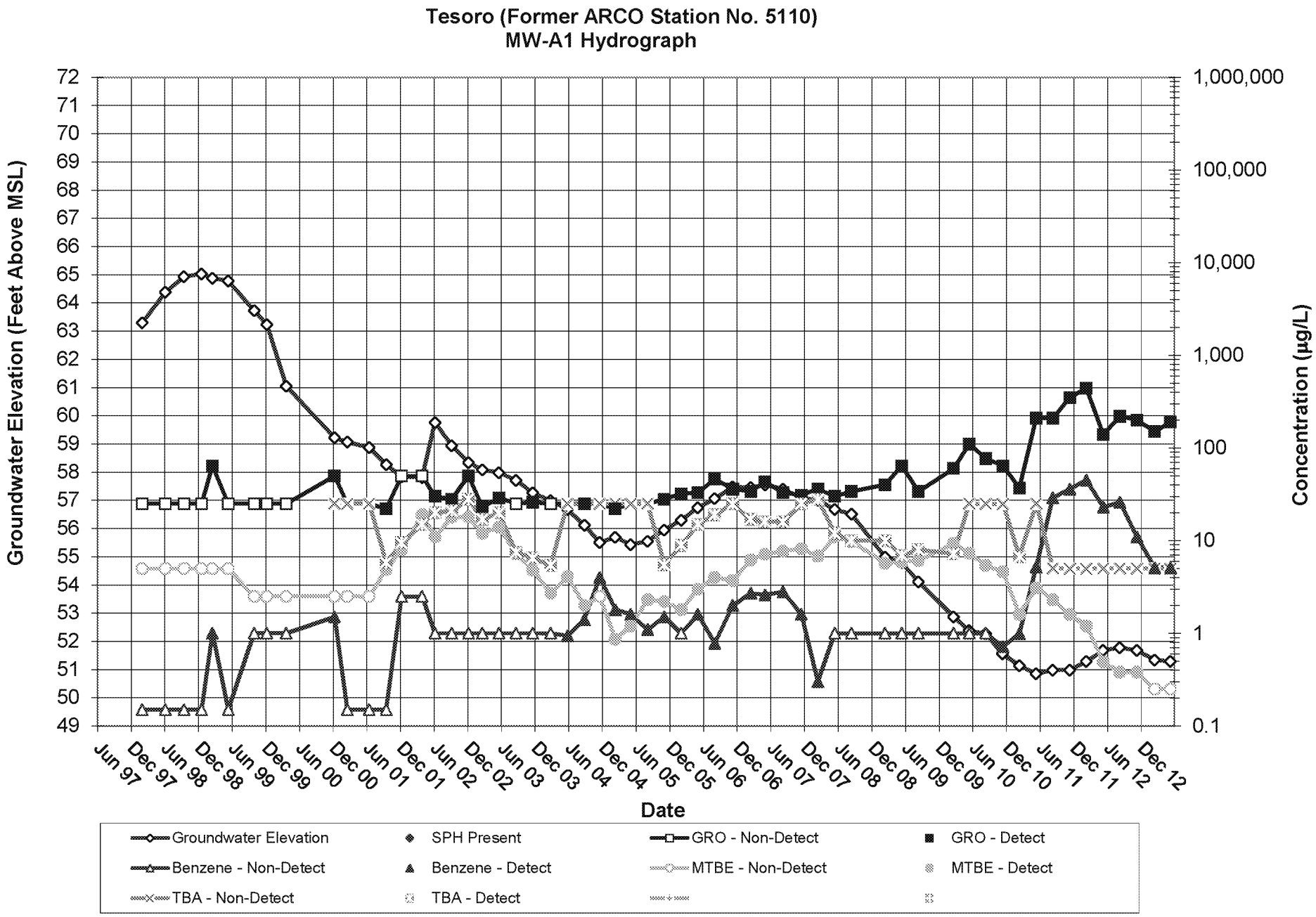
	Dissolved Oxygen Concentration (mg/L)								Arrival/Departure Pressure (psig)			
	Diffuser Wells				Observation Wells				Tank 1	Tank 2	Tank 3	Tank 4
Date	DW-1	DW-2	DW-3	DW-4	MW-A3	MW-A4	MW-A7	MW-20	(DW-1)	(DW-2)	(DW-3)	(DW-4)
7/31/2009	8.46	0.09	--	0.11	1.61	0.10	0.09	--	2,100	2,200	--	1,900
8/4/2009	12.66	25.33	--	5.12	1.62	0.07	0.12	--	2,050	2,100	--	1,900
8/25/2009	3.86	6.66	6.82	6.98	3.29	1.81	6.22	2.76	1,950	750	2,000	1,900
9/3/2009	8.34	12.48	6.53	5.57	2.05	2.57	--	2.69	1,500	450 / 2,100	1,700	1,600
9/10/2009	11.80	14.49	10.21	9.55	1.66	1.73	2.10	2.22	1,050	1,800	1,500	1,400
9/17/2009	7.50	19.70	7.90	5.85	1.60	1.25	2.82	7.61	800	1,450	1,100	1,150
9/24/2009	7.65	22.40	9.24	5.87	1.54	8.00	2.30	5.07	500	1,100	900	900
10/1/2009	9.99	27.31	6.20	8.35	0.99	1.06	10.15	5.88	50 / 2,000	900	500 / 1,950	750
10/8/2009	7.77	23.81	6.10	7.60	1.58	1.13	5.16	3.03	1,800	550 / 1,900	1,700	500 / 2,000
10/22/2009	9.11	24.33	11.37	9.95	2.02	2.20	6.30	2.30	1,300	1,500	1,100	1,700
10/29/2009	--	--	--	--	--	--	--	--	--	--	--	--
11/5/2009	8.11	29.55	7.50	13.72	1.30	2.98	7.56	2.86	700	950	500	1,350
11/23/2009	11.18	29.77	4.77	11.25	0.99	3.00	8.86	4.22	100 / 2,000	250	50 / 1,900	900
12/9/2009	11.33	24.98	6.49	9.60	1.78	0.98	--	4.89	1,400	1,650	1,400	500 / 1,800
1/6/2010	13.95	26.87	8.37	9.21	1.95	1.11	2.90	4.87	100 / 2,100	550	100 / 2,000	1,000
2/2/2010	7.60	27.80	6.35	7.76	2.11	0.88	2.10	5.27	1,000	1,000	1,000	200 / 2,000
3/10/2010	8.80	0.84	6.42	5.52	1.63	0.94	0.24	1.31	50 / 2,000	0 / 1,950	50 / 2,000	900 / 1,900
4/6/2010	9.24	9.22	7.27	9.15	1.81	0.94	0.31	1.42	1,100	1,000	1,050	1,400
5/4/2010	10.12	7.77	3.20	6.18	1.16	0.44	0.51	0.57	50 / 2,200	50 / 1,550	50 / 2,150	600 / 2,100
6/16/2010	11.36	8.42	5.59	8.78	0.90	0.68	0.91	3.74	500 / 2,000	-	600 / 2,000	900 / 2,000
7/27/2010	9.93	10.75	3.35	11.36	1.38	0.95	1.14	5.31	600 / 1,900	600 / 1,900	700 / 1,900	900 / 1,900
8/26/2010	7.30	10.50	6.31	8.02	1.70	0.99	3.58	2.90	950 / 2,100	650 / 2,000	700 / 1,900	1300 / 2,000
10/8/2010	7.56	10.01	7.75	7.77	1.40	0.90	--	2.21	600 / 2,100	500 / 2,000	400 / 1,900	700 / 1,700
11/19/2010	6.99	11.36	6.06	6.99	1.48	0.85	3.02	2.88	500 / 1,900	450 / 1,900	200 / 1,900	400 / 1,900
12/29/2010	--	--	--	--	--	--	--	--	200 / 1,800	100 / 1,900	100 / 2,000	500 / 1,900
1/4/2011	7.40	11.66	8.95	8.20	1.20	0.85	2.00	2.11	1,700	1,850	2,000	1,850
2/3/2011	7.66	12.10	7.78	7.40	1.30	0.81	2.27	2.14	700 / 2,000	700 / 2,000	950 / 2,000	1100 / 1,900
3/17/2011	7.55	4.40	8.80	8.00	1.05	0.90	1.90	1.90	300 / 1,850	1,000 / 2,000	500 / 2,000	700 / 1,750
4/27/2011	7.71	6.60	8.70	8.15	1.00	0.91	1.80	1.82	650	950	700	700
5/18/2011	7.55	7.15	7.90	7.94	0.95	0.85	1.66	1.77	50 / 2,000	450 / 1,900	50 / 2,100	100 / 2,000
6/24/2011	7.60	7.44	7.99	7.99	0.90	0.90	1.70	1.77	650	600	750	700
7/6/2011	7.44	6.60	7.86	7.90	0.85	0.89	1.44	1.50	100 / 1900	1600 / 2100	400 / 2,100	700 / 2,200
8/23/2011	7.90	7.20	8.34	8.20	0.90	0.94	1.50	1.55	50 / 2,200	1,000 / 2,300	500 / 2,000	900 / 2,000

TABLE 13
SUMMARY OF OXYGEN DIFFUSER SYSTEM FIELD DATA
TESORO (FORMER ARCO STATION NO. 5110)
5731 FIRESTONE BOULEVARD, SOUTH GATE, CA

	Dissolved Oxygen Concentration (mg/L)								Arrival/Departure Pressure (psig)			
	Diffuser Wells				Observation Wells				Tank 1	Tank 2	Tank 3	Tank 4
Date	DW-1	DW-2	DW-3	DW-4	MW-A3	MW-A4	MW-A7	MW-20	(DW-1)	(DW-2)	(DW-3)	(DW-4)
10/13/2011	19.23	14.61	--	24.30	0.78	1.18	2.18	3.66	50 / 2,100	0 / 2,200	50 / 2,100	600 / 2,100
12/28/2011	19.40	15.10	--	23.10	0.80	1.21	1.84	2.77	250 / 2,000	250 / 2,000	--	600 / 1,850
1/24/2012	18.90	16.15	--	22.20	0.85	1.10	1.77	1.80	150 / 2,100	700 / 2,000	--	300 / 1,800
3/6/2012	23.77	0.80	--	25.20	0.66	0.99	0.90	0.82	700 / 2,300	1,900 / 2,300	--	800 / 2,000
4/25/2012	24.10	7.70	--	25.02	0.77	0.90	0.90	0.86	650 / 2,450	0 / 0	--	700 / 2,100
7/30/2012	8.80	5.50	1.30	23.20	0.80	0.78	2.74	0.90	1,800	800 / 2,300	1,800 / 1,900	50 / 2,200
8/15/2012	9.80	7.00	3.50	22.40	0.80	0.80	1.65	0.88	1,250	1,800	1,300	1,800
9/6/2012	10.10	7.79	7.70	22.45	0.80	0.81	2.10	0.90	50 / 2,200	1,400 / 2,300	400 / 2,250	1,200 / 2,000
10/18/2012	16.15	13.40	6.40	15.90	0.85	0.81	1.25	0.85	20 / 2,100	400 / 2,000	2,000	700 / 2,000
11/29/2012	17.11	14.50	5.50	16.10	0.84	0.80	1.10	0.83	150 / 2,100	700 / 2,200	1,100	700 / 2,100
12/17/2012	18.05	14.70	5.65	16.22	0.81	0.80	1.04	0.80	850	900	1,000	900
2/6/2013	18.40	15.65	4.40	17.10	0.81	0.88	0.98	0.80	50 / 2,200	100 / 2,100	1,000	50 / 2,200
3/11/2013	18.55	16.60	3.10	10.10	0.85	0.86	0.95	0.81	850	900	1,000	900
4/2/2013	12.10	17.20	4.40	10.55	1.01	1.30	1.15	0.65	100 / 2,000	300 / 2,300	1,500	400 / 2,000

Notes:
Dissolved oxygen concentrations measured in the field with a submersible down-hole probe.
Dissolved oxygen concentrations increase based on depth of probe in water column/proximity to oxygen diffuser.
- = Diffuser wedged in well
-- = Not measured
mg/L = miligrams per liter
psig = pounds per square inch gauge
Diffuser removed from Oxygen Tank 3 12/28/2011
Diffuser removed from Oxygen Tank 2 4/25/2012 and will be replaced.

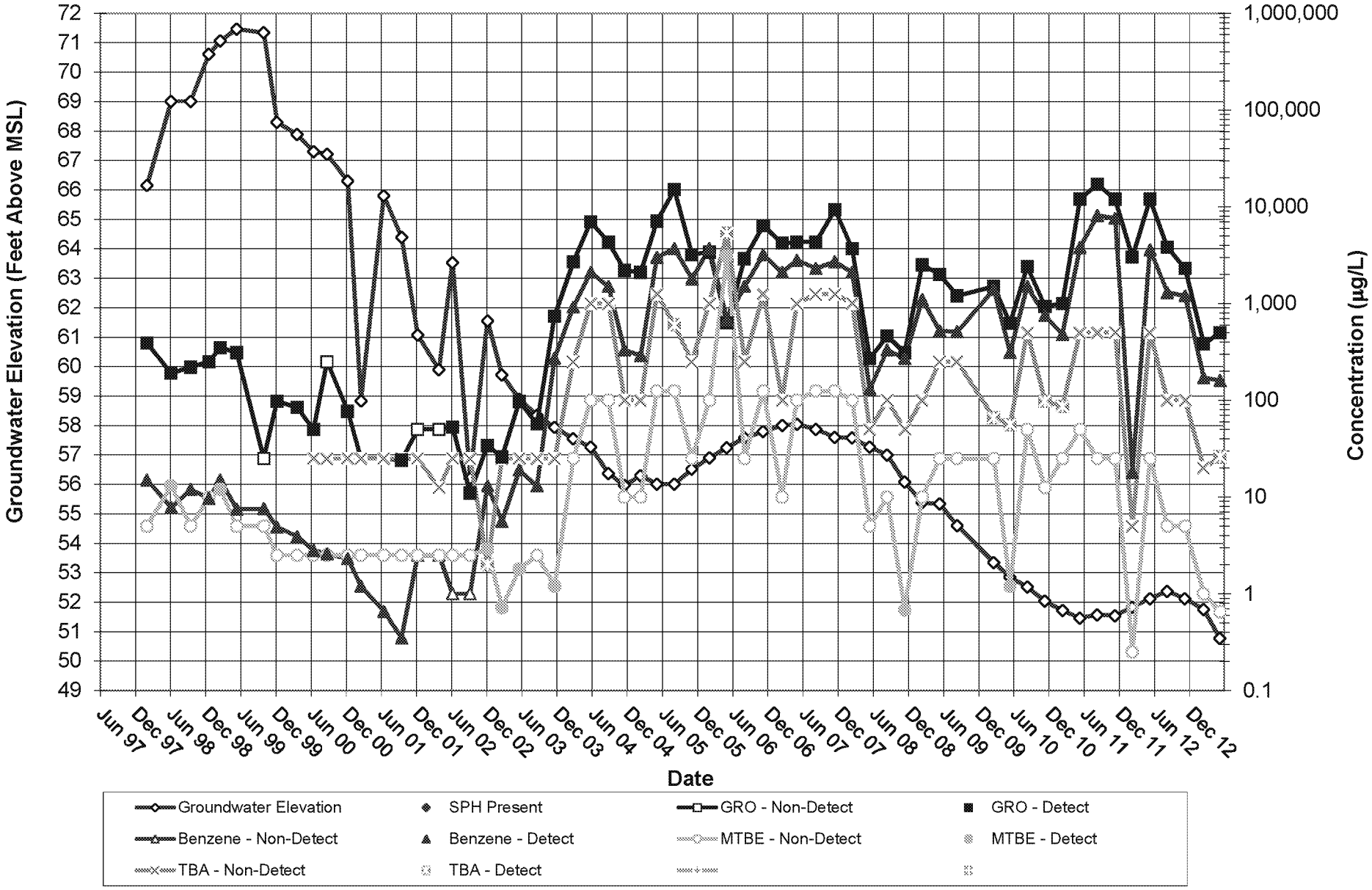
GRAPHS



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

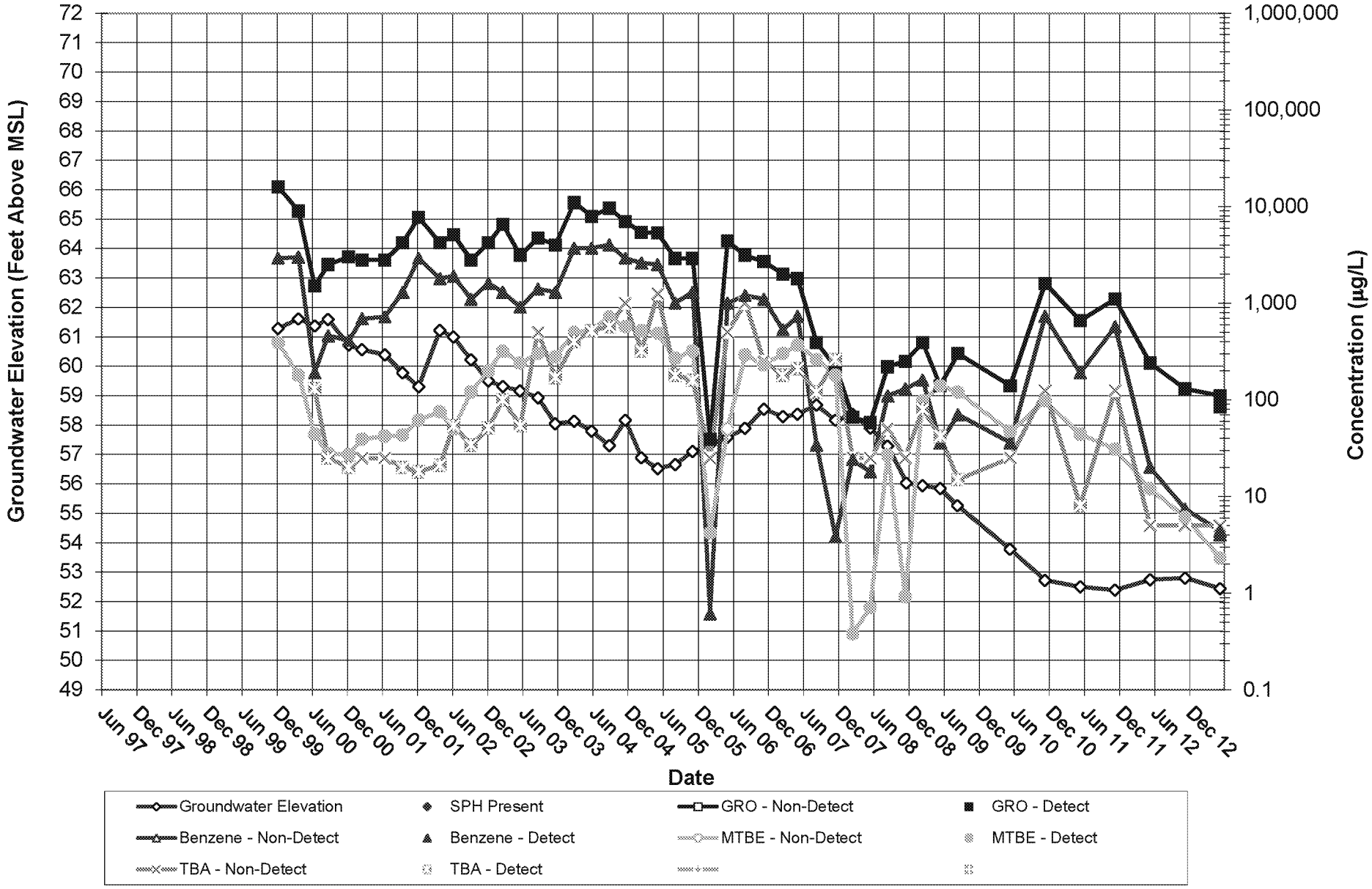
Tesoro (Former ARCO Station No. 5110)
MW-A2 Hydrograph



Notes

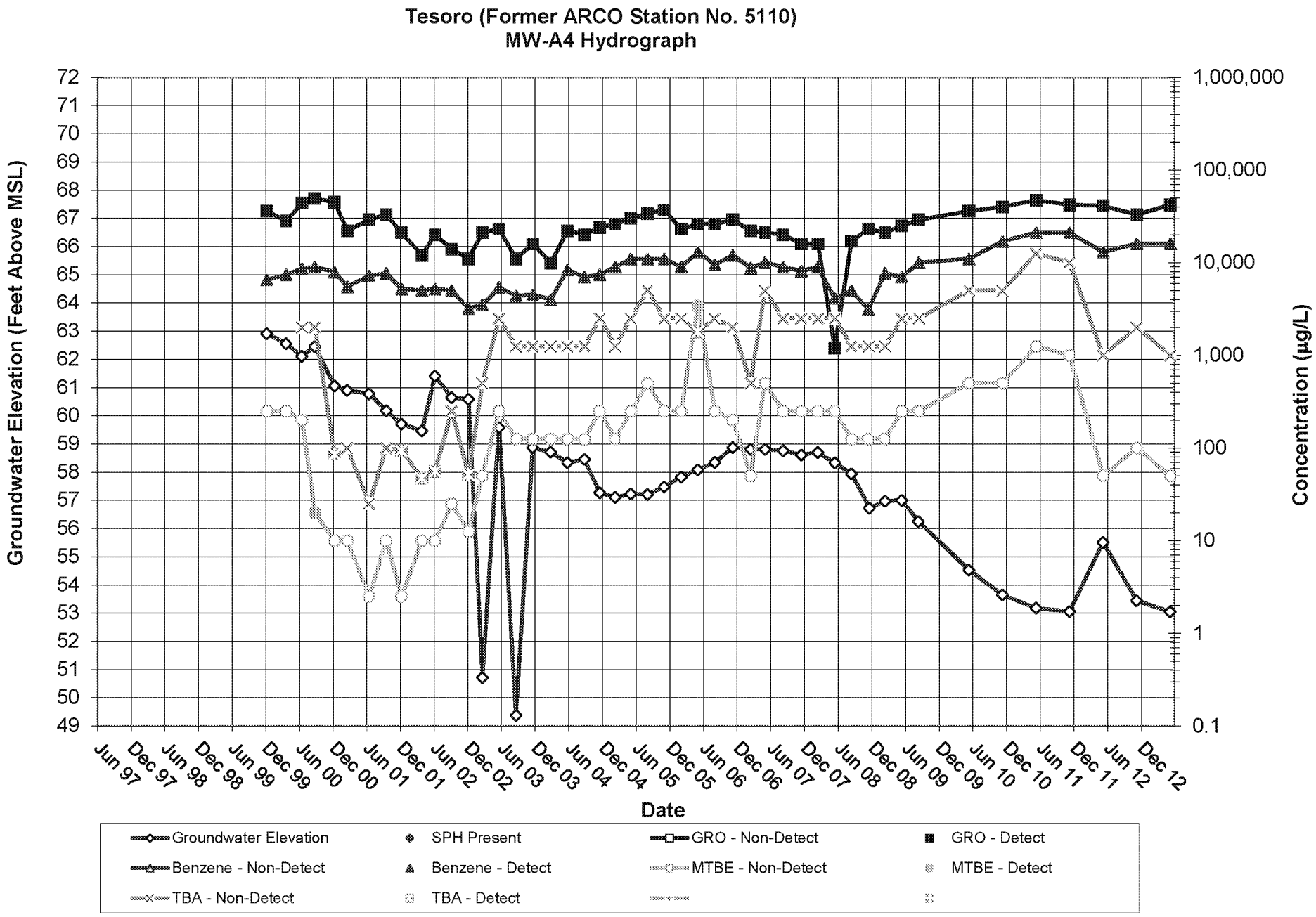
1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

Tesoro (Former ARCO Station No. 5110)
MW-A3 Hydrograph



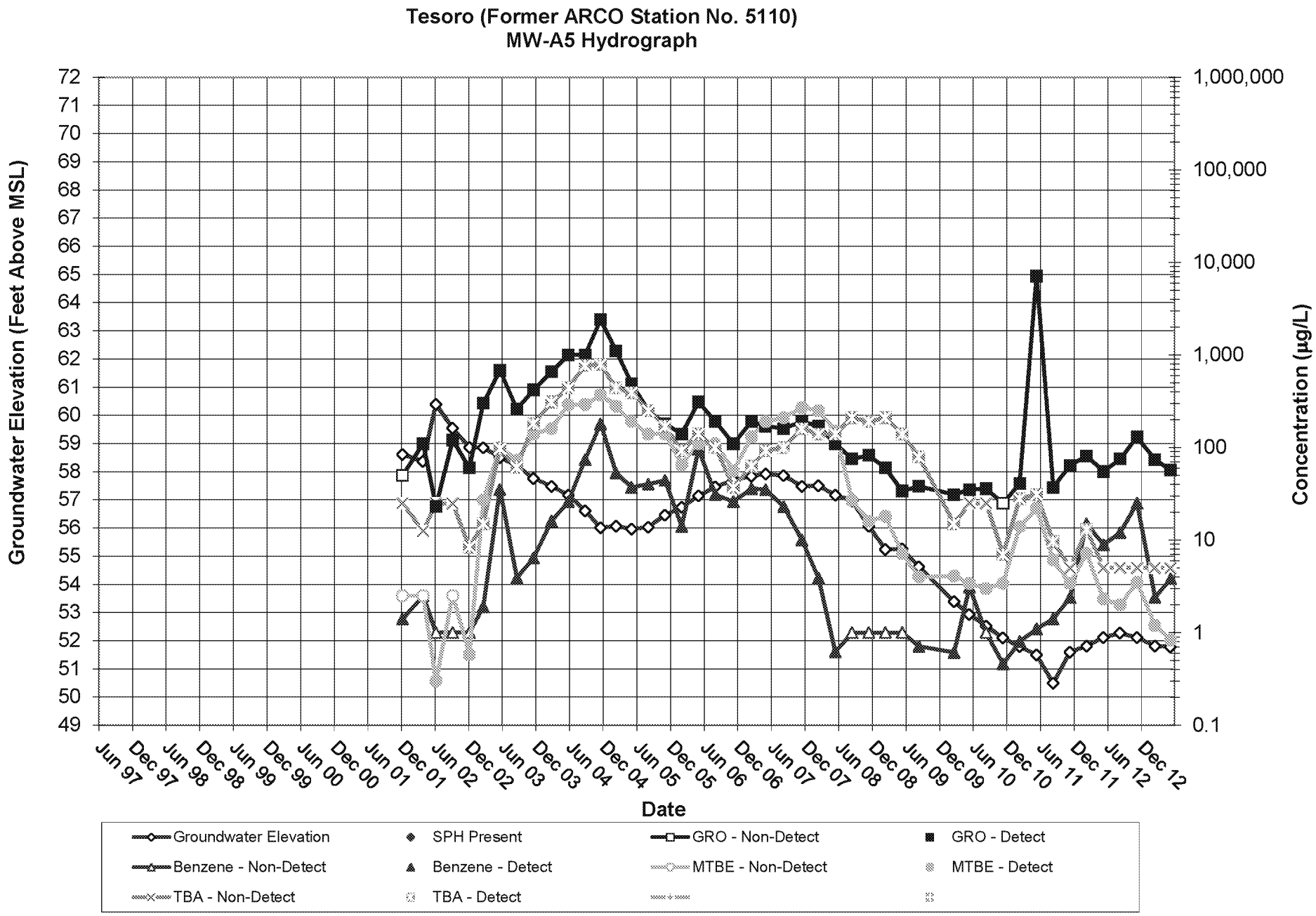
Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



Notes

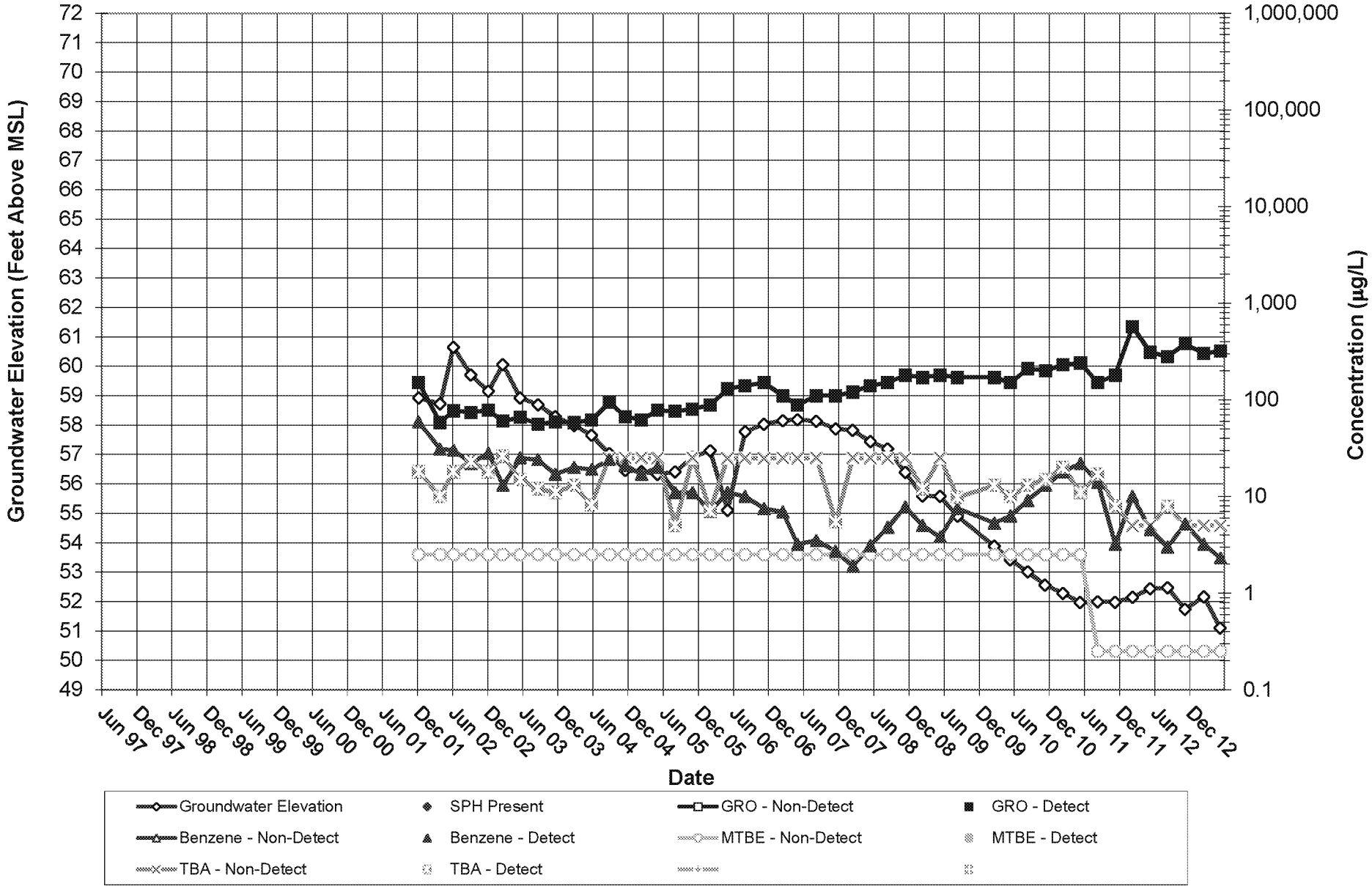
1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



Notes

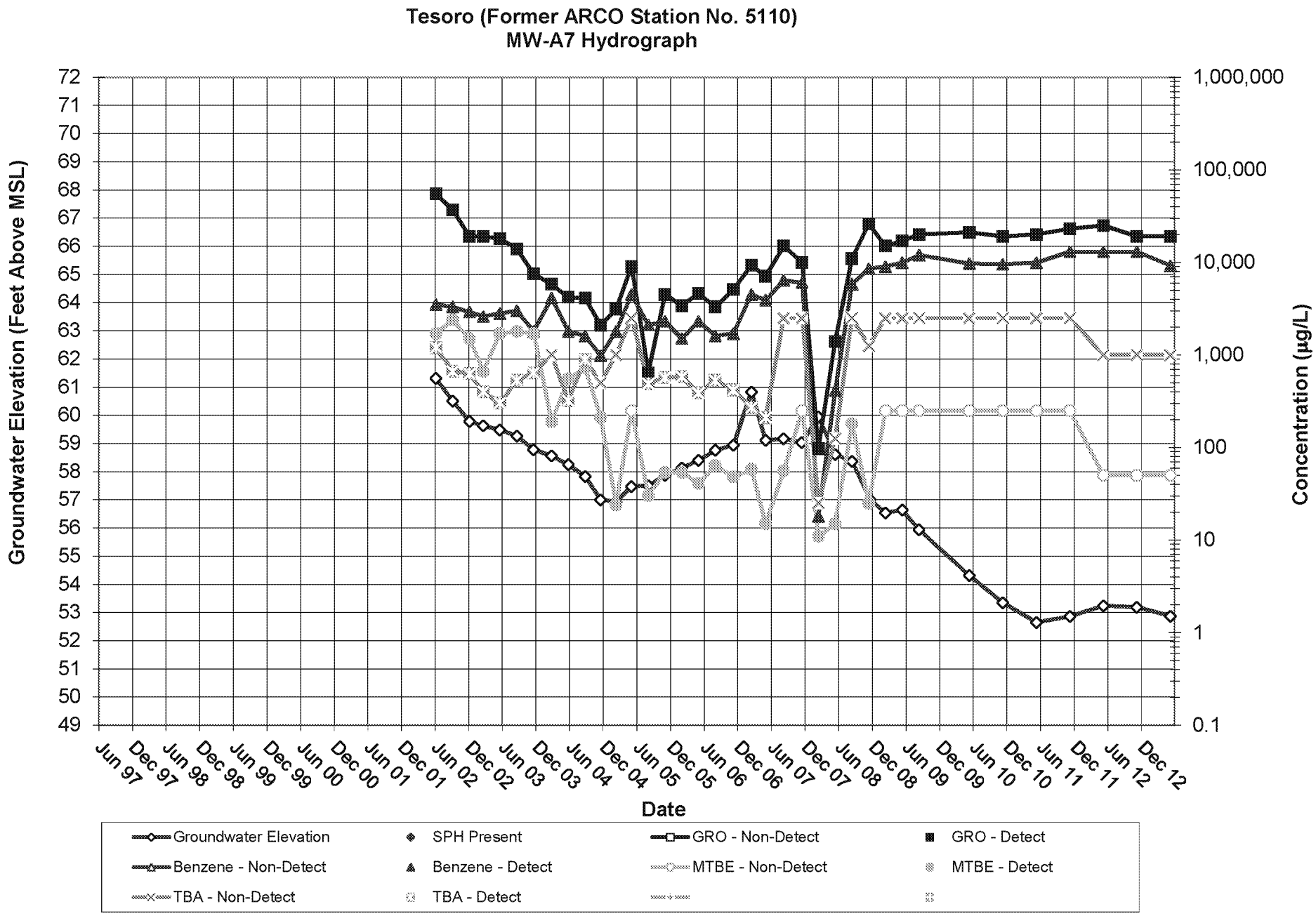
1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

Tesoro (Former ARCO Station No. 5110)
MW-A6 Hydrograph



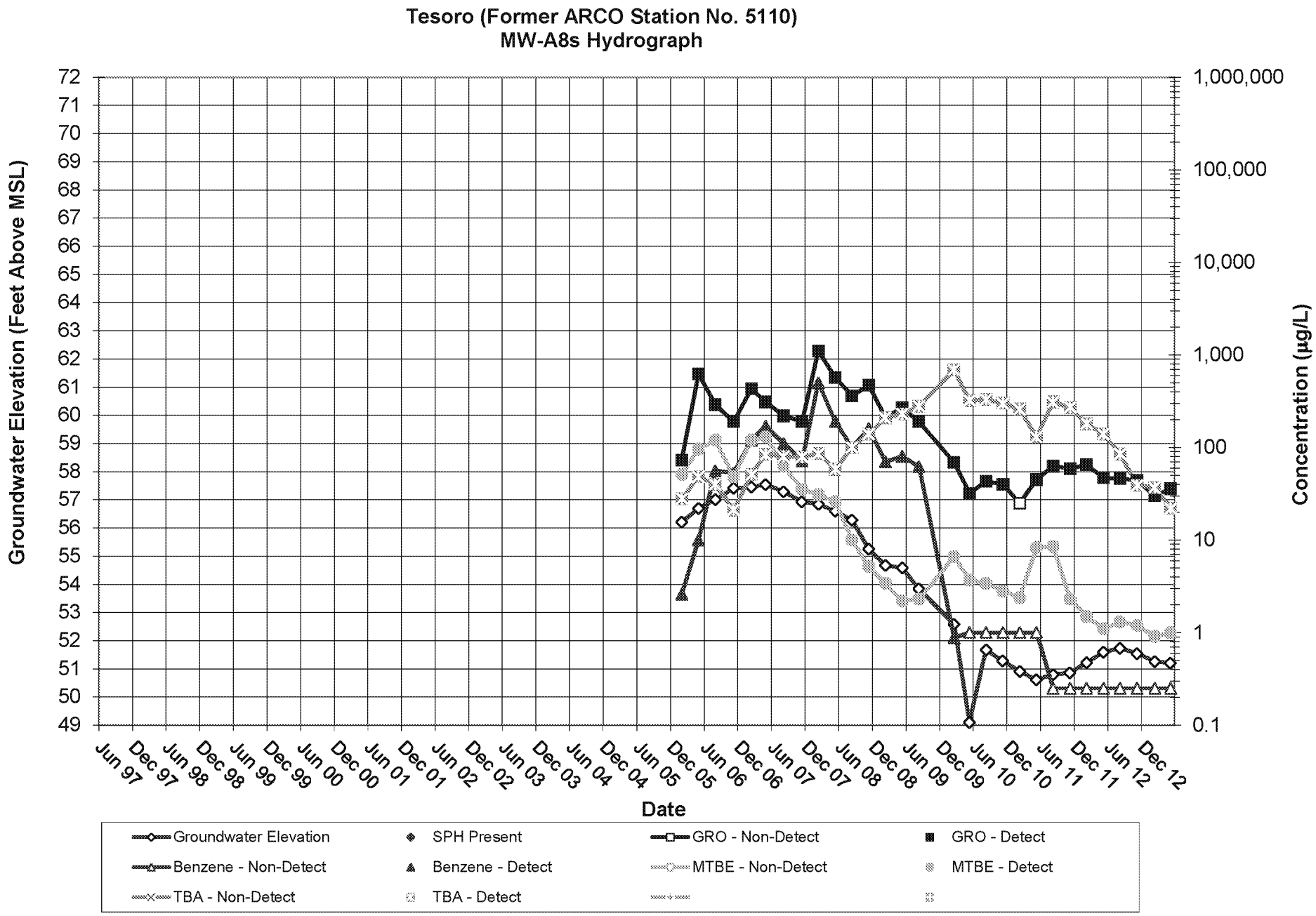
Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



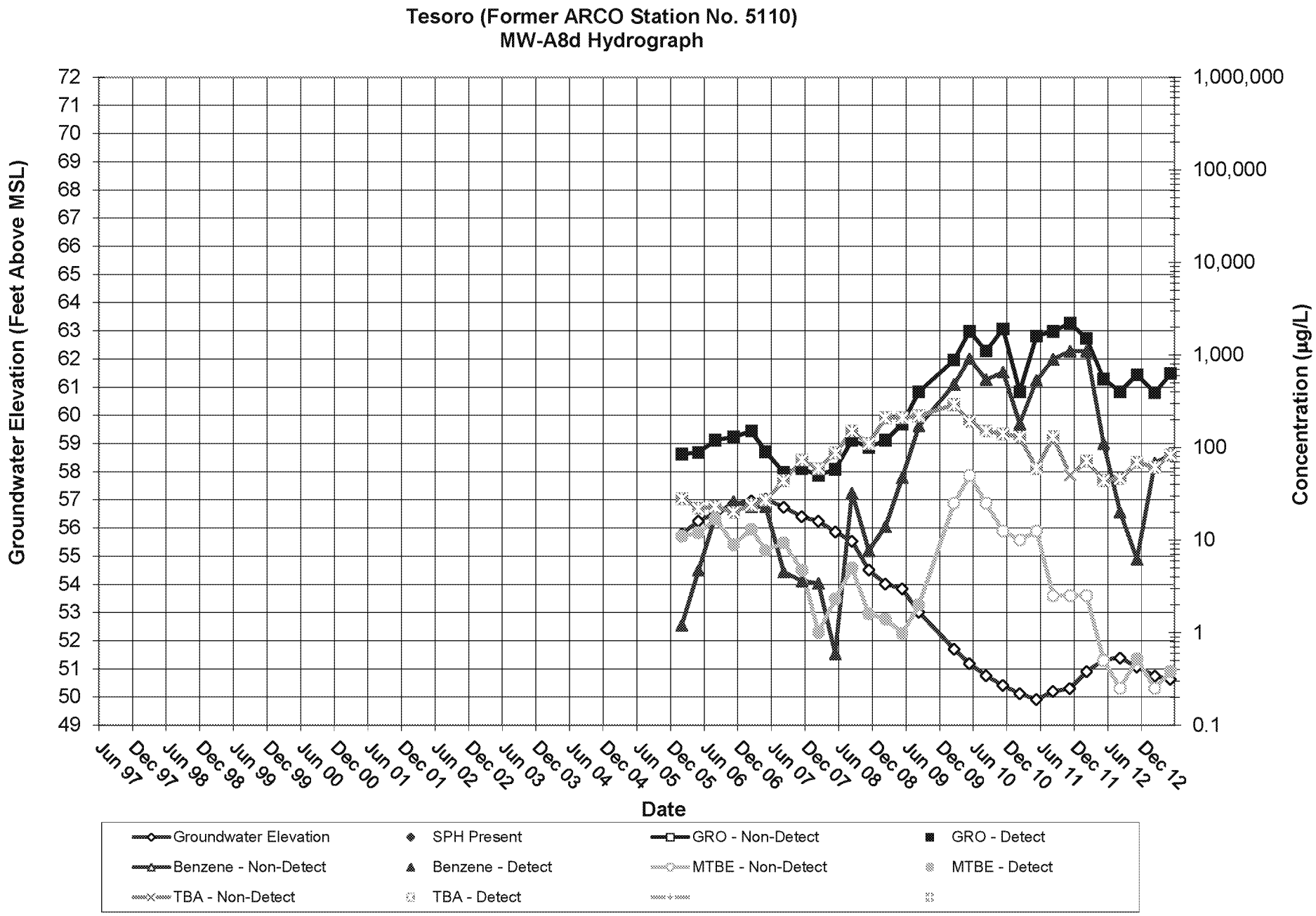
Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



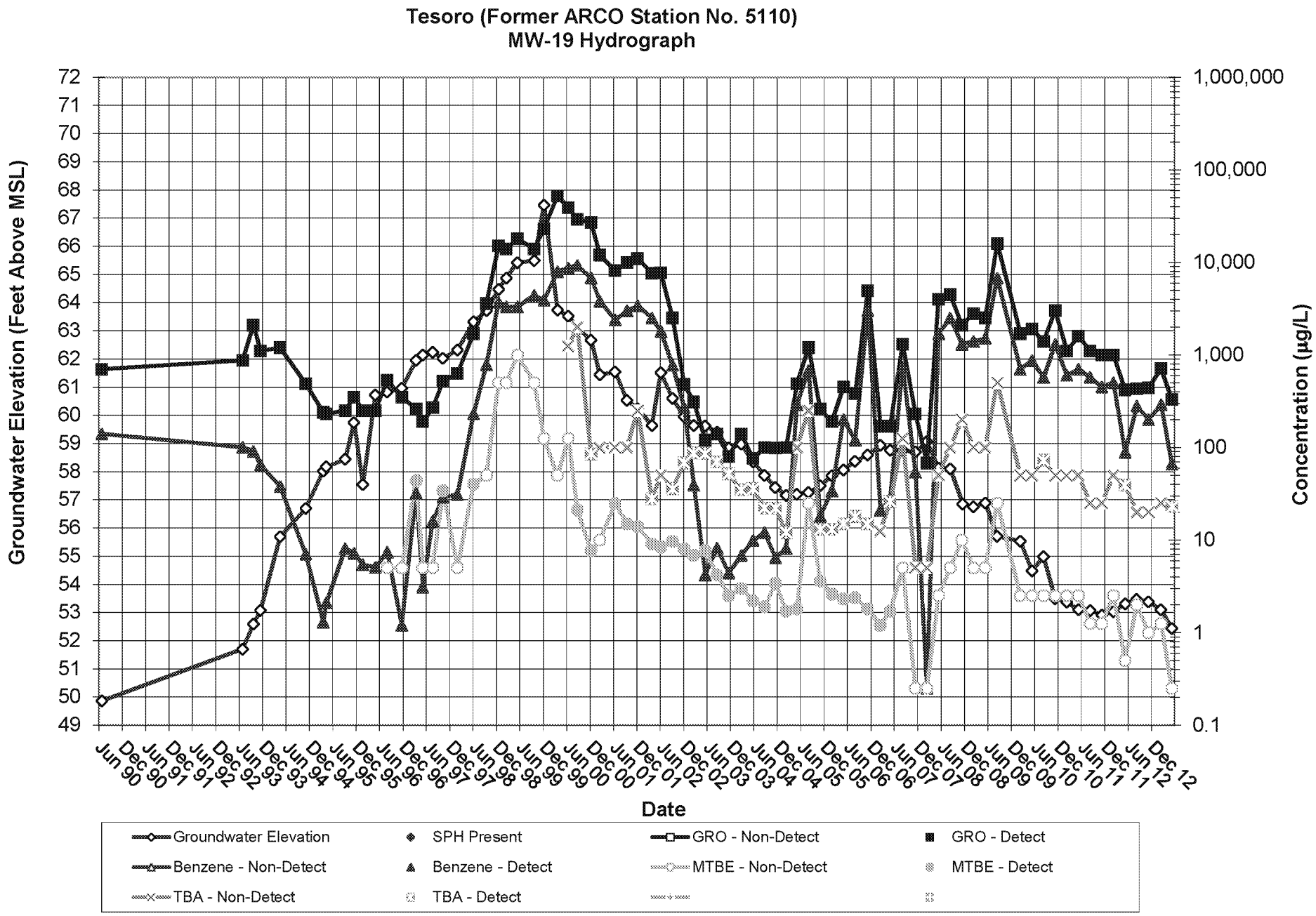
Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



Notes

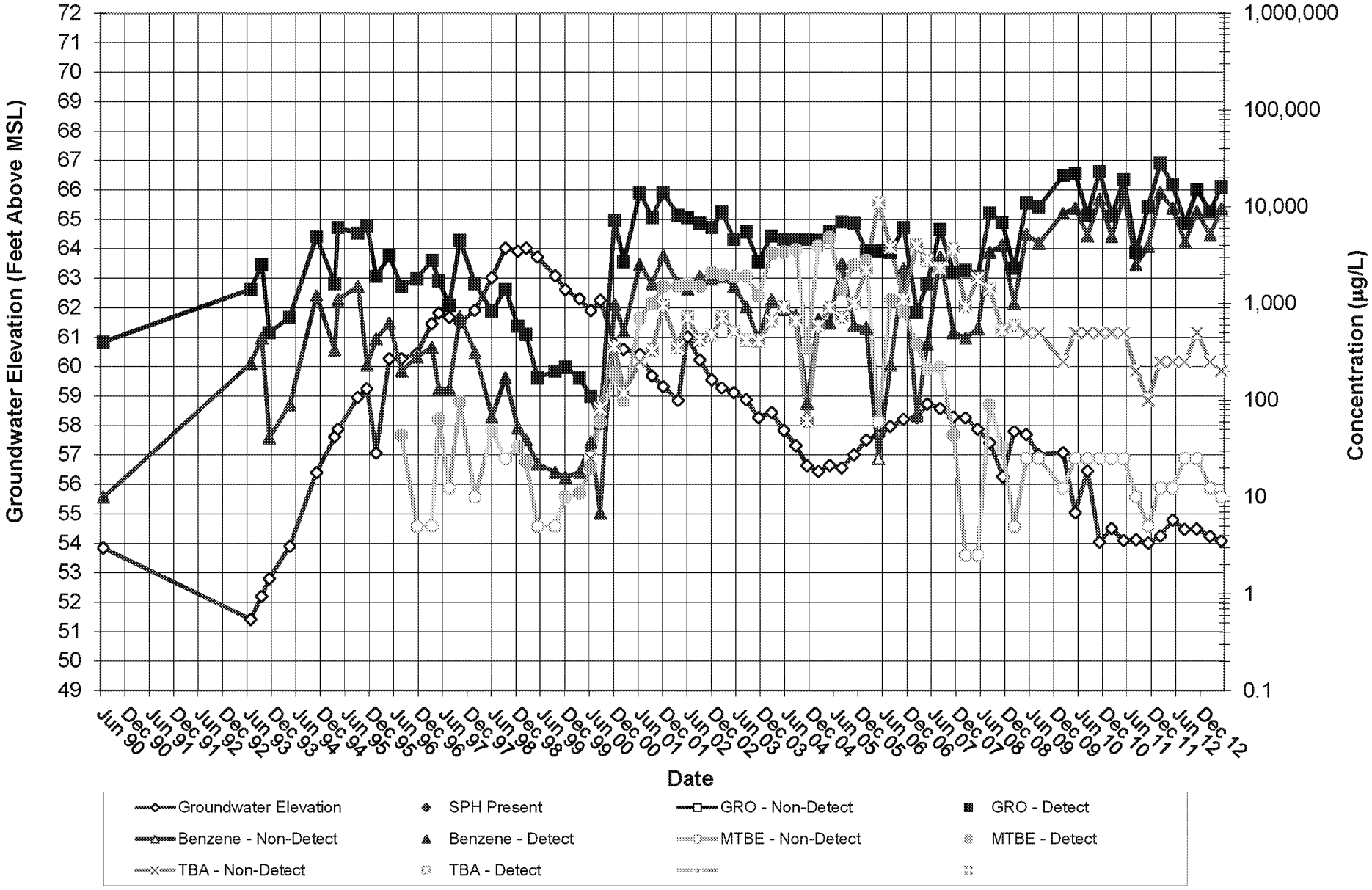
1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

Tesoro (Former ARCO Station No. 5110)
MW-20 Hydrograph



Notes

1. No analytical samples were collected if SPH (separate phase hydrocarbons) was present in the well during the sampling event.
2. Non-detected analytical results are graphed at a concentration of one-half of the laboratory reporting limit.
3. Trend lines are presented for reference purposes only and do not represent professional interpretation.
4. For additional information about data for a given sampling event (such as no data plotted), refer to Table 1.

APPENDICES

APPENDIX A

INTRODUCTION

Stantec Consulting Services Inc. (Stantec), at the request of Tesoro Refining & Marketing Company LLC, on behalf of Tesoro Environmental Resources Company, is submitting this *Site Conceptual Model Update (SCMU)* for Former ARCO Station No. 5110 (Site) located at 5731 Firestone Boulevard, in South Gate, California (Figures 1 and 2). This report was prepared in response to the California Regional Water Quality Control Board – Los Angeles (CRWQCB-LA) letters dated February 28, 2003 and August 27, 2003, titled *Implementation of Final Draft Guidelines for the Investigation and Cleanup of MTBE and Other Oxygenates* (Appendix A). The CRWQCB-LA assigned the Site an investigation and cleanup priority of B2.

Stantec has prepared this report to present a detailed written and graphical description of the Site characteristics and known distribution of petroleum hydrocarbon constituents in soil and groundwater beneath the Site. The SCMU is based on currently available information.

SITE DESCRIPTION

Site Description

Former ARCO Station No. 5110 is an operating retail gasoline station and mini-mart located at the northwest corner of Firestone Boulevard and Garfield Avenue in South Gate, California. The Site is located at an elevation of approximately 107 feet above mean sea level (msl). Local topography slopes to the south-southwest at approximately 0.017 feet per foot (USGS, 1964). The Los Angeles River is located approximately 2,000 feet west of the Site. The Site currently maintains one 20,000-gallon, and one split 24,000-gallon (two 12,000-gallon chambers), Xerxes double-walled fiberglass underground storage tanks (USTs), and four fuel dispenser islands containing a total of eight fuel dispensers. All product piping consists of double-contained fiberglass product lines. All dispensers are equipped with under-dispenser containment sumps. A drive-through carwash facility and associated clarifier are located at the northwestern perimeter of the Site.

Surrounding Land Use

The former ARCO Vinvale Terminal is located approximately 500 feet north of former ARCO Station No. 5110 (Figure 2). The Vinvale Terminal covers an area of approximately 35 acres and currently is used for the storage and on-loading of gasoline and diesel fuel products for former ARCO retail outlets in the Los Angeles metropolitan area.

Surrounding Water Use

The Site is located within the Central Basin Pressure Area of the Central Groundwater basin of the Los Angeles Coastal Plain. The two main formations in this area, Lakewood and San Pedro, contain a series of distinct water-bearing zones that are separated by less-permeable zones or aquiclude. The Lakewood Formation is composed of four hydrostratigraphic zones: the Bellflower Aquiclude, the Exposition Aquifer, an unnamed aquiclude, and the Gage Aquifer. In the Site vicinity, the Bellflower Aquiclude extends from approximately 20 to 95 feet bgs. The underlying Exposition Aquifer can be divided into a middle hydrostratigraphic zone extending from approximately 95 to 210 feet bgs, and a deep hydrostratigraphic zone extending from approximately 210 to 325 feet bgs.

Locally, the Bellflower Aquiclude contains a relatively high percentage of sand and functions as an unconfined to semi-confined aquifer instead of a confining layer. This is the case at former ARCO Station 5110 where groundwater is encountered within the Bellflower Aquiclude at depths ranging from approximately 40 to 57 feet bgs.

APPENDIX B

SITE BACKGROUND

This section presents a summary of historical assessment investigation activities that have been completed at the Site to date. Site maps showing historical soil boring/remedial well locations and historical UST, dispenser, and product line sample locations are included as Figures 3 through 5. A Site map showing hydrocarbon concentrations in soil is included as Figure 6. Historical soil analytical results are summarized in Table 1. Historical groundwater analytical and elevation data are summarized in Table 2. Well construction details are summarized in Table 3.

- In September and October 1989, James M. Montgomery Consulting Engineers, Inc. (JMM) observed the removal of four steel USTs and completed an initial site investigation consisting of the installation of three soil borings (A-1 through A-3) and two groundwater monitoring wells (MW-19 and MW-20). The soil borings and monitoring wells were completed to depths ranging from 57 to 71 feet below ground surface (bgs). Soil samples collected below the USTs contained a maximum total petroleum hydrocarbon as gasoline (TPHg) concentration of 7,900 milligrams per kilogram (mg/kg, 3B-17). Soil samples collected from the soil borings and monitoring wells contained a maximum concentration of 16,000 mg/kg TPHg (A-3-25'). Groundwater was encountered at approximately 57 feet bgs. Hydrocarbon impact was reportedly limited to the area in and around the former USTs (JMM, 1990). Historical figures showing the UST soil sample locations are included in Appendix B.

- In June 1990, JMM installed one nested soil vapor extraction (SVE)/groundwater monitoring well (D-1) and two SVE wells (D-2 and D-3). Soil samples contained TPHg concentrations ranging from below laboratory detection limits to 8,600 mg/kg (JMM, 1990). Groundwater samples contained TPHg concentrations ranging from 400 (MW-19) to 1,600 (D-1) micrograms per liter (µg/L), and benzene concentrations ranging from 10.2 µg/L (MW-20) to 800 µg/L (D-1).

- In March 1991, W.W. Irwin conducted a SVE test to evaluate SVE as a viable remedial alternative (W.W. Irwin, 1991). The radius of influence was determined to range from 76 to 100 feet. Vapor-phase TPHg concentrations ranged from 6,600 to 43,000 parts per million by volume (ppmV). Complete details and results of the SVE pilot test are presented in W.W. Irwin's *Report on Venting Test* dated March 27, 1991.

- In December 1992, JMM completed four additional soil borings (D-4 through D-7) to a depth of approximately 50 feet bgs (JMM, 1993). TPHg was not detected above the laboratory detection limits (<10 mg/kg). Detectable benzene concentrations ranged from 0.005 mg/kg (D-6-10') to 0.33 mg/kg (D-4-50').

- On April 5 and 6, 1994, Pacific Environmental Group, Inc. (PEG) installed one dual nested SVE well (VEW-1) and three triple-nested SVE wells (VEW-2 through VEW-4) to a depth of 60 feet bgs (PEG, 1995). Detectable TPHg concentrations ranged from 1.4 mg/kg (VEW-4-50') to 6,300 mg/kg (VEW-3-30'). Detectable benzene concentrations ranged from 0.006 mg/kg (VEW-1-30') to 60 mg/kg (VEW-2-25').

- Prior to January 30, 1998, PEG installed two off-Site groundwater monitoring wells (MW-A1 and MW-A2) adjacent to the Site. MW-A1 was completed in the southbound lane of Garfield Avenue. MW-A2 was completed in the eastbound lane of Firestone Boulevard. A technical report detailing the installation of these wells was not available.

- On December 1, 1999, SECOR International, Inc. (SECOR) completed two additional on-Site

monitoring wells (MW-A3 and MW-A4). Wells MW-A3 and MW-A4 were completed at the southeast and northwest corners of the Site, respectively, and screened from approximately 35 to 65 feet bgs. A detectable level of TPHg was identified in one soil sample at a concentration of 1.8 mg/kg (MW-A3-40'). Detectable benzene concentrations ranged from 0.0028 mg/kg (MW-A3-55') to 0.21 mg/kg (MW-A3-40). Methyl-tertiary-butyl ether (MTBE) concentrations were identified in one soil sample at a concentration of 0.037 mg/kg (MW-A3-40'; SECOR, 2000).

- On October 21 and 30, 2001, SECOR installed two additional off-Site monitoring wells MW-A5 and MW-A6, respectively. Monitoring well MW-A5 was installed in the eastbound lane of Firestone Boulevard, south of the Site. Monitoring well MW-A6 was installed in the sidewalk of the northbound lane of Garfield Avenue, east of the Site. Groundwater monitoring wells MW-A5 and MW-A6 were completed to a total depth of approximately 65 feet bgs. The well casings were constructed of four-inch diameter Schedule 40 PVC, and were screened (0.020-inch slot) from approximately 30 to 65 feet bgs (SECOR, 2001).

- On January 24 and 25, 2002, SECOR over-drilled and abandoned four SVE wells (VEW-1, VEW-3, VEW-4, and D-2), and one dual completion groundwater monitoring well/SVE (D-1). The wells were abandoned to accommodate scheduled demolition/renovation activities including removal and replacement of the USTs and re-location of the station building (SECOR, 2002a).

- From January through March, 2002, the Site was completely demolished and re-constructed. Demolition activities included removal of four 10,000-gallon, double-walled fiberglass USTs, all product dispensers, all associated subsurface product piping, dispenser island canopy, a clarifier associated with the former carwash, and demolition of the former station building. Renovation activities included installation of new USTs at the southern perimeter of the Site, new dispenser islands, new subsurface product and electrical piping, a new dispenser island canopy, new station building and carwash. A total of 27 soil samples were collected from beneath the USTs, clarifier, dispensers, and product lines and from the bottom of the new tankpit. Detectable concentrations of adsorbed-phase petroleum hydrocarbons were identified in 18 of the 27 submitted samples. The highest concentrations of adsorbed-phase hydrocarbons were detected in samples collected beneath the USTs (SECOR, 2002b). The maximum hydrocarbon concentrations were as follows: gasoline range organics (C4-C12; GRO) – 8,800 mg/kg (TK-4A-17); benzene – 16 mg/kg (TK-4A-17); MTBE – 8.1 mg/kg (TK-1B-17); and tertiary butanol (TBA) – 24 mg/kg (TK-4B-17). A total of approximately 2,115 tons of hydrocarbon-impacted soil was generated during the UST removal activities and transported to TPS Technologies, in Adelanto, California for disposal/recycling.

- On February 14, 2002, one 20,000-gallon, and one split 24,000-gallon (two 12,000-gallon chambers), Xerxes double-walled fiberglass USTs were installed in a new tankpit located at the southern end of the Site. New double-contained fiberglass product piping was installed from the USTs to four new dispenser islands, and under-dispenser containment sumps were installed below the new dispensers. A new clarifier was installed on-Site for use with the new on-Site car wash facility. Prior to installation of the new USTs, four baseline soil samples (NTK-1A-18', NTK-1B-18', NTK-2A-18', and NTK-2B-18') were collected from the bottom of the new tankpit excavation (SECOR, 2002b).

- In March 2002, SECOR supervised the trenching and installation of approximately 400 feet of subsurface remedial conveyance piping at the Site. The remedial piping was installed to implement possible future SVE activities at the Site. Subsurface piping was constructed using one inch air sparge (AS) lines, two inch (SVE) lines, within six inch diameter PVC casing and was extended to existing vapor extraction wells D-3 and VEW-2, and strategic future locations to accommodate possible remedial well installations at the Site (18-inch diameter well boxes).

- On April 16, 2002, SECOR advanced one soil boring within the former UST basin and converted it to a dual-nested groundwater monitoring/SVE well (MW-A7), to replace abandoned groundwater monitoring well D-1 (SECOR, 2002a). MW-A7 was constructed using two-inch (SVE) and four-inch (groundwater monitoring) diameter PVC casing screened (0.020-inch slot) from approximately ten to 30 feet bgs and 35 to 60 feet bgs, respectively. A total of 12 soil samples were collected and analyzed. Detectable concentrations of petroleum hydrocarbon constituents were identified in all 12 samples. Maximum petroleum hydrocarbon concentrations were identified as follows: GRO – 1,400 mg/kg (MW-A7-30); benzene – 1.5 mg/kg (MW-A7-25); MTBE – 7.7 mg/kg (MW-A7-20); and TBA – 16 mg/kg (MW-A7-20).

- In a letter dated February 28, 2003, entitled *Implementation of Final Draft Guidelines for the Investigation and Cleanup of MTBE and Other Oxygenates,* the CRWQCB-LA assigned the Site a cleanup priority of B2 (issued to all sites greater than 1,000 feet and less than 3,000 feet from a receptor, with or without MTBE/oxygenates detection: Appendix A).

- SECOR submitted a Remedial Action Plan (RAP) dated June 25, 2003, in which SECOR proposed the installation of an AS/SVE system. In the RAP, SECOR proposed using existing SVE wells VEW-2 and D-3, monitoring well MW-A7, and installing five AS/SVE wells to implement the proposed AS/SVE remedial system.

- In a letter dated August 27, 2003, the CRWQCB-LA approved the installation of the five proposed AS/SVE wells and installation of the proposed remedial AS/SVE system (Appendix A).

- From September 29 through October 4, 2003, SECOR installed five triple nested AS/SVE wells (AS/SVE-1 through AS/SVE-5). A total of 70 soil samples were collected and analyzed from soil borings AS/SVE-1 through AS/SVE-5. The maximum concentrations of adsorbed-phase hydrocarbons were identified as follows: GRO – 6,700 mg/kg (AS/SVE-2-45), benzene – 12 mg/kg (AS/SVE-2-45), and MTBE – 11 mg/kg (AS/SVE-2-30). AS wells were completed using 1-inch diameter Schedule 80 PVC with a 2-foot stainless steel air sparge point set to depths ranging from approximately 60 to 68 feet bgs. The nested SVE wells were completed using Schedule 40 PVC with 0.020 slotted screen intervals extending from approximately 7 to 27 and 35 to 55 feet bgs.

- Two soil samples were submitted from soil boring AS/SVE-2 (AS/SVE-2-58 and AS/SVE-2-65) for physical property data analysis to determine soil classification, particle size and distribution, and hydraulic conductivity (K). Sample AS/SVE-2-58 and AS/SVE-2-65 are silty sands representative of the aquifer material with vertical K values of 1.51×10^{-4} and 4.42×10^{-5} centimeters per second (cm/s), respectively. A value of 10^{-6} is the approximate K value for clay and is considered the standard for a competent confining layer. Laboratory physical property data were included in SECOR's Fourth Quarter 2003 Site Conceptual Model Update Report (SCMU), dated January 15, 2004.

- On October 12, 2005, SECOR installed off-Site, dual-nested groundwater monitoring well MW-A8. A total of 18 soil samples were collected and analyzed. GRO and benzene were not identified above the laboratory reporting limit (RL) in any of the samples. MTBE was identified in the 65 foot sample at a concentration of 0.0067 mg/kg (MW-A8-65) and TBA was identified in the 90 foot sample at a concentration of 0.095 mg/kg (MW-A8-90). Well MW-A8 was completed using Schedule 40 PVC with 0.020 slotted screen intervals extending from approximately 43 to 63 and 74 to 93 feet bgs.

- On December 10 through 12 and 18, 2008, Stantec oversaw the advancement of four on-Site oxygen diffuser wells (DW-1 through DW-4) adjacent to the location of the current monitoring wells (MW-A3, MW-A4, MW-20, and MW-A7). These diffuser wells were installed for individual

oxygen diffuser units to remediate elevated concentrations of dissolved-phase hydrocarbons beneath the Site (Figure 2). A total of 13 soil samples were submitted for chemical analyses. Detectable concentrations of petroleum hydrocarbon constituents above the laboratory reporting limit (LRL) were identified in 12 of the samples. The maximum concentrations of adsorbed-phase hydrocarbons were identified as follows: GRO – <18 mg/kg (DW-2-S-60), benzene – 1.10 mg/kg (DW-2-S-60), MTBE – <0.21 mg/kg (DW-2-S-60), and TBA – <4.2 mg/kg (DW-2-S-60). Concentrations qualified by a "J flag" are estimated values detected at a level below the laboratory LRL and above the laboratory method detection limit (MDL).

- On January 12, 2009, Stantec oversaw the survey of wells AS/SVE-1 through AS/SVE-5, AS-7, DW-1 through DW-4, D-3, MW-A3, MW-A4, MW-7, MW-19, MW-20, and VEW-2.

- On July 31, 2009, Stantec installed the individual oxygen diffuser units in diffuser wells (DW-1 through DW-4), and conducted monitoring of the iSOC™ system on monthly O&M monitoring events schedule.

- On April 27, 2011 the current catalytic oxidation SVE System was shut down, due to low concentrations (system is monthly bump tested). The SVE System was turned on and brought up to temperature on February 6, and April 4, 2013. The SVE Remediation Systems began operation on May 8, 2007 and has operated for a cumulative time of 20,561 hours and removed 50,752 cumulative pounds of hydrocarbons. Stantec is currently evaluating SVE alternatives for remediation. The AS System is currently operating on a continuous (24 hour) basis.

- Quarterly and/or semi-annual groundwater monitoring and sampling has been conducted at the Site since June 1993.

Record Fee Title Holder Information

Based on historical groundwater analytical data, the following adjacent properties may potentially be impacted by releases originating from former ARCO Station No. 5110. Stantec updated this information during the Second Quarter 2011 (updated Property Grant Deeds were included in the Fourth Quarter 2011 SCMU).

- Former ARCO Station #5110
  Property Address: 5731 East Firestone Boulevard, South Gate, California
  Assessor's Parcel Number: 6232-002-004
  Owner: Tesoro Environmental Resources Company
  Mailing Address: 6 Centerpointe Drive, 5C028, La Palma, California 90623
  Source: Tesoro files

- Commercial/Industrial
  Property Address: 5700 Firestone Boulevard, South Gate, California, located south of the Site, across Firestone Boulevard.
  Assessor's Parcel Number: 6232-009-009 (formally 6232-009-003)
  Owner: Mann Enterprises, Inc. (C/O Robert Griffin)
  Mailing Address: 8095 Othello Avenue, San Diego, CA 92111-3713
  Source: Los Angeles County Recorder & Los Angeles County Assessor's Office

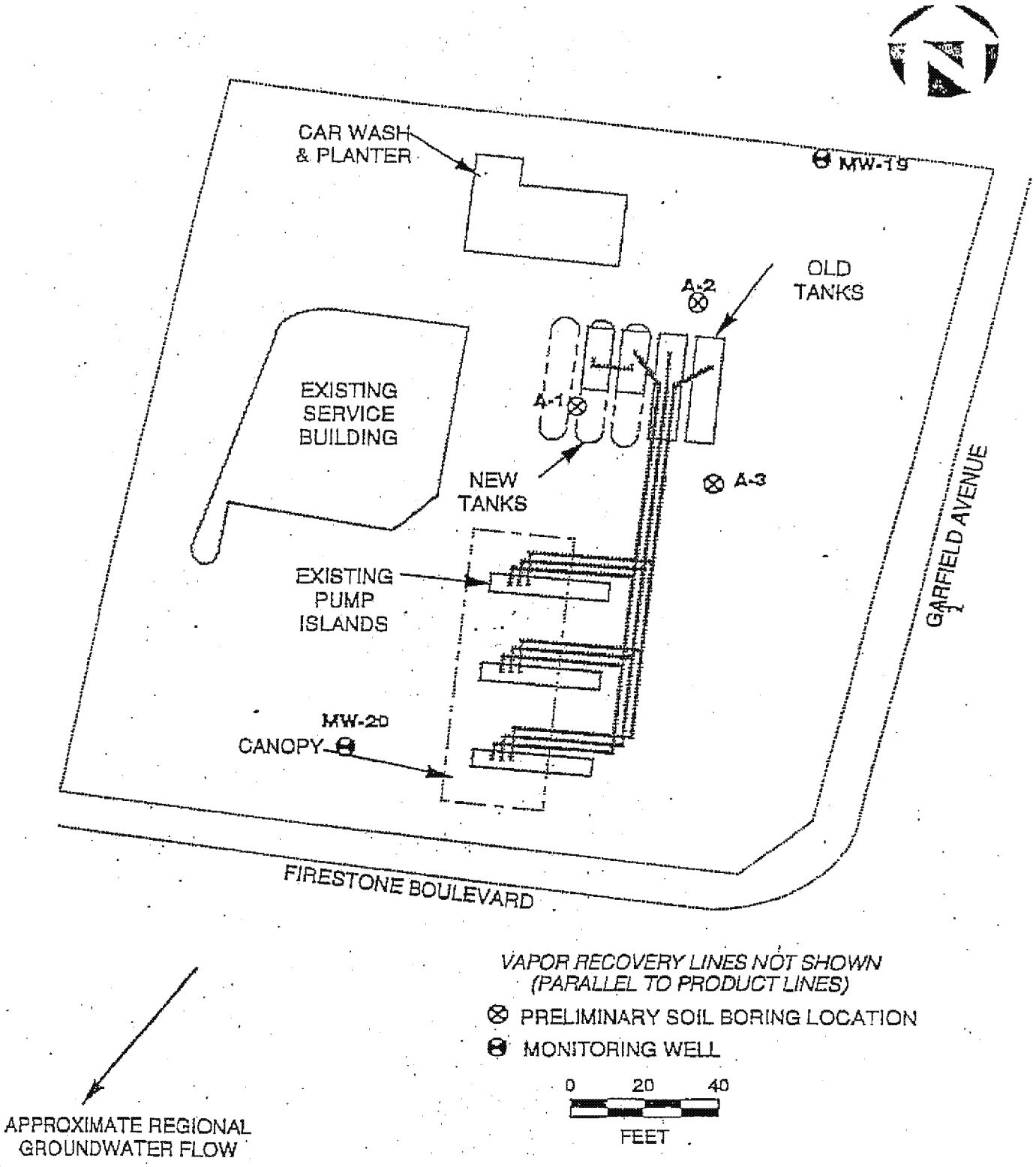
- Vacant Land (Former Car Dealership)
  Property Address: 5820 Firestone Boulevard, South Gate, California, located southeast of the Site, across Firestone Boulevard
  Assessor's Parcel Number: 6232-007-022 (formerly known as 6232-007-021 and 6232-007-022)

Owner: Gonzalez, Silvestre Tr aka SG Family Trust
Mailing Address: PO Box 1894, South Gate, California 90280
Source: Los Angeles County Recorder & Los Angeles County Assessor's Office

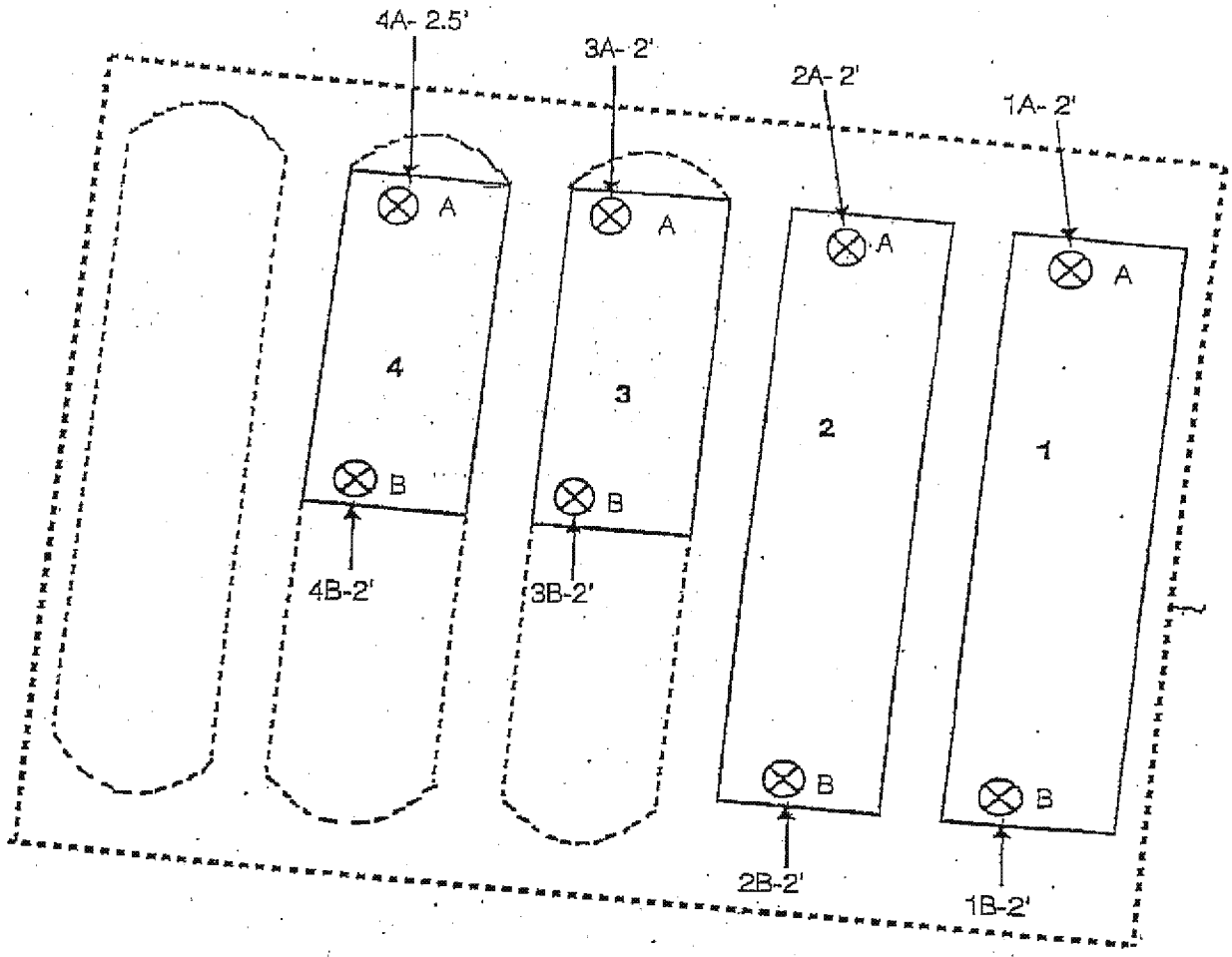
- Denny's Restaurant
  Property Address: 5811 Firestone Boulevard, South Gate, California, located east of the Site, across Garfield Avenue
  Assessor's Parcel Number: 6232-004-016
  Owner: SGD Property Inc.
  Mailing Address: 12377 Lewis Street, #201, Garden Grove, CA 92840-4692
  Source: KnowX LLC (Real Estate Records Research Company).

APPENDIX C

HISTORIC FIGURES AND BORING LOGS



ARCO AM/PM #5110
Site Map and Preliminary Sample Locaitons
Figure 2



0 5 10
FEET

SAMPLE A-3

1 TANK 1

APPROXIMATE LOCATION OF NEW TANK

APPROXIMATE EXTENT OF EXCAVATION

ARCO SERVICE STATION #5110
SAMPLE LOCATIONS BENEATH REMOVED TANKS
FIGURE 3

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-A1
DATE DRILLED 9/19/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENT
GEOLOGIST GREG KUPILLAS

DEPTH, FT	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
5	■	4/ 5/ 6	SAND with CLAY: very slightly moist, dark gray (stained), fine to medium sand with some fines. Fines appear mostly as small silt or clay balls. Hydrocarbon odor. OVM = 74.		
10	■	6/ 4/ 11	SAND with Silt: dark gray (stained), fine sand with some silt (~30 %). Hydrocarbon odor. OVM = 241.	SM	Hole backfilled with neat cement grout.
15	■	6/ 11/ 14	SAND with Silt: light tan-gray (stained), fine sand with some silt. Very similar to 10-ft. sample, but is lighter and contains less silt (~20 %). Hydrocarbon odor. OVM = 233.		
20	■	9/ 10/ 12	SAND with Silt: as above. OVM = 319.		

METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 6-3/4 Inch
COMPLETION DEPTH 41 ft

WELL DIAMETER none
WELL MATERIAL none
WELL DEVELOPMENT none

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-A1 CLIENT ARCO PRODUCTS
DATE DRILLED 9/20/89 PROJECT PREDRILL SITE ASSESSMENTS
ELEVATION NOT AVAILABLE GEOLOGIST GREG KUPILLAS

DEPTH, FT	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
				SM	
25		10/ 11/ 12	SAND with Silt: light tan-gray (stained), fine sand with some silt (~20%). Hydrocarbon odor. OVM = 350.		
			CLAY with SAND: dark gray (stained), clay with some fine sand (~30 %). Hyrocarbon odor. OVM = 350.	CL	
			SAND with SILT: moist, gray (stained), fine sand with some silt. OVM = 297.	SM	
30		13/ 25/ 22	POORLY GRADED SAND: light gray (stained), medium to coarse sand with little or no fines. Hydrocarbon odor.	SP	Hole backfilled with neat cement grout.
			SAND with SILT: moist, gray (stained), fine sand with some silt. Hydrocarbon odor.	SM	
35		24/ 35/ 27	POORLY GRADED SAND: slightly moist, light gray (stained), fine sand with little or no fines. Hydrocarbon odor. OVM = 257.	SP	
40		16/ 25/ 32	POORLY GRADED SAND: slightly moist, light gray (stained), predom. med. sand with some fine sand and little or no fines.. Hydrocarbon odor. OVM = 276.		
					Total depth of boring. No groundwater encountered.

METHOD OF DRILLING Hollow Stem Auger WELL DIAMETER none
HOLE DIAMETER 6-3/4 inch WELL MATERIAL none
COMPLETION DEPTH 41 ft WELL DEVELOPMENT none

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *5110-A2* CLIENT *ARCO PRODUCTS*
DATE DRILLED *9/20/89* PROJECT *PREDRILL SITE ASSESSMENTS*
ELEVATION *NOT AVAILABLE* GEOLOGIST *GREG KUPILLAS*

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
5	■	2/ 3/ 4	*CLAY with SAND: slightly moist, dark gray, moderately soft clay with some fine sand. Strong hydrocarbon odor. OVM = 171.*	CL	
10	■	4/ 4/ 6	*SILT with SAND: slightly moist, gray-brown silt with much fine sand. Strong hydrocarbon odor. OVM = 142.*	ML	*Hole backfilled with neat cement grout.*
15	■	7/ 13/ 16	*POORLY GRADED SAND: slightly moist, light gray-brown, fine sand with little fines. Strong hydrocarbon odor. OVM = 235.*	SP	
20	■	8/ 10/ 13	*POORLY GRADED SAND: same description as for 15-ft. sample except gray coloring seems to result, in part, from staining. OVM = 317.*		

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *none*
HOLE DIAMETER *6-3/4 inch* WELL MATERIAL *none*
COMPLETION DEPTH *41 ft* WELL DEVELOPMENT *none*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-A2
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
				SP	
25		7/ 10/ 10	SAND with SILT: light gray-brown (stained), fine sand with some silt. Strong heavy hydrocarbon odor. OVM = 413.	SM	
			CLAY: gray (stained) clay with little to some (10-20 %) fine sand. Strong heavy hydrocarbon odor. OVM = 413.	CL	
30		12/ 17/ 24	SAND with SILT: very moist, gray (stained), fine sand with some silt. Sample appears nearly saturated with product. Strong gasoline odor. OVM = 460.	SM	Hole backfilled with neat cement grout.
			WELL GRADED SAND: very moist, light gray (stained), well graded fine to coarse sand with little or no fines. Sample appears nearly saturated with product. Strong gasoline odor. OVM = 460.	SW	
35		15/ 22/ 28	WELL GRADED SAND: very moist, light gray (stained), well graded, fine to coarse sand with little or no fines. Sample appears nearly saturated with product. Very strong gasoline odor. OVM = 449.		
40		25/ 29/ 27	POORLY GRADED SAND: moist, light gray (stained), poorly graded, fine to medium sand with little or no fines. Very strong gasoline odor. OVM = 508.	SP	
					Total depth of boring. No groundwater encountered.

METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 6-3/4 inch
COMPLETION DEPTH 41 ft

WELL DIAMETER none
WELL MATERIAL none
WELL DEVELOPMENT none

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-A3
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
5	■	3/ 3/ 3	SAND with CLAY: moist, dark gray, fine to medium sand with much clay. No obvious hydrocarbon odor. OVM = 0.	SC	
10	■	3/ 4/ 7	SILT with SAND: moist, dark gray silt with much fine sand and little clay. Faint hydrocarbon odor. OVM = 13.	ML	Hole backfilled with neat cement grout.
15	■	8/ 11/ 15	SAND with SILT: moist, brown, fine sand with some silt. Obvious hydrocarbon odor. OVM = 272.	SM	
20	■	9/ 10/ 15	POORLY GRADED SAND: moist, light gray, poorly graded fine sand with little fines. Obvious hydrocarbon odor. OVM = 247.	SP	

METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 6-3/4 inch
COMPLETION DEPTH 41 ft

WELL DIAMETER none
WELL MATERIAL none
WELL DEVELOPMENT none

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-A3
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
				SP	
25		9/ 13/ 15	SAND with SILT: moist, brown (stained), fine sand with some silt. Strong hydrocarbon odor. OVM = 428.	SM	
			CLAY: moist, dark gray (stained), soft clay with little fine sand. Strong hydrocarbon odor. OVM = 428.	CL	
30		14/ 21/ 27	POORLY GRADED SAND: moist, gray, medium to coarse, poorly graded sand with little or no fines. Strong hydrocarbon odor. OVM = 211.		Hole backfilled with neat cement grout.
35		13/ 18/ 23	POORLY GRADED SAND: moist, light gray (stained), poorly graded fine sand with little or no fines. Strong hydrocarbon odor. OVM = 187.	SP	
40		9/ 15/ 24	POORLY GRADED SAND: same description as for 35-ft. sample. Strong hydrocarbon odor. OVM = 308.		
					Total depth of boring. No groundwater encountered.

METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 6-3/4 inch
COMPLETION DEPTH 41 ft

WELL DIAMETER none
WELL MATERIAL none
WELL DEVELOPMENT none

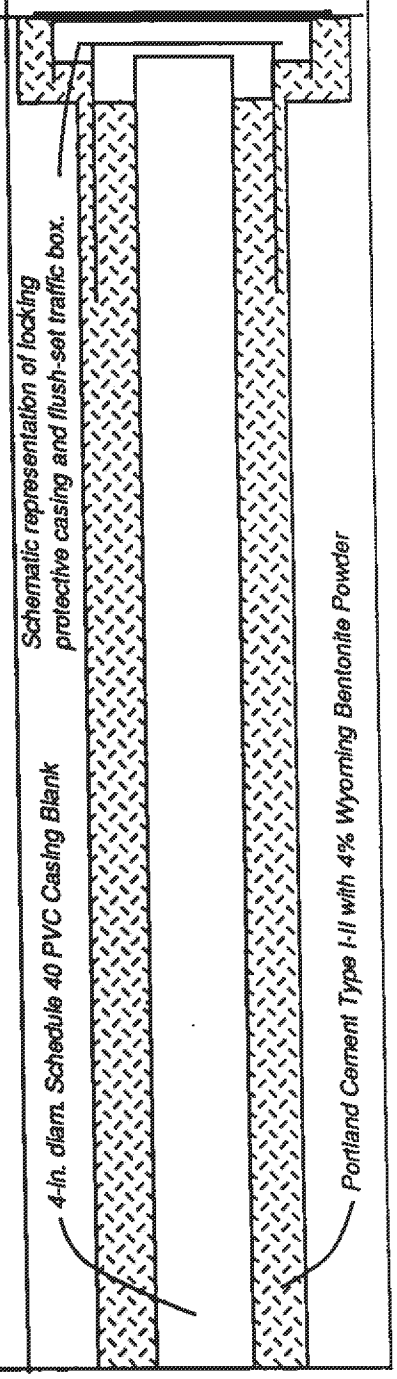
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW19
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
5				
10	■	4/ 5/ 6	SAND with SILT: moist, dark gray to black, fine sand with much (40-50%) silt and little clay. No obvious hydrocarbon odor. OVM = 3.	SM
15				
20	■	4/ 10/ 13	SAND with SILT: very moist, gray-brown, fine sand with little to some silt (10-15%). No obvious hydrocarbon odor. OVM = 5.	SM

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Ball and Surge

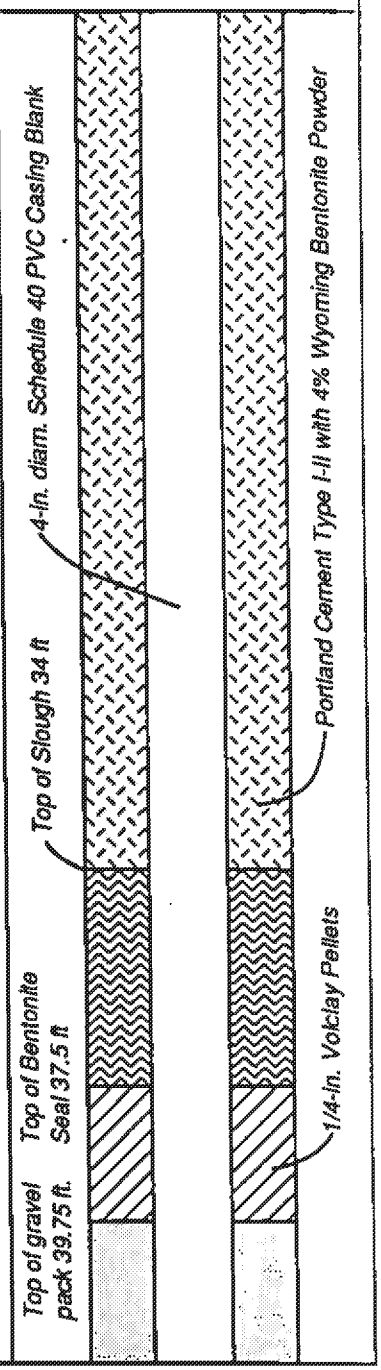
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW19
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
25			Soil cuttings from 25 to 30 feet are very moist--have a slight hydrocarbon odor.	
30	■	23/ 35/ 43	POORLY GRADED SAND: slightly moist, light gray-tan, predom. medium sand with little or no fines. Gasoline odor. OVM = 186.	SP
35				
40	■	18/ 26/ 30	POORLY GRADED SAND: slightly moist, light gray, predom. medium sand with little or no fines. Gasoline odor. OVM = 141.	SP

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

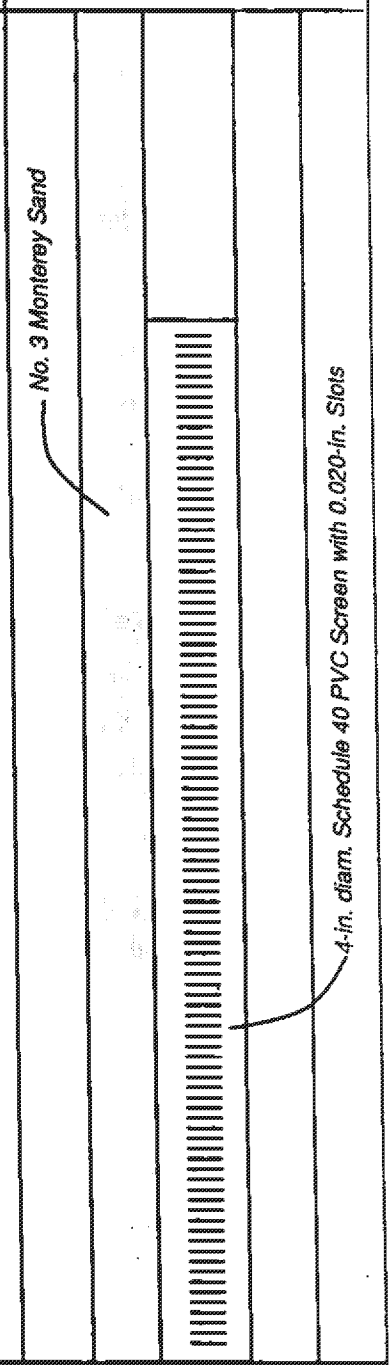
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW19
DATE DRILLED 9/20/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
45				
50		9/ 13/ 27	SAND with SILT: moist, dark gray fine sand with some to much silt (25-35%). Faint hydrocarbon odor. OVM = 6.	SM
55			Water Level = 57.72 BGL, 9/21/89	
60		6/ 8/ 11	POORLY GRADED SAND: saturated, gray, fine sand with little fines. No hydrocarbon odor. OVM = 0.	SP

WELL SKETCH

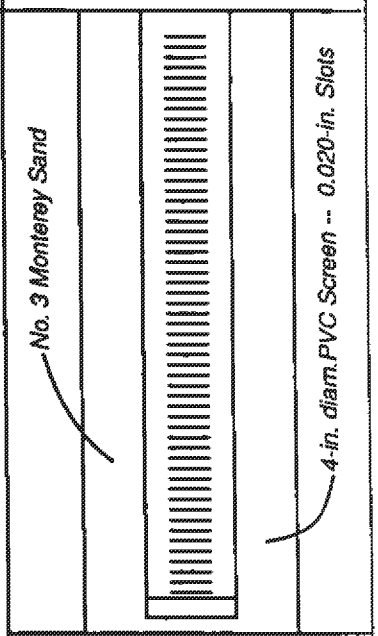


METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *5110-MW19* CLIENT *ARCO PRODUCTS*
DATE DRILLED *9/20/89* PROJECT *PREDRILL SITE ASSESSMENTS*
ELEVATION *NOT AVAILABLE* GEOLOGIST *GREG KUPILLAS*

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
65			*Hard drilling beginning at about 67 ft.*		
70			*SAND with SILT: saturated, dark gray, fine sand with much silt. (Grab sample from bit end of lead auger).*	*SM*	*Total Depth Drilled 70.3 ft*

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *4 inch*
HOLE DIAMETER *10 inch* WELL MATERIAL *Schedule 40 PVC*
COMPLETION DEPTH *71 ft* WELL DEVELOPMENT *Bail and Surge*

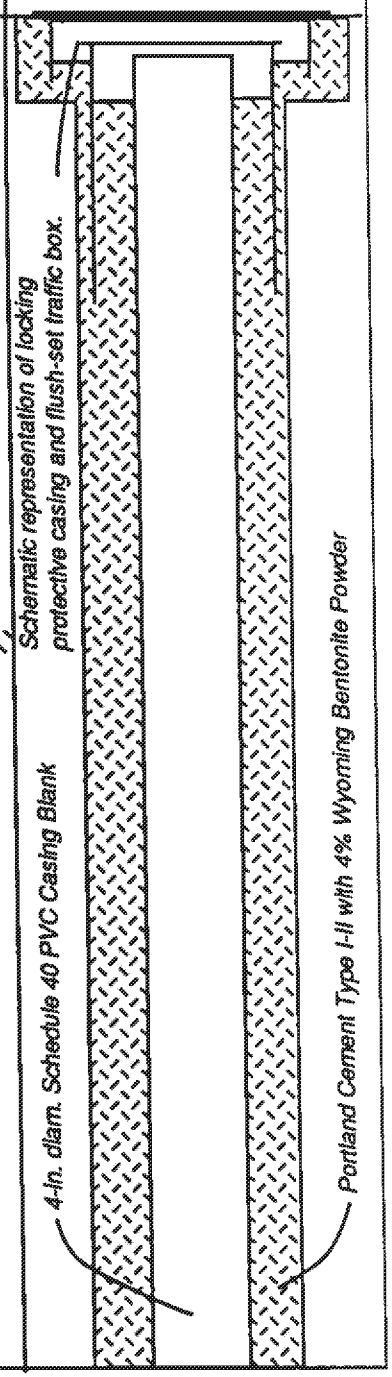
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW20
DATE DRILLED 9/21/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
5				
10		4/ 5/ 5	SAND with SILT: slightly moist, dark gray, fine sand with much silt. No obvious hydrocarbon odor. OVM = 4.	SM
			CLAY with SAND: moist, black, stiff clay with some to much fine sand. No obvious hydrocarbon odor. OVM = 4.	CL
15				
20		5/ 10/ 12	POORLY GRADED SAND: slightly moist, light gray, fine sand with little or no fines. No obvious hydrocarbon odor. OVM = 53.	SP

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

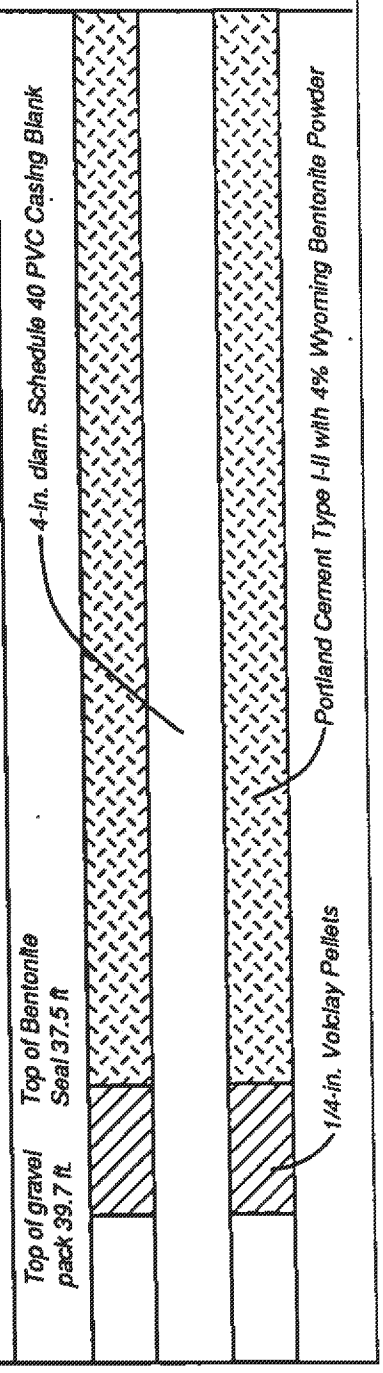
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW20
DATE DRILLED 9/21/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
25				
			POORLY GRADED SAND: brown, fine sand with little silt. Faint hydrocarbon odor. OVM = 188.	SP
30		8/ 15/ 24	SAND with SILT: dark gray, fine sand with much silt. Faint hydrocarbon odor. OVM = 180.	SM
			POORLY GRADED SAND: gray, fine sand with little or no fines. Faint hydrocarbon odor. OVM = 190.	SP
35				
40		16/ 24/ 33	WELL GRADED SAND: slightly moist, gray, fine to coarse sand with little or no fines. Faint hydrocarbon odor. OVM = 190.	SW

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Ball and Surge

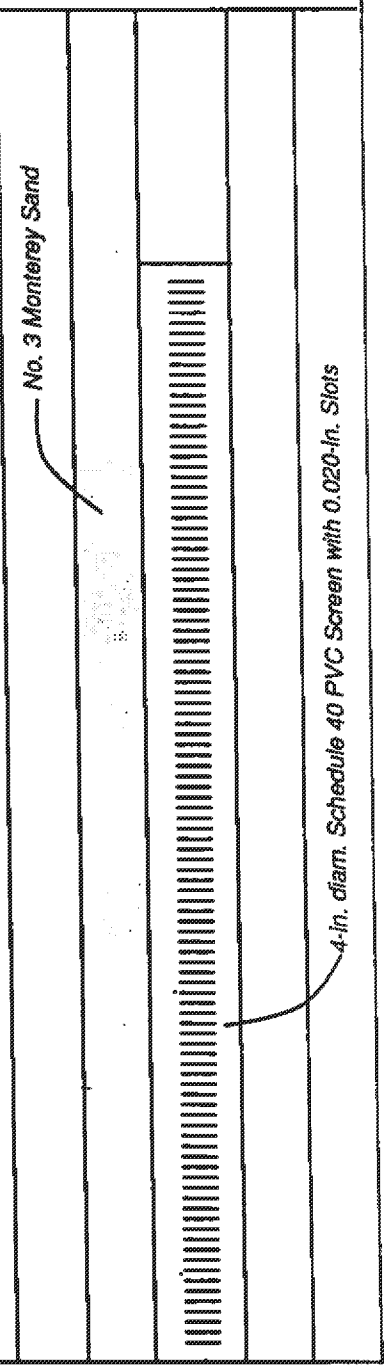
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-MW20
DATE DRILLED 9/21/89
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT PREDRILL SITE ASSESSMENTS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
45				
50	■	13/ 29/ 40	SAND with SILT: moist, dark gray, fine sand with some silt (~25%). Faint hydrocarbon odor. OVM =115.	SM
55				
60	■	13/ 20/ 38	SAND with SILT: saturated, dark gray, fine sand with some silt (15-25%). No obvious hydrocarbon odor. OVM = 1.	SM

WELL SKETCH



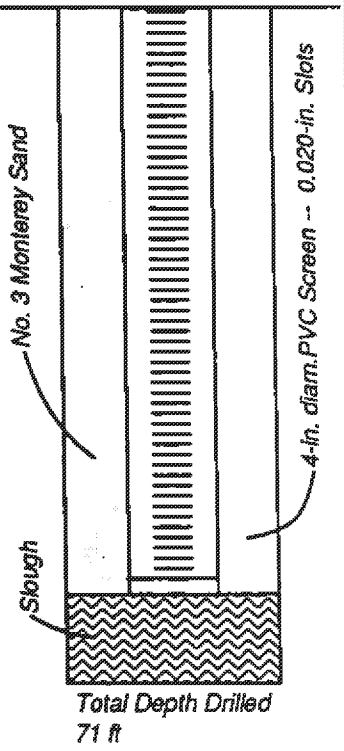
METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 Inch
COMPLETION DEPTH 71 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Ball and Surge

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

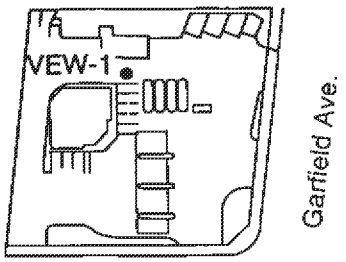
BORING NUMBER *5110-MW20* CLIENT *ARCO PRODUCTS*
DATE DRILLED *9/21/89* PROJECT *PREDRILL SITE ASSESSMENTS*
ELEVATION *NOT AVAILABLE* GEOLOGIST *GREG KUPILLAS*

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL	WELL SKETCH
65			*Hard drilling starting at about 67 feet.*		
70			*SAND with SILT: saturated, dark gray, fine sand with little to some silt (10-20%). Grab sample from bit end of lead auger.*	SM	



METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *4 inch*
HOLE DIAMETER *10 inch* WELL MATERIAL *Schedule 40 PVC*
COMPLETION DEPTH *71 ft* WELL DEVELOPMENT *Bail and Surge*

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

PROJECT NO. 730-016.1A
LOGGED BY: M.F.
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: CALMOD
CASING TYPE: Sch 40 PVC
SLOT SIZE: 0.040"
GRAVEL PACK: Coarse Aquarium

CLIENT: ARCO
DATE DRILLED: 4-6-95
LOCATION: 5731 Firestone Blvd.
HOLE DIAMETER: 10"
HOLE DEPTH: 60'
WELL DIAMETER: 2"
WELL DEPTH: 50'/25'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
								ASPHALT & BASE
				1			SP	SAND: FILL light brown; 10-20% silt; 70-80% fine to coarse sand; 10-20% fine gravel; no product odor.
				2				
				3				
				4				
	Mst	5	8	5				
				6				@5.5': brown; 90-100% fine sand; <10% silt; micaceous; loose; no product odor.
				7			ML	SANDY SILT: dark brown; 60-70% silt; 30-40% fine sand; micaceous; loose; no product odor.
BENTONITE				8				
				9				
	Mst	87	23	10				
				11			SP	SAND: dark gray; 10-20% silt; 80-90% fine sand; micaceous; medium dense; strong product odor.
				12				
				13				
				14				
	Mst	278	30	15				
				16				@15.5': 90-100% fine to medium sand; <10% silt; micaceous; minor gray staining; medium dense; moderate product odor.
				17				
SAND				18				
				19				
	Mst	232	29	20				
				21				@20.5': gray; strong product odor.
				22				

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. VEW-1

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND							SP	SAND: see previous page.
				23				
				24				
	Mst	773	25	25				@25': as above.
BENTONITE				26				
				27				
				28				
				29				
	Mst	325	35	30				@30': as above.
				31				
				32				
				33				
				34				
SAND	Mst	NR	37	35				@35': gray; 90-100% medium to coarse sand; <10% silt; micaceous; medium dense; moderate product odor.
				36				
				37				
				38				
				39				
	Mst	46	44	40				@40': as above; dense.
				41				
				42				
				43				
				44				

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

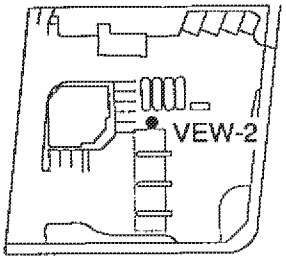
WELL NO. VEW-1
PAGE 3 OF 3

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				45			SP	SAND: see previous page.
				46				
				47				
				48				
				49				
	Mst	>2000	29	50			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; slight product odor.
				51				
				52				
				53				
BENTONITE				54				
				55				
				56				
				57				@57': driller indicated that drilling became very soft.
				58				
				59				
	Sat	118	31	60			SP	SAND: dark gray; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; strong product odor; heaving sands.
				61				
				62				
				63				BOTTOM OF BORING AT 61.5'
				64				
				65				
				66				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

PROJECT NO. 730-016.1A
LOGGED BY: M.F.
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: CALMOD
CASING TYPE: Sch 40 PVC
SLOT SIZE: 0.040"
GRAVEL PACK: Coarse Aquarium

CLIENT: ARCO
DATE DRILLED: 4-5-95
LOCATION: 5731 Firestone Blvd.
HOLE DIAMETER: 10"
HOLE DEPTH: 60'
WELL DIAMETER: 2"
WELL DEPTH: 54'/29'/7'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
								ASPHALT
SAND; BENTONITE	Mst	>2000	13	5–6			ML	SILT: gray; 80-90% silt; 10-20% fine sand; micaceous; iron oxide staining; stiff; strong product odor.
	Mst	>2000	26	10–11			SP	SAND: light brown; 90-100% fine sand; <10% silt; micaceous; medium dense; strong product odor.
SAND	Mst	>2000	27	15–16				@15.5': as above.
	Mst	>2000	31	20–21				@20.5': as above.

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. VEW-2

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				23, 24			SP	SAND: see previous page.
	Mst	>2000	24	25, 26			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; strong product odor.
				27, 28, 29				
BENTONITE	Mst	>2000	38	30				@30': as above.
				31			SP	SAND: gray; 90-100% medium sand; <10% silt; micaceous; dense; strong product odor.
				32, 33, 34				
SAND	Mst	773	41	35, 36				@36': as above.
				37, 38, 39				
	Mst	NR	28	40, 41				@41': as above; poor recovery; medium dense.
				42, 43, 44				

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

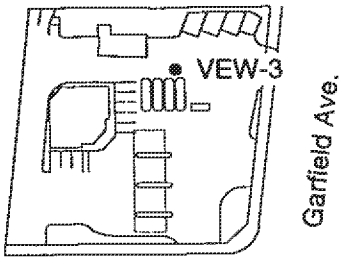
WELL NO. VEW-2

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				45			SP	SAND: see previous page.
				46				
				47				
				48				
				49				
	Mst	>2000	26	50			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; strong product odor.
				51				
				52				
				53				
				54				
				55				
				56				
BENTONITE				57				@57': driller indicated that drilling became very soft.
				58				
				59				
	Sat	36	17	60			SP	SAND: dark gray; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; moderate product odor, heaving sands.
				61				
				62				
				63				BOTTOM OF BORING AT 61.5'
				64				
				65				
				66				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

PROJECT NO. 730-016.1A
LOGGED BY: M.F.
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: CALMOD
CASING TYPE: Sch 40 PVC
SLOT SIZE: 0.040"
GRAVEL PACK: Coarse Aquarium

CLIENT: ARCO
DATE DRILLED: 4-5-95
LOCATION: 5731 Firestone Blvd.
HOLE DIAMETER: 10"
HOLE DEPTH: 60'
WELL DIAMETER: 2"
WELL DEPTH: 50'/25'/11'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
								ASPHALT
BENTONITE				1, 2, 3, 4				
SAND	Mst	154	11	5, 6			SP	SAND: dark gray; 10-20% silt; 80-90% fine to coarse sand; micaceous; loose; strong product odor.
				7, 8, 9				
	Mst	824	18	10, 11			ML	SANDY SILT: brown; 70-80% silt; 20-30% fine sand; <10% coarse sand; very stiff; strong product odor.
BENTONITE				12, 13, 14				
SAND	Mst	>2000	44	15, 16			SP	SAND: light brown; 90-100% fine to medium sand; <10% silt; micaceous; dense; strong product odor.
				17, 18, 19				
	Mst	>2000	46	20, 21				@20.5': as above.
				22				

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. VEW-3
PAGE 2 OF 3

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				23, 24			SP	SAND: see previous page.
	Mst	>2000	32	25, 26				
BENTONITE				27, 28, 29			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; strong product odor.
	Mst	>2000	38	30, 31			SP	SAND: light brown; 90-100% fine to medium sand; <10% silt; micaceous; dense; strong product odor.
				32, 33, 34				
	Mst	>2000	43	35, 36				@35.5': gray; 90-100% medium to coarse sand; <10% silt; micaceous; dense; strong product odor.
SAND				37, 38, 39				
	Mst	>2000	46	40, 41				@40.5': as above.
				42, 43, 44				

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

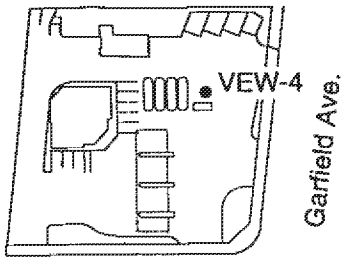
WELL NO. VEW-3
PAGE 3 OF 3

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				45 46 47 48 49			SP	SAND: see previous page.
	Mst	>2000	33	50 51			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; slight product odor.
BENTONITE				52 53 54 55 56 57 58 59				@57': driller indicated that drilling became very soft.
	Sat	1176	30	60 61			SP	SAND: dark gray; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; moderate product odor, heaving sands.
				62 63 64 65 66				BOTTOM OF BORING AT 61.5'

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

PROJECT NO. 730-016.1A
LOGGED BY: M.F.
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: CALMOD
CASING TYPE: Sch 40 PVC
SLOT SIZE: 0.040"
GRAVEL PACK: Coarse Aquarium

CLIENT: ARCO
DATE DRILLED: 4-5-95
LOCATION: 5731 Firestone Blvd.
HOLE DIAMETER: 10"
HOLE DEPTH: 61.54'
WELL DIAMETER: 2"
WELL DEPTH: 50'/25'/10'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL / GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
							ASPHALT & BASE
				1–4		SP	SAND: FILL light brown; 10-20% silt; 70-80% fine to coarse sand; 10-20% fine gravel; no product odor.
BENTONITE	Mst	1803	8	5–6		SM	SILTY SAND: dark gray; 30-40% silt; 60-70% fine sand; micaceous; loose; slight product odor.
SAND				7–9			
	Mst	1282	22	10–11			@10.5': as above.
BENTONITE				12–14			
	Mst	>2000	25	15–16		SP	SAND: light brown; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; strong product odor.
SAND				17–19			
	Mst	>2000	32	20–21			@20.5': as above.
				22			

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. VEW-4

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND							SP	SAND: see previous page.
	Mst	>2000	21	25, 26				
BENTONITE				27, 28, 29			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; strong product odor.
	Mst	>2000	24	30, 31			SP	SAND: light brown; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; strong product odor.
	Mst	>2000	38	35, 36				@35.5': as above.
SAND	Mst	615	32	40, 41				@40.5': as above.

Depth scale: 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44

LOCATION MAP

See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. VEW-4

PROJECT NO. 730-016.1A
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:

CLIENT: ARCO
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
SAND				45, 46, 47, 48, 49			SP	SAND: see previous page.
	Mst	>2000	27	50, 51			SM	SILTY SAND: grayish brown; 20-30% silt; 70-80% fine sand; micaceous; medium dense; slight product odor.
BENTONITE				52, 53, 54, 55				
HOLE COLLAPSED HEAVING SANDS				56, 57, 58, 59				@57': driller indicated that drilling became very soft.
	Sat	67	18	60, 61			SP	SAND: dark gray; 90-100% fine to medium sand; <10% silt; micaceous; medium dense; moderate product odor, heaving sands.
				62, 63, 64, 65, 66				BOTTOM OF BORING AT 61.5'

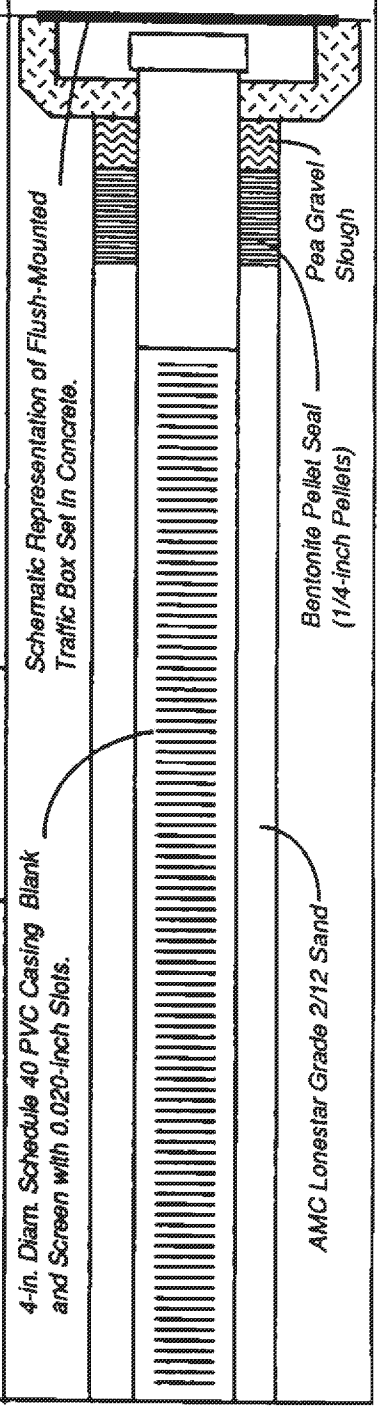
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-1
DATE DRILLED 6/21/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
			Surface to 5 feet consists mostly of the following: Fill material–pea gravel.	
5		2 2 2	WELL GRADED SAND with GRAVEL: slightly moist, gray, well graded fine to coarse sand with much fine to medium gravel. Hnu = 70 max. Very little sample recovered.	SW
10		N/A	WELL GRADED SAND with GRAVEL: slightly moist, gray, well graded fine to coarse sand with much fine to medium gravel. Hnu = 7 max. Sampler was pushed instead of pounded because of gravel. Only about 4 inches of recovery.	
15		17 29 34	SILTY SAND: moist, brown, poorly graded, fine to very fine sand with some silt. Strong hydrocarbon odor. Hnu = 300 max.	SM
20		9 17 18	POORLY GRADED SAND: slightly moist, grayish-brown fine sand with little fines. Strong gasoline odor. Hnu = 360 max.	SP
25		10 12 15	POORLY GRADED SAND: slightly moist, grayish-brown fine sand with little fines. Strong gasoline odor. Hnu = 300 max.	

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 72.3 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

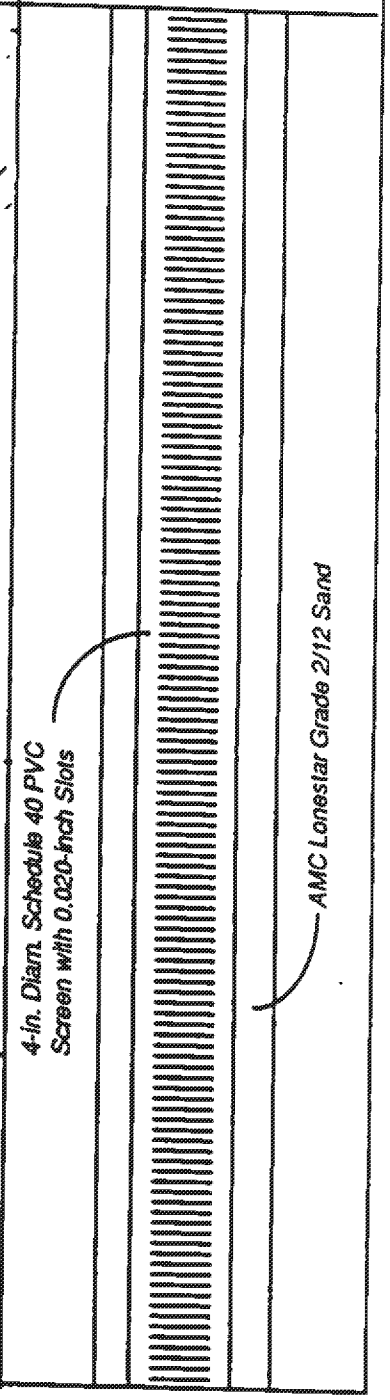
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-1
DATE DRILLED 6/21/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
30	■	10 24 32	LEAN CLAY: slightly moist, mottled gray and reddish-brown, very soft clay with some silt and little fine sand. Hnu = 50 max	CL
			SILTY SAND: slightly moist, gray, fine sand with some silt. Hnu = 150 max.	SM
			POORLY GRADED SAND: slightly most, gray, fine to medium sand with little fines. Hnu = 150 max.	
35	■	24 42 50 for 5.5"	POORLY GRADED SAND: slightly moist, light gray, poorly graded, medium sand with trace coarse sand. Hnu = 200 max.	SP
40	■	24 32 43	POORLY GRADED SAND: slightly moist, light gray, fine to medium sand with little fines. Hnu = 200 max.	
45	■	4 9 17	SILTY SAND: slightly moist, dark gray, fine sand with much silt and some clay. Hnu = 30 max.	SM
			LEAN CLAY: dry, dark gray clay with some to much silt (~30%) and little fine sand. Hnu = 2 max.	CL
50	■	13 21 28	SILTY SAND: slightly moist, dark gray, fine sand with much silt. Hnu = 2 max.	SM

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 72.3 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

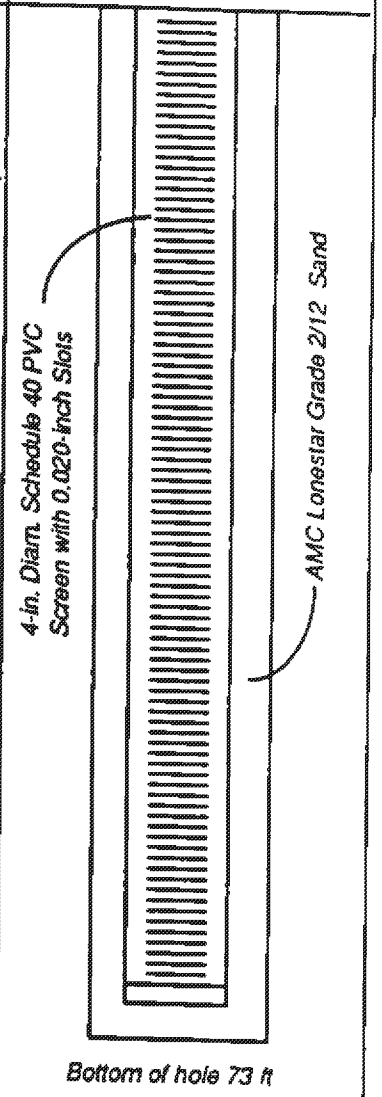
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-1
DATE DRILLED 6/21/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
55	■	20 37 45	WELL GRADED SAND: slightly moist, gray, well graded, fine to medium sand with little silt. Hnu = 15 max.	SW
			SILTY SAND: moist, gray, fine to medium sand with much silt. Hnu = 15 max.	SM
			WELL GRADED SAND: slightly moist, gray, well graded, fine to medium sand with little silt. Hnu = 15 max.	
60	■	4 22 50	WELL GRADED SAND: wet, gray, well graded very fine to medium sand with little fines. Hnu < 1.	SW
65	■	N/A	Heaving sands prevent collection of representative split-spoon sample. The following describes the sample that was retrieved from the auger string as it was pulled straight up out of hole: WELL GRADED SAND: wet, dark gray, very fine to medium sand with some fines.	
70	■	N/A	Sample from auger string: CLAYEY SAND: wet, dark gray, very fine sand with much clay. Sample has cohesion and low plasticity.	SC
75				

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 72.3 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT Bail and Surge

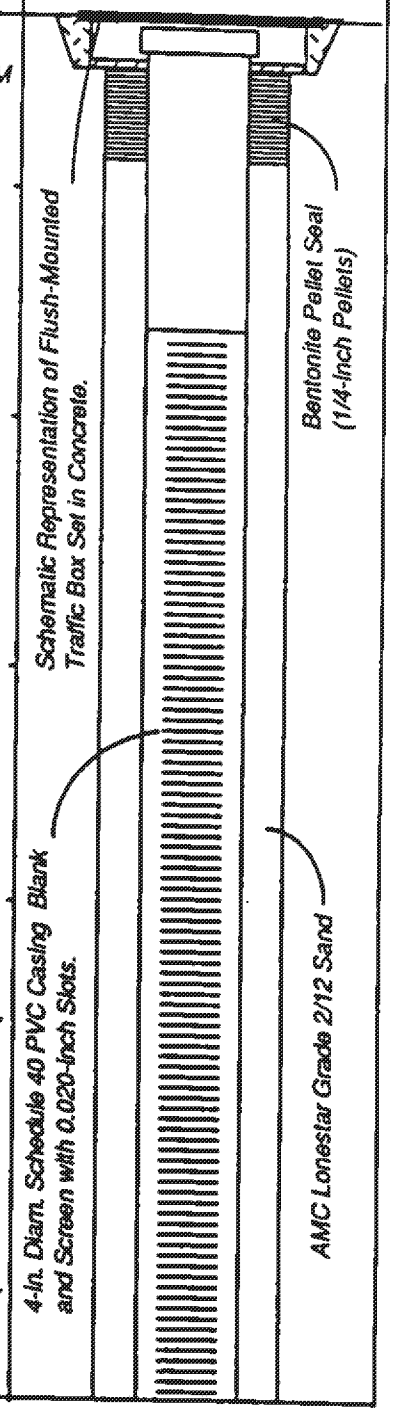
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-2
DATE DRILLED 6/22/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
			Surface to 5 feet consists mostly of the following: WELL GRADED SAND with SILT: dry, brown, fine to medium sand with trace coarse sand and some silt.	SW-SM
5	■	2 4 4	CLAYEY SAND: slightly moist, dark gray, well graded, fine to coarse sand with much clay. Hnu = 0.	SC
10	■	7 8 9	LEAN CLAY with SAND: slightly moist, dark gray, soft clay with some fine sand. OVM = 1.3 max. Note: Original PID reading via Hnu was ~250. Subsequent readings with the Hnu became suspect and the instrument was replaced with an OVM for the remainder of the boring. OVM reading is from headspace in bagged lithology sample.	CL
15	■	9 17 21	POORLY SORTED SAND: slightly moist, brown, fine sand with little silt. OVM = 1.6 max. (headspace msmt.)	SP
20	■	6 12 18	SANDY LEAN CLAY: dry, brown and dark gray clay with much fine sand. OVM = 296 max.	CL
			WELL GRADED SAND: dry, brown, well graded fine sand with little silt. OVM = 296 max.	SW
25	■	7 7 9	WELL GRADED SAND: slightly moist, brown, well graded fine sand with little silt. OVM = 887 max.	
			SANDY LEAN CLAY slightly moist, soft, gray clay with some fine sand. OVM = 887 max.	CL

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 8 inch
COMPLETION DEPTH 46.9 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT N/A

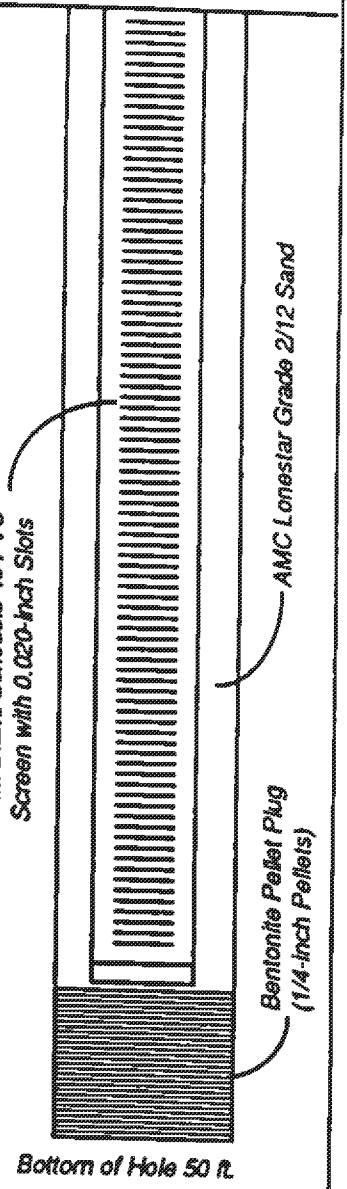
JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-2
DATE DRILLED 6/22/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
30	■	14 19 25	POORLY GRADED SAND: slightly moist, grayish-brown, poorly graded, medium sand. OVM = 12 max.	
35	■	11 15 23	POORLY GRADED SAND: slightly moist, gray, poorly graded medium sand with some coarse sand. OVM = 28 max.	SP
40	■	10 23 26	POORLY GRADED SAND: moist, gray, poorly graded medium sand with some fine sand. OVM = 30 max.	
45	■	5 9 14	LEAN CLAY: slightly moist, gray, soft clay with much silt. OVM = 5 max.	CL
50	■	15 19 22	SILTY SAND: moist, dark gray, poorly graded fine sand with much silt. OVM = 1 max.	SM

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 8 inch
COMPLETION DEPTH 46.9 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT N/A

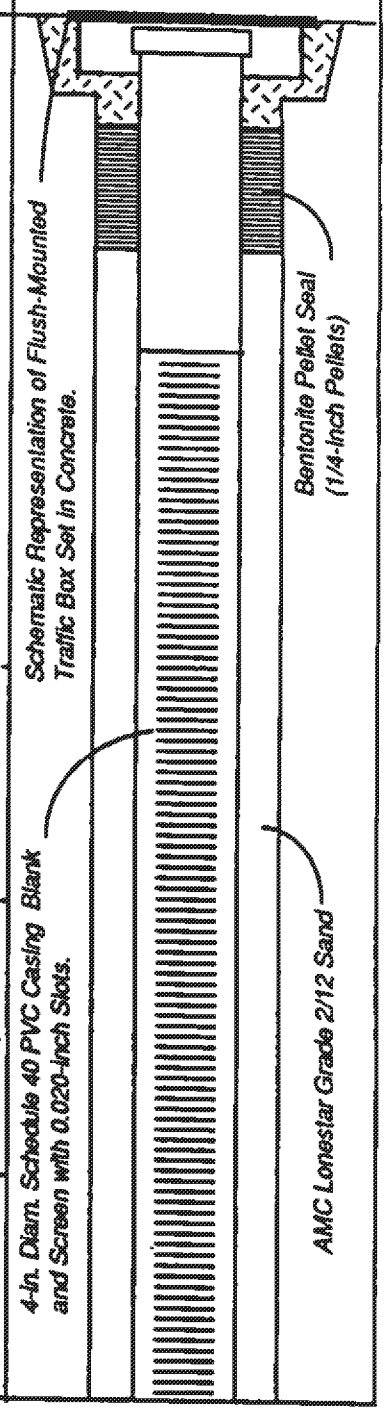
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-3
DATE DRILLED 6/22/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
5	■	2 2 4	SILTY SAND: slightly moist, brownish-gray, fine to medium sand with much silt and some clay. OVM < 1.	SM
10	■	3 6 6	SILTY SAND: slightly moist, dark gray, fine sand with much silt. OVM = 4 max. Approx. 1 ft sample recovery.	
15	■	4 8 14	POORLY GRADED SAND: slightly moist, brown, very fine sand with little to some silt (> 12 % ?). Sample has very little cohesion. OVM = 363 max. Approx. 1 ft sample recovery.	SP
20	■	14 21 23	SILTY SAND: slightly moist, finely layered, dark gray and brown, very fine sand with much silt. OVM = 141 max.	SM
			POORLY GRADED SAND: slightly moist, gray, fine sand. OVM = 141 max.	SP
25	■	7 11 16	SILTY SAND: slightly moist, brown, very fine sand with some silt. OVM = 1300 max. Approx. 10 in. sample recovery.	SM

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 Inch
COMPLETION DEPTH 47.3 ft

WELL DIAMETER 4 Inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT N/A

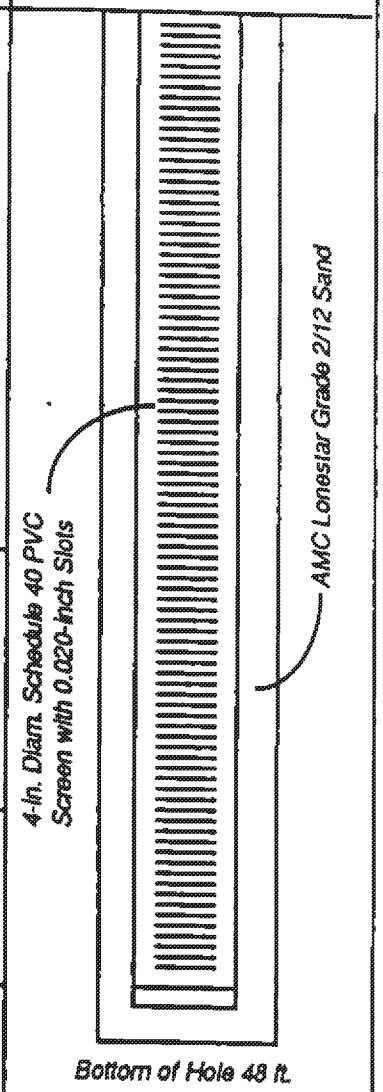
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER 5110-D-3
DATE DRILLED 6/22/90
ELEVATION NOT AVAILABLE

CLIENT ARCO PRODUCTS
PROJECT ARCO STATION 5110 WELL INSTALLATIONS
GEOLOGIST GREG KUPILLAS

DEPTH IN FEET	SAMPLING INTERVAL	BLOW COUNT	DESCRIPTION AND REMARKS	USCS SYMBOL
30	■	11 26 31	WELL GRADED SAND: dry, gray, well graded, fine to medium sand with some coarse sand. OVM = 378 max.	SW
35	■	10 25 29	WELL GRADED SAND: dry, light gray, well graded, fine to medium sand. OVM = 685 max.	
40	■	17 32 41	POORLY GRADED SAND: slightly moist, light gray, fine sand with some medium sand. OVM = 135 max.	SP
45	■	5 9 14	LEAN CLAY: dry, gray, firm clay with some silt. OVM = 20 max.	CL
	■	13 20 28	SILT with SAND: dry, dark gray silt with some fine sand and little clay. OVM = 11 max.	ML
50				

WELL SKETCH



METHOD OF DRILLING Hollow Stem Auger
HOLE DIAMETER 10 inch
COMPLETION DEPTH 47.3 ft

WELL DIAMETER 4 inch
WELL MATERIAL Schedule 40 PVC
WELL DEVELOPMENT N/A

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-4* CLIENT *Arco Products Company*
DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*
ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			6-INCH THICK ASPHALT LAYER AT GROUND LEVEL		
			SILTY SAND: moist, brown to greenish-gray, uncemented; 65% fine-grained sand; 35% silty non-plastic fines; and 5% clay with medium plasticity; abundant mica.	*SM*	
5					
10	■	8 11 14	*SILTY SAND: moist, brown to greenish-gray, uncemented; 65% fine-grained sand; 35% silty non-plastic fines; and 5% clay with medium plasticity; abundant mica.*	*SM*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*
15					
20	■	8 17 21	*POORLY GRADED SAND: moist, light brown, uncemented, fine-grained sand; abundant mica.*	*SP*	*OVM reading = 242.6 ppm* *Slight hydrocarbon odor*
			SILT: moist, blueish gray, firm, uncemented; fine-grained silt with low to medium plasticity; trace of fine grained sand; abundant mica.	*ML*	

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*
HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*
COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER *D-4* CLIENT *Arco Products Company*

DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*

ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
25	■	12 13 16	*SILT: moist, blueish gray, firm, uncemented; fine-grained silt with low to medium plasticity; trace of fine grained sand; abundant mica.*	*ML*	*OVM reading = 270 ppm* *Hydrocarbon odor*
30	■	13 17 24	*POORLY GRADED SAND: moist, light greenish-gray, uncemented; fine to medium, hard, subangular sand; trace of silty fines; abundant mica.*	*SP*	*OVM reading = 180.2 ppm* *Hydrocarbon odor*
35	■	32 50- 6"	*POORLY GRADED SAND: moist, light gray, uncemented; fine-grained sand; trace of silty fines; abundant mica.*	*SP*	*OVM reading = 5.6 ppm* *No hydrocarbon odor*
40	■	18 29 40	*POORLY GRADED SAND: moist, light gray to light greenish-gray, uncemented; fine-grained sand; trace of medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*

HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*

COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER *D-4* CLIENT *Arco Products Company*

DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*

ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			POORLY GRADED SAND: moist, light gray to light greenish-gray, uncemented; fine-grained sand; trace of medium, hard, subangular sand; abundant mica.	*SP*	
45	▮	9 17 23	*SILT: moist, dark greenish-gray, uncemented; 95% silty fines with low plasticity; 5% light gray, fine-grained sand; abundant mica.*	*ML*	*OVM reading = 53.5 ppm* *Slight hydrocarbon odor*
50	▮	21 23 27	*SILTY SAND: moist, dark greenish-gray, uncemented; 60% fine-grained sand; and 40% silty non-plastic fines; trace of medium, hard, subangular sand; abundant mica.*	*SM*	*OVM reading = 56.3 ppm* *Slight hydrocarbon odor*
			END OF BORING @ 51.5 feet **GROUNDWATER NOT ENCOUNTERED**		
55					
60					

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*

HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*

COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-5*
DATE DRILLED *December 16, 1992*
ELEVATION *Not Available*

CLIENT *Arco Products Company*
PROJECT *Arco Service Station #5110*
GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			6-INCH THICK ASPHALT LAYER AT GROUND LEVEL		
			SILTY SAND: moist, dark brown, uncemented; 75% fine-grained sand; 25% silty non-plastic fines; abundant mica.	*SM*	
5					
10	■	4 7 12	*SILTY SAND: moist, dark brown, uncemented; 75% fine-grained sand; 25% silty non-plastic fines; abundant mica.*	*SM*	*OVM reading = 0 ppm* *No hydrocarbon odor*
15					
20	■	14 21 47	*POORLY GRADED SAND: moist, light gray, uncemented, fine-grained sand; trace of medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger*
HOLE DIAMETER *7.75 inches O.D.*
COMPLETION DEPTH *50 feet below ground level*

WELL DIAMETER *N/A*
WELL MATERIAL *N/A*
WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER *D-5* CLIENT *Arco Products Company*

DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*

ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
25	■	7 9 12	*POORLY GRADED SAND: moist, light to dark gray, uncemented; 90% fine-grained sand; 10% greenish-gray clay with medium plasticity and few shell fragments; trace of medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*
30	■	12 15 20	*SILTY SAND: moist, greenish-gray to blueish-gray, uncemented; 75% fine-grained sand; 25% silty non-plastic sand; abundant mica.*	*SM*	*OVM reading = 0 ppm* *No hydrocarbon odor*
35	■	29 34 40	*POORLY GRADED SAND: moist, light gray, uncemented; fine to medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 0 ppm* *No hydrocarbon odor*
40	■	9 20 24	*SILTY SAND: moist, dark gray, uncemented; 60% fine-grained sand; 35% silty fines with low plasticity; and 5% medium, hard, subangular sand; abundant mica.*	*SM*	*OVM reading = 95.8 ppm* *Slight hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*

HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*

COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER *D-5* CLIENT *Arco Products Company*

DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*

ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			SILTY SAND: moist, dark gray, uncemented; 60% fine-grained sand; 35% silty fines with low plasticity; and 5% medium, hard, subangular sand; abundant mica.	*SM*	*OVM reading = 95.8 ppm* *Slight hydrocarbon odor*
45	■	10 14 18	*SILT: moist, dark greenish-gray to light gray, uncemented; 95% silty fines with low plasticity; 5% fine-grained sand; abundant mica.*	*ML*	*OVM reading = 101.4 ppm* *Slight hydrocarbon odor*
50	■	11 18 22	*SILTY SAND: moist, dark greenish-gray, uncemented; 75% fine-grained sand; and 25% silty non-plastic fines; trace of medium, hard, subangular sand; abundant mica.*	*SM*	*OVM reading = 84.5 ppm* *Slight hydrocarbon odor*
			END OF BORING @ 51.5 feet **GROUNDWATER NOT ENCOUNTERED**		
55					
60					

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*

HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*

COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-6*
DATE DRILLED *December 16, 1992*
ELEVATION *Not Available*

CLIENT *Arco Products Company*
PROJECT *Arco Service Station #5110*
GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
5			*SILTY SAND: moist, brown, uncemented; 70% fine-grained sand; 30% silty fines with low plasticity; abundant mica.*	*SM*	
10	■	5 10 12	*SILTY SAND: moist, brown, uncemented; 70% fine-grained sand; 30% silty fines with low plasticity; abundant mica.*	*SM*	*OVM reading = 0 ppm* *No hydrocarbon odor*
15					
20	■	7 13 15	*POORLY GRADED SAND: moist, light gray, uncemented, fine-grained sand; trace of silty fines and medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger*
HOLE DIAMETER *7.75 inches O.D.*
COMPLETION DEPTH *50 feet below ground level*

WELL DIAMETER *N/A*
WELL MATERIAL *N/A*
WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-6* CLIENT *Arco Products Company*
DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*
ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			POORLY GRADED SAND: moist, light gray, uncemented, fine-grained sand; trace of silty fines and medium, hard, subangular sand; abundant mica.	*SP*	*OVM reading = 2.8 ppm* *No hydrocarbon odor*
25	■	11 14 17	*SILTY SAND: moist, light gray, uncemented; 85% fine-grained sand; and 15% silty non-plastic fines; abundant mica.*	*SM*	*OVM reading = 160 ppm* *Slight hydrocarbon odor*
30	■	10 16 20	*POORLY GRADED SAND: moist, light gray to yellowish-gray, uncemented; fine-grained sand; trace of medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 11.2 ppm* *Slight hydrocarbon odor*
35	■	20 29 30	*POORLY GRADED SAND: moist, light gray to grayish-white, uncemented; fine to medium, hard, subangular sand; trace of coarse sand; abundant mica.*	*SP*	*OVM reading = 47.8 ppm* *Slight hydrocarbon odor*
40	■	19 23 30	*SILT: moist, grennish-gray, uncemented; 85% silty fines with low plasticity; 15% fine-grained sand; abundant mica.*	*ML*	*OVM reading = 42.2 ppm* *No hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*
HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*
COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-6* CLIENT *Arco Products Company*
DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*
ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
45	▮	15 16 21	*SANDY SILT: moist, greenish-gray, uncemented; 60% silty fines with low plasticity; and 40% fine-grained sand; abundant mica.*	*ML*	*OVM reading = 16.9 ppm* *Slight hydrocarbon odor*
50	▮	22 50- 6"	*SILTY SAND: moist, dark greenish-gray, uncemented; 60% fine-grained sand; 40% silty fines with low plasticity; abundant mica.*	*SM*	*OVM reading = 25.3 ppm* *No hydrocarbon odor*
			END OF BORING @ 51.0 feet **GROUNDWATER NOT ENCOUNTERED**		
55					
60					

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*
HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*
COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-7*
DATE DRILLED *December 16, 1992*
ELEVATION *Not Available*
CLIENT *Arco Products Company*
PROJECT *Arco Service Station #5110*
GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			6-INCH THICK ASPHALT LAYER AT GROUND LEVEL		
			SILTY SAND: moist, brown to gray, uncemented; 85% fine-grained sand; 15% silty non-plastic fines; abundant mica.	*SM*	
5					
10	■	8 10 14	*SILTY SAND: moist, brown to gray, uncemented; 85% fine-grained sand; 15% silty non-plastic fines; abundant mica.*	*SM*	*OVM reading = 109.8 ppm* *Slight hydrocarbon odor*
15					
20	■	12 14 20	*SILTY SAND: moist, light gray to light greenish-gray, uncemented, 80% fine-grained sand; and 20% silty non-plastic fines; abundant mica.*	*SM*	*OVM reading = 127.9 ppm* *Hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger*
HOLE DIAMETER *7.75 inches O.D.*
COMPLETION DEPTH *50 feet below ground level*
WELL DIAMETER *N/A*
WELL MATERIAL *N/A*
WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

BORING NUMBER *D-7* CLIENT *Arco Products Company*

DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*

ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
25	■	10 12 16	*SILTY SAND: moist, light brown, uncemented; 70% fine-grained sand; and 30% silty non- plastic fines; abundant mica.*	*SM*	*OVM reading = 819 ppm* *Strong hydrocarbon odor*
30	■	10 16 22	*POORLY GRADED SAND: moist, light gray, uncemented; fine to medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 715 ppm* *Strong hydrocarbon odor*
35	■	22 30 40	*POORLY GRADED SAND: moist, light gray, uncemented; fine to medium, hard, subangular sand; abundant mica.*	*SP*	*OVM reading = 307 ppm* *Strong hydrocarbon odor*
40	■	22 32 42	*POORLY GRADED SAND: moist, light gray, uncemented; fine to medium, hard, subangular sand; trace of silty non-plastic fines; abundant mica.*	*SP*	*OVM reading = 149 ppm* *Hydrocarbon odor*

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*

HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*

COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

BORING NUMBER *D-7* CLIENT *Arco Products Company*
DATE DRILLED *December 16, 1992* PROJECT *Arco Service Station #5110*
ELEVATION *Not Available* GEOLOGIST *Sergio J. Cosio*

Depth (feet)	Sampling Interval	Blow Counts	DESCRIPTION	USCS SYMBOL	REMARKS/ COMMENTS
			POORLY GRADED SAND: moist, light gray, uncemented; fine to medium, hard, subangular sand; trace of silty non-plastic fines; abundant mica.	*SP*	
45	■	10 17 22	*SILT: moist, dark greenish-gray, uncemented; 85% silty non-plastic fines; 15% fine to medium, hard, subangular sand; abundant mica.*	*ML*	*OVM reading = 61.9 ppm* *Slight hydrocarbon odor*
50	■	20 19 27	*SANDY SILT: moist, dark greenish-gray, uncemented; 85% silty non-plastic fines ;and 15% fine to medium, hard, subangular sand; abundant mica.*	*ML*	*OVM reading = 129.5 ppm* *Hydrocarbon odor*
			END OF BORING @ 51.5 Feet **GROUNDWATER NOT ENCOUNTERED**		
55					
60					

METHOD OF DRILLING *Hollow Stem Auger* WELL DIAMETER *N/A*
HOLE DIAMETER *7.75 inches O.D.* WELL MATERIAL *N/A*
COMPLETION DEPTH *50 feet below ground level* WELL DEVELOPMENT *N/A*

PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.		LOG OF BORING/WELL: PAGE 1 OF 3
BORING LOCATION: SE CORNER	PROJECT NO.: 037.20219.003	**MW-A3**
SUBCONTRACTOR AND EQUIPMENT: CASCADE DRILLING, CME-75	LOGGED BY: G. ROBERTS	
SAMPLING METHOD: MOD. CA. SPLIT SPOON	MONITORING DEVICE: HEATH FID	
START DATE/TIME: 12/1/99, 8:00am	FINISH DATE/TIME: 12/1/99, 1:00pm	
FIRST WATER (FT BGS): ▽ 44	STABILIZED WATER LEVEL (FT BGS): ▼ 44.65	**SECOR**
SURFACE ELEVATION: N/A	CASING TOP ELEVATION: N/A	*International Incorporated*
TOTAL WELL DEPTH: 65'	BORING DIAMETER: 10" DEPTH: 65.0'	
R.G. APPROVAL: J. BOLLIER, R.G. NO. 6099	BORING ANGLE (°): VERTICAL TREND: N/A	

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
			0			COVER CONCRETE
			2		ARTIFICIAL FILL (AF): LIGHT GRAYISH BROWN, DAMP, DENSE, FINE- TO MEDIUM-GRAINED SAND WITH GRAVEL, NO HYDROCARBON ODOR	
			4			
X	3 4 5	0			POORLY GRADED SAND (SP): YELLOWISH BROWN, DAMP, LOOSE, FINE-GRAINED, 5%-10% SILT, MICACEOUS, NO HYDROCARBON ODOR	
			6		SILT (ML): GRAYISH BROWN, MOIST, MEDIUM STIFF, 10% FINE-GRAINED SAND, MICACEOUS, NO HYDROCARBON ODOR	
			8			
X	5 7 13	0	10		SILTY SAND (SM): GRAYISH BROWN, DAMP, MEDIUM DENSE, FINE-GRAINED, 30%-35% SILT, MICACEOUS, NO HYDROCARBON ODOR	BENTONITE GROUT SEAL
			12			
			14			
X	8 12 16	5	16		SILTY SAND (SM): GRAYISH BROWN, DAMP, MEDIUM DENSE, FINE-GRAINED, 15%-20% SILT, MICACEOUS, SLIGHT HYDROCARBON ODOR	
			18			
X	12 16 20	4 51	20		SILTY SAND (SM): GRAYISH BROWN, DAMP, MEDIUM DENSE, FINE-GRAINED, 15%-20% SILT, MICACEOUS, SLIGHT HYDROCARBON ODOR	4" SCH 40 PVC WELL CASING
			22		SILT WITH SAND (ML): OLIVE BROWN, MOIST, VERY STIFF, 15%-20% FINE-GRAINED SAND, MODERATE HYDROCARBON ODOR	
			24			
X	6 11 14	60	26		SILT WITH SAND (ML): OLIVE BROWN, MOIST, VERY STIFF, 10%-15% FINE-GRAINED SAND, MODERATE HYDROCARBON ODOR	
			28			
			30			

PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: SE CORNER

PROJECT NO.: 037.20219.003

LOGGED BY: G. ROBERTS

COMMENTS:

MW-A3

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	10 13 16	NA	30		SILT WITH SAND (ML): OLIVE BROWN, MOIST, VERY STIFF, APPROXIMATE 10%-15% FINE-GRAINED SAND, MODERATE HYDROCARBON ODOR	
					POORLY GRADED SAND (SP): LIGHT GRAY, DAMP, MEDIUM DENSE, FINE- TO MEDIUM-GRAINED, POOR RECOVERY (6" OF SILT AND 1" OF SAND)	
			32			HYDRATED BENTONITE CHIP SEAL
			34			
X	9 18 23	31			POORLY GRADED SAND (SP): LIGHT GRAY, DAMP, DENSE, FINE- TO MEDIUM-GRAINED, TRACE MUD RIP-UP CLASTS, SLIGHT HYDROCARBON ODOR	
			36			
			38			
X	10 12 25	10	40		POORLY GRADED SAND (SP): MEDIUM GRAY, VERY MOIST, DENSE, FINE- TO MEDIUM GRAINED, TRACE MUD RIP-UP CLASTS, NO HYDROCARBON ODOR	4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
			42			
			44			
X	11 15 17	390			POORLY GRADED SAND (SP): OLIVE GRAY, SATURATED, MEDIUM DENSE, FINE- TO MEDIUM GRAINED, 2-3 CM THICK DARK OLIVE GRAY SILT INTERBEDS, MODERATE HYDROCARBON ODOR	
			46			
			48			
X	9 13 28	25	50		SILT (ML): OLIVE BROWN, VERY MOIST, HARD, MICACEOUS, 5%-10% FINE-GRAINED SAND, SLIGHT HYDROCARBON ODOR	NO. 2/16 SAND PACK
			52			
			54			
X	10 15 22	4	56		SANDY SILT (ML): OLIVE BROWN, VERY MOIST, HARD, 30% FINE-GRAINED SAND, NO HYDROCARBON ODOR	
					CONTACT IN SHOE	
			58			
			60			

PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: SE CORNER

PROJECT NO.: 037.20219.003

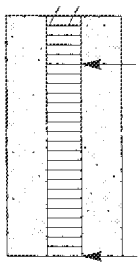
LOGGED BY: G. ROBERTS

COMMENTS:

LOG OF BORING/WELL:

MW-A3

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	6 17 20	3	60		POORLY GRADED SAND (SP); MEDIUM GRAY, SATURATED, FINE- TO MEDIUM-GRAINED, TRACE COARSE GRAINED SAND, SLIGHT "HEAVY" CRUDE LIKE ODOR	 4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
			62			NO. 2/16 SAND PACK
X		2	64		POORLY GRADED SAND (SP); MEDIUM GRAY, SATURATED, FINE- TO MEDIUM-GRAINED, TRACE COARSE GRAINED SAND, SLIGHT "HEAVY" CRUDE LIKE ODOR	WELL BOTTOM
					TOTAL DEPTH OF BORING 65'	

PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.		LOG OF BORING/WELL: PAGE 1 OF 3
BORING LOCATION: NW CORNER	PROJECT NO.: 037.20219.003	**MW-A4**
SUBCONTRACTOR AND EQUIPMENT: CASCADE DRILLING, CME-75	LOGGED BY: G. ROBERTS	
SAMPLING METHOD: MOD. CA. SPLIT SPOON	MONITORING DEVICE: HEATH FID	
START DATE/TIME: 12/1/99, 1:15pm	FINISH DATE/TIME: 12/1/99, 5:00pm	
FIRST WATER (FT BGS): ▽ 44	STABILIZED WATER LEVEL (FT BGS): ▼ 45.31	**SECOR**
SURFACE ELEVATION: N/A	CASING TOP ELEVATION: N/A	*International Incorporated*
TOTAL WELL DEPTH: 65'	BORING DIAMETER: 10" DEPTH: 65.0'	
R.G. APPROVAL: J. BOLLIER, R.G. NO. 6099	BORING ANGLE (°): VERTICAL TREND: N/A	

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
			0	6" ASPHALT AT SURFACE	COVER CONCRETE
			2	SILTY SAND (SM): BROWN, MOIST, LOOSE, FINE-GRAINED, APPROXIMATE 30% SILT, NO HYDROCARBON ODOR	
			4		
X	4 5 7	0	6	SILTY SAND (SM): BROWN, MOIST, MEDIUM DENSE, FINE-GRAINED, APPROXIMATE 30% SILT, NO HYDROCARBON ODOR	
			8		
X	3 6 10	0	10	CLAYEY SILT (ML/CL): BROWN, MOIST, STIFF, MEDIUM PLASTICITY, MICACEOUS, NO HYDROCARBON ODOR	BENTONITE GROUT SEAL
			12		
			14		
X	7 10 12	0	16	SILT WITH SAND (ML): BROWN, MOIST, VERY STIFF, APPROXIMATE 20%-25% FINE-GRAINED SAND, MICACEOUS, NO HYDROCARBON ODOR	
			18		
X	12 16 19	0	20	SILTY SAND (SM): LIGHT BROWN, MOIST, DENSE, FINE-GRAINED, MICACEOUS, NO HYDROCARBON ODOR	4" SCH 40 PVC WELL CASING
			22	POORLY GRADED SAND (SP): PALE YELLOWISH GRAY, DAMP, DENSE, FINE-GRAINED, TRACE SILT (5%), MICACEOUS, NO HYDROCARBON ODOR	
			24		
X	12 15 21	0	26	SILT (ML): OLIVE BROWN, VERY MOIST, HARD, TRACE ORANGE MOTTLING, TRACE CLAY, NO HYDROCARBON ODOR	
			28		
			30		

PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: NW CORNER

PROJECT NO.: 037.20219.003

LOGGED BY: G. ROBERTS

COMMENTS:

LOG OF BORING/WELL:

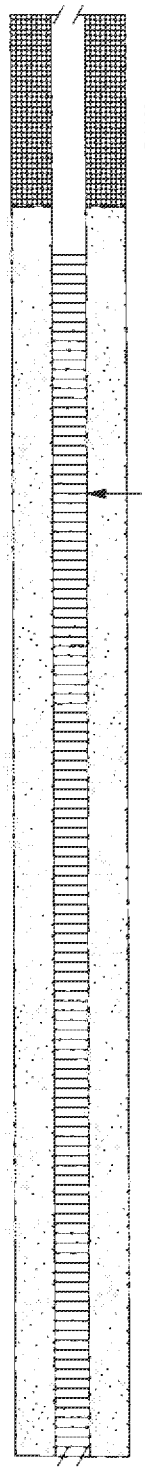
MW-A4

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)
X	11 12 22	0	30	SILTY CLAY (CL/ML); OLIVE GRAY, VERY MOIST, HARD, MEDIUM PLASTICITY, ORANGE MOTTLING, TRACE ROOT HAIRS, 1CM DIA. SHELL FRAGMENTS NOTED AT 30.5', NO HYDROCARBON ODOR
			32	
			34	
X	8 11 14	81	36	POORLY GRADED SAND (SP); LIGHT YELLOWISH GRAY, DAMP, MEDIUM DENSE, FINE- TO MEDIUM-GRAINED, SLIGHT HYDROCARBON ODOR
			38	
X	9 18 24	41	40	POORLY GRADED SAND (SP); GRAY, WET, DENSE, MEDIUM- TO COARSE-GRAINED, TRACE FINE GRAVEL (LESS THAN 1CM DIA.), SLIGHT HYDROCARBON ODOR
			42	
			44	
X	11 16 19	790	46	POORLY GRADED SAND (SP); OLIVE GRAY, SATURATED, DENSE, FINE- TO MEDIUM-GRAINED, STRONG "HEAVY" HYDROCARBON ODOR
			48	
X	17 18 20	18	50	SILTY SAND (SM); OLIVE BROWN, VERY MOIST, FINE- TO MEDIUM-GRAINED, MICACEOUS, 15%-20% SILT, SLIGHT HYDROCARBON ODOR
			52	
			54	
X	13 20 27	42	56	POORLY GRADED SAND (SP); GRAY, SATURATED, DENSE, FINE- TO MEDIUM-GRAINED, SLIGHT "HEAVY" HYDROCARBON ODOR
			58	
			60	

GRAPHIC LOG

BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS



PROJECT: ARCO PRODUCTS CO., STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: NW CORNER

PROJECT NO.: 037.20219.003

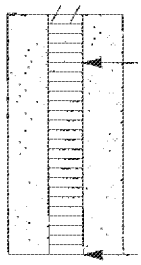
LOGGED BY: G. ROBERTS

COMMENTS:

LOG OF BORING/WELL:

MW-A4

SECOR
International Incorporated

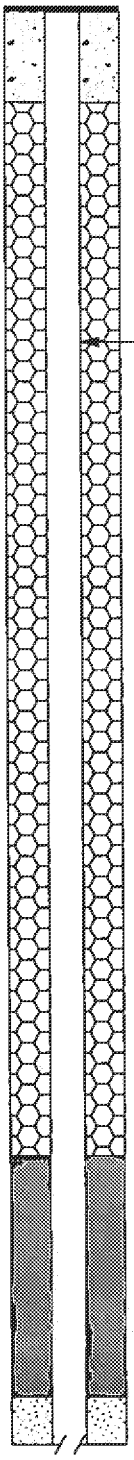
SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	13 20 28	-	60 62		POORLY GRADED SAND (SP): GRAY, SATURATED, DENSE, FINE- TO MEDIUM-GRAINED, SLIGHT "HEAVY" CRUDE ODOR	 4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN NO. 2/16 SAND PACK
X	9 15 21	-	64		POORLY GRADED SAND (SP): GRAY, SATURATED, DENSE, FINE- TO MEDIUM-GRAINED, MODERATE "HEAVY" HYDROCARBON ODOR	WELL BOTTOM

TOTAL DEPTH OF BORING 65'

PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.		LOG OF BORING/WELL: PAGE 1 OF 3
BORING LOCATION: EAST BOUND LANE-FIRESTONE BLVD.	PROJECT NO.: 037.20552.330	**MW-A5**
SUBCONTRACTOR AND EQUIPMENT: BC2 ENVIRONMENTAL, CME-85	LOGGED BY: L. KESSEL	
SAMPLING METHOD: MOD. CA. SPLIT SPOON	MONITORING DEVICE: MINIRAE PID	
START DATE/TIME: 10/21/01, 10:00am	FINISH DATE/TIME: 10/21/01, 11:00am	
FIRST WATER (FT BGS): ▽ 41	STABILIZED WATER LEVEL (FT BGS): ▼ N/A	**SECOR**
SURFACE ELEVATION: N/A	CASING TOP ELEVATION: N/A	*International Incorporated*
TOTAL WELL DEPTH: 65'	BORING DIAMETER: 10" DEPTH: 65.0'	
R.G. APPROVAL: J. BOLLIER, R.G. NO. 6099	BORING ANGLE (°): VERTICAL TREND: N/A	

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)
			0	
			2	
			4	POORLY GRADED SAND (SP): YELLOWISH BROWN, DRY, LOOSE, FINE-GRAINED, TRACE FINES, NO HYDROCARBON ODOR
X	3 5 11	0	6	ELASTIC SILT WITH CLAY (MH): VERY DARK GRAYISH BROWN, MOIST, STIFF, TRACE FINE-GRAINED SAND, HIGH MICA CONTENT, NO HYDROCARBON ODOR
			8	
X	4 8 14	0	10	ELASTIC SILT WITH CLAY (MH): VERY DARK GRAYISH BROWN, MOIST, STIFF, TRACE FINE-GRAINED SAND, HIGH MICA CONTENT, NO HYDROCARBON ODOR
			12	
			14	
X	7 12 16	0	16	SILT WITH SAND (ML): YELLOWISH BROWN, MOIST, STIFF, SOME VERY FINE-GRAINED SAND, SOME MICA, NO HYDROCARBON ODOR
			18	
X	10 10 19	0	20	SILT WITH SAND (ML): VERY DARK BROWN, MOIST, STIFF, SOME VERY FINE-GRAINED SAND, SOME MICA, NO HYDROCARBON ODOR
			22	
			24	
X	8 13 18	13.0	26	SILT WITH SAND (ML): VERY DARK BROWN, MOIST, STIFF, SOME VERY FINE-GRAINED SAND, SOME MICA, NO HYDROCARBON ODOR
			28	
			30	

BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS



PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: EAST BOUND LANE-FIRESTONE BLVD.

PROJECT NO.: 037.20552.330

LOGGED BY: L. KESSEL

COMMENTS:

LOG OF BORING/WELL:

MW-A5

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	9 15 21	14.6	30		POORLY GRADED SAND (SP): GRAY, MOIST, MEDIUM DENSE, FINE-GRAINED, SOME SILT (MICA), FAINT HYDROCARBON ODOR	
			32			
			34			
X	10 11 17	42.3	36		SILTY SAND (SM): DARK BROWN, MOIST, MEDIUM DENSE, FINE-GRAINED, MICA PRESENT, FAINT HYDROCARBON ODOR	
			38			
X	13 15 22	8.4	40			NO. 2/12 SAND PACK
					ELASTIC SILT (MH): DARK GRAY, WET, VERY STIFF, HIGH MICA CONTENT, TRACE FINE-GRAINED SAND, FAINT HYDROCARBON ODOR	
			42			
			44			
X	5 9 13	4.2	46		SILT (ML): DARK GRAY, WET, VERY STIFF, HIGH MICA CONTENT, TRACE FINE-GRAINED SAND, FAINT HYDROCARBON ODOR	
			48			
X	9 14 22	2.1	50		SILT (ML): DARK GRAY, WET, VERY STIFF, HIGH MICA CONTENT, TRACE FINE-GRAINED SAND, FAINT HYDROCARBON ODOR	4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
			52			
			54			
X	7 12 16	5.4	56		POORLY GRADED SAND (SP): GRAY, MEDIUM DENSE, FINE-GRAINED, SOME SILT, MICA PRESENT, FAINT HYDROCARBON ODOR	
			58			
			60			

PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: EAST BOUND LANE-FIRESTONE BLVD.

PROJECT NO.: 037.20552.330

LOGGED BY: L. KESSEL

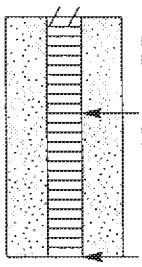
COMMENTS:

LOG OF BORING/WELL:

MW-A5

SECOR
International Incorporated

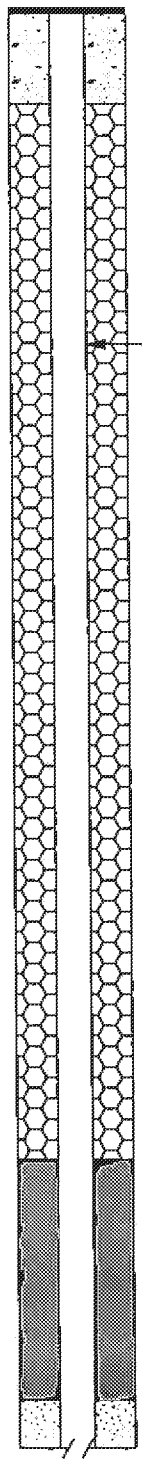
SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	12 14 21	32.8	60		POORLY GRADED SAND (SP); GRAY, MEDIUM DENSE, FINE-GRAINED, SOME SILT, MICA PRESENT, STRONG HYDROCARBON ODOR	NO. 2/12 SAND PACK
			62			4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
X	5 5 14	29.3	64		POORLY GRADED SAND (SP); GRAY, MEDIUM DENSE, FINE-GRAINED, SOME SILT, MICA PRESENT, STRONG HYDROCARBON ODOR	
					TOTAL DEPTH OF BORING 65'	WELL BOTTOM TOTAL DEPTH 65'



PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.		LOG OF BORING/WELL: PAGE 1 OF 3
BORING LOCATION: EASTERN SIDEWALK ON GARFIELD	PROJECT NO.: 037.20552.330	**MW-A6**
SUBCONTRACTOR AND EQUIPMENT: BC2 ENVIRONMENTAL, LAR	LOGGED BY: L. KESSEL	
SAMPLING METHOD: MOD. CA. SPLIT SPOON	MONITORING DEVICE: MINIRAE PID	
START DATE/TIME: 10/30/01, 9:30am	FINISH DATE/TIME: 10/30/01, 12:00pm	
FIRST WATER (FT BGS): ▽ 43	STABILIZED WATER LEVEL (FT BGS): ▼ N/A	**SECOR**
SURFACE ELEVATION: N/A	CASING TOP ELEVATION: N/A	*International Incorporated*
TOTAL WELL DEPTH: 65'	BORING DIAMETER: 10" DEPTH: 65.0'	
R.G. APPROVAL: J. BOLLIER, R.G. NO. 6099	BORING ANGLE (°): VERTICAL TREND: N/A	

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)
			0	
			2	
			4	
X	4 5 7	0	6	SILT (ML): VERY DARK GRAY, MOIST, MEDIUM STIFF, NO PLASTICITY, TRACE FINE-GRAINED SAND, NO HYDROCARBON ODOR
			8	
X	4 6 12	0	10	SILT (ML): DARK GRAYISH BROWN, MOIST, LOW PLASTICITY, TRACE FINE-GRAINED SAND, NO HYDROCARBON ODOR
			12	
X	4 16 18	0	14	SANDY SILT (ML): PALE BROWN (10YR), MOIST, MEDIUM DENSE, FINE-GRAINED SAND, SOME MICA, NO HYDROCARBON ODOR
			16	
			18	
X	4 14 20	0	20	SILTY SAND (SM): GRAYISH BROWN, MOIST, MEDIUM DENSE, FINE-GRAINED, NO HYDROCARBON ODOR
			22	
X	14 17 21	18 7	24	SILT (ML): GRAY, MOIST, VERY STIFF, TRACE FINE-GRAINED SAND, MODERATE HYDROCARBON ODOR
			26	
			28	
X	6 16 23	539	30	POORLY GRADED SAND (SP): GRAY (10YR), MOIST, MEDIUM DENSE, FINE-GRAINED, MICA, SOME SILT, STRONG HYDROCARBON ODOR

BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS



PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: EASTERN SIDEWALK ON GARFIELD

PROJECT NO.: 037.20552.330

LOGGED BY: L. KESSEL

COMMENTS:

LOG OF BORING/WELL:

MW-A6

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
			30			
			32			
X	10 15 25	1013	34		POORLY GRADED SAND (SP): GRAY (10YR), MOIST, MEDIUM DENSE, FINE-GRAINED, MICA, SOME SILT, STRONG HYDROCARBON ODOR	
			36			
			38			
X	8 14 17	99 7	40		SILT (ML): DARK GRAY, DAMP, STIFF, TRACE FINE-GRAINED SAND, STRONG HYDROCARBON ODOR	NO. 2/12 SAND PACK
			42			
X	7 9 15	14.6	44		SILT (ML): DARK GRAY, DAMP, STIFF, TRACE FINE-GRAINED SAND, HIGH MICA CONTENT, FAINT HYDROCARBON ODOR	
			46			
			48			
X	7 15 27	19 8	50		SANDY SILT (ML): GRAY (10YR), WET, MEDIUM DENSE, FINE-GRAINED SAND, HIGH MICA CONTENT, MODERATE HYDROCARBON ODOR	4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
			52			
X	6 13 18	35 5	54		SANDY SILT (ML): GRAYISH BROWN (10YR), WET, MEDIUM DENSE, FINE-GRAINED SAND, HIGH MICA CONTENT, MODERATE HYDROCARBON ODOR	
			56			
			58			
X	5 9 13	9.8	60		SILT (ML): DARK GRAY (10YR), WET, STIFF, NO PLASTICITY, TRACE FINE-GRAINED SAND, FAINT HYDROCARBON ODOR	

PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: EASTERN SIDEWALK ON GARFIELD

PROJECT NO.: 037.20552.330

LOGGED BY: L. KESSEL

COMMENTS:

LOG OF BORING/WELL:

MW-A6

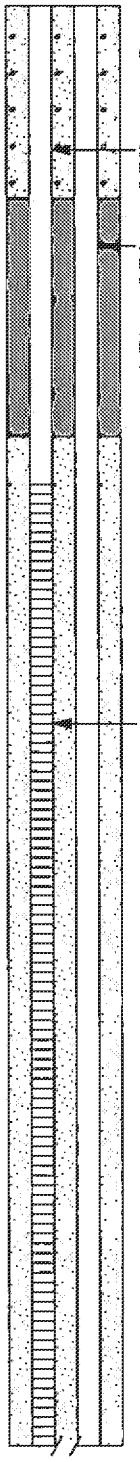
SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
			60			NO. 2/12 SAND PACK
			62		SILT (ML): DARK GRAY (10YR), WET, STIFF, NO PLASTICITY, TRACE FINE-GRAINED SAND, FAINT HYDROCARBON ODOR	4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
X	6 7 10	5.3	64		2" CLAY STRINGER	
					TOTAL DEPTH OF BORING 65'	WELL BOTTOM TOTAL DEPTH 65'

PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.		LOG OF BORING/WELL: PAGE 1 OF 3
BORING LOCATION: FORMER TANK PIT	PROJECT NO.: 037.20552.330	**MW-A7**
SUBCONTRACTOR AND EQUIPMENT: WEST HAZMAT DRILLING, CME-75	LOGGED BY: R. COUTER	
SAMPLING METHOD: MOD. CA. SPLIT SPOON	MONITORING DEVICE: MINIRAE PID	
START DATE/TIME: 4/16/02, N/A	FINISH DATE/TIME: 4/16/02, N/A	
FIRST WATER (FT BGS): ▽ 46.5	STABILIZED WATER LEVEL (FT BGS): ▼ 47.5	**SECOR**
SURFACE ELEVATION: 110.6	CASING TOP ELEVATION: 110.63,110.56	*International Incorporated*
TOTAL WELL DEPTH: 30',65'	BORING DIAMETER: 10" DEPTH: 65.0'	
R.G. APPROVAL: J. BOLLIER, R.G. NO. 6099	BORING ANGLE (°): VERTICAL TREND: N/A	

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)
			0		36" VAULT TO 4' BGS
			2		
			4		**ARTIFICIAL FILL (AF):** FILL MATERIAL (FORMER TANK PIT), SLIGHT HYDROCARBON ODOR
	NA	4.2	6		
			8		
	NA	11.7	10		
			12		
			14		
X	9 9 11	2 141	16		**SILTY SAND (SM):** GRAYISH BROWN, DAMP, LOOSE, FINE-GRAINED, STRONG HYDROCARBON ODOR
			18		
X	5 6 9	>9 999	20		
			22		**CLAY (CL):** OLIVE GRAY, DAMP, SOFT, STRONG HYDROCARBON ODOR
			24		
X	20 22 26	2 523	26		**WELL GRADED SAND (SW):** PALE BROWN, DAMP, MEDIUM DENSE, STRONG HYDROCARBON ODOR
			28		
			30		

BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS



PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: FORMER TANK PIT

PROJECT NO.: 037.20552.330

LOGGED BY: R. COUTER

COMMENTS:

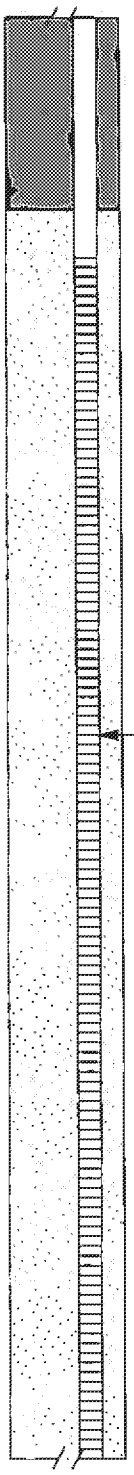
LOG OF BORING/WELL:

MW-A7

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)
X	20 20 20	4,190	30		WELL GRADED SAND (SW): PALE BROWN, DAMP, MEDIUM DENSE, STRONG HYDROCARBON ODOR @30.5' BGS, COLOR CHANGE TO LIGHT GRAY, STRONG HYDROCARBON ODOR
			32		
			34		
X	20 50	34.5	36		WELL GRADED SAND (SW): LIGHT GRAY, DAMP, MEDIUM DENSE, SLIGHT HYDROCARBON ODOR
			38		
X	15 20 30	809	40		WELL GRADED SAND (SW): LIGHT GRAY, DAMP, MEDIUM DENSE, SLIGHT HYDROCARBON ODOR
			42		
			44		
X	6 10 13	710	46		CLAY (CL): GRAYISH BROWN, DAMP, STIFF, SLIGHT HYDROCARBON ODOR @ 46.5' GROUNDWATER ENCOUNTERED
			48		
X	6 8 7	840	50		SILT (ML): GRAYISH BROWN, WET, SOFT, SLIGHT HYDROCARBON ODOR
			52		
			54		SILT WITH SAND (ML): GRAYISH, WET, MEDIUM STIFF, FINE-GRAINED SAND, SLIGHT HYDROCARBON ODOR
X	11 17 22	504	56		POORLY GRADED SAND (SP): GRAYISH, WET, MEDIUM DENSE, FINE-GRAINED, SLIGHT HYDROCARBON ODOR
			58		
			60		

BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS



PROJECT: ATLANTIC RICHFIELD COMPANY, STATION NO. 5110, 5731 EAST FIRESTONE BLVD., SOUTH GATE, CA.

BORING LOCATION: FORMER TANK PIT

PROJECT NO.: 037.20552.330

LOGGED BY: R. COUTER

COMMENTS:

LOG OF BORING/WELL:

MW-A7

SECOR
International Incorporated

SAMPLE INTERVAL	BLOWS-1/2 ft.	PID/FID (ppm)	DEPTH (feet)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (soil classification, color, moisture, density, grain size/plasticity, other)	BORING ABANDONMENT/ WELL CONSTRUCTION DETAILS
X	15 20 23	102	60		**POORLY GRADED SAND (SP):** GRAYISH, WET, MEDIUM DENSE, FINE-GRAINED, SLIGHT HYDROCARBON ODOR	NO. 2/12 SAND PACK
			62			4" SCH 40 PVC 0.020" SLOTTED WELL SCREEN
X	17 20 23	78	64		**POORLY GRADED SAND (SP):** GRAYISH, WET, MEDIUM DENSE, FINE-GRAINED, SLIGHT HYDROCARBON ODOR	
					TOTAL DEPTH OF BORING 65'	WELL BOTTOM TOTAL DEPTH 65'

APPENDIX D

SITE GEOLOGY AND HYDROGEOLOGY

Site Geology

Former ARCO Station 5110 is located on the floodplain between the Los Angeles River and the Rio Hondo River. The Site is located within the Central Block physiographic province of the Los Angeles Basin (Yerkes, et al., 1965). The Central Block is a 55-mile long, wedge-shaped block oriented in a northwest-southeast direction in the middle portion of the Los Angeles Basin. It is bounded on the southwest by the northwest-trending Newport-Inglewood Uplift structural zone, on the northeast by the Whittier fault and the Elysian-Repetto-Coyote Hills sequence, on the southeast by the Santa Ana Mountains, and on the northwest by the Santa Monica Mountains (California Department of Water Resources, or CDWR, 1961).

The Site is underlain by approximately 20 feet of Holocene alluvial deposits consisting primarily of silt, clay, and discontinuous lenses of sand. These sediments represent river system deposits derived from the ancestral Los Angeles and Rio Hondo Rivers. The Upper Pleistocene Lakewood Formation extends from approximately 20 to 275 feet bgs. The upper part of the Lakewood Formation consists predominantly of fine-grained silt and clay while the lower portion of the Lakewood Formation contains greater percentages of sand with some gravel lenses. The Lower Pleistocene San Pedro Formation extends from a depth of approximately 275 to 1,200 feet bgs, and consists of marine and continental gravel, sand, sandy silt, silt and clay (PEG, 1998).

The maximum depth explored at former ARCO Station No. 5110 is 94 feet bgs or the shallow hydrostatigraphic zone (SHZ). Soil encountered during subsurface drilling investigations can be separated into five primary lithologic horizons: 1) interbedded sand, silty sand, silt, and thinly bedded clay from approximately near surface grade to 30 feet bgs; 2) sand from approximately 30 to 45 feet bgs; 3) thinly bedded clay, silt, and silty sand from approximately 45 to 55 feet bgs; 4) sand from approximately 55 to 65 feet bgs; and 5) silt and silty sand from approximately 65 to 94 feet bgs (maximum depth explored). A Site map with cross-sectional index lines is included as Figure 7. Generalized cross sections A-A' and B-B' depict the subsurface lithology and are included as Figures 8 and 9, respectively. Historical soil boring logs are included in Appendix C.

Site Hydrogeology

Based on information obtained by SECOR during completion of assessment work at the Site and at the adjacent Vinvale Terminal, groundwater in the Site vicinity is encountered and monitored in three distinct water bearing zones (WBZ; SECOR, 2004). The encountered depth and vertical extent of these zones is approximately as follows:

- Shallow Hydrostratigraphic Zone (SHZ) - Typically encountered between 40 to 50 feet bgs and extends to 88 to 96 feet bgs. It is correlated to the more permeable zones of the Bellflower Aquiclude. Groundwater in this zone flows in a southerly direction at a shallow gradient that has averaged 0.002 ft/ft over the last four years. The SHZ is underlain by five to 15 feet of low-permeability silts and clays.

- Middle Hydrostratigraphic Zone (MHZ) - Typically encountered at 100 to 115 feet bgs and extends to 160 to 180 feet bgs. It is correlated to the regional Exposition Aquifer. Groundwater in this zone flows in a south to southwesterly direction at a shallow gradient that has averaged 0.001 ft/ft. The MHZ is underlain by 20 to 40 feet of low-permeability silts and clays.

- Deep Hydrostratigraphic Zone (DHZ) - The upper portion of the three WBZ, identified as the DHZ, has been encountered between 300 and 325 feet in cluster wells CW-1, CW-2 (abandoned), CW-3, CW-8 and CW-12. Based on SECOR's reevaluation of the "Fire Well" 1923 drillers' log and the recent cluster well data (Stantec), the DHZ appears to correlate to the regional Hollydale Aquifer, however, historic work suggests that the Hollydale may be discontinuous in this area (CDWR, 1961). Recent groundwater data from this zone flows in an easterly direction at a shallow gradient that has averaged 0.003 ft/ft.

Depth to groundwater in the on-Site wells has ranged from a low of 61.33 feet bgs in August 2003 (MW-A4) to a high of 36.45 feet bgs in May 1999 (MW-A2). Groundwater levels across the Site rose steadily from June 1990 through approximately the end of 1999 (approximately 13 feet), and then began dropping and have continued to drop (approximately nine feet) through the Third Quarter 2004. From the Third Quarter 2004 until the First Quarter 2008, groundwater levels across the Site appear to have increased by approximately two feet. Since the First Quarter 2008 the groundwater levels have decreased again approximately four to five feet, and continue to be decreasing to about 57 feet bgs. During the First Half 2013, depth to groundwater in the on- and off-Site groundwater monitoring wells ranged from 56.13 to 58.31 feet bgs (50.63 to 54.08 feet MSL). The groundwater flow direction was to the south at a gradient of approximately 0.0045 feet per foot.

APPENDIX E

MUNICIPAL WELL SURVEY

Public Well Information

Stantec researched the location of potential municipal/public supply wells using the following sources: 1) Geographic Environmental Information Management System (GEIMS) database via the Geotracker website (http://geotracker.waterboards.ca.gov/); 2) Los Angeles Department of Water Resources (LADWR) Watermaster website (http://www.dpla.water.ca.gov/sd/groundwater/wells.html#wcr); 3) Los Angeles Department of Public Works (LADPW) website (http://dpw.lacounty.gov/general/wells/); 4) Water Replenishment District of Southern California (WRD) (http://gis.wrd.org/wrdmap/), 5) City of Southgate, 6) and Environmental Data Resources, Inc. (EDR) website (www.edrnet.com). A total of 51 wells were identified within a one-mile radius of the Site. 8 of those were listed as production wells. A summary of the available well information is summarized in Table 4. A Site map showing wells identified within a one-mile radius is included as Figure 1.

- The closest identified well that is known to be actively used for municipal supply is the City of South Gate Well 03S/12W-05D02 (1535H). This well is located approximately 1,700 feet south of the Site in a clustered area east of the Los Angeles River and west of the Long Beach Freeway.

APPENDIX F

HYDROCARBON IMPACTED SOIL

This section briefly summarizes the extent of petroleum hydrocarbons in soil (including the capillary fringe) at the Site. The information was compiled through the analysis of soil samples collected during site assessment activities.

Hydrocarbon Distribution in Soil

Based on analytical data collected from UST removal and replacement operations and numerous assessment activities, the highest concentrations of adsorbed-phase hydrocarbons were identified beneath the former USTs, and at the eastern end of the former central dispenser island. Soil samples collected beneath the USTs in February 2002, contained GRO concentrations up to 8,800 mg/kg (TK-4A-17), benzene concentrations up to 16 mg/kg (TK-4A-17), and MTBE concentrations up to 8.1 mg/kg (TK-1B-17). Soil samples collected from borings installed within and peripheral to the former USTs indicated that elevated concentrations of TPHg and benzene, toluene, ethyl-benzene, and total xylenes (BTEX) extend from approximately ten feet bgs to 60 feet bgs in the area of the former USTs. Analytical data from recent soil borings installed within the area of the former USTs (MW-A7, AS/SVE-1 and AS/SVE-2) indicated that elevated concentrations of MTBE (11 mg/kg; AS/SVE-2-30) and TBA (16 mg/kg; MW-A7-20) were identified within the upper 20 feet of the soil column, with lower concentrations of MTBE and TBA extending to approximately 65 feet bgs. Analytical data indicates that the former USTs are the primary source area for adsorbed-phase hydrocarbon contamination at the Site. The lateral extent of the adsorbed-phase hydrocarbon plume in the vicinity of the former USTs appears to be defined to the west by VEW-1, to the north by D-6, to the east by D-4, and to the south by D-3. A site map showing hydrocarbon concentrations in soil is included as Figure 6. Historical soil analytical results are summarized in Table 1.

During Site demolition and renovation activities conducted in February 2002, soil samples collected beneath the eastern end of the central dispenser island indicated elevated concentrations of GRO (3,500 mg/kg; D-6-2) and total xylenes (360 mg/kg; D-6-2). Additionally, soil excavated from the eastern end of the new tankpit at the southern end of the Site was stained dark gray and contained hydrocarbon odors. Soil samples collected from shoring soil boring SB-5, installed along the northeast perimeter of the new tankpit, contained TPHg concentrations up to 1,200 mg/kg (SB-5-5). Soil samples collected from the base of the new tankpit contained MTBE concentrations of up to 0.59 mg/kg (NTK-1B-18). Recent soil borings AS/SVE-4 and AS/SVE-3 identified elevated concentrations of GRO (3,100 mg/kg; AS/SVE-4-15) and benzene (2.6 mg/kg; AS/SVE-4-30) within the upper 30 feet of the soil column. It appears that the former central dispenser island was an additional source area for adsorbed-phase hydrocarbon contamination. The lateral extent of the adsorbed-phase hydrocarbon plume in this area is predominantly defined to the east by MW-A3, and to the west by AS/SVE-5.

On October 12, 2005 SECOR installed off-site well MW-A8s/A8d South of McDonalds in the eastern half of the Target shopping center parking lot. Soil analytical data from Boring MW-A8 were all below the LRL in the 18 soil samples collected. Concentrations qualified by a 'J' flag are estimated values below the LRL but at or above the MDL.

On December 10 through 12 and 18, 2008, Stantec oversaw the advancement of four on-Site soil borings (DW-1 through DW-4) adjacent to the location of the current monitoring wells (MW-A3, MW-A4, MW-20, and MW-A7). These borings were installed in order to determine residual soil concentrations in and around the areas near the current SVE/groundwater wells (Figure 2). A total of 13 soil samples were submitted for chemical analyses. Detectable concentrations of petroleum hydrocarbon constituents above the laboratory reporting limit (LRL) were identified in 12 of the samples. The maximum concentrations of adsorbed-phase hydrocarbons were identified as follows: GRO – <18 mg/kg

(DW-2-S-60), benzene – 1.10 mg/kg (DW-2-S-60), MTBE – <0.21 mg/kg (DW-2-S-60), and TBA – <4.2 mg/kg (DW-2-S-60). Concentrations qualified by a "J flag" are estimated values detected at a level below the laboratory LRL and above the laboratory method detection limit (MDL).

Low-level concentrations of adsorbed-phase hydrocarbons have been identified from 40 to 65 feet bgs, within the capillary fringe and saturated zones, in nearly all borings installed on-and off-Site. Fluctuating groundwater elevations (which have fluctuated as much as 17 feet in MW-19) have likely smeared and transported adsorbed-phase petroleum hydrocarbons across the Site within the capillary fringe.

APPENDIX G

HYDROCARBON IMPACTED GROUNDWATER

All groundwater samples were relinquished to Test America of Irvine, California for chemical analysis. Stantec and Test America adhered to strict chain-of-custody procedures from sample collection to sample analysis. All groundwater samples were analyzed for the following analytes and in accordance with the appropriate Environmental Protection Agency (EPA) method:

- Gasoline range organics C_4-C_{12} (GRO) by EPA Method 8015B; and
- BTEX, di-isopropyl ether (DIPE), ethyl-tertiary-butyl ether (ETBE), tertiary-amyl-methyl ether (TAME), TBA, MTBE, and ethanol by EPA Method 8260B.

QUARTERLY GROUNDWATER MONITORING AND SAMPLING

A groundwater gradient map and hydrocarbon concentration maps for GRO, benzene, MTBE, and TBA for this quarter are presented as Figures 10 through 15, respectively. Hydrographs for individual wells are presented in the graphs section. The laboratory analytical report with chain-of-custody documentation, groundwater sampling field data sheets, and waste disposal documents are included in Appendix N, O, and P, respectively. Historical groundwater analytical and elevation results are summarized in Table 2.

Dissolved-Phase Hydrocarbon Plume

The former ARCO Vinvale Terminal is located approximately 500 feet north of former ARCO Station No. 5110 (Figure 2). The Vinvale Terminal covers an area of approximately 35 acres and currently is used for the storage and on-loading of gasoline and diesel fuel products for former ARCO retail outlets in the Los Angeles metropolitan area. The Vinvale Terminal maintains ten aboveground storage tanks (ASTs) for various grades of refined products and one used oil AST. The total tank working capacity is approximately 34 million gallons. A multi-bay fuel loading rack is located in the southwestern portion of the Vinvale Terminal.

Based on the historical quarterly groundwater analytical results, it appears that dissolved-phase GRO and BTEX constituents are migrating southward from the former ARCO Vinvale Terminal to former ARCO Station No. 5110, resulting in commingling of the groundwater plume on the northern portion of the station property. This is evidenced by historically elevated concentrations of GRO and BTEX in monitoring wells MW-A4 and MW-19, which are located north and northeast (up-gradient) of the former and existing USTs and associated dispensers and product lines at the Site. The highest historical concentration of GRO (52,000 µg/L on March 21, 2000) was identified in MW-19. The highest historical concentration of benzene (13,000 µg/L on May 2, 2006) was identified in MW-A4. Well MW-19 has historically had non detectable to very low concentrations of fuel oxygenates, suggesting that the dissolved-phase plume at the northern portion of the Site represents a commingling of plumes with the Vinvale Terminal. Wells MW-A2, MW-A3, MW-A4, MW-A7 and MW-20 contain elevated concentrations of GRO, BTEX, and fuel oxygenates, and appear to indicate contamination associated with operation of the former USTs and dispensers at the Site, which distributed the fuel additive MTBE.

MTBE was first analyzed for and detected at the Site in July 1996. The highest concentrations of MTBE have historically been detected in former monitoring well D-1 (abandoned January 24, 2002), located immediately north of the former USTs. The highest historical MTBE concentration of 11,000 µg/L was detected in D-1 in December 1999. Since D-1 abandonment the highest MTBE concentration was detected in MW-A3 (140 µg/L) on May 12, 2009. The maximum TBA concentration was reported in well

MW-20 on May 2, 2006, at a concentration of 11,000 µg/L. Elevated concentrations of fuel oxygenates, primarily MTBE and TBA, have historically been limited to the on-Site wells.

On May 7 and 8, 2013, Stantec conducted the First Half 2013 Groundwater Monitoring and Sampling event at the site. A total of eleven groundwater monitoring wells (MW-19, MW-20, and MW-A1 through MW-8s/d) were gauged, purged, and sampled. Depth to groundwater in the on- and off-Site groundwater monitoring wells ranged from 56.13 to 58.31 feet bgs. The groundwater flow direction was to the south at a gradient of approximately 0.0045 feet per foot. During the First Half 2013 GRO concentrations increased in wells MW-A1, MW-A2, MW-A4, MW-A8d, and MW-20, and decreased or remained stable in all other wells. Benzene concentrations increased in wells MW-A8d and MW-20, decreased in wells, MW-A1, MW-A2, MW-A3, MW-A4, MW-A8d, and MW-19, and remained stable or non-detect in all other wells. MTBE concentrations decreased in wells MW-A3, MW-A5, MW-A8s and MW-8d, and remained stable or non-detect in all other wells sampled. TBA concentrations increased in wells MW-A8d and MW-19, decreased in wells MW-3, MW-A5, MW-8s and MW-A8d, and remained stable or non-detect in all other wells sampled. On-Site oxygen diffuser wells (DW-1 through DW-4) were not sampled during the First Half 2013.

APPENDIX H

PLUME TRAVEL TIME ESTIMATE

On July 15, 2013, Stantec submitted a revised Plume Travel Time report. A conservative estimate of the plume travel time was made using BIOSCREEN-AT, a Microsoft Excel spreadsheet analytical model based on the Domenico analytical solute transport model. The nearest municipal well receptor was identified as well 03S/12W-05D02, located approximately 1,700 feet south of the Site. The plume travel time was based on the time for Benzene concentrations of 16,000 µg/L, the primary maximum contaminant level (MCL) of Benzene to reach the receptor.

Based on the model, Stantec determined the most likely scenario is a plume travel time of 292 years. Details are presented in the Plume Travel Time Estimate Report, which includes the BIOSCREEN-AT Input and Output, in this appendix.

Stantec Consulting Services Inc.
290 Conejo Ridge Avenue
Thousand Oaks CA 91361
Tel: (805) 230-1266
Fax: (805) 230-1277

Stantec

July 15, 2012

Mr. Gregg Kwey
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street
Los Angeles, California 90013-1104

Re: **Updated Benzene Plume Travel Time Estimate**
Tesoro Refining & Marketing Company LLC
(Former ARCO Station No. 5110)
5731 East Firestone Boulevard
South Gate, California
CRWQCB-LA File No. I-12074

Dear Mr. Nguyen:

This report, prepared by Stantec Consulting Services Inc. (Stantec) at the request of Tesoro Refining & Marketing Company LLC (Former ARCO Station No. 5110), on behalf of Tesoro Environmental Resources Company, is submitting the following plume travel time determination for the above referenced site. Previously, the travel time of the groundwater plume to the nearest receptor was estimated at an infinite number of years (Stantec, 2012). In this report Stantec has used Benzene as the chemical of concern due to low (2.3 µg/L) MTBE concentrations on-site this quarter. This updated plume travel time estimates a travel time of 292 years for Benzene to reach the nearest receptor.

INTRODUCTION

This report was prepared in response to the California Regional Water Quality Control Board – Los Angeles Region (CRWQCB-LA) letters dated February 28, 2003 and August 27, 2003, titled *Implementation of Final Draft Guidelines for the Investigation and Cleanup of Benzene and Other Oxygenates.* The CRWQCB-LA letters included a directive to determine or estimate the time for Benzene at a concentration of 1.0 µg/L to reach the nearest receptor utilizing a mainstream or industry recognized fate and transport analytical model and submit a technical report documenting the modeling work and results. The directive stated that an extensive or detailed modeling effort is not required nor is that the objective. This report includes a description of the analytical model utilized, a description of the process used to arrive at the model results, justification for assumptions used, and recommendations for additional work that could reduce model uncertainties.

The nearest receptor is Municipal Well No. 03S/12W-05D02 (1535H), located approximately 1,700 feet southwest of the Site. Groundwater flow direction is towards the south, with the receptors being cross-gradient of the site. The plume travel time for this estimate is defined as the time for Benzene to reach the receptor at the primary maximum contaminant level (MCL) concentration of 1.0 µg/L.

MODEL DESCRIPTION

BIOSCREEN-AT is a screening model that simulates remediation by natural attenuation (RNA) of dissolved hydrocarbons at petroleum fuel release sites. The software is programmed in the Microsoft Excel spreadsheet environment and based on the Domenico analytical solute transport model as modified by Karanovic et. al. (2006). It was developed for the Air Force Center for Environmental

Excellence (AFCEE) Technology Transfer Division at Brooks Air Force Base by Groundwater Services, Inc., Houston, Texas. It has the ability to simulate advection, dispersion, adsorption, and aerobic decay as well as anaerobic reactions that have been shown to be the dominant biodegradation processes at many petroleum release sites. BIOSCREEN-AT includes three different model types:

1) Solute transport without decay,
2) Solute transport with biodegradation modeled as a first-order decay process, and
3) Solute transport with biodegradation modeled as an instantaneous biodegradation reaction.

The model is designed to simulate biodegradation by both aerobic and anaerobic reactions.

MODEL LIMITATIONS

As an analytical model, BIOSCREEN-AT assumes simple groundwater flow conditions, including isotropic and homogeneous aquifer conditions. The model should not be applied where pumping systems create a complicated flow field. In addition, the model should not be applied if vertical flow gradients affect contaminant transport. As a screening tool, BIOSCREEN-AT only approximates complicated processes that occur in the saturated subsurface. The model should not be applied if extremely detailed results that closely match site conditions are required. Because Benzene would theoretically be the first constituent to reach the receptor, the model parameters are based on Benzene and not other gasoline constituents that might be in the groundwater.

MODEL INPUT PARAMETERS

The BIOSCREEN-AT analytical model requires input of the following hydrogeologic data:

- Seepage velocity, or average linear velocity as calculated from hydraulic conductivity, hydraulic gradient, and effective porosity;
- Dispersivity (based on the length of the plume);
- Retardation (input directly or calculated from soil bulk density, partition coefficient, and fraction organic carbon);
- Decay rates or concentrations of electron acceptors if biodegradation is included;
- Source data (contaminant concentrations and spatial distribution in the source area);
- Modeled area length and width; and
- Simulation time.

Seepage Velocity

Seepage velocity, or average linear velocity, was estimated using the hydraulic gradient determined from groundwater elevation data collected at the site, hydraulic conductivity and effective porosity estimated from the saturated zone lithology. The hydraulic gradient for the current groundwater monitoring event is 0.0045 feet/foot towards the south (May 7 & 8, 2013). The lithology of the saturated zone is primarily silt and fine to coarse grained sand. Based on this lithology, the hydraulic conductivity was initially estimated to be 1 x 10-3 centimeters per second (cm/s; 2.8 ft/day) and the effective porosity is estimated to be 0.25 (Freeze and Cherry, 1979).

Dispersivity

BIOSCREEN-AT includes a simple empirical estimation of longitudinal and transverse dispersivity based on plume length and published dispersion studies. Because the objective of the modeling is to estimate the travel time to the nearest receptor, it is assumed that the plume length is equal to the distance to the nearest receptor. For this site, the nearest receptor is Municipal Well No. 03S/12W-05D02 (1535H),

located approximately 1,700 feet south of the Site. This results in BIOSCREEN-AT estimating a longitudinal dispersivity of 30.3 feet and a transverse dispersivity of 3.0 feet.

Retardation

Benzene is soluble and is adsorbed onto soils more readily than MTBE, with a retardation factor of 1.6 based on an organic carbon partition coefficient of 83 (Karickhoff et al., 1979) and an assumed fraction of organic carbon of 0.001.

Biodegradation

Solute transport with biodegradation as a first-order decay process is modeled, as well as transport without biodegradation. Benzene has been found to biodegrade rapidly (few weeks) degrade under appropriate natural conditions. The biodegradation decay constant for benzene has been reported from a number of field studies as 0.01, 0.012, and 0.028 days-1 (Wiedemeier et al., 1996). This is a half-life of 25 to 70 days. A half-life of 70 days (0.19 yr; decay coefficient of 3.6 yr-1) was applied for a conservative result. While benzene undergoes rapid decay at many field sites, the discussion of the BIOSCREEN-AT simulations focuses on the non-degradation results as no site-specific data were used here. The non-biodegradation case of the model was used to estimate plume travel time as a worst-case scenario.

Source Data

The source zone thickness was set at 10 feet, as recommended in the BIOSCREEN-AT user's manual. The source area width is estimated to be 220 feet, the width of the current Benzene plume. The source area concentration is set at the maximum current Benzene concentration in groundwater of 16 milligrams per liter (mg/L) in well MW-A4 on May 8, 2013. To be conservative, an infinite source mass of infinite duration is assumed.

ASSUMPTIONS

The following assumptions, which may not represent field conditions, are made for this plume travel time modeling estimate:

- The aquifer is of infinite horizontal extent;
- The hydraulic conductivity and effective porosity is homogeneous and isotropic;
- The groundwater linear velocity is spatially and temporally constant;
- The plume remains within the upper groundwater bearing zone;
- The nearest receptor, Municipal Well No. 03S/12W-05D02 (1535H), is located directly down-gradient of the Site; and
- The plume travel time is the time for the primary maximum contaminant level (MCL) concentration of 1 μg/L to reach the receptor.

CALIBRATION

The model is calibrated using laboratory analytical of Benzene concentrations in down-gradient monitoring wells MW-20 at 9.6 mg/L approximately 150 feet Southeast of MW-A4 and MW-A2 at 0.16 mg/L which is located 285 feet South of MW-A4, and the approximate date of the release.

RESULTS

The plume travel time was estimated by adjusting the simulation time until the concentration at the distance to the receptor was 1.0 µg/L, which is the primary MCL for Benzene. Based on the available data and the results of BIOSCREEN-AT, the current Benzene concentration is below the primary maximum contaminant level (MCL) concentration; therefore, it is estimated that the plume travel time to the receptor is 292 years.

A longer travel time is more likely as changes observed in groundwater chemistry over time and space prove that degradation is occurring. Insufficient data were available to apply the instantaneous rate scenario.

Printouts of the model input and corresponding output are provided in Attachment A.

DISCUSSION

An estimate of the plume travel time from the Site to the nearest receptor, Municipal Well No. 03S/12W-05D02 (1535H), located approximately 1,700 feet south and approximately down-gradient of the Site, was made using BIOSCREEN-AT, a Microsoft Excel spreadsheet analytical model based on the Domenico analytical solute transport model as modified by Karanovic et. al. (2007). The model input included estimations of hydraulic conductivity the saturated zone lithology and literature values for analogous soils, a hydraulic gradient based on field measured groundwater elevations, and documented Benzen concentrations in groundwater at the Site. The travel time of only the Benzene plume was estimated, as this would likely be the first constituent to reach the receptor. Stantec assumed that biodegradation of Benzene was not occurring, which resulted in a plume travel time duration that that was more conservative (i.e., less time to reach receptor). The plume travel time is the modeled time for Benzene concentrations to attain 1.0 μg/L (primary MCL of Benzene) at a distance of 1,700 feet from the Site where the receptor is located. There do not appear to be any conditions at the Site that would result in the output of the analytical model becoming less conservative.

LIMITATIONS

This report has been prepared for the exclusive use of Tesoro Marketing & Refining Company LLC and its representatives as it pertains to Former ARCO Station No. 5110, located at 5731 East Firestone Boulevard, South Gate, California. The information contained in this report represents our professional opinions and is based, in part, on currently available information arrived at in accordance with currently accepted hydrogeological practices at this time and location. No other interpretations, warranties, guarantees, expressed or implied, are included or intended in the report findings.

If you have any questions regarding this *Updated Benzene Plume Travel Time Estimate*, please feel free to contact the Project Manager at 805-230-1266, extension 9337.

Respectively Submitted,

Stantec Consulting Services Inc.

Prepared By:

Allison Rubenstein
Project Specialist

Approved By:

Andrew J. Modugno, P.G. 7036
Principal Geologist

Attachments:

Attachment A – BIOSCREEN-AT Input and Output

PROFESSIONAL GEOLOGIST
ANDREW JAMES
MODUGNO
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STATE OF CALIFORNIA

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ATTACHMENT A

BIOSCREEN-AT Input and Output

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Tesoro (Former ARCO 5110)
SCMU Q2-13
Benzene

115 — *1. Enter value directly... or*
or — *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	2.8	*(ft/yr)*
or		*or*	
Hydraulic Conductivity	*K*	1.5E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0045	*(ft/ft)*
Porosity	*n*	0.25	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	30.3	*(ft)*
Transverse Dispersivity*	*alpha y*	3.0	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		*or*	
Estimated Plume Length	*Lp*	1700	*(ft)*

3. ADSORPTION

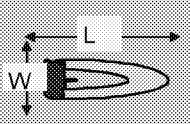
Retardation Factor*	*R*	1.0	*(-)*
or		*or*	
Soil Bulk Density	*rho*		*(kg/l)*
Partition Coefficient	*Koc*		*(L/kg)*
FractionOrganicCarbon	*foc*		*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.0E+0	*(per yr)*
or		*or*	
Solute Half-Life	*t-half*	0.69	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1700	*(ft)*
Modeled Area Width*	220	*(ft)*
Simulation Time*	292.00	*(yr)*



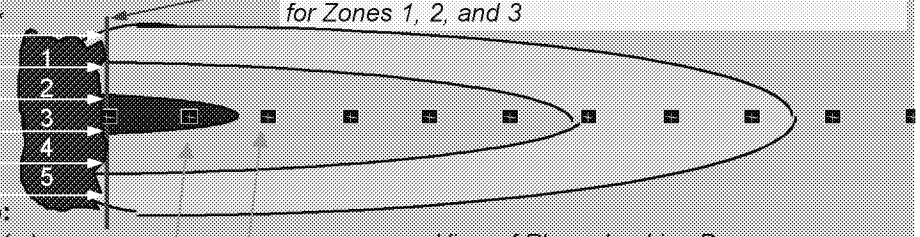
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0.16
150	9.6
285	16
150	9.6
0	0.16



View of Plume Looking Down

Source Halflife (see Help):

Inst. React.	1st Order
Infinite	Infinite *(yr)*

Soluble Mass In Source NAPL, Soil: Infinite *(Kg)*

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	16.0	9.6	.16								.001
Dist. from Source (ft)	0	150	285	520	690	860	1030	1200	1370	1540	1710

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate

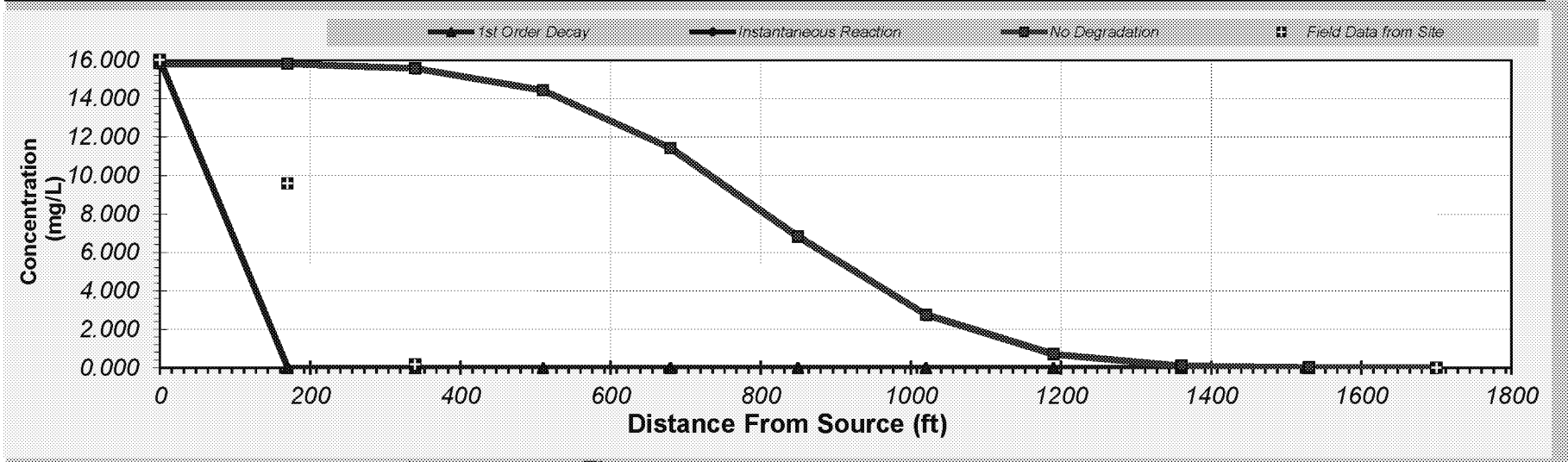
Paste Example Dataset

Restore Formulas for Vs,

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	170	340	510	680	850	1020	1190	1360	1530	1700
No Degradation	15.840	15.811	15.572	14.438	11.425	6.817	2.758	0.704	0.109	0.010	0.001
1st Order Decay	16.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	15.840	15.811	15.572	14.438	11.425	6.817	2.758	0.704	0.109	0.010	0.001
Field Data from Site	16.000	9.600	0.160								0.001



Calculate Animation

Time: 292

Return to

Recalculate This

APPENDIX I

HISTORIC SOURCE REMOVAL AND REMEDIATION ACTIVITIES

Enhanced Fluid Recovery

From July 1999 through January 2002, enhanced fluid recovery (EFR) was performed approximately monthly with a vacuum truck as an interim remedial action due to elevated concentrations of MTBE identified in D-1. EFR was also performed briefly at wells MW-20, MW-A5, and MW-A6. During the EFR activities, a total of approximately 17,391 gallons of hydrocarbon-impacted groundwater was removed from the Site. EFR activities were discontinued after D-1 was abandoned in January 2002. A summary of historical EFR events is presented in Table 5.

Source Removal and Excavation

The source of the discharge has been removed and replaced. On February 7, 2002, four 10,000-gallon, double-walled fiberglass USTs and their associated subsurface product piping and dispensers were removed from the Site. On February 14, 2002, one 20,000-gallon, and one split 24,000-gallon (two 12,000-gallon chambers), Xerxes double-walled fiberglass USTs were installed at the southern end of the Site. New double-contained fiberglass product piping was installed from the USTs to four new dispenser islands, and under-dispenser containment sumps were installed below the new dispensers. A new clarifier was installed on-Site for use with the new carwash facility.

Extensive excavation and trenching was performed at the Site during installation of the new USTs (new tankpit located at the southern perimeter of the Site), dispensers, subsurface product and electrical piping, and new canopy footings. Additionally, the footprint of the new station building, dispenser islands, and carwash were excavated a minimum of two feet and re-compacted with clean imported soil. During preparation of the former tankpit for backfilling, approximately 200 tons of soil and pea gravel was removed from the bottom of the tankpit. Soil excavated from the bottom of the former tankpit emitted volatile organic compounds (VOC) concentrations in excess of 1,000 ppmV as measured in the field with a hand held photo-ionization detector (PID).

A new tankpit was excavated at the southern end of the Site. Soil excavated at the northeastern corner of the new tankpit was visibly stained (grayish) and impacted with petroleum hydrocarbons, likely associated with the former dispensers. The new tankpit was excavated to a total depth of approximately 18 feet bgs. Soil encountered from 15 to 18 feet bgs was stained a greenish color, and emitted VOC concentrations above 50 ppmV. Due to the encountered hydrocarbon contamination, the majority of soil generated from the new tankpit excavation was hauled off Site for disposal. A total of approximately 1,500 tons of soil were excavated from the new tankpit, of which approximately 500 tons, primarily from the upper half of the western end of the tankpit, were re-used on-Site as backfill material for the former tankpit.

During the station renovation activities, a limited remedial over-excavation of hydrocarbon-impacted soil was performed at the eastern end of the former middle dispenser island. A five by five foot wide excavation was completed to a depth of five feet bgs to remove hydrocarbon-impacted soil identified in dispenser sample D-6-2'.

A total of approximately 2,115 tons of petroleum hydrocarbon-impacted soil was removed from the Site during the Site demolition and renovation activities and transported to TPS Technologies Soil Recycling (TPS) in Adelanto, California for disposal/recycling (SECOR, 2002).

AS/SVE Remedial System Operation Summary

During the First Quarter 2004, SECOR finalized installation of an AS/SVE remedial system at the Site. The system consists of a Paragon Systems ET-250 oxidizer connected to six dual-nested SVE wells (SVE-1 through SVE-5, and MW-A7). An Ingersoll-Rand rotary screw air compressor is connected to five AS wells (AS-1 through AS-5). SVE system operation report is included in Table 6.

The SVE system was started on April 7, 2004, and samples were collected from each individual well, and from the influent and effluent vapor stream to the thermal oxidizer. Undiluted vapor analytical results in the process stream at startup were identified as follows: GRO – 8,400 ppmV, benzene – 92 ppmV, and MTBE - <27 ppmV. Vapor analytical results from the SVE system process stream and from individual wells are summarized in Tables 7 and 8, respectively.

After sampling, the system was shut down. Effluent vapor samples were analyzed on 24-hour turnaround to ensure the system was destroying vapors to within the South Coast Air Quality Management District (SCAQMD) required benzene limit of 0.24 ppmV. Benzene was detected in the effluent stream at 0.19 ppmV, just below the SCAQMD limit.

The SVE system was restarted on April 13, 2004, the dilution valve was opened 100%, effluent samples were collected, and the system was shut down. Analytical results were <0.059 ppmV for benzene.

On April 16, 2004, the SVE system was started and left to continually operate. Samples were collected weekly for the first month to ensure the oxidizer was capable of destroying hydrocarbon vapors to within the SCAQMD benzene requirement.

From system start-up through September 23, 2004 vapors were extracted from the shallow zone intervals of AS/SVE-1, AS/SVE-2, AS/SVE-3, AS/SVE-4, AS/SVE-5, and MW-A7. All wells used for SVE are dual nested. On September 23, 2004, the shallow zone wells were closed and the deeper zone wells were opened due to decreasing hydrocarbon vapor concentrations to the thermal oxidizer.

During the First Quarter 2005, the AS wells were developed with a vacuum truck to remove accumulated sediment. Before commencing startup of the AS system, a one day step and steady rate AS test was conducted to determine the required breakthrough pressures and an estimated radius of influence for AS.

In March 2005, the Paragon system was converted to catalytic mode due to steadily decreasing influent vapor concentrations.

On April 14, 2005, the SVE system was shut down due to expiration of the various locations SCAQMD PTO. A site-specific PTO application was submitted to the SCAQMD and SECOR received the site-specific PTO during the Third Quarter 2005.

On October 4, 2005 the Paragon SVE system was re-started in catalytic mode and continued operation into the beginning of the First Quarter, 2006. On January 17, 2006, SECOR initiated the startup of the system and performed confirmation sampling for system discharge monitoring. The system was shut off this same day (Jan. 17, 2006) due to problems with the system optimization. The system remained off until May 9, 2006.

The system was shut down on June 12, 2006 for repair of the air sparge compressor. The system remained off until the installation of a catalytic unit on September 8, 2006. The system operated until November 21, 2006.

On September 8, 2006, SECOR initiated the startup of the system and performed confirmation sampling for system discharge monitoring. The system operation was changed from Thermal to Catalytic and a

new catalyst for the SVE system was also installed. The system pulled fresh air from September 8, 2006 to September 19, 2006 to insure the system was in compliance with SCAQMD regulations. On September 19, 2006 the SVE system was connected to the well heads to begin pulling vapors.

The SVE system could not meet the effluent limits 2.4 ppmV given in the new AQMD permit and was shut down on November 21, 2006.

As of November 21, 2006, approximately 50,283 pounds of GRO has been destroyed by vapor extraction. Vapor samples collected on November 8, 2006 identified GRO, benzene and MTBE concentrations of 1,500 ppmV, less than 1.2 ppmV, and less than 2.8 ppmV, respectively, in the un-diluted process stream.

During the First Quarter of 2007, the previous Thermal/Catalytic SVE system was converted to a carbon system with two carbon vessels each containing 1,000 pounds of carbon. The new SVE Carbon system was started May 8, 2007 and after testing with fresh air for approximately one-half hour the system was connected to well heads and started pulling vapors. The vapor samples collected on May 8, 2007 identified GRO, benzene and MTBE concentrations of 43 ppmV, 0.28 ppmV, and 0.19 ppmV, respectively, in the inlet stream (Table 7). The effluent sample taken to verify compliance with the AQMD effluent limit of 2.5 ppmV on May 8, 2007 was in compliance.

The carbon system operated till May 30, 2007, when the midpoint field PID readings exceeded the AQMD limit of 2.5 ppmV and though the effluent PID reading was within the permit limits the system was shut down on May 31, 2007 to acquire a new permit from the AQMD, and to install a King Buck MMC-5A 100 SCFM electric AS/SVE catalytic unit, and subsequently removed on July 30, 2007.

On May 30, 2007, the last day of operation of the SVE carbon system, approximately 50,303 pounds of GRO has been removed by vapor extraction (Table 6). The SVE Carbon system operated from May 8, 2007 through May 30, 2007, and removed approximately 20 pounds of GRO. The Individual SVE well monitoring data collected in the field is summarized in Table 9a and 9b. Air sparge well data is summarized in Table 10. Daily operational logs are included in Table 11.

SECOR discussed the effluent limit compliance and equipment limitations with Mr. Amir Dejbakhsh of the AQMD. Upon review of the issues AQMD has agreed to allow the SVE unit to operate on a limited schedule with higher effluent limits. A catalytic oxidizer capable of processing up to 100 scfm was proposed for the Site. The operation of the unit is expected to be limited to two weeks per month with a maximum effluent limit of 30 ppmV for volatile organic compounds (VOC) to comply with the AQMD emissions requirements for the Site. On July 17, 2007 SECOR submitted the new application to the AQMD for review and issuance of the permit under the modified conditions.

In December 2007, a new AQMD permit was issued, and the King Buck MMC-5A 100 SCFM catalytic oxidization AS/SVE system was started on December 6, 2007.

In June 2008, as a result of changing from Thermal to Catalytic vapor extraction operation, the existing carbon vessels were removed from the compound and carbon material properly disposed of by Calgon Carbon. The catalyst in the existing catalytic oxidizer was removed and replaced with a new one. Testing and operation of the SVE system commenced during the Third Quarter 2008. Stantec also received verbal approval from the SCAQMD to operate the air sparge system without concurrent operation of the soil vapor extraction system. Stantec implemented SVE system cycling.

During the First Quarter 2009, Stantec turned off the SVE system due to low influent concentrations and conducted a rebound test of the system. The rebound test was conducted from February 25, 2009 through September 16, 2009. Stantec evaluated the results and a determination was made to continue the SVE system cycling two weeks on, two weeks off.

During the Third Quarter 2009 Stantec conducted air sparge line integrity activities in select wells. The SVE system was cycling two weeks on, two weeks off, until April 27, 2011, while the AS system was operating full time on-Site in select wells. Stantec is currently operating the AS system full-time in conjunction with oxygen sparge activities.

Current Operational Status

As of April 27, 2011, the current catalytic oxidation SVE system, which began operation on May 8, 2007, operated for a cumulative time of 20,561 hours and removed 50,752 cumulative pounds of hydrocarbons (Table 6). The SVE Remediation System was shut down on April 27, 2011, due to low concentrations. The SVE System was turned on and brought up to temperature on February 6, and April 4, 2013. The historic Individual SVE well monitoring data collected in the field is summarized in Table 9a and 9b. Daily operational logs are included in Table 11.

Completed Supplemental Remediation

In the First Quarter of 2007 SECOR proposed supplement remedial efforts at the Site by utilizing oxygen diffusion technology in selected wells off-site and on-site. Off-site wells MW-A2 and MW-A5 were selected as suitable for the installation of slow oxygen releasing compounds ORC™. This process requires minimal maintenance and suited for the wells that are located on the street, where access to the wells would require traffic control. The proposed oxygen releasing material ORC releases oxygen up to a year and stimulates the growth of naturally occurring microbes to rapidly degrade a wide range of aerobically degradable contaminants including the gasoline range organics and the oxygenates found at the Site.

On-site wells MW-20, MW-A4, MW-A3 and possibly MW-19 are suited for the installation of Oxygen diffusers. The Oxygen diffusion technology proposed is iSOC™ which utilizes specially designed passive membrane oxygen diffusers installed in the wells slightly above the bottom of the wells in the phreatic zone. Stantec's experience with oxygen diffusion used on similar sites show significant reduction in both GRO and MTBE concentrations in the vicinity of the wells. Stantec anticipates the installation of these supplemental remedial technologies in the next quarter based upon CRWQCB-LA approval of the methodology. Based on the results of the initial phase, the technology can be expanded to other wells.

In a directive letter dated May 27, 2008 the CRWQCB-LA stated concerns and requested additional information regarding the Proposed Supplemental Remediation submitted by Stantec in Appendix I of the First Quarter 2008 Site Conceptual Model. The revised work plan was to be delivered to the CRWQCB-LA by June 27, 2008. In response to the short deadline mentioned above, Stantec filed, and was granted an extension request from June 27, 2008 to August 29, 2008. In a letter directive dated September 17, 2008, the CRWQCB-LA approved the proposal of five oxygen diffuser wells (DW-1 through DW-5) to be installed using iSOC™ brand diffusers, but denied ORC injection into existing groundwater monitoring wells.

On December 10 through 12 and 18, 2008, Stantec oversaw the advancement of four on-Site soil borings (DW-1 through DW-4) adjacent to the location of the current monitoring wells (MW-A3, MW-A4, MW-20, and MW-A7). These borings were installed in order to determine residual soil concentrations in and around the areas near the current SVE/groundwater wells (Figure 2). A total of 13 soil samples were submitted for chemical analyses. Detectable concentrations of petroleum hydrocarbon constituents above the laboratory reporting limit (LRL) were identified in 12 of the samples. The maximum concentrations of adsorbed-phase hydrocarbons were identified as follows: GRO – <18 mg/kg (DW-2-S-60), benzene – 1.10 mg/kg (DW-2-S-60), MTBE – <0.21 mg/kg (DW-2-S-60), and TBA – <4.2 mg/kg (DW-2-S-60). Concentrations qualified by a "J flag" are estimated values detected at a level below the laboratory LRL and above the laboratory method detection limit (MDL) (Stantec, 2009).

On January 12, 2009, the newly installed oxygen diffuser wells (DW-1 through DW-4) and existing AS/SVE wells AS/SVE-1 through AS/SVE-5, AS-7, D-3, VEW-2, and groundwater wells MW-A3, MW-A4, MW-7, MW-19, and MW-20 were surveyed by WM Surveys, Inc. Survey data is available in Table 2.

Stantec installed the oxygen diffusers into select wells (DW-1 through DW-4) on July 31, 2009. Stantec is currently operating the oxygen diffusers system full-time in conjunction with AS activities. The oxygen diffusion system data are presented in Table 13, and the oxygen diffusion field sheets are presented in Appendix O.

APPENDIX J

CONCLUSIONS

Proposed/Completed Additional Groundwater Monitoring Well Installation

In 2005-Q3 SCMU SECOR proposed to install MW-A8 and possibly MW-A9, to further delineate the down-gradient extent of dissolved-phase hydrocarbons, based on increased concentrations identified in down-gradient wells MW-A2 and MW-A5. On October 12, 2005, SECOR installed off-Site dual nested MW-A8 to further delineate the down-gradient extent of the dissolved-phase hydrocarbons. On January 31, 2006 MW-A8s and MW-A8d were sampled and the analytical was included in the First Quarter 2006 report. Stantec (formerly SECOR) has yet to determine the necessity of an additional groundwater monitoring well (MW-A9); however, additional CPT/Hydropunch Borings have been advanced with approval of a Vinvale off-site workplan on April 12, 2011. Stantec is currently reviewing data obtained from the on-going assessments off-Site at the Vinvale Terminal in determining future soil borings and/or groundwater well location MW-A9.

iSOC™ Installation Activities

On September 17, 2008, Stantec received approval to install oxygen diffuser (iSOC™) wells adjacent to wells MW-20, MW-A3, MW-A4, and MW-A7. Stantec installed four oxygen diffuser wells during the Fourth Quarter 2008. Stantec installed the individual oxygen diffuser units in diffuser wells (DW-1 through DW-4) on July 31, 2009, and conducted monitoring of the iSOC™ system on a monthly O&M monitoring events schedule.

AS/SVE Remediation Systems

On April 27, 2011 the current catalytic oxidation SVE System was shut down, due to low concentrations. The SVE System was turned on and brought up to temperature on February 6, and April 4, 2013. The SVE Remediation Systems began operation on May 8, 2007 and has operated for a cumulative time of 20,561 hours and removed 50,752 cumulative pounds of hydrocarbons. Stantec is currently evaluating SVE alternatives for remediation. The AS System is currently operating on a continuous (24 hour) basis.

DATA GAPS

No significant data gaps currently exist with regard to the Site. Stantec is currently researching the location and condition of pipelines located east of the site.

APPENDIX K

STANDARD LIMITATIONS

All fieldwork, including coordination of field and laboratory vendors, and review and summary of the data was supervised and performed by Stantec Consulting Services Inc., under the direct supervision of a professional geologist, through agreement with Tesoro Refining & Marketing Company LLC (formally Atlantic Richfield Company) and in accordance with the Professional Geologist Act of the California Code of Regulations. The information contained in this report represents Stantec's professional opinions, and is based in part on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

APPENDIX L

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APPENDIX M

AGENCY CORRESPONDENCE

Atlantic Richfield Company

Danny Monson
Project Manager

4 Centerpointe Drive
La Palma, California 90623-1066
Phone: (714) 670-5060
Fax: (714) 670-5195
E-Mail: Danny.Monson@bp.com

October 15, 2009

Mr. Harry Nguyen
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: **New Atlantic Richfield Company Project Manager**
BP/ARCO Sites in Los Angeles County

Dear Mr. Nguyen:

Please note that I have replaced Mr. Darrell Fah and Ms. Janet Wager as the new Atlantic Richfield Company Project Manager for BP/ARCO sites in Los Angeles County. My contact information is as follows:

Danny Monson
Project Manager
Atlantic Richfield Company
4 Centerpointe Drive
La Palma, California 90623
714-670-5060
Danny.Monson@bp.com

A list of the sites I am managing is attached. Please contact me with any questions relating to the environmental activities at these sites.

Sincerely,

Danny Monson
Project Manager
Atlantic Richfield Company

Attached: BP/ARCO Site List

Atlantic Richfield Company UST Sites - Los Angeles County							
ARCO Site #	Client	Consultant	Address	City	Agency	Regulator	CRWQCB-LA Priority
1601	BP	Stantec	1785 Bellflower Boulevard	Long Beach	CRWQCB-LA	Harry Nguyen	A-1
1602	BP	Stantec	4895 Bellflower Boulevard	Long Beach	CRWQCB-LA	Harry Nguyen	B-2
5110	BP	Stantec	5731 E. Firstone Boulevard	South Gate	CRWQCB-LA	Harry Nguyen	B-2

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

May 27, 2008

Mr. Darrell Fah
Atlantic Richfield Company
6 Centerpointe Drive
La Palma, CA 90623

UNDERGROUND TANKS PROGRAM – DIRECTIVE TO TAKE CORRECTIVE ACTION IN RESPONSE TO UNAUTHORIZED UNDERGROUND STORAGE TANK RELEASE PURSUANT TO HEALTH AND SAFETY CODE SECTION 25296.10 AND TITLE 23, CALIFORNIA CODE OF REGULATIONS, SECTIONS 2720-2727
ARCO SERVICE STATION # 5110
5731 FIRESTONE BL., SOUTH GATE (File No. I-12074) (B2)

Dear Mr. Fah:

Pursuant to Health and Safety Code section 25296.10, you are required to take corrective action (i.e. Preliminary Site Assessment, Soil and Water Investigation, Corrective Action Plan Implementation, and Verification Monitoring) to ensure protection of human health, safety, and the environment. Corrective action requirements are set forth in California Code of Regulations (CCR), title 23, sections 2720 through 2727.

We have reviewed the Site Conceptual Model Update report dated April 15, 2008, submitted by your consultant, Secor International Inc., for the subject site. Followings are our comments:

Proposed Supplemental Remediation (CCR, Section 2726)

The site is currently remediated with an air sparging and soil vapor extraction (AS/SVE) system and has removed 50,303 pounds of hydrocarbons since the system was operated in April 2004. However, groundwater monitoring indicated that groundwater beneath the site was still significantly impacted with petroleum hydrocarbons. TPHg, benzene, MTBE, and TBA were detected as high as 16,000, 8,100, 270, and 3,700 mg/L, respectively. To expeditiously abate the impacted groundwater, Secor proposed on your behalf, in Appendix I, to supplement the remediation with the utilization of the oxygen diffusion technology:

- Slow oxygen release compounds (ORC) will be released into off-site wells MW-A2 and MW-A5.
- Oxygen will be injected into on-site wells MW-20, MW-A4, MW-A3, and possibly well MW-19 using iSOC oxygen diffusers.

The work plan is incomplete. We therefore do not concur with your proposal. For further review, you are requested to provide Board staff, by **June 27, 2008**, with the following information:

1. Establish injection points for ORC/oxygen. Groundwater monitoring wells are for groundwater monitoring purpose and therefore should not be used for injecting ORC/oxygen. Water

samples will not represent the groundwater beneath the site with the presence of ORC/oxygen.

2. Provide a description of how the oxygen diffusion will be conducted. The description should include the radius of influence, the injection rate for ORC and oxygen, number of injection points and observation wells for onsite and offsite diffusion.

3. Provide a site map showing the location of all wells including the proposed injection points as well as observation wells, onsite and offsite.

4. Provide a construction diagram for injections.

5. Provide a site-specific Health and Safety Plan.

Failure to submit the required technical report by the specified due date, may result in an appropriate enforcement action by the Regional Board.

If you have any questions concerning this matter, please contact the undersigned at (213) 576-6658 or hnguyen@waterboards.ca.gov. Please always update the Regional Board with the name, contact person, address, telephone number, and e-mail address of the landowner(s), responsible party, and their consultant for the site.

Sincerely,

Original signed by

Harry D. Nguyen, PE
Water Resource
Control Engineer

cc: Ms. Yvonne Shanks, SWRCB, Underground Storage Tank Cleanup Fund
Mr. Tim Smith, LACDPW, Environmental Programs Division, Underground Tanks
Ms. Nancy Matsumoto, Water Replenishment District of Southern California
Mr. Andrew Modugno, Secor International, Inc.

California Regional Water Quality Control Board

Los Angeles Region

Winston H. Hickox
Secretary for Environmental Protection

Over 50 Years Serving Coastal Los Angeles and Ventura Counties
Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Gray Davis
Governor

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

February 28, 2003

Mr. Ralph Moran
ARCO Products Company
P.O. Box 5077
Buena Park, CA 90622

IMPLEMENTATION OF FINAL DRAFT GUIDELINES FOR INVESTIGATION AND CLEANUP OF MTBE AND OTHER OXYGENATES: 1. DEVELOPMENT OF PRELIMINARY SITE CONCEPTUAL MODEL; 2. INTERIM REMEDIAL ACTION REPORT; 3. SITE CHARACTERIZATION REPORT; 4. FINAL REMEDIAL ACTION PLAN; AND 5. PERIODIC PROGRESS, UPDATE, AND MONITORING REPORTS.
ARCO #5110
5731 FIRESTONE BOULEVARD, SOUTH GATE (FILE NO. I-12074) (Priority B2)

Dear Mr. Moran:

BACKGROUND

Methyl tertiary butyl ether (MTBE) has been used as an octane booster in the United States since the late 1970's and added to gasoline to comply with Clean Air Act mandates since 1979. The use of MTBE increased dramatically in the early 1990's as a result of Clean Air Act Amendment requirements for reformulated gasoline. Although MTBE in gasoline helps lessen air pollution, it has become a significant contaminant in groundwater. Relative to other fuel hydrocarbons, MTBE has a high solubility in water, a low retardation rate in groundwater aquifers, and is slow to biodegrade. These properties, combined with its high percentage in gasoline (11% to 15%), cause the potential for high source area concentrations, long plumes in groundwater, and long residence times in the subsurface environment. MTBE also has taste and odor characteristics that can impair water quality at very low concentrations. There have been impacts on drinking water wells at dozens of sites throughout California. Most notably, in the greater Los Angeles area, within the Charnock Sub-Basin, a primary local source of drinking water for the City of Santa Monica and the Southern California Water Company.

Governor Davis issued Executive Order D-5-99 on March 25, 1999, and signed Senate Bill 989 on October 8, 1999. These documents recognize that if not managed properly, MTBE can cause significant adverse impacts to current and future beneficial uses of ground and surface waters. As a result, Final Draft Guidelines for Investigation and Cleanup of MTBE and Other Oxygenates (Final Draft Guidelines) have been developed by the State Water Resources Control Board, Division of Clean Water Programs-Underground Storage Tank Program. The Final Draft Guidelines (copy attached) are intended to assist managers and staff at state and local regulatory agencies with the task of overseeing the investigation and cleanup of sites where there have been or may have been releases of MTBE-laden petroleum fuels or other oxygenates [i.e., tertiary butyl alcohol (TBA), ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary amyl methyl ether (TAME), methanol (MeOH), and ethanol (EtOH)]. The Final Draft Guidelines provide definitions for areas that are most vulnerable to groundwater

contamination, provide a priority ranking scheme for oxygenate release sites, outline a decision making framework for determining appropriate actions, and propose a timeframe for completing site management milestones.

The Final Draft Guidelines provide a framework for prioritizing resources to work on sites with MTBE or other fuel oxygenate contamination. A complete description of the seven-step process is contained within the Final Draft Guidelines (Pages 6 through 11). The Los Angeles Regional Water Quality Control Board (LARWQCB) is conservatively interpreting the Final Draft Guidelines, which will result in certain Underground Storage Tank (UST) leak cases being included within higher priorities for investigation and cleanup. During March 2001, the LARWQCB issued directive letters to all sites identified with investigation and cleanup priority of A1 [i.e., all sites less than 1,000 feet to a receptor, sites less than 3,000 feet to a receptor that have failed to provide required test results for MTBE and other fuel oxygenates, selected free product sites, and sites in close proximity to sensitive receptors (e.g., schools)]. In January 2002, the LARWQCB issued directive letters to all sites identified with investigation and cleanup priority of B1 [i.e., all sites greater than 1,000 feet and less than 3,000 feet from a receptor, selected free product sites, sites in close proximity to sensitive receptors, and/or sites containing high concentrations of oxygenates]. Now, we have reviewed the information contained in the case file for this site and have assigned an initial investigation and cleanup priority of B2 to this site [i.e., all sites greater than 1,000 feet and less than 3,000 feet from a receptor, with or without MTBE/oxygenates detection].

IMPLEMENTATION OF FINAL DRAFT GUIDELINES

Step 1: Initial Investigation/Scoping

In accordance with Step 1 (Initial Investigation/Scoping), we have reviewed the information contained in the UST case file for the site, including the most recent technical report entitled "Atlantic Richfield Company Quarterly Report" dated Quarter 4, 2002, prepared by SECOR. Based upon our review and evaluation, we find that groundwater beneath the subject site is impacted by petroleum hydrocarbons and/or the gasoline additive MTBE released from UST systems. The site is located within an area determined to be vulnerable to groundwater contamination, as defined in the Final Draft Guidelines. The site overlies an aquifer used as a community water supply and the distance to the closest municipal or domestic supply well (No. 02S12W31Q02S) is approximately 1,825 feet from the site. Based upon this information we have assigned an Initial Investigation Priority Class B2 to the site. You have been identified as the responsible party for the site and, as such, are directed to perform the following corrective action steps:

1. Develop a Preliminary Site Conceptual Model;
2. Develop a technical report detailing the results of all soil and groundwater assessment completed and submit a workplan to complete any remaining soil and/or groundwater investigations necessary to fully define the lateral and vertical extent of any free product or dissolved petroleum hydrocarbon plume(s), to include MTBE or other fuel oxygenate contamination onsite and offsite;

3. Develop a technical report detailing the results of any corrective actions completed and submit a workplan to perform any interim cleanup necessary to contain or control the spread or migration of any residual contamination;
4. Complete an evaluation to estimate plume travel time;
5. Determine a final cleanup remedy;
6. Perform quarterly groundwater monitoring and provide updates to the Site Conceptual Model; and
7. Perform a verification-monitoring program.

All steps are to be developed and performed on an expedited schedule to reduce any adverse impacts to water quality resulting from UST system leaks that have resulted at the site.

Step 2: Develop Preliminary Site Conceptual Model/Assign Investigation Priority Classification

Develop a Preliminary Site Conceptual Model (PSCM) Report consistent with the Final Draft Guidelines-Appendix C (Page 15). As stated above, we have already assigned an Initial Investigation Priority Class B to the site. Under this Initial Investigation Priority and for the purpose of developing the PSCM, the travel time to the nearest production well/receptor is conservatively estimated to be greater than one year and less than 3 years. The technical report (Preliminary Site Conceptual Model) containing the results of this evaluation shall be submitted to this Regional Board by **July 15, 2003.**

The PSCM must incorporate, at a minimum; all the components listed under Appendix C of the "Final Draft Guidelines for Investigation and Cleanup of MTBE and Other Oxygenates" dated March 27, 2000. The PSCM should provide a detailed written and graphical representation of the release scenario, site characteristics (geology, hydrogeology, isoconcentration contour maps for TPH, benzene and MTBE etc.) and the likely distribution of chemicals at the site. It should also identify all pathways for impact to potential receptors from potential sources through transport of chemicals in air, soil and water. The information contained within the PSCM for site assessment activities is critical in making determinations on the extent of assessment completed and whether any additional hydrogeologic assessment work is necessary at the site.

If the Site Characterization Report indicates that additional soil borings or groundwater monitoring wells are needed to fully define the extent of soil and/or groundwater contamination, then a workplan to complete any remaining assessment must be incorporated into your revised PSCM. The same type of evaluation is required for any cleanup action taken to date or needed to implement a final cleanup plan at the site. Technical reports previously submitted to the Regional Board detailing the results of any soil and/or groundwater assessment, periodic monitoring, or cleanup do not have to be resubmitted. However, you need to repackage the information, so that the PSCM is a complete stand-alone document. Periodic updates to the PSCM are required on a quarterly basis as required in Step 5 below and as defined in Step 5 of the Final Draft Guidelines.

Step 3: Interim Remedial Action

Develop an Interim Remedial Action (IRA) Report detailing the results of any cleanup actions completed to date. At a minimum, the site IRA should:

1. Provide documentation that all existing UST systems operating do not have any ongoing releases. Use the Final Draft Guidelines, Appendix D (Finding Leaks in Tank Systems) as a guide for completing this evaluation;
2. Provide realistic estimates of the total volume(s) of fuels released;
3. Identify all method(s) used for cleanup of petroleum hydrocarbon fuel contamination (i.e., excavation, free product removal, vapor extraction, pump and treat, etc.). Identify any active cleanup systems in place, operational or not, together with complete details on system design, operation status, and cleanup effectiveness;
4. Provide the total mass in pounds for total petroleum hydrocarbon gasoline fuels (TPH_G), total petroleum hydrocarbon diesel fuels (TPH_D), benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, and other fuel oxygenates removed from the subsurface from all cleanup operations employed to date; and
5. Identify the IRA that should be implemented to further reduce the residual mass of petroleum hydrocarbon fuels, BTEX compounds, MTBE, and other oxygenates in soil, groundwater and/or vapor phase beneath the site. The IRA should be compatible with and developed into a final remedial action plan for the site.

The technical report (Interim Remedial Action) containing the results of the IRA evaluation together with a detailed workplan to conduct any interim remedial action measures necessary to control or contain the spread of residual contamination shall be submitted to this Regional Board by **July 15, 2003**.

Step 4: Site Characterization/Determine Plume Travel Time

Develop a comprehensive Site Characterization (SC) Report detailing the results of all soil and groundwater assessments completed at the site. At a minimum, the report should include:

1. Site maps depicting the locations of all soil samples, soil test borings, groundwater monitoring wells, vapor extraction, or air sparging wells;
2. A detailed location map of the area surrounding the site to include streets, property locations and land uses (i.e., residential, commercial or industrial with site name, etc.) 250 feet upgradient, 250 feet lateral to the direction of groundwater flow, and a minimum of 500 feet downgradient of any identified contamination plume(s);
3. Soil boring logs and well drilling logs from prior work;
4. Develop scaled lithologic cross sections for the site based upon the existing soil and groundwater data/information. A minimum of three cross sections shall be developed from soil sampling programs and from the installation of groundwater monitoring wells and/or vapor wells. Cross sections shall provide the lithologic column with Unified Soil Classification System abbreviations and symbols;
5. Scaled groundwater contour maps depicting the direction of groundwater flow and gradient across the subject site. If the groundwater flow direction fluctuates over time, then historical groundwater contour maps reflecting these changes shall be provided;
6. Groundwater contaminant plume maps for TPH_G, TPH_D, BTEX, MTBE, and for all fuel oxygenates detected shall be illustrated in plan view and contain constituent concentrations;
7. A tabular summary showing: monitoring well identification number, monitoring well screened and blank intervals, completion depths, survey elevations, survey reference point, slot size(s), annular seal interval, water elevation ranges, and free product thickness, if any; and

8. A tabular data summary showing all historical soil and groundwater chemical and physical data to date.

The technical report (Site Characterization Report) detailing the results of all soil and groundwater assessments completed together with a workplan to conduct any supplemental hydrogeologic assessment needed to fully define the extent of any remaining free product and/or dissolved petroleum hydrocarbons, including oxygenates, to non-detect levels, shall be submitted to this Regional Board by **July 15, 2003.**

Determine Plume Travel Time

Acceptable methods that can be used to estimate plume travel time to reach a receptor should include the application of mainstream or industry-recognized fate and transport analytical models (e.g., Domenico Analytical Solution, 1987; Finite-Mass Advection/Dispersion Analytical Model by Fried, 1975; Freeze and Cherry 1975; and Bear 1972). Alternatively, advection/dispersion analytical models in Excel format developed by Regional Board staff may also be used (applicable to cases with a one-time release or continuous source release) and are available on our website (http://www.swrcb.ca.gov/rwqcb4 under LARWQCB Programs – UST - Models). Extensive or detailed modeling effort is not required nor is that the objective of this phase of the investigation. However, the analytical model used should be calibrated with available site-specific data, using conservative assumptions for mass released, source area, source concentration, groundwater velocity, groundwater direction (constant), dispersivities, decay rate, etc. Available site-specific data on geology or hydrogeology may be quite useful in this regard. For example, groundwater site characterization evaluation, type of soil and aquifer materials, and uninterrupted vertical profile of site stratigraphy may be used together to make conservative estimates of groundwater velocity. A technical report (as an integral part of the Site Conceptual Model Report) on this phase of the investigation shall, at a minimum include:

1. Detailed documentation of the analytical model used, including its limitations, conditions, and assumptions;
2. Detailed descriptions and layouts of the process used to arrive at the model conclusions and justification for the model assumptions applied, including literature sources;
3. Detailed and extensive discussions on model conclusions;
4. Recommendations on any additional site work that can reduce model uncertainties and further refine the Site Conceptual Model;
5. Any site- or region-specific data applied during the modeling process, including hydrogeologic data and historical soil and groundwater analytical data to date (if applicable); and
6. Any information on atypical site-specific conditions that may cause solutions to the analytical model to be unrealistic or less-conservative, such as:

    a. Whether the site is near an area with aggressive pumping (characteristic of municipal or drinking water wells) which can alter the natural flow of water and thus affect the direction of groundwater flow and velocity;
    b. The presence of heterogeneous aquifer materials that may cause contaminants to travel at greater velocities than the flow pathway applied for the analytical model (e.g. the existence of fractured rock and limestone caverns);

c. The existence of conduits and geologic faults, and
d. Multiple or continuous releases; and releases from different locations, that can create multiple sources or cause increases in contaminant source concentrations.

The technical report containing an evaluation to estimate Plume Travel Time, in accordance with the guidance provided above, shall be submitted to this Regional Board by **October 15, 2003.**

Step 5: Update Site Conceptual Model/Assign Cleanup Priority Classification

Update Site Conceptual Model

This step provides for the update to the PSCM on a periodic basis, to incorporate any new and/or updated information or data (i.e., results of any additional assessment and/or any remedial activities completed during the reporting period, a complete discussion of current site conditions, a complete discussion and trend analysis on analytical groundwater data, and provide a technical Workplan for additional assessment and/or cleanup as determined by a review and evaluation of historical and current data, etc.). Quarterly technical reports shall be submitted to update the PSCM developed as part of Step 2. The SCM validation process shall be initiated starting with the quarter after the PSCM is established. The first update to the PSCM is due to this Regional Board by **October 15, 2003,** for the July through September 2003 quarter. The Site Conceptual Model Update is a stand-alone document that provides a complete update to the PSCM. The Site Conceptual Model Update must contain all the components that are currently required in the Quarterly Groundwater Monitoring Reports, therefore, a separate Quarterly Groundwater Monitoring Report is not required.

Step 6: Corrective Action/Remediation

The need for performing active cleanup may vary based upon many factors (e.g., release history, mass released into the environment, hot spot areas, site specific and regional geology, and interim cleanup actions implemented, etc.). As stated above in Step 3, a technical report containing the results of the IRA evaluation together with a workplan to conduct any interim remedial action necessary to control or contain the spread of residual contamination at the subject site shall be submitted to this Regional Board by **July 15, 2003**. In order to reduce any ongoing threat to water quality and potential impacts to nearby sensitive receptors from UST releases, a technical report containing a Final RAP, together with a time schedule for implementation shall be developed and submitted to this Regional Board by **January 15, 2004**.

Step 7: Verification Monitoring

Verification monitoring is an integral part of performing interim and final cleanup remedies at UST release sites. These monitoring programs will be necessary in order to determine whether any interim and/or final RAP implemented has achieved its intended purpose and will be required for all sites to determine the effectiveness of remedial actions implemented. The nature and scope of the verification-monitoring program shall be determined subsequent to

completing full implementation of the RAP and shall be approved by this Regional Board prior to implementation.

LANDOWNER OR IMPACTED SITE NOTIFICATION REQUIREMENTS

Additionally, pursuant to recent changes of the California Health and Safety Code (section 25299.37.2) and Division 7 of the Porter Cologne Water Quality Control Act under Assembly Bill 681, this Regional Board is required to notify all current fee title holders of record for the site or sites impacted by releases from underground storage tanks prior to considering corrective action and cleanup or case closure.

If site assessment and/or monitoring data provided for corrective action work ongoing at the site indicate that release(s) from the underground storage tank systems have impacted offsite property(ies), then please provide the name, mailing address, and phone number for all record fee title holders for the site and any offsite property(ies) impacted by releases from the subject site, together with a copy of the county record of current ownership (grant deed or deed of trust), available from the County Recorder's Office, for each property affected, or by completing this Regional Board's "Certification Declaration for Compliance with Fee Title Holder Notification Requirements," (copy attached) for each site. **If this information has been provided in the past, then you need not provide it again.** Copies of all technical reports required above together with any periodic updates are to be sent directly to the property owner of the site and to any other property owner(s) impacted by UST releases from the site. The cover letter transmitting your technical reports to this Regional Board shall state that the technical reports were sent directly to all property owner(s) of the site as well as any offsite property owner impacted by the UST release(s). The cover letter shall provide a list of all property owners sent technical reports and the date the technical reports were sent.

NEW REGULATORY REQUIREMENT FOR ELECTRONIC SUBMISSION OF LABORATORY DATA TO THE STATE GEOTRACKER INTERNET DATABASE

On June 28, 2001, the State Water Resources Control Board-Underground Storage Tank Program manager, Mrs. Liz Haven, sent you a letter informing you of the new requirements for submission of electronic laboratory data for Underground Storage Tank Program reports. These requirements are contained in emergency regulations (CCR Title 23, Chapter 16, Article 12, Sections 2729 and 2729.1) recently adopted by the State Water Resources Control Board (Board), and became effective September 1, 2001. The Board adopted these regulations to implement Assembly Bill 2886 (Chapter 727, Statutes of 2000, "AB 2886"). The regulations and other background information are available on the Internet by going to http://geotracker.swrcb.ca.gov and clicking on "AB 2886". The emergency regulations (Water Code Sections 13195-13198) require persons to ensure electronic submission of laboratory data (i.e. soil or water chemical analysis) and locational data (i.e. location and elevation of groundwater monitoring wells), via the Internet to the SWRCB's GeoTracker database.

In accordance with the above regulations, you are required to submit all future laboratory data over the Internet in the Electronic Deliverable Format to the SWRCB's GeoTracker database for any soil and/or groundwater samples obtained after September 1, 2001. This would include any

sampling completed for underground storage tank system removal, site assessment activities, periodic groundwater monitoring, and post cleanup verification sampling. In accordance with the above regulations, you are also required to submit locational data for all groundwater monitoring wells (i.e., latitude, longitude, and elevation survey data) together with groundwater information (i.e., elevation, depth to free product, monitoring well status, etc.) and a site map commencing January 1, 2002. Hard copy paper reports are still required.

REPORTING REQUIREMENTS

The Final Draft Guidelines, Appendix B (Technical References) contains a partial listing of documents related to site investigation and remediation that can be used for development of workplans required by this Regional Board. The technical reports shall be submitted to this Regional Board according to the schedule contained in Table 1-Technical Report Type and Due Dates listed below. The technical reports for items: 1-[Preliminary Site Conceptual Model (PSCM) Report]; 2-[Interim Remedial Action (IRA) Report and Workplan]; and 3-[Site Characterization (SC) Report and Workplan] identified in Table 1 below must be submitted as a single stand alone technical report. **Pursuant to section 13267(b) of the California Water Code, failure to submit the required technical report acceptable to the Executive Officer, by the due dates specified, may result in the imposition of civil liability penalties by this Regional Board of up to $1,000.00 per day for each day each technical report is not received pursuant to section 13268 of the California Water Code. This Regional Board can assess these civil liability penalties at any time after the due dates specified below and without further warning.**

Table 1-Technical Report Type and Due Dates

Technical Report Type [1,2,3,4]	Due Dates
1. Preliminary Site Conceptual Model (PSCM) Report (Step 2-Final Draft Guidelines)	July 15, 2003
2. Interim Remedial Action (IRA) Report and Workplan (Step 3-Final Draft Guidelines)	July 15, 2003
3. Site Characterization (SC) Report and Workplan (Step 4-Final Draft Guidelines)	July 15, 2003
4. Estimate of Plume Travel Time (Step 4-Final Draft Guidelines)	October 15, 2003 (Yearly thereafter by October 15)
5. Update Site Conceptual Model (SCM) Reports (Step 5-Final Draft Guidelines)	October 15, 2003 (Quarterly thereafter by the following dates: January 15, April 15, July 15, and October 15)
6. Final Remedial Action Plan (RAP) (Step 6-Final Draft Guidelines)	January 15, 2004
7. Quarterly Monitoring and Progress Reports[5]	October 15, 2003 (Quarterly thereafter by the following dates: January 15, April 15, July 15, and October 15)

[1]-At a minimum, all workplans and final reports shall conform to the Guidelines for Report Submittals published by the Los Angeles County Department of Public Works and the California Underground Storage Tank Regulations.
[2]-All workplans are to contain an appropriate Health and Safety Plan commensurate with the level of work to be completed.

[3]-All analytical testing and sampling shall conform to the Leaking Underground Storage Tanks Program-Update Laboratory Testing Requirements, dated June 22, 2000.
[4]-All technical reports shall be prepared by or under the direction of a registered geologist, certified engineering geologist, or registered civil engineer with appropriate experience.
[5]-Quarterly Groundwater Monitoring and Progress Reports are to be included as part of the Site Conceptual Model Updates.

If you have any questions or need additional information, please call Ms. Heesu Park at (213) 576-6705, or Mr. Gregg Kwey at (213) 576-6702.

Sincerely,

Original Signed by

Dennis A. Dickerson
Executive Officer

Enclosures:

1. Final Draft Guidelines for Investigation and Cleanup of MTBE and Other Oxygenates (March 27, 2000)
2. Guidelines for Report Submittals published by the Los Angeles County Department of Public Works (June 1993)
3. Leaking Underground Storage Tanks Program-Update Laboratory Testing Requirements (June 22, 2000)
4. Leaking Underground Storage Tank Program Certification Declaration for Compliance with Fee Title Holder Notification Requirements

Cc: Robert Sams, Office of Chief Counsel, State Water Resources Control Board
Michael Lauffer, Office of Chief Counsel, State Water Resources Control Board
Hari Patel, State Water Resources Control Board, UST Cleanup Fund
Tim Smith, Los Angeles County DPW, Environmental Programs Division
Bruce Mowry, Water Replenishment District of Southern California
Gareth Roberts, SECOR

California Regional Water Quality Control Board

Los Angeles Region

Over 50 Years Serving Coastal Los Angeles and Ventura Counties
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320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

August 27, 2003

Mr. Ralph Moran
Atlantic Richfield Company
4 Centerpointe Drive
La Palma, CA 90623

IMPLEMENTATION OF FINAL DRAFT GUIDELINES FOR INVESTIGATION AND CLEANUP OF MTBE AND OTHER OXYGENATES: 1. DEVELOPMENT OF PRELIMINARY SITE CONCEPTUAL MODEL; 2. INTERIM REMEDIAL ACTION REPORT; 3. SITE CHARACTERIZATION REPORT; 4. FINAL REMEDIAL ACTION PLAN; AND 5. PERIODIC PROGRESS, UPDATE, AND MONITORING REPORTS.
ARCO #5110
5731 FIRESTONE BOULEVARD, SOUTH GATE (FILE NO. I-12074) (Priority B2)

Dear Mr. Moran:

We have reviewed your " Remedial Action Plan," dated June 25, 2003, and "Preliminary Site Conceptual Model", dated July 15, 2003, prepared by your consultant, SECOR International, Inc., for the subject site. We would like to acknowledge the overall good job in putting together the Preliminary Site Conceptual Model in accordance with the Appendix C requirements contained within the Final Draft MTBE Guidelines and the workplan submitted for supplemental site assessment and an expanded cleanup program. As we are implementing this new and more comprehensive approach managing high priority leaking underground storage tank cases, we feel strongly that in the end, it will reduce future impacts to water quality, provide for increased protection of sensitive receptors, and reduce the overall cost and time in performing assessment and cleanup activities.

In reference to the above documents, we have the following comments:

I. Corrective Action

Based on the historical Soil Vapor Extraction (SVE) testing and subsurface lithology and hydrogeology, Air Sparging (AS)/SVE is proposed to remove adsorbed-phase hydrocarbons from the former tankpit and dispenser areas and reduce dissolved-phase hydrocarbons. Your consultant proposes installing five AS/SVE wells to implement the remedial system. We concur with your workplan provided the following requirements are meet:

1. As already indicated, you are required to submit a Final Remedial Action Plan detailing the results of the interim corrective action and workplan for additional remedial action to this

Regional Board by **January 15, 2004.** This report must contain a scaled site-plan map with construction diagram for the existing soil vapor extraction and air sparging wells, and cross section profiles showing these wells, contamination plume, and lithological information. At a minimum, the following parameters must be included in your technical report:

- Scaled map showing the location of all wells and detailed layout of remediation system (i.e., piping and treatment system).
- Vapor flow rate.
- Pressure (or vacuum).
- Hours of system operation.
- Laboratory test results (in μg/L) including QA/QC data.
- Tabular and graphical summaries of contaminants removed versus time.
- Contamination mass removal rates and cumulative mass removed.
- Influent concentrations and concentrations at each vapor extraction well.

2. The undiluted soil vapor samples must be analyzed monthly for total petroleum hydrocarbons in gasoline (TPHg) using EPA Method 8015(M); for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME) and tertiary butyl alcohol (TBA) using EPA Method 8260B; and for oxygen and carbon dioxide content.

II. General

1. All necessary permits must be obtained from the appropriate agencies prior to the start of work.

2. All work must be performed by or under the direction of a registered geologist, certified engineering geologist, or registered civil engineer. A statement is required in the report that the registered professional in direct responsible charge actually supervised or personally conducted all the work associated with the project. All technical submittals must contain a wet ink signature and seal by one of the registered professionals.

3. All reports must conform to the "Guidelines for Report Submittals" published by the Los Angeles County Department of Public Works.

4. Please notify Ms. Heesu Park at least seven (7) days prior to the start of field work, so she can schedule to be present.

5. Copies of all technical reports are to be sent directly to the fee title holder of the site and to any other property owner(s) impacted by the underground storage tank (UST) releases from the site. The cover letter transmitting your technical reports to this Regional Board shall state that the technical reports were sent directly to all the fee title holder of the site as well as any offsite property owner impacted by the UST release(s). The cover letter shall provide

a list of all property owners sent technical reports and the date the technical reports were sent.

III. Site Conceptual Model (SCM) Update

In order to implement the final remediation of the petroleum hydrocarbon plume associated with the above referenced site, the Preliminary Site Conceptual Model must be updated on a quarterly basis. You are required to submit the next Site Conceptual Model Update by **October 15, 2003.** Subsequent Site Conceptual Model Updates are to be submitted according to the following schedule:

Reporting Period	Report Due Date
January – March	April 15TH
April – June	July 15TH
July – September	October 15TH
October – December	January 15TH

The Site Conceptual Model Update is a stand-alone document that provides a complete update to the PSCM. The Site Conceptual Model Update must contain all the components that are currently required in the Quarterly Groundwater Monitoring Reports. Therefore, a separate Quarterly Groundwater Monitoring Report is not required. In addition, the Site Conceptual Model Update must contain the results of any additional assessment and/or any remedial activities completed during the reporting period, a complete discussion on current site conditions, a complete discussion and trend analysis on analytical groundwater data, and provide a technical Work Plan for additional assessment and/or cleanup as determined by a review and evaluation of historical and current data. The Site Conceptual Model Update must also contain an annual revision of the Plume Travel Time data. Revised Plume Travel Time data must be submitted with the Site Conceptual Model Update during the April – June reporting period, which is due to the Regional Board by July 15, of each year. Additional revisions to the Plume Travel Time data may be required based on site-specific conditions.

IV. Enforcement

Pursuant to Section 13267(b) of the California Water Code, You are hereby directed to submit the periodic Updates to Site Conceptual Model Report by **October 15, 2003** and the Final Remedial Action Plan by **January 15, 2004.**

Pursuant to Section 13268 of the California Water Code, failure to submit the required technical reports, acceptable to the Executive Officer by the due dates specified above, may result in the imposition of civil liability penalties by this Regional board of up to $1,000 per day for each day the required technical reports are delinquent from these due dates. After these dates, civil liability penalties can be assessed by the Regional Board and without further warning.

If you have any questions or need additional information, please call Ms. Heesu Park at (213) 576-6705.

Sincerely,

Original Signed by

Gregg Kwey
Senior Water Resources Control Engineer

Cc: Hari Patel, State Water Resources Control Board, UST Cleanup Fund
Nardy Drew, Los Angeles County DPW, Environmental Programs Division
Bruce Mowry, Water Replenishment District of Southern California
Gareth Roberts, SECOR

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Governor

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.swrcb.ca.gov/rwqcb4

June 15, 2004

To: All Interested Parties

UNDERGROUND STORAGE TANKS PROGRAM – NEW GUIDELINES FOR ELECTRONIC SUBMITTAL OF QUARTERLY GROUNDWATER MONITORING REPORT

Starting on July 1, 2004, all parties who are directed by the Los Angeles Regional Water Quality Control Board's Underground Storage Tank (UST) Program to submit quarterly groundwater monitoring reports (QMRs) will have an option to submit these reports in an electronic format. This option is intended to save resources for both the public and private sectors, as well as to identify potential problems in advance of implementing new regulations (revisions to title 23 and title 27) to submit these reports electronically over the internet to the Sate Board's Geotracker system. The following guidelines are to be used for submitting the electronic QMRs.

I. Electronic Format

QMR's submitted to the Regional Board contain the following required information at a minimum: 1) cover page, 2) table of contents, 3) project summary 4) signature page, 5) figures and maps [area and site maps, direction of flow, monitoring locations, plume concentrations, free product, etc.], 6) data summary tables, 7) contaminant mass removal summary, if applicable, and 8) other relevant information [e.g., boring logs, analytical laboratory report, chain of custody, waste disposal manifest, health and safety plan, etc]. The electronic QMRs shall be converted into a Portable Deliverable Format (PDF), readable by the *Acrobat Reader (version 6.0)*, and copied onto a CD-ROM for submittal. No duplicate hard copies of the whole report are necessary. However, the cover page, table of contents, text of the report, signature page, data summary tables, and figures in the report shall be still submitted in hard copy along with the CD-ROM, which contains the full report including body of the report, appendices, and attachments. The submittal shall have a secured page or pouch to contain the CD-ROM. The CD-ROM submittal shall contain a CD-ROM case and both CD-ROM and the case shall be labeled with the site address and the monitoring quarter. Submit one hard copy (portion of the report as specified below) and one CD-ROM for each individual report per site.

II. Contents of the Quarterly Groundwater Monitoring Report

The quarterly groundwater monitoring report shall include, but not limited to, the following components:

1) Cover page containing the title of the report, address of the site, Regional Board File number, the period of quarterly groundwater monitoring, affiliation that produced the report, and the date of the report (**hard copy and CD**).
2) Table of contents and narrative text of the report (**hard copy and CD**).

3) Signature page for whom is responsible for the report (**hard copy and CD**).
4) Summary tables of current-quarter and historical monitoring data (**hard copy and CD**).
5) Figures (**hard copy and CD**).
6) Maps **(on CD)**
7) Contaminant mass removal summary, if applicable (**on CD**).
8) All attachments containing relevant information (e.g., boring logs, analytical laboratory report, chain of custody, waste disposal manifest, etc.) (**on CD**).

III. Limitations

This guideline is **not** a substitute of the State Board Electronic Data Format (EDF) submittal to the GeoTracker Database under the requirements of AB2886. The electronic report format discussed in this letter is only pertinent to changing the format of the hard copy reports that have been regularly submitted to this Regional Board, and does not fulfill any and all other requirements. Regional Board staff reserve the right to evaluate the need for the electronic report on a case by case basis.

IV Public Access to the Electronic Report

The Regional Board will make the proper electronic equipment (CD-ROM reader) available in the file review room to facilitate the public access to the information contained in the electronic report on CD. The standard Regional Board File Review procedures are applicable to review the CDs as well.

If you have any questions regarding this matter, please contact Dr. Yue Rong at (213) 576-6710 or at `yrong@rb4.swrcb.ca.gov`.

Sincerely,

Original signed by

Dennis A. Dickerson
Executive Officer

APPENDIX N

LABORATORY REPORTS AND CHAIN OF CUSTODY

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-45798-1
Client Project/Site: ARCO 5110, South Gate

For:
Stantec Consulting Corp.
290 Conejo Ridge Avenue, Suite 200
Thousand Oaks, California 91361

Attn: BP CentralLA

Authorized for release by:
5/21/2013 4:47:14 PM

Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-45798-1	MW-A4	Water	05/08/13 03:30	05/08/13 10:43
440-45798-2	MW-A3	Water	05/07/13 23:40	05/08/13 10:43
440-45798-3	DUP-5110-20130507	Water	05/07/13 00:01	05/08/13 10:43
440-45798-4	MW-A7	Water	05/07/13 21:55	05/08/13 10:43
440-45798-5	MW-20	Water	05/08/13 02:00	05/08/13 10:43

Job ID: 440-45798-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-45798-1

Comments
No additional comments.

Receipt
The samples were received on 5/8/2013 10:43 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.5º C and 4.6º C.

GC/MS VOA
No analytical or quality issues were noted.

HPLC
Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for chloride and sulfate in batch 102997 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

GC VOA
Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: MS/MSD in batch 104109. The BFB surrogate coeluted with the TPH standard. Data was not impacted.

Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCVRT 440-104109/1). BFB surrogate coeluted with TPH standard. Data not impacted.

No other analytical or quality issues were noted.

Air - GC VOA
No analytical or quality issues were noted.

General Chemistry
Method(s) SM5210B: The following sample(s) overdepleted: MW-A7 (440-45798-4). Results have been reported and may be biased low.

No other analytical or quality issues were noted.

Biology
Method(s) SimPlate: The following sample(s) was received at the laboratory with insufficient time remaining on the required 8 hour holding time: MW-A3 (440-45798-2), MW-A7 (440-45798-4), MW-20 (440-45798-5). The sample(s) was stored between 0C and 4C and prepared within the 24 hour holding time allowed by the method.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-A4

Date Collected: 05/08/13 03:30
Date Received: 05/08/13 10:43

Lab Sample ID: 440-45798-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		100	56	ug/L			05/10/13 02:30	200
Benzene	**16000**		100	56	ug/L			05/10/13 02:30	200
Ethanol	ND		30000	20000	ug/L			05/10/13 02:30	200
Isopropyl Ether (DIPE)	ND		100	50	ug/L			05/10/13 02:30	200
Ethyl-t-butyl ether (ETBE)	ND		100	56	ug/L			05/10/13 02:30	200
Ethylbenzene	**1800**		100	50	ug/L			05/10/13 02:30	200
m,p-Xylene	**3500**		200	120	ug/L			05/10/13 02:30	200
Methyl-t-Butyl Ether (MTBE)	ND		100	64	ug/L			05/10/13 02:30	200
o-Xylene	**1200**		100	60	ug/L			05/10/13 02:30	200
Tert-amyl-methyl ether (TAME)	ND		100	66	ug/L			05/10/13 02:30	200
Toluene	**4500**		100	72	ug/L			05/10/13 02:30	200
Xylenes, Total	**4700**		800	180	ug/L			05/10/13 02:30	200
tert-Butyl alcohol (TBA)	ND		2000	1300	ug/L			05/10/13 02:30	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*80 - 120*		*05/10/13 02:30*	*200*
Dibromofluoromethane (Surr)	*112*		*80 - 120*		*05/10/13 02:30*	*200*
Toluene-d8 (Surr)	*110*		*80 - 120*		*05/10/13 02:30*	*200*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**42000**		10000	5000	ug/L			05/13/13 23:40	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*		*05/13/13 23:40*	*200*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	**2.8**		0.00099	0.00025	mg/L			05/10/13 14:40	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	**0.51**		0.15	0.11	mg/L			05/08/13 20:01	1
Sulfate	**15**		0.50	0.40	mg/L			05/08/13 20:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1200**		10	10	mg/L			05/10/13 06:26	1
Ferrous Iron	**0.30**	BV QP	0.10	0.10	mg/L			05/11/13 15:43	1
Total Organic Carbon	**14**		1.0	0.75	mg/L			05/10/13 20:10	1
Biochemical Oxygen Demand	**43**		12	3.0	mg/L			05/09/13 09:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.61**	QP	0.100	0.100	SU			05/15/13 17:42	1

Method: SimPlate - Heterotrophic Plate Count (HPC)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heterotrophic Plate Count	**970**		20	20	MPN/mL			05/08/13 11:30	10

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-A3

Lab Sample ID: 440-45798-2

Date Collected: 05/07/13 23:40
Date Received: 05/08/13 10:43

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/10/13 11:12	1
Benzene	**4.4**		0.50	0.28	ug/L			05/10/13 11:12	1
Ethanol	ND		150	100	ug/L			05/10/13 11:12	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/10/13 11:12	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/10/13 11:12	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/10/13 11:12	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/10/13 11:12	1
Methyl-t-Butyl Ether (MTBE)	**2.3**		0.50	0.32	ug/L			05/10/13 11:12	1
o-Xylene	ND		0.50	0.30	ug/L			05/10/13 11:12	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/10/13 11:12	1
Toluene	ND		0.50	0.36	ug/L			05/10/13 11:12	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/10/13 11:12	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/10/13 11:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*05/10/13 11:12*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*05/10/13 11:12*	*1*
Toluene-d8 (Surr)	*111*		*80 - 120*		*05/10/13 11:12*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**110**		50	25	ug/L			05/14/13 00:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*65 - 140*		*05/14/13 00:08*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	**0.78**		0.00099	0.00025	mg/L			05/10/13 15:11	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.15	0.11	mg/L			05/08/13 20:29	1
Sulfate	**230**		10	8.0	mg/L			05/08/13 20:43	20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**930**		10	10	mg/L			05/10/13 06:26	1
Ferrous Iron	ND	BV QP	0.10	0.10	mg/L			05/11/13 15:43	1
Total Organic Carbon	**2.1**		1.0	0.75	mg/L			05/10/13 15:55	1
Biochemical Oxygen Demand	**2.6**		2.0	0.50	mg/L			05/09/13 09:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.59**	QP	0.100	0.100	SU			05/15/13 17:42	1

Method: SimPlate - Heterotrophic Plate Count (HPC)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heterotrophic Plate Count	**450**	BU BV	20	20	MPN/mL			05/08/13 11:30	10

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: DUP-5110-20130507

Lab Sample ID: 440-45798-3
Matrix: Water

Date Collected: 05/07/13 00:01
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/10/13 12:37	1
Benzene	**4.0**		0.50	0.28	ug/L			05/10/13 12:37	1
Ethanol	ND		150	100	ug/L			05/10/13 12:37	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/10/13 12:37	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/10/13 12:37	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/10/13 12:37	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/10/13 12:37	1
Methyl-t-Butyl Ether (MTBE)	**2.3**		0.50	0.32	ug/L			05/10/13 12:37	1
o-Xylene	ND		0.50	0.30	ug/L			05/10/13 12:37	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/10/13 12:37	1
Toluene	ND		0.50	0.36	ug/L			05/10/13 12:37	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/10/13 12:37	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/10/13 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/10/13 12:37*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*05/10/13 12:37*	*1*
Toluene-d8 (Surr)	*109*		*80 - 120*		*05/10/13 12:37*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**84**		50	25	ug/L			05/14/13 00:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*65 - 140*		*05/14/13 00:36*	*1*

Client Sample ID: MW-A7

Lab Sample ID: 440-45798-4
Matrix: Water

Date Collected: 05/07/13 21:55
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		100	56	ug/L			05/10/13 03:55	200
Benzene	**9200**		100	56	ug/L			05/10/13 03:55	200
Ethanol	ND		30000	20000	ug/L			05/10/13 03:55	200
Isopropyl Ether (DIPE)	ND		100	50	ug/L			05/10/13 03:55	200
Ethyl-t-butyl ether (ETBE)	ND		100	56	ug/L			05/10/13 03:55	200
Ethylbenzene	**79**	**J,DX**	100	50	ug/L			05/10/13 03:55	200
m,p-Xylene	**200**		200	120	ug/L			05/10/13 03:55	200
Methyl-t-Butyl Ether (MTBE)	ND		100	64	ug/L			05/10/13 03:55	200
o-Xylene	ND		100	60	ug/L			05/10/13 03:55	200
Tert-amyl-methyl ether (TAME)	**79**	**J,DX**	100	66	ug/L			05/10/13 03:55	200
Toluene	**73**	**J,DX**	100	72	ug/L			05/10/13 03:55	200
Xylenes, Total	**200**	**J,DX**	800	180	ug/L			05/10/13 03:55	200
tert-Butyl alcohol (TBA)	ND		2000	1300	ug/L			05/10/13 03:55	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*80 - 120*		*05/10/13 03:55*	*200*
Dibromofluoromethane (Surr)	*115*		*80 - 120*		*05/10/13 03:55*	*200*
Toluene-d8 (Surr)	*110*		*80 - 120*		*05/10/13 03:55*	*200*

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-A7

Lab Sample ID: 440-45798-4
Matrix: Water

Date Collected: 05/07/13 21:55
Date Received: 05/08/13 10:43

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	19000		5000	2500	ug/L			05/14/13 01:04	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*65 - 140*		*05/14/13 01:04*	*100*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	8.3		0.00099	0.00025	mg/L			05/10/13 15:25	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.15	0.11	mg/L			05/08/13 20:57	1
Sulfate	3.0		0.50	0.40	mg/L			05/08/13 20:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		10	10	mg/L			05/10/13 06:26	1
Ferrous Iron	0.10	BV QP	0.10	0.10	mg/L			05/11/13 15:43	1
Total Organic Carbon	5.7		1.0	0.75	mg/L			05/10/13 16:13	1
Biochemical Oxygen Demand	26		12	3.0	mg/L			05/09/13 09:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.49	QP	0.100	0.100	SU			05/15/13 17:42	1

Method: SimPlate - Heterotrophic Plate Count (HPC)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heterotrophic Plate Count	1300	BU BV	20	20	MPN/mL			05/08/13 11:30	10

Client Sample ID: MW-20

Lab Sample ID: 440-45798-5
Matrix: Water

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	3.6		0.00099	0.00025	mg/L			05/10/13 15:43	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.15	0.11	mg/L			05/08/13 21:24	1
Sulfate	11		0.50	0.40	mg/L			05/08/13 21:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		10	10	mg/L			05/10/13 06:26	1
Ferrous Iron	0.10	BV QP	0.10	0.10	mg/L			05/11/13 15:43	1
Total Organic Carbon	5.4		1.0	0.75	mg/L			05/10/13 16:32	1
Biochemical Oxygen Demand	25		12	3.0	mg/L			05/09/13 09:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.54	QP	0.100	0.100	SU			05/15/13 17:42	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-20

Lab Sample ID: 440-45798-5

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Matrix: Water

Method: SimPlate - Heterotrophic Plate Count (HPC)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heterotrophic Plate Count	6200	BU BV	20	20	MPN/mL			05/08/13 11:30	10

Method Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL CM
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 3500 FE D	Iron, Ferrous	SM	TAL IRV
SM 4500 H+ B	pH	SM	TAL IRV
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL IRV
SM5210B	BOD, 5 Day	SM	TAL IRV
SimPlate	Heterotrophic Plate Count (HPC)	IDEXX	TAL IRV

Protocol References:

IDEXX = IDEXX Laboratories

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-A4

Lab Sample ID: 440-45798-1

Date Collected: 05/08/13 03:30
Date Received: 05/08/13 10:43

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	10 mL	10 mL	103439	05/10/13 02:30	MP	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4727	05/10/13 14:40	TD	TAL CM
Total/NA	Analysis	8015B		200	10 mL	10 mL	104109	05/13/13 23:40	IM	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102996	05/08/13 20:01	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102997	05/08/13 20:01	NN	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	103289	05/09/13 09:40	TAI	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	103535	05/10/13 06:26	XL	TAL IRV
Total/NA	Analysis	SM 5310B		1		100 mL	103809	05/10/13 20:10		TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	103856	05/11/13 15:43	TR	TAL IRV
Total/NA	Analysis	SM 4500 H+ B		1		50 mL	104852	05/15/13 17:42	ST	TAL IRV
Total/NA	Analysis	SimPlate		10	1 mL	1 mL	103342	05/08/13 11:30	EF	TAL IRV

Client Sample ID: MW-A3

Lab Sample ID: 440-45798-2

Date Collected: 05/07/13 23:40
Date Received: 05/08/13 10:43

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	103554	05/10/13 11:12	SS	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4727	05/10/13 15:11	TD	TAL CM
Total/NA	Analysis	8015B		1	10 mL	10 mL	104109	05/14/13 00:08	IM	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102996	05/08/13 20:29	NN	TAL IRV
Total/NA	Analysis	300.0		20	1 mL		102997	05/08/13 20:43	NN	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	103289	05/09/13 09:40	TAI	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	103535	05/10/13 06:26	XL	TAL IRV
Total/NA	Analysis	SM 5310B		1		100 mL	103809	05/10/13 15:55		TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	103856	05/11/13 15:43	TR	TAL IRV
Total/NA	Analysis	SM 4500 H+ B		1		50 mL	104852	05/15/13 17:42	ST	TAL IRV
Total/NA	Analysis	SimPlate		10	1 mL	1 mL	103342	05/08/13 11:30	EF	TAL IRV

Client Sample ID: DUP-5110-20130507

Lab Sample ID: 440-45798-3

Date Collected: 05/07/13 00:01
Date Received: 05/08/13 10:43

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	103554	05/10/13 12:37	SS	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104109	05/14/13 00:36	IM	TAL IRV

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Client Sample ID: MW-A7

Lab Sample ID: 440-45798-4

Date Collected: 05/07/13 21:55
Date Received: 05/08/13 10:43

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	10 mL	10 mL	103439	05/10/13 03:55	MP	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4727	05/10/13 15:25	TD	TAL CM
Total/NA	Analysis	8015B		100	10 mL	10 mL	104109	05/14/13 01:04	IM	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102996	05/08/13 20:57	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102997	05/08/13 20:57	NN	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	103289	05/09/13 09:40	TAI	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	103535	05/10/13 06:26	XL	TAL IRV
Total/NA	Analysis	SM 5310B		1		100 mL	103809	05/10/13 16:13		TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	103856	05/11/13 15:43	TR	TAL IRV
Total/NA	Analysis	SM 4500 H+ B		1		50 mL	104852	05/15/13 17:42	ST	TAL IRV
Total/NA	Analysis	SimPlate		10	1 mL	1 mL	103342	05/08/13 11:30	EF	TAL IRV

Client Sample ID: MW-20

Lab Sample ID: 440-45798-5

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4727	05/10/13 15:43	TD	TAL CM
Total/NA	Analysis	300.0		1	1 mL		102996	05/08/13 21:24	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		102997	05/08/13 21:24	NN	TAL IRV
Total/NA	Analysis	SM5210B		1		300 mL	103289	05/09/13 09:40	TAI	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	103535	05/10/13 06:26	XL	TAL IRV
Total/NA	Analysis	SM 5310B		1		100 mL	103809	05/10/13 16:32		TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	103856	05/11/13 15:43	TR	TAL IRV
Total/NA	Analysis	SM 4500 H+ B		1		50 mL	104852	05/15/13 17:42	ST	TAL IRV
Total/NA	Analysis	SimPlate		10	1 mL	1 mL	103342	05/08/13 11:30	EF	TAL IRV

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-103439/4
Matrix: Water
Analysis Batch: 103439

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/09/13 18:10	1
Benzene	ND		0.50	0.28	ug/L			05/09/13 18:10	1
Ethanol	ND		150	100	ug/L			05/09/13 18:10	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/09/13 18:10	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/09/13 18:10	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/09/13 18:10	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/09/13 18:10	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/09/13 18:10	1
o-Xylene	ND		0.50	0.30	ug/L			05/09/13 18:10	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/09/13 18:10	1
Toluene	ND		0.50	0.36	ug/L			05/09/13 18:10	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/09/13 18:10	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/09/13 18:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*05/09/13 18:10*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*05/09/13 18:10*	*1*
Toluene-d8 (Surr)	*111*		*80 - 120*		*05/09/13 18:10*	*1*

Lab Sample ID: LCS 440-103439/5
Matrix: Water
Analysis Batch: 103439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	29.9		ug/L		120	60 - 140
Benzene	25.0	21.3		ug/L		85	70 - 120
Ethanol	250	224		ug/L		89	40 - 155
Isopropyl Ether (DIPE)	25.0	25.7		ug/L		103	60 - 135
Ethyl-t-butyl ether (ETBE)	25.0	26.2		ug/L		105	65 - 135
Ethylbenzene	25.0	24.2		ug/L		97	75 - 125
m,p-Xylene	50.0	46.5		ug/L		93	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	25.9		ug/L		104	60 - 135
o-Xylene	25.0	23.7		ug/L		95	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	25.5		ug/L		102	60 - 135
Toluene	25.0	23.9		ug/L		96	70 - 120
tert-Butyl alcohol (TBA)	125	130		ug/L		104	70 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*114*		*80 - 120*
Toluene-d8 (Surr)	*110*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-45455-C-2 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103439

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	ND		25.0	30.7		ug/L		123	60 - 140
Benzene	ND		25.0	22.2		ug/L		89	65 - 125
Ethanol	ND		250	247		ug/L		99	40 - 155
Isopropyl Ether (DIPE)	ND		25.0	24.3		ug/L		97	60 - 140
Ethyl-t-butyl ether (ETBE)	ND		25.0	26.1		ug/L		104	60 - 135
Ethylbenzene	ND		25.0	24.5		ug/L		98	65 - 130
m,p-Xylene	ND		50.0	45.6		ug/L		91	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.9		ug/L		104	55 - 145
o-Xylene	ND		25.0	23.0		ug/L		92	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	25.4		ug/L		102	60 - 140
Toluene	ND		25.0	24.6		ug/L		98	70 - 125
tert-Butyl alcohol (TBA)	ND		125	137		ug/L		110	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
Dibromofluoromethane (Surr)	*109*		*80 - 120*
Toluene-d8 (Surr)	*111*		*80 - 120*

Lab Sample ID: 440-45455-C-2 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103439

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloroethane	ND		25.0	30.3		ug/L		121	60 - 140	1	20
Benzene	ND		25.0	20.8		ug/L		83	65 - 125	6	20
Ethanol	ND		250	226		ug/L		90	40 - 155	9	30
Isopropyl Ether (DIPE)	ND		25.0	23.9		ug/L		95	60 - 140	2	25
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.8		ug/L		99	60 - 135	5	25
Ethylbenzene	ND		25.0	23.7		ug/L		95	65 - 130	3	20
m,p-Xylene	ND		50.0	44.9		ug/L		90	65 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.3		ug/L		97	55 - 145	6	25
o-Xylene	ND		25.0	22.7		ug/L		91	65 - 125	2	20
Tert-amyl-methyl ether (TAME)	ND		25.0	24.6		ug/L		99	60 - 140	3	30
Toluene	ND		25.0	24.4		ug/L		97	70 - 125	1	20
tert-Butyl alcohol (TBA)	ND		125	136		ug/L		108	65 - 140	1	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
Toluene-d8 (Surr)	*114*		*80 - 120*

Lab Sample ID: MB 440-103554/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/10/13 09:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-103554/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/10/13 09:06	1
Ethanol	ND		150	100	ug/L			05/10/13 09:06	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/10/13 09:06	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/10/13 09:06	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/10/13 09:06	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/10/13 09:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/10/13 09:06	1
o-Xylene	ND		0.50	0.30	ug/L			05/10/13 09:06	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/10/13 09:06	1
Toluene	ND		0.50	0.36	ug/L			05/10/13 09:06	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/10/13 09:06	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/10/13 09:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*80 - 120*		*05/10/13 09:06*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 120*		*05/10/13 09:06*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*		*05/10/13 09:06*	*1*

Lab Sample ID: LCS 440-103554/21 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	31.9		ug/L		128	60 - 140
Benzene	25.0	22.9		ug/L		92	70 - 120
Ethanol	250	242		ug/L		97	40 - 155
Isopropyl Ether (DIPE)	25.0	25.0		ug/L		100	60 - 135
Ethyl-t-butyl ether (ETBE)	25.0	25.2		ug/L		101	65 - 135
Ethylbenzene	25.0	25.6		ug/L		102	75 - 125
m,p-Xylene	50.0	49.6		ug/L		99	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	24.4		ug/L		97	60 - 135
o-Xylene	25.0	24.4		ug/L		98	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	23.7		ug/L		95	60 - 135
Toluene	25.0	26.2		ug/L		105	70 - 120
tert-Butyl alcohol (TBA)	125	145		ug/L		116	70 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*108*		*80 - 120*

Lab Sample ID: 440-45798-2 MS — **Client Sample ID: MW-A3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	ND		25.0	33.8		ug/L		135	60 - 140
Benzene	4.4		25.0	27.3		ug/L		92	65 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-45798-2 MS — **Client Sample ID: MW-A3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethanol	ND		250	250		ug/L		100	40 - 155
Isopropyl Ether (DIPE)	ND		25.0	25.9		ug/L		104	60 - 140
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.4		ug/L		110	60 - 135
Ethylbenzene	ND		25.0	25.2		ug/L		101	65 - 130
m,p-Xylene	ND		50.0	48.3		ug/L		97	65 - 130
Methyl-t-Butyl Ether (MTBE)	2.3		25.0	29.7		ug/L		109	55 - 145
o-Xylene	ND		25.0	24.3		ug/L		97	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	26.4		ug/L		106	60 - 140
Toluene	ND		25.0	27.2		ug/L		109	70 - 125
tert-Butyl alcohol (TBA)	ND		125	149		ug/L		119	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
Toluene-d8 (Surr)	*116*		*80 - 120*

Lab Sample ID: 440-45798-2 MSD — **Client Sample ID: MW-A3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103554

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloroethane	ND		25.0	33.3		ug/L		133	60 - 140	1	20
Benzene	4.4		25.0	26.6		ug/L		89	65 - 125	3	20
Ethanol	ND		250	241		ug/L		97	40 - 155	4	30
Isopropyl Ether (DIPE)	ND		25.0	26.3		ug/L		105	60 - 140	1	25
Ethyl-t-butyl ether (ETBE)	ND		25.0	28.1		ug/L		112	60 - 135	2	25
Ethylbenzene	ND		25.0	25.1		ug/L		101	65 - 130	0	20
m,p-Xylene	ND		50.0	47.2		ug/L		94	65 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	2.3		25.0	30.2		ug/L		112	55 - 145	2	25
o-Xylene	ND		25.0	24.2		ug/L		97	65 - 125	0	20
Tert-amyl-methyl ether (TAME)	ND		25.0	27.4		ug/L		110	60 - 140	4	30
Toluene	ND		25.0	27.0		ug/L		108	70 - 125	0	20
tert-Butyl alcohol (TBA)	ND		125	149		ug/L		119	65 - 140	0	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*109*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-104109/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104109

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/13/13 15:27	1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 440-104109/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104109

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		65 - 140		05/13/13 15:27	1

Lab Sample ID: LCS 440-104109/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104109

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	800	787		ug/L		98	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		65 - 140

Lab Sample ID: 440-45986-C-3 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104109

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	ND		800	785		ug/L		98	65 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		65 - 140

Lab Sample ID: 440-45986-C-3 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104109

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	785		ug/L		98	65 - 140	0	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		65 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 340-4727/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4727

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	0.00025	mg/L			05/10/13 08:02	1

Lab Sample ID: LCS 340-4727/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	9.42	8.86		mg/L		94	80 - 120

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 340-4727/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (FID)	0.0471	0.0452		mg/L		96	80 - 120

Lab Sample ID: LCSD 340-4727/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4727

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	9.42	8.97		mg/L		95	80 - 120	1	20

Lab Sample ID: LCSD 340-4727/7 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4727

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (FID)	0.0471	0.0461		mg/L		98	80 - 120	2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-102996/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102996

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.15	0.11	mg/L			05/08/13 11:30	1

Lab Sample ID: LCS 440-102996/7 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102996

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	1.52	1.54		mg/L		101	90 - 110

Lab Sample ID: 440-45791-A-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102996

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	ND		15.2	16.1		mg/L		106	80 - 120

Lab Sample ID: 440-45791-A-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102996

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	ND		15.2	15.3		mg/L		100	80 - 120	5	20

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-102997/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102997

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	0.40	mg/L			05/08/13 11:30	1

Lab Sample ID: LCS 440-102997/7 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102997

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: 440-45791-A-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102997

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	60		100	153		mg/L		92	80 - 120

Lab Sample ID: 440-45791-A-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 102997

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	60		100	148		mg/L		87	80 - 120	3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 440-103535/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			05/10/13 06:26	1

Lab Sample ID: LCS 440-103535/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	984		mg/L		98	90 - 110

Lab Sample ID: 440-45909-B-21 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103535

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	440		455		mg/L		3	10

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Method: SM 3500 FE D - Iron, Ferrous

Lab Sample ID: MB 440-103856/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND	BV	0.10	0.10	mg/L			05/11/13 15:43	1

Lab Sample ID: LCS 440-103856/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	5.00	4.00	BV	mg/L		80	80 - 120

Lab Sample ID: 440-45709-G-1 DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103856

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	BV	ND	BV	mg/L		NC	20

Method: SM 4500 H+ B - pH

Lab Sample ID: 440-45798-1 DU — **Client Sample ID: MW-A4**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104852

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.61	QP	7.630		SU		0.3	2

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 440-103809/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103809

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.75	mg/L			05/10/13 13:16	1

Lab Sample ID: LCS 440-103809/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.90		mg/L		99	90 - 110

Lab Sample ID: 440-45717-A-5 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103809

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.3		5.00	6.30		mg/L		101	80 - 120

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 440-45717-A-5 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103809

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	1.3		5.00	6.62		mg/L		107	80 - 120	5	20

Method: SM5210B - BOD, 5 Day

Lab Sample ID: USB 440-103289/1 USB — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103289

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	0.50	mg/L			05/09/13 09:40	1

Lab Sample ID: LCS 440-103289/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103289

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	199	214		mg/L		108	85 - 115

Lab Sample ID: LCSD 440-103289/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103289

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	199	221		mg/L		111	85 - 115	3	20

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

GC/MS VOA

Analysis Batch: 103439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45455-C-2 MS	Matrix Spike	Total/NA	Water	8260B	
440-45455-C-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-45798-1	MW-A4	Total/NA	Water	8260B	
440-45798-4	MW-A7	Total/NA	Water	8260B	
LCS 440-103439/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-103439/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 103554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-2	MW-A3	Total/NA	Water	8260B	
440-45798-2 MS	MW-A3	Total/NA	Water	8260B	
440-45798-2 MSD	MW-A3	Total/NA	Water	8260B	
440-45798-3	DUP-5110-20130507	Total/NA	Water	8260B	
LCS 440-103554/21	Lab Control Sample	Total/NA	Water	8260B	
MB 440-103554/4	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 4727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	RSK-175	
440-45798-2	MW-A3	Total/NA	Water	RSK-175	
440-45798-4	MW-A7	Total/NA	Water	RSK-175	
440-45798-5	MW-20	Total/NA	Water	RSK-175	
LCS 340-4727/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 340-4727/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 340-4727/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 340-4727/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 340-4727/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 104109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	8015B	
440-45798-2	MW-A3	Total/NA	Water	8015B	
440-45798-3	DUP-5110-20130507	Total/NA	Water	8015B	
440-45798-4	MW-A7	Total/NA	Water	8015B	
440-45986-C-3 MS	Matrix Spike	Total/NA	Water	8015B	
440-45986-C-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-104109/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-104109/3	Method Blank	Total/NA	Water	8015B	

HPLC/IC

Analysis Batch: 102996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45791-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-45791-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-45798-1	MW-A4	Total/NA	Water	300.0	
440-45798-2	MW-A3	Total/NA	Water	300.0	
440-45798-4	MW-A7	Total/NA	Water	300.0	

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

HPLC/IC (Continued)

Analysis Batch: 102996 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-5	MW-20	Total/NA	Water	300.0	
LCS 440-102996/7	Lab Control Sample	Total/NA	Water	300.0	
MB 440-102996/8	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 102997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45791-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-45791-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
440-45798-1	MW-A4	Total/NA	Water	300.0	
440-45798-2	MW-A3	Total/NA	Water	300.0	
440-45798-4	MW-A7	Total/NA	Water	300.0	
440-45798-5	MW-20	Total/NA	Water	300.0	
LCS 440-102997/7	Lab Control Sample	Total/NA	Water	300.0	
MB 440-102997/8	Method Blank	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 103289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	SM5210B	
440-45798-2	MW-A3	Total/NA	Water	SM5210B	
440-45798-4	MW-A7	Total/NA	Water	SM5210B	
440-45798-5	MW-20	Total/NA	Water	SM5210B	
LCS 440-103289/4	Lab Control Sample	Total/NA	Water	SM5210B	
LCSD 440-103289/5	Lab Control Sample Dup	Total/NA	Water	SM5210B	
USB 440-103289/1 USB	Method Blank	Total/NA	Water	SM5210B	

Analysis Batch: 103535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	SM 2540C	
440-45798-2	MW-A3	Total/NA	Water	SM 2540C	
440-45798-4	MW-A7	Total/NA	Water	SM 2540C	
440-45798-5	MW-20	Total/NA	Water	SM 2540C	
440-45909-B-21 DU	Duplicate	Total/NA	Water	SM 2540C	
LCS 440-103535/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 440-103535/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 103809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45717-A-5 MS	Matrix Spike	Total/NA	Water	SM 5310B	
440-45717-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 5310B	
440-45798-1	MW-A4	Total/NA	Water	SM 5310B	
440-45798-2	MW-A3	Total/NA	Water	SM 5310B	
440-45798-4	MW-A7	Total/NA	Water	SM 5310B	
440-45798-5	MW-20	Total/NA	Water	SM 5310B	
LCS 440-103809/6	Lab Control Sample	Total/NA	Water	SM 5310B	
MB 440-103809/7	Method Blank	Total/NA	Water	SM 5310B	

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

General Chemistry (Continued)

Analysis Batch: 103856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45709-G-1 DU	Duplicate	Total/NA	Water	SM 3500 FE D	
440-45798-1	MW-A4	Total/NA	Water	SM 3500 FE D	
440-45798-2	MW-A3	Total/NA	Water	SM 3500 FE D	
440-45798-4	MW-A7	Total/NA	Water	SM 3500 FE D	
440-45798-5	MW-20	Total/NA	Water	SM 3500 FE D	
LCS 440-103856/2	Lab Control Sample	Total/NA	Water	SM 3500 FE D	
MB 440-103856/1	Method Blank	Total/NA	Water	SM 3500 FE D	

Analysis Batch: 104852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	SM 4500 H+ B	
440-45798-1 DU	MW-A4	Total/NA	Water	SM 4500 H+ B	
440-45798-2	MW-A3	Total/NA	Water	SM 4500 H+ B	
440-45798-4	MW-A7	Total/NA	Water	SM 4500 H+ B	
440-45798-5	MW-20	Total/NA	Water	SM 4500 H+ B	

Biology

Analysis Batch: 103342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45798-1	MW-A4	Total/NA	Water	SimPlate	
440-45798-2	MW-A3	Total/NA	Water	SimPlate	
440-45798-4	MW-A7	Total/NA	Water	SimPlate	
440-45798-5	MW-20	Total/NA	Water	SimPlate	

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
BV	Sample received after holding time expired
QP	Holding time Immediate. Analyzed as close to receipt as possible

Biology

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-45798-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-13
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	03-28-13 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

Laboratory: TestAmerica Costa Mesa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arizona	State Program	9	AZ0727	02-09-14
Florida	NELAP	4	E87652	06-30-13
L-A-B	DoD ELAP		L2273	11-09-13
Louisiana	NELAP	6	01948	06-30-13
Oregon	NELAP	10	CA200013	07-19-13
Utah	NELAP	8	CA000032012-1	06-30-13
Washington	State Program	10	C579	11-29-13

* Expired certification is currently pending renewal and is considered valid.

bp rm

Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1

BP Site Node Path: 2013-Q2 Quarterly Groundwater

BP Facility No: ARCO 5110

Req Due Date (mm/dd/yy): _____

Rush TAT: Yes _____ No _____

Lab Work Order Number: 440-45798

Lab Name:	Test America, Inc.	BP/ARC Facility Address:	5110	Consultant/Contractor:	Stantec Consulting Corporation
Lab Address:	17461 Derian Avenue, Suite 100, Irvine, CA 92614	City, State, ZIP Code:	5731 E. Firestone Blvd., South Gate, CA	Consultant/Contractor Project No:	211812077
Lab PM:	Kathleen Robb	Lead Regulatory Agency:	LARWQCB	Address:	290 Conejo Ridge Avenue, Thousand Oaks, CA 91361
Lab Phone:	(949) 261-1022 / (949) 260-3297	California Global ID No.:	T0603703915	Consultant/Contractor PM:	Randy Couture
Lab Shipping Accnt:		Enfos Proposal No:	006QQ-0010 WR# 258798	Phone:	(805) 230-1266
Lab Bottle Order No:		Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email EDD To:	bpdata@stantec.com; bpvinvale@stantec.com; lab.enfosdoc@bp.com
Other Info:		Stage: Execute	Activity: Monitoring	Invoice To:	BP/ARC X Contractor ___
BP/ARC EBM:	Darrell Fah				
EBM Phone:	(800) 282-0191				
EBM Email:	darrell.fah@bp.com				

Report Type & QC Level: Standard ___ Full Data Package ___

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	Requested Analyses: GRO C4-12 (8015M)	BTEX/OXY/ET (8260B)	VOC 1,2 DCA (8260B)	Heterotrophic Bacteria	BOD	TDS	TOC	Sulfate, Nitrate	Methane	pH	Fe+2 EPA 6010B	Comments (Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.)
1	MW-A4	05/07/13	0330		X		16	~~12~~ 10	3	X	X	X		X	X		X	X	X	X	X	X	X	X	
2	MW-A3	05/07/13	2340		X		16	~~12~~ 10	3	X	X	X		X	X		X	X	X	X	X	X	X	X	
3	DUP-5110-20130507	05/07/13	—		X			6				X		X	X										
4	MW-A7	05/07/13	2155		X		16	~~13~~ 10	3	X	X	X		X	X		X	X	X	X	X	X	X	X	
5	MW-20	05/07/13	0200		X		10	~~8~~ 10	3	X	X	X					X	X	X	X	X	X	X	X	
6	TB-5110-20130507B	05/07/13	1701		X			6				X		X	X										Put on hold
7																									
8																									
9																									
10																									

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Mark Mason						
Sampler's Company: STANTEC	Mark Mason	5-8-13	0600	~~[illegible]~~ no Ryan Dickinson / Stantec	5/8/13	~~09:00~~ 0601
Shipment Method: Ship Date:	Ryan Dickinson / Stantec	5-8-13	0900	[illegible]	5/8/13	09:01
Shipment Tracking No:	[illegible]	5-8-13	10:45	[illegible]	5/8/13	10:43

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: _____ °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No

BP Remediation Management COC - Effective Date: starting August 16, 2011. Use for Remediation Management projects only

BP LaMP COC Rev. 8, 24 June 2012

Temp = 4.9°C / 4.6°C 3.8 / 3.5°C

Page 27 of 29

5/21/2013

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 440-45798-1

Login Number: 45798
List Number: 1
Creator: Perez, Angel

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Mark Mason
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 440-45798-1

Login Number: 45798
List Number: 1
Creator: Morales, Sergio

List Source: TestAmerica Costa Mesa
List Creation: 05/09/13 02:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-45995-1
Client Project/Site: ARCO 0031, South Gate

For:
Stantec Consulting Corp.
290 Conejo Ridge Ave.
Suite 200
Thousand Oaks, California 91361

Attn: BP Vinvale

Authorized for release by:
5/22/2013 3:52:03 PM

Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-45995-1	MW-19	Water	05/08/13 04:35	05/08/13 10:43
440-45995-2	MW-20	Water	05/08/13 02:00	05/08/13 10:43
440-45995-3	FB-5110-20130507	Water	05/07/13 04:15	05/08/13 10:43

Job ID: 440-45995-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-45995-1

Comments
No additional comments.

Receipt
The samples were received on 5/8/2013 10:43 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCVRT 440-104291/1). BFB surrogate coeluted with TPH standard. Data not impacted.

Method(s) 8015B: The Gasoline Range Organics (GRO) concentration reported for the following sample(s) is due to the presence of discrete peaks: MW-20 (440-45995-2).

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Client Sample ID: MW-19

Lab Sample ID: 440-45995-1
Matrix: Water

Date Collected: 05/08/13 04:35
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	**18**		0.50	0.28	ug/L			05/16/13 14:22	1
Benzene	**66**		0.50	0.28	ug/L			05/16/13 14:22	1
Ethanol	ND		150	100	ug/L			05/16/13 14:22	1
Isopropyl Ether (DIPE)	**0.25**	J,DX	0.50	0.25	ug/L			05/16/13 14:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/16/13 14:22	1
Ethylbenzene	**0.48**	J,DX	0.50	0.25	ug/L			05/16/13 14:22	1
m,p-Xylene	**0.66**	J,DX	1.0	0.60	ug/L			05/16/13 14:22	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/16/13 14:22	1
o-Xylene	ND		0.50	0.30	ug/L			05/16/13 14:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/16/13 14:22	1
Toluene	ND		0.50	0.36	ug/L			05/16/13 14:22	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/16/13 14:22	1
tert-Butyl alcohol (TBA)	**23**		10	6.5	ug/L			05/16/13 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/16/13 14:22*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 120*		*05/16/13 14:22*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*05/16/13 14:22*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**330**		50	25	ug/L			05/13/13 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*65 - 140*		*05/13/13 17:29*	*1*

Client Sample ID: MW-20

Lab Sample ID: 440-45995-2
Matrix: Water

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		20	11	ug/L			05/16/13 15:48	40
Ethanol	ND		6000	4000	ug/L			05/16/13 15:48	40
Isopropyl Ether (DIPE)	ND		20	10	ug/L			05/16/13 15:48	40
Ethyl-t-butyl ether (ETBE)	ND		20	11	ug/L			05/16/13 15:48	40
Ethylbenzene	**170**		20	10	ug/L			05/16/13 15:48	40
m,p-Xylene	**190**		40	24	ug/L			05/16/13 15:48	40
Methyl-t-Butyl Ether (MTBE)	ND		20	13	ug/L			05/16/13 15:48	40
o-Xylene	**27**		20	12	ug/L			05/16/13 15:48	40
Tert-amyl-methyl ether (TAME)	ND		20	13	ug/L			05/16/13 15:48	40
Toluene	**58**		20	14	ug/L			05/16/13 15:48	40
Xylenes, Total	**220**		160	36	ug/L			05/16/13 15:48	40
tert-Butyl alcohol (TBA)	ND		400	260	ug/L			05/16/13 15:48	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/16/13 15:48*	*40*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*05/16/13 15:48*	*40*
Toluene-d8 (Surr)	*108*		*80 - 120*		*05/16/13 15:48*	*40*

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Client Sample ID: MW-20

Lab Sample ID: 440-45995-2
Matrix: Water

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	9600		100	56	ug/L			05/17/13 15:15	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/17/13 15:15*	*200*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*05/17/13 15:15*	*200*
Toluene-d8 (Surr)	*107*		*80 - 120*		*05/17/13 15:15*	*200*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	16000		10000	5000	ug/L			05/14/13 14:50	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*65 - 140*		*05/14/13 14:50*	*200*

Client Sample ID: FB-5110-20130507

Lab Sample ID: 440-45995-3
Matrix: Water

Date Collected: 05/07/13 04:15
Date Received: 05/08/13 10:43

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/16/13 16:15	1
Benzene	ND		0.50	0.28	ug/L			05/16/13 16:15	1
Ethanol	ND		150	100	ug/L			05/16/13 16:15	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/16/13 16:15	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/16/13 16:15	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/16/13 16:15	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/16/13 16:15	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/16/13 16:15	1
o-Xylene	ND		0.50	0.30	ug/L			05/16/13 16:15	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/16/13 16:15	1
Toluene	ND		0.50	0.36	ug/L			05/16/13 16:15	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/16/13 16:15	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/16/13 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/16/13 16:15*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*05/16/13 16:15*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*		*05/16/13 16:15*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/12/13 08:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*65 - 140*		*05/12/13 08:32*	*1*

Method Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Client Sample ID: MW-19

Lab Sample ID: 440-45995-1
Matrix: Water

Date Collected: 05/08/13 04:35
Date Received: 05/08/13 10:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104977	05/16/13 14:22	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	103966	05/13/13 17:29	IM	TAL IRV

Client Sample ID: MW-20

Lab Sample ID: 440-45995-2
Matrix: Water

Date Collected: 05/08/13 02:00
Date Received: 05/08/13 10:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		40	10 mL	10 mL	104977	05/16/13 15:48	AL	TAL IRV
Total/NA	Analysis	8260B	DL	200	10 mL	10 mL	105287	05/17/13 15:15	BD	TAL IRV
Total/NA	Analysis	8015B		200	10 mL	10 mL	104291	05/14/13 14:50	IM	TAL IRV

Client Sample ID: FB-5110-20130507

Lab Sample ID: 440-45995-3
Matrix: Water

Date Collected: 05/07/13 04:15
Date Received: 05/08/13 10:43

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104977	05/16/13 16:15	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	103851	05/12/13 08:32	IM	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-104977/4
Matrix: Water
Analysis Batch: 104977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.50	0.28	ug/L			05/16/13 09:37	1
Benzene	ND		0.50	0.28	ug/L			05/16/13 09:37	1
Ethanol	ND		150	100	ug/L			05/16/13 09:37	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/16/13 09:37	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/16/13 09:37	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/16/13 09:37	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/16/13 09:37	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/16/13 09:37	1
o-Xylene	ND		0.50	0.30	ug/L			05/16/13 09:37	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/16/13 09:37	1
Toluene	ND		0.50	0.36	ug/L			05/16/13 09:37	1
Xylenes, Total	ND		4.0	0.90	ug/L			05/16/13 09:37	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/16/13 09:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/16/13 09:37*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*05/16/13 09:37*	*1*
Toluene-d8 (Surr)	*111*		*80 - 120*		*05/16/13 09:37*	*1*

Lab Sample ID: LCS 440-104977/5
Matrix: Water
Analysis Batch: 104977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	23.2		ug/L		93	60 - 140
Benzene	25.0	24.5		ug/L		98	70 - 120
Ethanol	250	229		ug/L		91	40 - 155
Isopropyl Ether (DIPE)	25.0	25.4		ug/L		101	60 - 135
Ethyl-t-butyl ether (ETBE)	25.0	25.6		ug/L		103	65 - 135
Ethylbenzene	25.0	26.6		ug/L		106	75 - 125
m,p-Xylene	50.0	52.7		ug/L		105	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	25.6		ug/L		102	60 - 135
o-Xylene	25.0	26.0		ug/L		104	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	25.2		ug/L		101	60 - 135
Toluene	25.0	26.3		ug/L		105	70 - 120
tert-Butyl alcohol (TBA)	125	122		ug/L		98	70 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*109*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-45995-1 MS — **Client Sample ID: MW-19**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104977

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	18		25.0	37.9		ug/L		78	60 - 140
Benzene	66		25.0	82.8		ug/L		65	65 - 125
Ethanol	ND		250	229		ug/L		92	40 - 155
Isopropyl Ether (DIPE)	0.25	J,DX	25.0	24.1		ug/L		95	60 - 140
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.6		ug/L		98	60 - 135
Ethylbenzene	0.48	J,DX	25.0	26.9		ug/L		106	65 - 130
m,p-Xylene	0.66	J,DX	50.0	54.0		ug/L		107	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.7		ug/L		103	55 - 145
o-Xylene	ND		25.0	26.4		ug/L		106	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	27.1		ug/L		108	60 - 140
Toluene	ND		25.0	26.4		ug/L		106	70 - 125
tert-Butyl alcohol (TBA)	23		125	144		ug/L		97	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*109*		*80 - 120*

Lab Sample ID: 440-45995-1 MSD — **Client Sample ID: MW-19**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104977

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloroethane	18		25.0	41.4		ug/L		92	60 - 140	9	20
Benzene	66		25.0	92.0		ug/L		102	65 - 125	11	20
Ethanol	ND		250	242		ug/L		97	40 - 155	5	30
Isopropyl Ether (DIPE)	0.25	J,DX	25.0	25.5		ug/L		101	60 - 140	6	25
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.3		ug/L		109	60 - 135	10	25
Ethylbenzene	0.48	J,DX	25.0	27.0		ug/L		106	65 - 130	0	20
m,p-Xylene	0.66	J,DX	50.0	53.4		ug/L		105	65 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.9		ug/L		112	55 - 145	8	25
o-Xylene	ND		25.0	26.4		ug/L		106	65 - 125	0	20
Tert-amyl-methyl ether (TAME)	ND		25.0	29.0		ug/L		116	60 - 140	7	30
Toluene	ND		25.0	28.4		ug/L		114	70 - 125	7	20
tert-Butyl alcohol (TBA)	23		125	161		ug/L		110	65 - 140	11	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*92*		*80 - 120*
Toluene-d8 (Surr)	*109*		*80 - 120*

Lab Sample ID: MB 440-105287/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/17/13 09:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-105287/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105287

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		80 - 120		05/17/13 09:03	1
Dibromofluoromethane (Surr)	101		80 - 120		05/17/13 09:03	1
Toluene-d8 (Surr)	112		80 - 120		05/17/13 09:03	1

Lab Sample ID: LCS 440-105287/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105287

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			25.0	24.1		ug/L		96	70 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	110		80 - 120

Lab Sample ID: 440-46511-E-2 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	2.7		25.0	26.0		ug/L		93	65 - 125		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	94		80 - 120
Toluene-d8 (Surr)	109		80 - 120

Lab Sample ID: 440-46511-E-2 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	2.7		25.0	25.3		ug/L		91	65 - 125	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	92		80 - 120
Toluene-d8 (Surr)	110		80 - 120

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-103851/29 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103851

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/12/13 02:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*65 - 140*		*05/12/13 02:26*	*1*

Lab Sample ID: LCS 440-103851/28 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	800	812		ug/L		102	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*69*		*65 - 140*

Lab Sample ID: 440-45989-A-3 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103851

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	41	J,DX	800	730		ug/L		86	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*75*		*65 - 140*

Lab Sample ID: 440-45989-A-3 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103851

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	41	J,DX	800	726		ug/L		86	65 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*74*		*65 - 140*

Lab Sample ID: MB 440-103966/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/13/13 08:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*65 - 140*		*05/13/13 08:25*	*1*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCS 440-103966/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103966

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	863		ug/L		108	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*65 - 140*

Lab Sample ID: 440-46071-B-5 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103966

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	130		800	940		ug/L		102	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*79*		*65 - 140*

Lab Sample ID: 440-46071-B-5 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 103966

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	130		800	946		ug/L		103	65 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*83*		*65 - 140*

Lab Sample ID: MB 440-104291/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104291

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/14/13 09:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*65 - 140*		*05/14/13 09:24*	*1*

Lab Sample ID: LCS 440-104291/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104291

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	875		ug/L		109	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*125*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: 440-45929-C-5 MS
Matrix: Water
Analysis Batch: 104291

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	500		1600	2190		ug/L		106	65 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*130*		*65 - 140*

Lab Sample ID: 440-45929-C-5 MSD
Matrix: Water
Analysis Batch: 104291

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	500		1600	2070		ug/L		98	65 - 140	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*131*		*65 - 140*

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

GC/MS VOA

Analysis Batch: 104977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45995-1	MW-19	Total/NA	Water	8260B	
440-45995-1 MS	MW-19	Total/NA	Water	8260B	
440-45995-1 MSD	MW-19	Total/NA	Water	8260B	
440-45995-2	MW-20	Total/NA	Water	8260B	
440-45995-3	FB-5110-20130507	Total/NA	Water	8260B	
LCS 440-104977/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-104977/4	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45995-2 - DL	MW-20	Total/NA	Water	8260B	
440-46511-E-2 MS	Matrix Spike	Total/NA	Water	8260B	
440-46511-E-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-105287/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-105287/4	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 103851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45989-A-3 MS	Matrix Spike	Total/NA	Water	8015B	
440-45989-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
440-45995-3	FB-5110-20130507	Total/NA	Water	8015B	
LCS 440-103851/28	Lab Control Sample	Total/NA	Water	8015B	
MB 440-103851/29	Method Blank	Total/NA	Water	8015B	

Analysis Batch: 103966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45995-1	MW-19	Total/NA	Water	8015B	
440-46071-B-5 MS	Matrix Spike	Total/NA	Water	8015B	
440-46071-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-103966/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-103966/3	Method Blank	Total/NA	Water	8015B	

Analysis Batch: 104291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45929-C-5 MS	Matrix Spike	Total/NA	Water	8015B	
440-45929-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
440-45995-2	MW-20	Total/NA	Water	8015B	
LCS 440-104291/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-104291/3	Method Blank	Total/NA	Water	8015B	

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 0031, South Gate

TestAmerica Job ID: 440-45995-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-13
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	03-28-13 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

bp rm

Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: 2013-Q2 Quarterly Groundwater
BP Facility No: 31T
Req Due Date (mm/dd/yy):
Rush TAT: Yes ___ No ___
Lab Work Order Number: 440-45995

Lab Name:	Test America	BP/ARC Facility Address:	8601 South Garfield Ave
Lab Address:	17461 Derian Avenue, Ste 100, Irvine, CA 92614	City, State, ZIP Code:	South Gate, CA 90280-3709
Lab PM:	Kathleen Robb	Lead Regulatory Agency:	LARWQCB
Lab Phone:	949-261-1022 / 949-260-3297 Fax	California Global ID No.:	SL373452448
Lab Shipping Acct:		Enfos Proposal No:	0058G-0009 / WR#259074
Lab Bottle Order No:		Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___
Other Info:		Stage:	6_OM&M/Other Activity: OM&M Spend
BP/ARC EBM:	Darrell Fah		
EBM Phone:	714-670-5228		
EBM Email:	darrell.fah@bp.com		

Consultant/Contractor:	Stantec Consulting		
Consultant/Contractor Project No:	211812177		
Address:	290 Conejo Ridge Ave, Thousand Oaks, CA 91361		
Consultant/Contractor PM:	Paul La Bonte		
Phone:	805-230-1266 / 805-230-1277 Fax		
Email EDD To:	bpdata@stantec.com; bpvinvale@stantec.com; lab.enfosdoc@bp.com		
Invoice To:	BP/ARC X	Contractor ___	

Report Type & QC Level: Standard X; Full Data Package ___

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	GRO C4-12 (8015)	BTEX/OXY/ET (8260B)	VOC 1,2 DCA (8260B)	Heterotrophic Bacteria	BOD	TDS	TOC	Sulfate, Nitrate	Methane	pH	Fe+2 EPA 6010B	Comments
1	MW-19	05/07/13	0435		X			6				X		X	X	X									
2	MW-20	05/07/13	0200		X			6				X		X	X	X									
3	FB-5110-20130507	05/07/13	0415		X			6				X		X	X	X									PUT ON HOLD
4	TB-5110-20130507A	05/07/13	1700		X			6				X		X	X	X									
5																									
6																									
7																									
8																									
9																									
10																									

Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Mark Mason / Stantec	5-8-13	0600	Ryan Dickson / Stantec	5-8-13	0001
Ryan Dickson / Stantec	5-8-13		[illegible]	5-8-13	9:00A
[illegible]	5-8-13	1014	[illegible] / TA	5/8/13	1043

Sampler's Name: Mark Mason
Sampler's Company: Stantec Consulting
Shipment Method: Ship Date:
Shipment Tracking No:
Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 4.1/3.5 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP Remediation Management COC - Effective Date: starting August 16, 2011.
Use for Remediation Management projects only
BP LaMP COC Rev. 8, 24 June 2012

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 440-45995-1

Login Number: 45995

List Source: TestAmerica Irvine

List Number: 1

Creator: Freitag, Kevin R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Mark Mason
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-46085-1
Client Project/Site: ARCO 5110, South Gate

For:
Stantec Consulting Corp.
290 Conejo Ridge Ave.
Suite 200
Thousand Oaks, California 91361

Attn: BP Vinvale

Authorized for release by:
5/23/2013 1:50:24 PM

Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-46085-1	MW-A1	Water	05/08/13 23:20	05/09/13 17:15
440-46085-2	MW-A2	Water	05/08/13 21:40	05/09/13 17:15
440-46085-3	MW-A5	Water	05/08/13 22:25	05/09/13 17:15
440-46085-4	MW-A6	Water	05/09/13 00:40	05/09/13 17:15
440-46085-5	MW-A8s	Water	05/08/13 20:40	05/09/13 17:15
440-46085-6	MW-A8d	Water	05/08/13 20:50	05/09/13 17:15

Job ID: 440-46085-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-46085-1

Comments
Please note: Sample MW-A6 (440-46085-4) had a high Trichloroethane hit (~500 ppb and over our calibration range). Additionally MW-A1 (440-46085-1) had a somewhat significant Trichloroethane hit (~100 ppb). This information is not included in the requested analyte list however, upon notification, client requested this information be included for informational and investigation purposes. It should be noted that the above referenced volumes are estimated and were not quantified by final review.

Receipt
The samples were received on 5/9/2013 5:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5º C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCVRT 440-104547/1). BFB surrogate coeluted with TPH standard. Data not impacted.

Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCV 440-104547/35). BFB surrogate coeluted with TPH standard. Data not impacted.

Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCV 440-104547/47). BFB surrogate coeluted with TPH standard. Data not impacted.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A1

Lab Sample ID: 440-46085-1
Matrix: Water

Date Collected: 05/08/13 23:20
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**5.1**		0.50	0.28	ug/L			05/15/13 15:08	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 15:08	1
Ethanol	ND		150	100	ug/L			05/15/13 15:08	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 15:08	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 15:08	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 15:08	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/15/13 15:08	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 15:08	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 15:08	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/15/13 15:08	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 15:08	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/15/13 15:08*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/15/13 15:08*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/15/13 15:08*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**190**		50	25	ug/L			05/15/13 23:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*65 - 140*		*05/15/13 23:17*	*1*

Client Sample ID: MW-A2

Lab Sample ID: 440-46085-2
Matrix: Water

Date Collected: 05/08/13 21:40
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**160**		1.3	0.70	ug/L			05/16/13 04:08	2.5
Isopropyl Ether (DIPE)	ND		1.3	0.63	ug/L			05/16/13 04:08	2.5
Ethanol	ND		380	250	ug/L			05/16/13 04:08	2.5
Ethyl-t-butyl ether (ETBE)	ND		1.3	0.70	ug/L			05/16/13 04:08	2.5
Ethylbenzene	ND		1.3	0.63	ug/L			05/16/13 04:08	2.5
m,p-Xylene	ND		2.5	1.5	ug/L			05/16/13 04:08	2.5
Methyl-t-Butyl Ether (MTBE)	ND		1.3	0.80	ug/L			05/16/13 04:08	2.5
o-Xylene	ND		1.3	0.75	ug/L			05/16/13 04:08	2.5
Tert-amyl-methyl ether (TAME)	ND		1.3	0.83	ug/L			05/16/13 04:08	2.5
tert-Butyl alcohol (TBA)	**26**	**ID**	25	16	ug/L			05/16/13 04:08	2.5
Toluene	ND		1.3	0.90	ug/L			05/16/13 04:08	2.5
Xylenes, Total	ND		2.5	2.3	ug/L			05/16/13 04:08	2.5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*05/16/13 04:08*	*2.5*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*05/16/13 04:08*	*2.5*
Toluene-d8 (Surr)	*104*		*80 - 120*		*05/16/13 04:08*	*2.5*

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A2

Lab Sample ID: 440-46085-2
Matrix: Water

Date Collected: 05/08/13 21:40
Date Received: 05/09/13 17:15

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**500**		50	25	ug/L			05/15/13 04:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*		*05/15/13 04:49*	*1*

Client Sample ID: MW-A5

Lab Sample ID: 440-46085-3
Matrix: Water

Date Collected: 05/08/13 22:25
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.8**		0.50	0.28	ug/L			05/15/13 16:08	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 16:08	1
Ethanol	ND		150	100	ug/L			05/15/13 16:08	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 16:08	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 16:08	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 16:08	1
Methyl-t-Butyl Ether (MTBE)	**0.83**		0.50	0.32	ug/L			05/15/13 16:08	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 16:08	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 16:08	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/15/13 16:08	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 16:08	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 16:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/15/13 16:08*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*05/15/13 16:08*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/15/13 16:08*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	**57**		50	25	ug/L			05/15/13 05:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*65 - 140*		*05/15/13 05:17*	*1*

Client Sample ID: MW-A6

Lab Sample ID: 440-46085-4
Matrix: Water

Date Collected: 05/09/13 00:40
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.3**		0.50	0.28	ug/L			05/15/13 16:38	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 16:38	1
Ethanol	ND		150	100	ug/L			05/15/13 16:38	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 16:38	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 16:38	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 16:38	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/15/13 16:38	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 16:38	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 16:38	1

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A6

Lab Sample ID: 440-46085-4
Matrix: Water

Date Collected: 05/09/13 00:40
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/15/13 16:38	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 16:38	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/15/13 16:38*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*05/15/13 16:38*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/15/13 16:38*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	320		50	25	ug/L			05/15/13 09:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*65 - 140*		*05/15/13 09:47*	*1*

Client Sample ID: MW-A8s

Lab Sample ID: 440-46085-5
Matrix: Water

Date Collected: 05/08/13 20:40
Date Received: 05/09/13 17:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/15/13 17:08	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 17:08	1
Ethanol	ND		150	100	ug/L			05/15/13 17:08	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 17:08	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 17:08	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 17:08	1
Methyl-t-Butyl Ether (MTBE)	**1.0**		0.50	0.32	ug/L			05/15/13 17:08	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 17:08	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 17:08	1
tert-Butyl alcohol (TBA)	**22**		10	6.5	ug/L			05/15/13 17:08	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 17:08	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/15/13 17:08*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*05/15/13 17:08*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*05/15/13 17:08*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	36	J,DX	50	25	ug/L			05/15/13 10:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*65 - 140*		*05/15/13 10:14*	*1*

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A8d

Lab Sample ID: 440-46085-6

Date Collected: 05/08/13 20:50
Date Received: 05/09/13 17:15

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	83		0.50	0.28	ug/L			05/17/13 22:40	1
Isopropyl Ether (DIPE)	0.95		0.50	0.25	ug/L			05/17/13 22:40	1
Ethanol	ND		150	100	ug/L			05/17/13 22:40	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/17/13 22:40	1
Ethylbenzene	1.3		0.50	0.25	ug/L			05/17/13 22:40	1
m,p-Xylene	2.2		1.0	0.60	ug/L			05/17/13 22:40	1
Methyl-t-Butyl Ether (MTBE)	0.38	J,DX	0.50	0.32	ug/L			05/17/13 22:40	1
o-Xylene	0.34	J,DX	0.50	0.30	ug/L			05/17/13 22:40	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/17/13 22:40	1
tert-Butyl alcohol (TBA)	83		10	6.5	ug/L			05/17/13 22:40	1
Toluene	1.5		0.50	0.36	ug/L			05/17/13 22:40	1
Xylenes, Total	2.5		1.0	0.90	ug/L			05/17/13 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*80 - 120*		*05/17/13 22:40*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*05/17/13 22:40*	*1*
Toluene-d8 (Surr)	*113*		*80 - 120*		*05/17/13 22:40*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	630		50	25	ug/L			05/15/13 10:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*65 - 140*		*05/15/13 10:42*	*1*

Method Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A1

Lab Sample ID: 440-46085-1
Matrix: Water

Date Collected: 05/08/13 23:20
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104584	05/15/13 15:08	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104758	05/15/13 23:17	IM	TAL IRV

Client Sample ID: MW-A2

Lab Sample ID: 440-46085-2
Matrix: Water

Date Collected: 05/08/13 21:40
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2.5	10 mL	10 mL	104811	05/16/13 04:08	MR	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104547	05/15/13 04:49	IM	TAL IRV

Client Sample ID: MW-A5

Lab Sample ID: 440-46085-3
Matrix: Water

Date Collected: 05/08/13 22:25
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104584	05/15/13 16:08	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104547	05/15/13 05:17	IM	TAL IRV

Client Sample ID: MW-A6

Lab Sample ID: 440-46085-4
Matrix: Water

Date Collected: 05/09/13 00:40
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104584	05/15/13 16:38	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104547	05/15/13 09:47	IM	TAL IRV

Client Sample ID: MW-A8s

Lab Sample ID: 440-46085-5
Matrix: Water

Date Collected: 05/08/13 20:40
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	104584	05/15/13 17:08	AL	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	104547	05/15/13 10:14	IM	TAL IRV

Client Sample ID: MW-A8d

Lab Sample ID: 440-46085-6
Matrix: Water

Date Collected: 05/08/13 20:50
Date Received: 05/09/13 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	105489	05/17/13 22:40	MP	TAL IRV

Lab Chronicle

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Client Sample ID: MW-A8d

Lab Sample ID: 440-46085-6

Date Collected: 05/08/13 20:50
Date Received: 05/09/13 17:15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	10 mL	10 mL	104547	05/15/13 10:42	IM	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-104584/3
Matrix: Water
Analysis Batch: 104584

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/15/13 08:44	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 08:44	1
Ethanol	ND		150	100	ug/L			05/15/13 08:44	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 08:44	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 08:44	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 08:44	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/15/13 08:44	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 08:44	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 08:44	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/15/13 08:44	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 08:44	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 08:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*05/15/13 08:44*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 120*		*05/15/13 08:44*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/15/13 08:44*	*1*

Lab Sample ID: LCS 440-104584/4
Matrix: Water
Analysis Batch: 104584

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	22.3		ug/L		89	70 - 120
Isopropyl Ether (DIPE)	25.0	24.8		ug/L		99	60 - 135
Ethanol	250	265		ug/L		106	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	24.9		ug/L		99	65 - 135
Ethylbenzene	25.0	25.7		ug/L		103	75 - 125
m,p-Xylene	50.0	49.1		ug/L		98	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	25.2		ug/L		101	60 - 135
o-Xylene	25.0	24.6		ug/L		99	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	24.2		ug/L		97	60 - 135
tert-Butyl alcohol (TBA)	125	125		ug/L		100	70 - 135
Toluene	25.0	24.3		ug/L		97	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*107*		*80 - 120*
Toluene-d8 (Surr)	*103*		*80 - 120*

Lab Sample ID: 440-46261-B-6 MS
Matrix: Water
Analysis Batch: 104584

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.64		25.0	21.7		ug/L		84	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	23.4		ug/L		94	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-46261-B-6 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104584

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethanol	ND		250	240		ug/L		96	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.7		ug/L		95	60 - 135
Ethylbenzene	2.9		25.0	26.9		ug/L		96	65 - 130
m,p-Xylene	0.98	J,DX	50.0	48.5		ug/L		95	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.5		ug/L		98	55 - 145
o-Xylene	0.78		25.0	24.1		ug/L		93	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	24.3		ug/L		97	60 - 140
tert-Butyl alcohol (TBA)	ND		125	121		ug/L		97	65 - 140
Toluene	0.40	J,DX	25.0	24.1		ug/L		95	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: 440-46261-B-6 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104584

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.64		25.0	23.6		ug/L		92	65 - 125	8	20
Isopropyl Ether (DIPE)	ND		25.0	24.7		ug/L		99	60 - 140	5	25
Ethanol	ND		250	269		ug/L		108	40 - 155	11	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.2		ug/L		101	60 - 135	6	25
Ethylbenzene	2.9		25.0	29.7		ug/L		107	65 - 130	10	20
m,p-Xylene	0.98	J,DX	50.0	53.7		ug/L		105	65 - 130	10	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.4		ug/L		106	55 - 145	7	25
o-Xylene	0.78		25.0	26.6		ug/L		103	65 - 125	10	20
Tert-amyl-methyl ether (TAME)	ND		25.0	25.8		ug/L		103	60 - 140	6	30
tert-Butyl alcohol (TBA)	ND		125	136		ug/L		109	65 - 140	12	25
Toluene	0.40	J,DX	25.0	25.9		ug/L		102	70 - 125	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 440-104811/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/15/13 20:42	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/15/13 20:42	1
Ethanol	ND		150	100	ug/L			05/15/13 20:42	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/15/13 20:42	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/15/13 20:42	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/15/13 20:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-104811/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/15/13 20:42	1
o-Xylene	ND		0.50	0.30	ug/L			05/15/13 20:42	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/15/13 20:42	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/15/13 20:42	1
Toluene	ND		0.50	0.36	ug/L			05/15/13 20:42	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/15/13 20:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*05/15/13 20:42*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*05/15/13 20:42*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*05/15/13 20:42*	*1*

Lab Sample ID: LCS 440-104811/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.5		ug/L		98	70 - 120
Isopropyl Ether (DIPE)	25.0	24.6		ug/L		98	60 - 135
Ethanol	250	225		ug/L		90	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	23.0		ug/L		92	65 - 135
Ethylbenzene	25.0	22.9		ug/L		92	75 - 125
m,p-Xylene	50.0	48.5		ug/L		97	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	24.2		ug/L		97	60 - 135
o-Xylene	25.0	24.3		ug/L		97	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	25.5		ug/L		102	60 - 135
tert-Butyl alcohol (TBA)	125	115		ug/L		92	70 - 135
Toluene	25.0	24.9		ug/L		100	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*108*		*80 - 120*

Lab Sample ID: 440-45986-D-4 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104811

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	25.8		ug/L		103	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	25.0		ug/L		100	60 - 140
Ethanol	ND		250	242		ug/L		97	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.8		ug/L		95	60 - 135
Ethylbenzene	ND		25.0	24.2		ug/L		97	65 - 130
m,p-Xylene	ND		50.0	50.6		ug/L		101	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.1		ug/L		100	55 - 145
o-Xylene	ND		25.0	25.3		ug/L		101	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	26.3		ug/L		105	60 - 140

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-45986-D-4 MS
Matrix: Water
Analysis Batch: 104811

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butyl alcohol (TBA)	10	ID	125	128		ug/L		94	65 - 140
Toluene	ND		25.0	26.0		ug/L		104	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*

Lab Sample ID: 440-45986-D-4 MSD
Matrix: Water
Analysis Batch: 104811

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	24.5		ug/L		98	65 - 125	5	20
Isopropyl Ether (DIPE)	ND		25.0	24.1		ug/L		96	60 - 140	4	25
Ethanol	ND		250	216		ug/L		86	40 - 155	11	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.5		ug/L		94	60 - 135	2	25
Ethylbenzene	ND		25.0	23.2		ug/L		93	65 - 130	4	20
m,p-Xylene	ND		50.0	48.6		ug/L		97	65 - 130	4	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.9		ug/L		100	55 - 145	1	25
o-Xylene	ND		25.0	24.5		ug/L		98	65 - 125	3	20
Tert-amyl-methyl ether (TAME)	ND		25.0	26.1		ug/L		104	60 - 140	1	30
tert-Butyl alcohol (TBA)	10	ID	125	123		ug/L		90	65 - 140	4	25
Toluene	ND		25.0	25.2		ug/L		101	70 - 125	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: MB 440-105489/4
Matrix: Water
Analysis Batch: 105489

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.28	ug/L			05/17/13 19:11	1
Isopropyl Ether (DIPE)	ND		0.50	0.25	ug/L			05/17/13 19:11	1
Ethanol	ND		150	100	ug/L			05/17/13 19:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	0.28	ug/L			05/17/13 19:11	1
Ethylbenzene	ND		0.50	0.25	ug/L			05/17/13 19:11	1
m,p-Xylene	ND		1.0	0.60	ug/L			05/17/13 19:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	0.32	ug/L			05/17/13 19:11	1
o-Xylene	ND		0.50	0.30	ug/L			05/17/13 19:11	1
Tert-amyl-methyl ether (TAME)	ND		0.50	0.33	ug/L			05/17/13 19:11	1
tert-Butyl alcohol (TBA)	ND		10	6.5	ug/L			05/17/13 19:11	1
Toluene	ND		0.50	0.36	ug/L			05/17/13 19:11	1
Xylenes, Total	ND		1.0	0.90	ug/L			05/17/13 19:11	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-105489/4
Matrix: Water
Analysis Batch: 105489

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*05/17/13 19:11*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*05/17/13 19:11*	*1*
Toluene-d8 (Surr)	*112*		*80 - 120*		*05/17/13 19:11*	*1*

Lab Sample ID: LCS 440-105489/5
Matrix: Water
Analysis Batch: 105489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.4		ug/L		97	70 - 120
Isopropyl Ether (DIPE)	25.0	25.4		ug/L		102	60 - 135
Ethanol	250	250		ug/L		100	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	24.3		ug/L		97	65 - 135
Ethylbenzene	25.0	25.0		ug/L		100	75 - 125
m,p-Xylene	50.0	52.8		ug/L		106	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	23.8		ug/L		95	60 - 135
o-Xylene	25.0	25.8		ug/L		103	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	25.0		ug/L		100	60 - 135
tert-Butyl alcohol (TBA)	125	118		ug/L		94	70 - 135
Toluene	25.0	25.4		ug/L		102	70 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*112*		*80 - 120*

Lab Sample ID: 440-46496-B-9 MS
Matrix: Water
Analysis Batch: 105489

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	25.4		ug/L		102	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	28.1		ug/L		112	60 - 140
Ethanol	ND		250	265		ug/L		106	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.1		ug/L		108	60 - 135
Ethylbenzene	ND		25.0	24.9		ug/L		99	65 - 130
m,p-Xylene	ND		50.0	52.5		ug/L		105	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.8		ug/L		107	55 - 145
o-Xylene	ND		25.0	25.9		ug/L		104	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	28.3		ug/L		113	60 - 140
tert-Butyl alcohol (TBA)	ND		125	124		ug/L		99	65 - 140
Toluene	ND		25.0	26.2		ug/L		105	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*113*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-46496-B-9 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 105489

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	25.4		ug/L		102	65 - 125	0	20
Isopropyl Ether (DIPE)	ND		25.0	28.4		ug/L		114	60 - 140	1	25
Ethanol	ND		250	254		ug/L		101	40 - 155	4	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.3		ug/L		109	60 - 135	1	25
Ethylbenzene	ND		25.0	25.1		ug/L		100	65 - 130	1	20
m,p-Xylene	ND		50.0	52.4		ug/L		105	65 - 130	0	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.1		ug/L		108	55 - 145	1	25
o-Xylene	ND		25.0	25.9		ug/L		104	65 - 125	0	20
Tert-amyl-methyl ether (TAME)	ND		25.0	28.6		ug/L		114	60 - 140	1	30
tert-Butyl alcohol (TBA)	ND		125	125		ug/L		100	65 - 140	1	25
Toluene	ND		25.0	26.3		ug/L		105	70 - 125	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*113*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-104547/24 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104547

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/14/13 20:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*		*05/14/13 20:32*	*1*

Lab Sample ID: LCS 440-104547/23 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104547

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	720		ug/L		90	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*65 - 140*

Lab Sample ID: 440-46181-A-2 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 104547

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	851		ug/L		106	65 - 140		

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: 440-46181-A-2 MS
Matrix: Water
Analysis Batch: 104547

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	136		65 - 140

Lab Sample ID: 440-46181-A-2 MSD
Matrix: Water
Analysis Batch: 104547

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	846		ug/L		106	65 - 140	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	138		65 - 140

Lab Sample ID: MB 440-104758/3
Matrix: Water
Analysis Batch: 104758

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50	25	ug/L			05/15/13 16:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		65 - 140		05/15/13 16:12	1

Lab Sample ID: LCS 440-104758/2
Matrix: Water
Analysis Batch: 104758

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	800	803		ug/L		100	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		65 - 140

Lab Sample ID: 440-46187-B-15 MS
Matrix: Water
Analysis Batch: 104758

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	30	J,DX	800	783		ug/L		94	65 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		65 - 140

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: 440-46187-B-15 MSD
Matrix: Water
Analysis Batch: 104758

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	30	J,DX	800	762		ug/L		92	65 - 140	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*65 - 140*

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

GC/MS VOA

Analysis Batch: 104584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-46085-1	MW-A1	Total/NA	Water	8260B	
440-46085-3	MW-A5	Total/NA	Water	8260B	
440-46085-4	MW-A6	Total/NA	Water	8260B	
440-46085-5	MW-A8s	Total/NA	Water	8260B	
440-46261-B-6 MS	Matrix Spike	Total/NA	Water	8260B	
440-46261-B-6 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-104584/4	Lab Control Sample	Total/NA	Water	8260B	
MB 440-104584/3	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 104811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-45986-D-4 MS	Matrix Spike	Total/NA	Water	8260B	
440-45986-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-46085-2	MW-A2	Total/NA	Water	8260B	
LCS 440-104811/6	Lab Control Sample	Total/NA	Water	8260B	
MB 440-104811/5	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 105489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-46085-6	MW-A8d	Total/NA	Water	8260B	
440-46496-B-9 MS	Matrix Spike	Total/NA	Water	8260B	
440-46496-B-9 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-105489/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-105489/4	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 104547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-46085-2	MW-A2	Total/NA	Water	8015B	
440-46085-3	MW-A5	Total/NA	Water	8015B	
440-46085-4	MW-A6	Total/NA	Water	8015B	
440-46085-5	MW-A8s	Total/NA	Water	8015B	
440-46085-6	MW-A8d	Total/NA	Water	8015B	
440-46181-A-2 MS	Matrix Spike	Total/NA	Water	8015B	
440-46181-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-104547/23	Lab Control Sample	Total/NA	Water	8015B	
MB 440-104547/24	Method Blank	Total/NA	Water	8015B	

Analysis Batch: 104758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-46085-1	MW-A1	Total/NA	Water	8015B	
440-46187-B-15 MS	Matrix Spike	Total/NA	Water	8015B	
440-46187-B-15 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-104758/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-104758/3	Method Blank	Total/NA	Water	8015B	

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
ID	Analyte identified by RT & presence of single mass ion
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

GC VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: ARCO 5110, South Gate

TestAmerica Job ID: 440-46085-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-13
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	03-28-13 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

bp rm

Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1

BP Site Node Path: 2013-Q2 Quarterly Groundwater

BP Facility No: ARCO 5110

Req Due Date (mm/dd/yy): _____ Rush TAT: Yes ____ No ____

Lab Work Order Number: 4110-46085

Lab Name:	Test America, Inc.	BP/ARC Facility Address:	5110	Consultant/Contractor:	Stantec Consulting Corporation
Lab Address:	17461 Derian Avenue, Suite 100, Irvine, CA 92614	City, State, ZIP Code:	5731 E. Firestone Blvd., South Gate, CA	Consultant/Contractor Project No:	211812077
Lab PM:	Kathleen Robb	Lead Regulatory Agency:	LARWQCB	Address:	290 Conejo Ridge Avenue, Thousand Oaks, CA 91361
Lab Phone:	(949) 261-1022 / (949) 260-3297	California Global ID No.:	T0603703915	Consultant/Contractor PM:	Randy Couture
Lab Shipping Accnt:		Enfos Proposal No:	006QQ-0010 WR# 258798	Phone:	(805) 230-1266
Lab Bottle Order No:		Accounting Mode:	Provision X OOC-BU ____ OOC-RM ____	Email EDD To:	bpdata@stantec.com; bpvinvale@stantec.com; lab.enfosdoc@bp.com
Other Info:		Stage: Execute	Activity: Monitoring	Invoice To:	BP/ARC X Contractor ____
BP/ARC EBM:	Darrell Fah				
EBM Phone:	(800) 282-0191				
EBM Email:	darrell.fah@bp.com				

Report Type & QC Level: Standard ____ Full Data Package ____

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol	Requested Analyses: GRO C4-12 (6015M)	BTEX/OXY/ET (8260B)	VOC 1,2 DCA (8260B)	Heterotrophic Bacteria	BOD	TDS	TOC	Sulfate, Nitrate	Methane	pH	Fe+2 EPA 6010B	Comments (Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.)
1	MW-A1	05/08/13	2320		X			6				X		X	X										
2	MW-A2	05/08/13	2140		X			6				X		X	X										
3	MW-A5	05/08/13	2225		X			6				X		X	X										
4	MW-A6	05/09/13	0040		X			6				X		X	X										
5	MW-A8s	05/08/13	2040		X			6				X		X	X										
6	MW-A8d	05/08/13	2050		X			6				X		X	X										
7	TB-5110-20130508	05/08/13	1700		X			6				X		X	X										Put on hold
8																									

		Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name:	Mark Mason						
Sampler's Company:		Mark Mason	5-9-13	0930	Ryan Dickson / Stantec	5-9-13	0600
Shipment Method:	Ship Date:	Ryan Dickson / Stantec	5-9-13	1510	[illegible]	5/9/13	1510
Shipment Tracking No:		[illegible] TAT	5/9/13	1715	Stephanie Ana	5/9/13	1715

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 4.8/4.5 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP Remediation Management COC - Effective Date: starting August 16, 2011. Use for Remediation Management projects only BP LaMP COC Rev. 8, 24 June 2012

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5/23/2013

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 440-46085-1

Login Number: 46085
List Number: 1
Creator: Perez, Angel

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Mark Mason
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX O

GROUNDWATER SAMPLING AND O&M FIELD DATA SHEETS

Subjective and Well -Head Evaluation Form

Project No.: Q2-2013 GROUNDWATER Location: South Gate Date: 5-7-13

Station No.: 5110 Field Technician: MARK MASON Day of Week: TUESDAY

DTW ORDER	WELL ID	SURFICIAL SEAL	CONCRETE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (feet) BEFORE / AFTER	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	DISSOLVED OXYGEN READING (mg/L)	COMMENTS
10	MW-A1	✓	P	Y	N	N	Y	62.16/62.10	56.40	—	0.3	CONCRETE RING IS BADLY BROKEN
8	MW-A2	✓	✓	✓	N	N	Y	59.27/59.29	56.63	—	1.9	
2	MW-A3	✓	✓	✓	N	N	Y	65.09/65.09	56.80	—	0.3	DUPLICATE ✓
4	MW-A4	✓	✓	✓	N	N	Y	65.16/65.25	58.31	—	0.6	
9	MW-A5	✓	✓	✓	N	N	Y	64.88	56.13	—	0.7	
11	MW-A6	✓	✓	✓	N	N	Y	[illegible]	~~56.80~~	—	3.2	
1	MW-A7	✓	✓	✓	N	NA	Y	64.10/64.12	57.62	—	0.6	
6	MW-A8S	✓	✓	✓	✓	NA	Y	63.72	56.38	—	0.8	
7	MW-A8D	✓	✓	✓	✓	NA	Y	94.56	56.96	—	0.5	
5	MW-19	✓	✓	✓	N	NA	Y	69.93/69.93	~~56.64~~	—	1.3	57.12 (5-8-13) D.T.W.
3	MW-20	✓	✓	N	N	NA	Y	69.71/69.47	56.41	—	1.2	NO BOLTS IN LID

Note: Use G=Good and P=poor for well condition

GROU' 'WATER SAMPLE FIELD DAT/ 'HEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A7
SAMPLER: M. MASON	FACILITY NO: 5110
DATE: 5-7-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 64.10	CALCULATED PURGE (gal): 12.96
DEPTH TO WATER (feet): 57.62	ACTUAL PURGE VOL (gal): 13
Standing Water in Casing (feet) 6.48 x 0.20= 1.3	+ DTW 57.62 =80% Recharge Water Level 58.92

2 (inches)	Standing Water in Casing (feet)	x 0.5=		3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	6.48 x 2.0=	12.96	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=		3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=		3 Casing Volumes (gal.)

Date Purged: 5-7-13 Start (2400 Hr.): 2132 End (2400 Hr.): 2152

Date Sampled: 5-7-13 Time (2400 Hr.): 2155 DTW @ Samp. Time: 58.60

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP (degrees F)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
2139	3	20 C	2019	8.63	Clear	Light	3
2142	6	20.4 C	2027	8.57	"	Trace	6
2147	9	19.9	1985	8.69	"	"	9
2152	13	20.0	1974	8.46	"	"	13

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED

REVIEWED BY: DATE: 6/17/13

GROUNDWATER SAMPLE FIELD DATA SHEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A3
SAMPLER: M. MASON	FACILITY NO: 5110
DATE: 5-7-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 65.09	CALCULATED PURGE (gal): 16.58
DEPTH TO WATER (feet): 56.80	ACTUAL PURGE VOL (gal): 17
Standing Water in Casing (feet) 8.29 x 0.20= 1.66	+ DTW 56.80 =80% Recharge Water Level 58.46

2 (inches)	Standing Water in Casing (feet)	x 0.5=		3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	8.29 x 2.0=	16.58	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=		3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=		3 Casing Volumes (gal.)

Date Purged: 5-7-13 Start (2400 Hr.): 2244 End (2400 Hr.): 2309

Date Sampled: 5-7-13 Time (2400 Hr.): 2340 DTW @ Samp. Time: 58.40

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1): DUP-SUB-20130507

TIME (2400 Hr.)	VOLUME (gallons)	TEMP (degrees F)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
2246	3	17.6	1237	8.81	Clear	trace	3
2250	6	18.1	1243	8.80	Clear	trace	6
2255	9	18.6	1321	8.59	Clear	trace	09
2300	12	18.7	1329	8.58	Clear	trace	12
2306	15	16.8	1369	8.81	"	"	15
2309	18	16.9	1367	8.50	"	"	18

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY, NO SAMPLE COLLECTED: REVIEWED BY: DATE: 6/17/13

GROU' 'WATER SAMPLE FIELD DAT.' 'HEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-20
SAMPLER: M. Mason	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 69.71	CALCULATED PURGE (gal): 26.6
DEPTH TO WATER (feet): 56.41	ACTUAL PURGE VOL (gal): 28
Standing Water in Casing (feet) 13.3 x 0.20= 2.66 + DTW 56.41 =80% Recharge Water Level 59.07	

2 (inches)	Standing Water in Casing (feet)	x 0.5=	3 Casing Volumes (gal.)
4/ (inches)	Standing Water in Casing (feet) 13.3	x 2.0= 26.6	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 0020 End (2400 Hr.): 0150

Date Sampled: 5-8-13 Time (2400 Hr.): 0200 DTW @ Samp. Time: 57.55

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP (degrees F)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
0028	5	16.8	1697	8.89	clear	trace	5
0038	10	17.2	1643	8.84	clear	trace	10
0051	15	16.8	1610	8.75	clear	trace	15
0102	20	16.8	1594	8.84	clear	trace	20
0120	25	15.7	1573	8.64	"	"	25
0150	28	14.6	1487	8.43	"	"	28

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 oz poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED: REVIEWED BY: [signature] DATE: 6/17/13

GROUNDWATER SAMPLE FIELD DATA SHEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A4
SAMPLER: hh	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 65.16	CALCULATED PURGE (gal): 13.7
DEPTH TO WATER (feet): 58.31	ACTUAL PURGE VOL (gal): 14

Standing Water in Casing (feet) 6.85 x 0.20= 1.37 + DTW 58.31 =80% Recharge Water Level 59.68

2 (inches)	Standing Water in Casing (feet)	x 0.5=	3 Casing Volumes (gal.)
(4) (inches)	Standing Water in Casing (feet) 6.85	x 2.0= 13.7	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 0242 End (2400 Hr.): 0321

Date Sampled: 5-8-13 Time (2400 Hr.): 0330 DTW @ Samp. Time: 58.68

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
0247	3	15.8	1771	8.92	BLACK	HEAVY	3
0253	6	15.9	1736	8.84	CLEAR	LIGHT	6
0304	9	16.3	1764	8.78	"	"	9
0313	12	16.5	1713	8.74	"	TRACE	12
0321	14	16.8	1628	8.86	"	"	14

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated
OTHER: VAC TRUCK		OTHER:	

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED: REVIEWED BY: [signature] DATE: 6/17/13

GROUI `WATER SAMPLE FIELD DATA `HEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-19
SAMPLER: M Hassel	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 69.95	CALCULATED PURGE (gal): 26.58
DEPTH TO WATER (feet): 56.66	ACTUAL PURGE VOL (gal): 26

Standing Water in Casing (feet) 13.29 x 0.20= 2.66 + DTW 56.66 =80% Recharge Water Level 59.32

2 (inches)	Standing Water in Casing (feet)	x 0.5=	3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet) 13.29	x 2.0= 26.58	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 0406 End (2400 Hr.): 0430

Date Sampled: 5-8-13 Time (2400 Hr.): 0435 DTW @ Samp. Time: 59.0

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1): FB-5110-20130507 0805

	TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) x1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
WC	~~0405~~	5	17.8	2016	8.50	Clear	Trace	5
WC	0410	10	18.4	1924	8.60	Clear	Trace	10
WC	0420	15	17.8	2006	8.59	"	"	15
	0425	20	16.5	1982	8.58	"	"	20
	0430	25	16.1	1986	8.59	"	"	25

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED: REVIEWED BY: DATE: 6/14/13

GROUNDWATER SAMPLE FIELD DATA SHEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A8S
SAMPLER: M. MASON	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) (2) 3 4 6 8 12 OTHER:

DEPTH OF WELL (feet): 63.72	CALCULATED PURGE (gal): 3.67
DEPTH TO WATER (feet): 56.38	ACTUAL PURGE VOL (gal): 4
Standing Water in Casing (feet) 7.34 x 0.20= 1.47	+ DTW 56.38 =80% Recharge Water Level 57.85

(2) (inches)	Standing Water in Casing (feet) 7.34	x 0.5= 3.67	3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	x 2.0=	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 2024 End (2400 Hr.): 2028

Date Sampled: 5-8-13 Time (2400 Hr.): 2040 DTW @ Samp. Time: 56.36

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP (degrees ~~F~~ C)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
2025	1	20.0	3240	7.94	YELLOW	LIGHT	1
2026	2	20.7	2626	7.92	"	"	2
2027	3	20.4	2289	8.28	"	TRACE	3
2028	4	20.6	2355	8.58	CLEAR	"	4

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED: REVIEWED BY: [signature] DATE: 6/17/13

GROUI WATER SAMPLE FIELD DAT/ `HEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A8D
SAMPLER: h MASON	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) (2) 3 4 6 8 12 OTHER:

DEPTH OF WELL (feet): 94.56	CALCULATED PURGE (gal):
DEPTH TO WATER (feet): 56.96	ACTUAL PURGE VOL (gal):

Standing Water in Casing (feet) x 0.20= + DTW =80% Recharge Water Level

(2) (inches)	Standing Water in Casing (feet)	x 0.5=	3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	x 2.0=	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: NO PURGE Start (2400 Hr.): End (2400 Hr.):

Date Sampled: 5-8-13 Time (2400 Hr.): 2050 DTW @ Samp. Time: 56.96

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP (degrees F)	E.C. (uS/cm) x1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated
OTHER: VAC TRUCK		OTHER:	

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY, NO SAMPLE COLLECTED: REVIEWED BY: DATE: 6/17/13

GROU' 'WATER SAMPLE FIELD DAT/ SHEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A2
SAMPLER: M. MASON	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) (2) 3 4 6 8 12 OTHER:

DEPTH OF WELL (feet): 59.27	CALCULATED PURGE (gal): 1.3
DEPTH TO WATER (feet): 56.63	ACTUAL PURGE VOL (gal): 1.5 2

Standing Water in Casing (feet) 2.64 x 0.20= 0.53 + DTW 56.63 =80% Recharge Water Level 57.16

(2) (inches)	Standing Water in Casing (feet) 2.64	x 0.5= 1.3	3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	x 2.0=	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 21:26 End (2400 Hr.): 2127

Date Sampled: 5-8-13 Time (2400 Hr.): 2140 DTW @ Samp. Time: ~~[illegible]~~ 55.71

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
21:26	1.5	19.5	2.101	8.65	BLACK	HEAVY	1.5 2

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	(Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS: WATER CAME UP AFTER PURGE, MICRO TOTAL CHANGE GAUGING (?)

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY, NO SAMPLE COLLECTED: REVIEWED BY: [signature] DATE: 6/17/13

GROUNDWATER SAMPLE FIELD DATA SHEET

ATLANTIC RICHFIELD COMPANY	PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A5
	SAMPLER: M. MASON	FACILITY NO: 5110
	DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 64.88	CALCULATED PURGE (gal): 17.34
DEPTH TO WATER (feet): 56.13	ACTUAL PURGE VOL (gal): 18

Standing Water in Casing (feet) 8.67 x 0.20= 1.73 + DTW 56.13 =80% Recharge Water Level 57.86

2 (inches)	Standing Water in Casing (feet)	x 0.5=		3 Casing Volumes (gal.)
4 (inches)	Standing Water in Casing (feet)	8.67 x 2.0=	17.34	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=		3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=		3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 2209 End (2400 Hr.): 2222

Date Sampled: 5-8-13 Time (2400 Hr.): 2225 DTW @ Samp. Time: 56.17

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) x1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
2212	5	19.5	1692	8.18	YELLOW	LIGHT	5
2215	8	20.6	1662	8.48	CLEAR	TRACE	8
2218	12	21.4	1668	8.46	"	"	12
2220	16	21.4	1677	8.40	"	"	16
2222	18	21.7	1687	8.16	"	"	18

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	~~Bailer (Teflon)~~
Submersible Pump	Bailer (Stainless Steel)	Dipper	(Bailer (Disposable Teflon))
Redi-Flo2	Dedicated	Well Wizard	~~Dedicated~~

OTHER: (VAC TRUCK)	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED:

REVIEWED BY: Rudy Porter DATE: 6/17/13

GROU WATER SAMPLE FIELD DAT CHEET

ATLANTIC RICHFIELD COMPANY

PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A1
SAMPLER: M. MASON	FACILITY NO: 5110
DATE: 5-8-13	LOCATION: South Gate

CASING DIAMETER (inches) (2) 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 62.10	CALCULATED PURGE (gal): 2.85
DEPTH TO WATER (feet): 56.90	ACTUAL PURGE VOL (gal): 3
Standing Water in Casing (feet) 5.7 x 0.20= 1.14	+ DTW 56.90 =80% Recharge Water Level 57.54

(2) (inches)	Standing Water in Casing (feet) 5.7	x 0.5= 2.85	3 Casing Volumes (gal.)
(4) (inches)	Standing Water in Casing (feet)	x 2.0=	3 Casing Volumes (gal.)
6 (inches)	Standing Water in Casing (feet)	x 4.4=	3 Casing Volumes (gal.)
8 (inches)	Standing Water in Casing (feet)	x 7.8=	3 Casing Volumes (gal.)

Date Purged: 5-8-13 Start (2400 Hr.): 2308 End (2400 Hr.): 2310

Date Sampled: 5-8-13 Time (2400 Hr.): 2320 DTW @ Samp. Time: 56.41

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
2308	1	17.5	637.5	8.50	BLACK	HEAVY	1
2309	2	18.9	1253	8.47	YELLOW	LIGHT	2
2310	3	17.9	282.1	8.44	CLEAR	TRACE	3

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated
OTHER: VAC TRUCK		OTHER:	

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly HNO3:

WATER LEVEL ONLY, NO SAMPLE COLLECTED: REVIEWED BY: [signature] DATE: 6/17/13

GROU! WATER SAMPLE FIELD DAT/ :HEET

ATLANTIC RICHFIELD COMPANY	PROJECT NO: Q2-2013 Groundwater	SAMPLE ID: MW-A6
	SAMPLER: MM	FACILITY NO: 5110
	DATE: 5-9-13	LOCATION: South Gate

CASING DIAMETER (inches) 2 3 (4) 6 8 12 OTHER:

DEPTH OF WELL (feet): 63.83	CALCULATED PURGE (gal): 19.42
DEPTH TO WATER (feet): 56.62	ACTUAL PURGE VOL (gal): 15
Standing Water in Casing (feet) 7.21 x 0.20= 1.44	+ DTW 56.62 =80% Recharge Water Level 58.10

2 (inches)		Standing Water in Casing (feet)	x 0.5=		3 Casing Volumes (gal.)
(4) (inches)	7.21	Standing Water in Casing (feet)	7.21 x 2.0=	19.42	3 Casing Volumes (gal.)
6 (inches)		Standing Water in Casing (feet)	x 4.4=		3 Casing Volumes (gal.)
8 (inches)		Standing Water in Casing (feet)	x 7.8=		3 Casing Volumes (gal.)

Date Purged: 5-9-13 Start (2400 Hr.): 0010 End (2400 Hr.): 0028

Date Sampled: 5-9-13 Time (2400 Hr.): 0040 DTW @ Samp. Time: 56.71

FIELD QC SAMPLES COLLECTED AT THIS WELL (IE: FB-1, X-DUP-1):

TIME (2400 Hr.)	VOLUME (gallons)	TEMP C (degrees ~~F~~)	E.C. (uS/cm) X1000	pH (units)	COLOR (visual)*	TURBIDITY (visual)**	TOTALIZE (gallons)
0010	3	17.1	1732	8.03	Brown	Heavy	3
0012	6	18.2	1739	8.68	Yellow	Moderate	6
0018	9	17.9	1750	8.72	Cloudy	Trace	9
0022	12	18.1	1755	8.69	"	"	12
0028	15	17.4	1737	8.26	Brown	Heavy	15

* (Color) Clear, Cloudy, Yellow, Brown ** (Turbidity) Heavy, Moderate, Light, Trace

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
2" Bladder Pump	Bailer (Teflon)	2" Bladder Pump	Bailer (Stainless Steel)
Contrifugal Pump	Bailer (PVC)	Submersible Pump	Bailer (Teflon)
Submersible Pump	Bailer (Stainless Steel)	Dipper	Bailer (Disposable Teflon)
Redi-Flo2	Dedicated	Well Wizard	Dedicated

OTHER: VAC TRUCK	OTHER:

Well Condition (cap, cement, padlock, screws, lid, etc.):

Floating Product Thickness (feet): Color: Padlock Number:

COMMENTS:

40 ml VOA, HCL: 1 liter amber, none: 16 ox poly, HNO3:

WATER LEVEL ONLY. NO SAMPLE COLLECTED: REVIEWED BY: Randy Parker DATE: 6/17/13

NIETO & SONS TRUCKING, INC.

License # 673912
1281 Brea Canyon Road • Brea, CA 92821
Mail Address: P.O. Box 760 • Yorba Linda, CA 92885-0760
(714) 990-6855 • FAX (714) 990-4862

DAILY TICKET
DT 121308
JOB DATE 05 / 07/08 13

Su M Tu W Th F Sa

COMPANY SOLD TO	ORDER DATE	ORDER TIME	P.O. NUMBER
BELSHIRE ENVIRONMENTAL SERVICES	/ /		219345

ORDERED BY: LARRY/BRIAN

JOB SITE: BP 05110 - Meet @ McDonalds
5731 Firestone Blvd. X = Garfield
South Gate - Onsite Wells

JOB SITE CONTACT: Ryan Dickinson
(805) 427-4859

DRIVER	HELPER	TRUCK NO.	TRAILER NO.	TRUCK NO.	START TIME
Rafa Urena	**********	508	*********	**********	6pm

DESCRIPTION OF WORK REQUESTED

THERE AT: 7:00 p.m. Fluid from Wells (onsite wells) Bring 200' of extra 1" hose
Meet @ McDonalds accross the street night 1 of 2 onsite

~~HAZ~~/NON-HAZ TO D/K OFF LOAD ON SITE: ☐ YES ☒ NO 70 BBL / ~~XXXXX~~

ESTIMATED WELLS: ± 5 WELL TRUCK: ☒ YES ☐ NO

EQUIPMENT NEEDED: 40 STINGERS AIR ASSIST REQUIRED: ☐ YES ☒ NO

200 FEET OF EXTRA HOSE BIO-SLURP: ☐ YES ☒ NO

DRIVER'S TIME REPORT

DATE	YARD DEPART	JOB ARRIVE	JOB DEPART	DUMP SITE ARRIVE	DUMP SITE DEPART	YARD ARRIVE	LUNCH	TOTAL HOURS
05/07/13	6PM	7pm	5AM 00	XXXXXXXX XXXXXXXX	XXXXXXXX XXXXXXXX	—	Ø	

WORK PERFORMED

MANIFEST #: 49509 # OF GALLONS: 105 # OF WELLS: 5 # OF DRUMS: — # OF TANKS: —

AIR ASSIST LINE INSTALLED TODAY: ☐ YES ☐ NO AIR ASSIST USED: ☐ YES ☐ NO SOLIDS/SILT ____ %

SPECIAL EQUIPMENT USED (HOSES, FITTINGS, STINGERS): Purged wells on site as directed. Pumped decon buckets

nearest HOSPITAL = 2.55 miles = Go South on Firestone Blvd. 2.2 miles Turn Right onto Brookshire Ave go .2 miles to : Downey Regional Medical Center 11500 Brookshire Avenue Downey (562) 904-5000

STINGERS USED Ø

DRIVER SIGNATURE	TRUCK NUMBER	CUSTOMER SIGNATURE	DATE
[signature]	508	X [signature]	5/07/08/13

★★★ 24 HOUR SERVICE ★★★ CUSTOMER COPY

L.A./Orange
2602 S. Halladay St.
Santa Ana, CA 92705
Office: (866) 641-3744
Fax: (714) 641-3738

CA Lic. 865003 C31/A

COASTAL TRAFFIC SYSTEMS

Customer Name: STANTEC THOUSAND OAKS

Ordered by: RYAN DICKINSON

POC: MARK MASON Phone# (805) 541-1492

Time called: Time Requested: 7:30 pm

PO# Job# 1075-396

T 27622

Invoice No.

Location of Job: FIRESTONE BLVD & GARFIELD

City: SOUTH GATE

Date	Description	Unit Price	Amount
5/8/13	PROVIDED & MONITORED RIGHT LANE		
	CLOSURE & SPLIT LANE & SHOULDER		
	CLOSURE ON FIRESTONE & GARFIELD		
	START: 7:30pm		
TECHS	BRIAN, JOSEPH END: 1:00 am		
TRK	82		
FAS	165		

Date out:	Equipment Rental	Date Returned:

Qty	Item	Unit Price	Amount	Qty	Item	Unit Price	Amount

EQUIPMENT RENTAL AGREEMENT AND CONDITIONS
("Agreement")

Fuel Charge:

CUSTOMER RESPONSIBLE FOR LOST, STOLEN OR DAMAGED EQUIPMENT

All items above or listed on supplemental pages, will collectively be referred to as the "Equipment". Customer, individually and collectively, as named above, will hereafter be referred to as "Lessee", Coastal Traffic Systems, its representatives, directors, officers, agents and employees, individually and collectively will hereafter be referred to as "Lessor".

Lessee acknowledges and agrees that Lessee: a) is in receipt of the Equipment, and such Equipment is in good working condition and repair; b) will return the Equipment to Lessor in the same condition and repair as when delivered to Lessee, subject to reasonable wear and tear, on or before _____; and c) Lessee is solely liable for any and all lost, stolen or damaged Equipment. Lessee further agrees: a) to pay the rent specified for use of the Equipment, including any and all overtime or penalty charges; b) not to release the Equipment from Lessee's control to any third party without prior written authorization from Lessor; c) any and all work undertaken at the job site where the Equipment is to be used by Lessee, its employees or agents, will be at the sole and exclusive risk of Lessee; d) to indemnify Lessor from and against any and all loss, cost, damage, expense and/or penalty, action or claim and all liability claims, judgements or demands, including without limitations, demands arising from injury or death of persons (including subcontractor, employees and invitees) or damage to property of any kind or character whatsoever, occasioned by Lessee's operation, handling, transportation and/or under the control or custody of Lessee, except, claims for litigation arising solely through the negligence or willful misconduct of Lessor; e) to pay Lessor's attorneys' fees and costs, and/or collection costs incurred by Lessor in enforcing the terms of this agreement, in the event Lessee breaches any of the terms of this Agreement, including, without limitation, the indemnity obligation, or Lessee fails to pay rent or pay for damage to said Equipment while in Lessee's possession or control; f) if requested by Lessor, will defend any such suit(s) at the sole cost and expense of Lessee; and g) Lessee waives any an all claims against Lessor for any and all damage to persons and/or property arising for any reason in connection with the Agreement or the use or operation of the Equipment.

Lessor agrees to service these units _____

Dated: 5-8-13

X MARK MASON
Print Name

X [signature]
Signature

"Coastal Traffic Systems"

CTS Employee BRIAN

White - OFFICE Canary - OFFICE Pink - CUSTOMER

NIETO & SONS TRUCKING, INC.

License # 673912
1281 Brea Canyon Road • Brea, CA 92821
Mail Address: P.O. Box 760 • Yorba Linda, CA 92885-0760
(714) 990-6855 • FAX (714) 990-4862

DAILY TICKET
DT 121310
JOB DATE 05 / 08/09 13

Su M Tu W Th F Sa

COMPANY SOLD TO	ORDER DATE	ORDER TIME	P.O. NUMBER
BELSHIRE ENVIRONMENTAL SERVICES	/ /		219345

ORDERED BY: LARRY/BRIAN

JOB SITE: BP 05110 - Meet @ McDonalds
5731 Firestone Blvd. X = Garfield
South Gate - Street Wells

JOB SITE CONTACT: Ryan Dickinson
(805) 427-4859

DRIVER	HELPER	TRUCK NO.	TRAILER NO.	TRUCK NO.	START TIME
Rafa Urena	**********	508	**********	**********	4:30 pm

DESCRIPTION OF WORK REQUESTED

THERE AT: 5:30 p.m. Fluid from Wells - Day 2 of 2 onsite (street wells)

Meet @ McDonalds accross the street

~~HAZ~~/NON-HAZ TO D/K OFF LOAD ON SITE: ☐ YES ☒ NO 70 BBL / ~~100 BBL~~

ESTIMATED WELLS: ± 5 WELL TRUCK: ☒ YES ☐ NO

EQUIPMENT NEEDED:

40 STINGERS AIR ASSIST REQUIRED: ☐ YES XXXX

FEET OF EXTRA HOSE BIO-SLURP: ☐ YES XXNO

DRIVER'S TIME REPORT

DATE	YARD DEPART	JOB ARRIVE	JOB DEPART	DUMP SITE ARRIVE	DUMP SITE DEPART	YARD ARRIVE	LUNCH	TOTAL HOURS
05/08/13	4:30 pm	5:30 pm		XXXXXXXX	XXXX XXXX		X	
				XXXXXXXX	XXXX XXXX			

WORK PERFORMED

MANIFEST #: 49512 # OF GALLONS: 48 # OF WELLS: 6 # OF DRUMS: # OF TANKS:

AIR ASSIST LINE INSTALLED TODAY: ☐ YES ☐ NO AIR ASSIST USED: ☐ YES ☐ NO SOLIDS/SILT ____ %

SPECIAL EQUIPMENT USED (HOSES, FITTINGS, STINGERS): Purged wells at site and worked as directed

~~nearest HOSPITAL = 2.55 miles = Go South on Firestone Blvd. 2.2 miles Turn Right onto~~
Brookshire Ave go .2 miles to : Downey Regional Medical Center 11500 Brookshire Avenue
Downey (562) 904-5000

STINGERS USED 0

DRIVER SIGNATURE	TRUCK NUMBER	CUSTOMER SIGNATURE	DATE
[signature]	508	X [signature]	5/9/13

★★★ 24 HOUR SERVICE ★★★ CUSTOMER COPY

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: MB	Date: 12-7-12	Weekday: MON / Time: 0800
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	Alarms:
UTILITIES	Gas Meter	cfm / therm	Electrical Meter 08378 KWh

PARAGON ET-250

Temperature	Process °F	Post Cat.: °F			
Process Flow	scfm	Change Chart Paper?	Yes/No	Manifold Vacuum.:	"H_2O
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow:	scfm
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow:	scfm
Blower	Amps: A	Lubricate? Yes/No	Change Oil? Yes/No	Belts OK? Yes/No	
Dilution Valve	Auto: %open	Manual: %open			
LEL Reading	Set %	PV %			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm		
Monitoring Device		Calibration (type/date) /			

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line 60	Off-Line 90	Changed Air Filter?	Yes/No	Changed Oil? Yes/No

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	OFF	—	20 min	40 min	20 min	40 min
AS-3	3	2	6	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	OFF	—	20 min	40 min	20 min	40 min
AS-7	2	OFF	—	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED	
Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO TO-3	BTEX & Standard Oxygenates TO-3	Benzene EPA 410A	EFFLUENT LIMITATION: VOCs < 30 ppmv
Influent	Monthly	YES/NO			1 Tedlar Bag			Benzene < 0.25 ppm
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	MTBE <0.20 ppmv

STATUS DEPARTURE: ON/OFF

Drums: 1 empty 0

Notes: List all activities, observations, recommendations

SYSTEM RUNNING, INSP. COMPRESSOR

REPLACED HASP

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec

Oxygen Diffusion System Monitoring Log
ARCO Station #5110
5731 East Firestone Boulevard
South Gate, California

Unit iSOC Oxygen Diffusers
Technician: Mike Gunby Date: 12-17-12

Oxygen Flow Rate from iSOC Diffusers:
Time: 0500

Oxygen Tank #	Diffusers Connected	Tank Pressure (Arrival)	Tanks Changed (Yes or No)	Tank Pressure - Departure (psi)	Regulator Pressure (psi)
1	DW-1	850	No	850	70
2	DW-2	900	No	900	70
3	DW-3	1000	No	1000	70
4	DW-4	900	No	900	70

Diffuser Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)	Depth to Diffuser (ft)	Depth of Well (ft)*	
DW-1	18.06	56.41	69	70	
DW-2	14.70	57.81	62	70	
DW-3	5.66	56.02	64	70	
DW-4	16.22	57.97	65	70	

Observation Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)		Depth of Well (ft)*	
MW-A3	.81	56.68		65	
MW-A4	.80	58.13		65	
MW-A7	1.04	57.33		65	
MW-20	.80	56.16		69	

Comments: * Well depths measured on December 11, 2008
Notes: List all activities, observations, and recommendations
GAUGED AND MEASURED DO ON ALL WELLS

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: mb	Date: 1-11-12	Weekday: FRI Time: 0600
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS: —	Alarms: —
UTILITIES	Gas Meter — cfm / therm	Electrical Meter	08890 KWh

PARAGON ET-250

Temperature	Process °F	Post Cat.: °F			
Process Flow	scfm	Change Chart Paper? Yes/No	Manifold Vacuum.: "H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow: scfm	
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow: scfm	
Blower	Amps: A	Lubricate? Yes/No	Change Oil? Yes/No	Belts OK? Yes/No	
Dilution Valve	Auto: %open	Manual: %open			
LEL Reading	Set %	PV %			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm		
Monitoring Device		Calibration (type/date) /			

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line	Off-Line	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No
			60	90				

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	OFF	OFF	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	OFF	OFF	20 min	40 min	20 min	40 min
AS-7	2	OFF	OFF	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO			1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv

STATUS DEPARTURE:	ON/OFF	Drums:	empty	full

Notes: List all activities, observations, recommendations

BUMPED SYSTEM, CLEANED COMPRESSOR

PULLED WEEDS

PICKED UP TRASH

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec

Oxygen Diffusion System Monitoring Log
ARCO Station #5110
5731 East Firestone Boulevard
South Gate, California

Unit iSOC Oxygen Diffusers
Technician: Mike Gunby Date: 2-6-13

Oxygen Flow Rate from iSOC Diffusers:
Time: 0900

Oxygen Tank #	Diffusers Connected	Tank Pressure (Arrival)	Tanks Changed (Yes or No)	Tank Pressure - Departure (psi)	Regulator Pressure (psi)
1	DW-1	50	YES	2200	65
2	DW-2	100	YES	2100	65
3	* DW-3	1000	NO	1000	70
4	DW-4	50	YES	2200	60

Diffuser Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)	Depth to Diffuser (ft)	Depth of Well (ft)*	
DW-1	18.40	56.65	69	70	
DW-2	16.65	57.55	62	70	
DW-3	4.40	55.92	64	70	
DW-4	17.10	57.80	65	70	

Observation Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)		Depth of Well (ft)*	
MW-A3	.81	56.51		65	
MW-A4	.88	58.00		65	
MW-A7	.98	57.25		65	
MW-20	.80	56.09		69	

Comments: * Well depths measured on December 11, 2008
Notes: List all activities, observations, and recommendations
GAUGED AND MEASURED D.O. IN ALL WELLS
CHANGED OUT 3 O2 TANKS AND RETURNED EMPTIES TO AIR GAS

* D-3 IS NOT FLOWING NEED TO REPLACE

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: MG	Date: 2-6-13	Weekday: WED / Time: 1000
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS: 14888.0	Alarms: None
UTILITIES	Gas Meter ___ cfm / therm	Electrical Meter	KWh

PARAGON ET-250

Temperature	Process: °F	Post Cat.: °F			
Process Flow	scfm	Change Chart Paper? Yes/No	Manifold Vacuum.: °H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow: scfm	
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow: scfm	
Blower	Amps: A	Lubricate? Yes/No	Change Oil? Yes/No	Belts OK? Yes/No	
Dilution Valve	Auto: %open	Manual: %open			
LEL Reading	Set %	PV %			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm		
Monitoring Device		Calibration (type/date) /			

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line	Off-Line	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No
	ON/OFF		60	90		Yes/No		Yes/No

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	off	off	20 min	40 min	20 min	40 min
AS-3	3	2	6	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	off	off	20 min	40 min	20 min	40 min
AS-7	2	off	off	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED	
Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO			1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv
STATUS DEPARTURE:	ON/OFF				Drums:		empty	full

Notes: List all activities, observations, recommendations

TURNED VES SYSTEM ON AND GOT UP TO TEMP.
DRAINED ALL CONDENSATION FROM SYSTEM
TURNED OFF SYSTEM
KILLED WEEDS

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: MG	Date: 2-27-13	Weekday: WED Time: 1900
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	Alarms: None
UTILITIES	Gas Meter — cfm / therm	Electrical Meter	09800 KWh

PARAGON ET-250

Temperature	Process °F	Post Cat. °F			
Process Flow	scfm	Change Chart Paper? Yes/No	Manifold Vacuum.: °H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O ΔP: in H_2O	Temp.: °F	Source Flow: scfm		
Effluent Flow (Pitot Tube)	P: in H_2O ΔP: in H_2O	Temp.: °F	Effluent Flow: scfm		
Blower	Amps: A	Lubricate? Yes/No	Change Oil? Yes/No	Belts OK? Yes/No	
Dilution Valve	Auto: %open	Manual: %open			
LEL Reading	Set %	PV %			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm		
Monitoring Device		Calibration (type/date) /			

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line 60	Off-Line 90	Changed Air Filter?	Yes/No	Changed Oil? Yes/No

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	OFF	OFF	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	OFF	OFF	20 min	40 min	20 min	40 min
AS-7	2	OFF		20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO			1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv
STATUS DEPARTURE:	ON/OFF				Drums:	1 empty		0 full

Notes: List all activities, observations, recommendations

INSPECTED COMPRESSOR / CHECKED OIL LEVEL
KILLED WEEDS
PICKED UP TRASH

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: ML	Date: 3-11-13	Weekday: mon / Time: 0630
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	Alarms: None
UTILITIES	Gas Meter:	cfm / therm	Electrical Meter: 10010 KWh

PARAGON ET-250

Temperature	Process: °F	Post Cat. °F			
Process Flow	scfm	Change Chart Paper? Yes/No	Manifold Vacuum.: "H_2O"		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow: scfm	
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow: scfm	
Blower	Amps:	Lubricate? Yes/No	Change Oil? Yes/No	Belts OK? Yes/No	
Dilution Valve	Auto: %open	Manual: %open			
LEL Reading	Set %	PV %			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm		
Monitoring Device		Calibration (type/date) /			

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line	Off-Line	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No
	ON		60	90		No		No

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	OFF	OFF	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	OFF	OFF	20 min	40 min	20 min	40 min
AS-7	2	OFF	OFF	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another

	Collect Sample	Sample Collected?	Sample Date	Sample Time	GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)
Influent	Monthly	YES/NO	OFF		1 Tedlar Bag		
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag

EFFLUENT LIMITATIONS: VOCs < 30 ppmv; Benzene < 0.25 ppmv; MTBE <0.20 ppmv

STATUS DEPARTURE: OFF

Drums: 1 empty / 0 full

Notes: List all activities, observations, recommendations

PUMPED ALL MOISTURE FROM COMP. TANK
TOPPED OFF OIL
KILLED WASPS
BUMPED VES SYSTEM

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec

Oxygen Diffusion System Monitoring Log
ARCO Station #5110
5731 East Firestone Boulevard
South Gate, California

Unit iSOC Oxygen Diffusers
Technician: Mike Gunby Date: 3-11-13

Oxygen Flow Rate from iSOC Diffusers:
Time: 0600

Oxygen Tank #	Diffusers Connected	Tank Pressure (Arrival)	Tanks Changed (Yes or No)	Tank Pressure - Departure (psi)	Regulator Pressure (psi)
1	DW-1	950	No	850	
2	DW-2	900	No	900	
3	DW-3	1000	No	1000	
4	DW-4	900	No	900	

Diffuser Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)	Depth to Diffuser (ft)	Depth of Well (ft)*	
DW-1	18.55	56.60	69	70	
DW-2	16.60	57.53	62	70	
DW-3	3.10	56.87	64	70	
DW-4	10.10	57.77	65	70	

Observation Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)		Depth of Well (ft)*	
MW-A3	.86	56.45		65	
MW-A4	.86	58.05		65	
MW-A7	.96	57.30		65	
MW-20	.81	56.08		69	

Comments: * Well depths measured on December 11, 2008
Notes: List all activities, observations, and recommendations

GAUGED AND MEASURED DO.
DW-5 STILL NEEDS REPLACEMENT

Stantec

Oxygen Diffusion System Monitoring Log
ARCO Station #5110
5731 East Firestone Boulevard
South Gate, California

Unit iSOC Oxygen Diffusers
Technician: Mike Gunby Date: 4-2-13

Oxygen Flow Rate from iSOC Diffusers:
Time: 0630

Oxygen Tank #	Diffusers Connected	Tank Pressure (Arrival)	Tanks Changed (Yes or No)	Tank Pressure - Departure (psi)	Regulator Pressure (psi)
1	DW-1	100	YES	2000	
2	DW-2	300	YES	2300	
3	DW-3	1500	NO	1500	
4	DW-4	400	YES	2000	

Diffuser Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)	Depth to Diffuser (ft)	Depth of Well (ft)*	
DW-1	12.10	56.90	69	70	
DW-2	17.20	57.65	62	70	
* DW-3	~~[illegible]~~ 9.40	56.00	64	70	
DW-4	10.55	57.95	65	70	

Observation Well	Dissolved Oxygen (mg/L)	Depth to Water (ft)		Depth of Well (ft)*	
MW-A3	~~.64~~ 1.01	56.56		65	
MW-A4	1.30	58.10		65	
MW-A7	1.15	57.40		65	
MW-20	~~[illegible]~~ 0.66	56.16		69	

Comments: * Well depths measured on December 11, 2008
Notes: List all activities, observations, and recommendations

GAUGED AND MEASURED DO ON ALL WELLS
NO - VERY LITTLE FLOW ON DW-3 - LOTS OF SCALE
CONTACTED RANDY C. ON POSSIBILITY OF REV. DW WELLS

CHANGED ALL GAS CYLINDERS THAT NEEDED TO BE

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259

TECHNICIAN	Initials: MG	Date:	4-2-13	Weekday:	TUE	Time:	0200
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	14891.8	Alarms:	NONE		
UTILITIES	Gas Meter	cfm / therm	Electrical Meter	10369	KWh		

PARAGON ET-250

Temperature	Process: °F		Post Cal.: °F				
Process Flow	scfm	Change Chart Paper?	Yes/No	Manifold Vacuum.:	°H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow:	scfm		
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow:	scfm		
Blower	Amps:	A	Lubricate?	Yes/No	Change Oil?	Yes/No	Belts OK? Yes/No
Dilution Valve	Auto:	%open	Manual:	%open			
LEL Reading	Set:	%	PV:	%			
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm				
Monitoring Device		Calibration (type/date)	/				

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OK

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line 60	Off-Line 90	Changed Air Filter?	Yes/No	Changed Oil? Yes/No

AIR SPARGING SYSTEM MONITORING

AS Well ID	Cycle Number	Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	off	off	20 min	40 min	20 min	40 min
AS-3	3	2	8	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	off	off	20 min	40 min	20 min	40 min
AS-7	2	off	off	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another

	Collect Sample	Sample Collected?	Sample Date	Sample Time	GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)
Influent	Monthly	YES/NO			1 Tedlar Bag		
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag

EFFLUENT LIMITATIONS: VOCs < 30 ppmv; Benzene < 0.25 ppmv; MTBE <0.20 ppmv

STATUS DEPARTURE:	ON/OFF	Drums:	1 empty / 0 full

Notes: List all activities, observations, recommendations

TURNED SYSTEM ON AND GOT TO TEMP USING DIL. AIR ONLY
SHUT SYSTEM OFF

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259

TECHNICIAN	Initials: MG	Date: 5-3-13	Weekday: Fri	Time: 0830			
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	14891.8	Alarms:	None		
UTILITIES	Gas Meter	— cfm / therm	Electrical Meter	60906 KWh			

PARAGON ET-250

Temperature	Process: °F		Post Cat.: °F				
Process Flow	scfm	Change Chart Paper?	Yes/No	Manifold Vacuum.:	"H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow:	scfm		
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow:	scfm		
Blower	Amps:	Lubricate?	Yes/No	Change Oil?	Yes/No	Belts OK?	Yes/No
Dilution Valve	Auto: %open		Manual: %open				
LEL Reading	Set: %		PV: %				
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm				
Monitoring Device			Calibration (type/date) /				

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

Off

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line 60	Off-Line 90	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	off	off	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	off	off	20 min	40 min	20 min	40 min
AS-7	2	off	off	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO	/	/	1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO	/	/	1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv

STATUS DEPARTURE:	ON/OFF	Drums:	/ empty / 0 full

Notes: List all activities, observations, recommendations

BUNKO SYSTEM GOT UP TO TEMP AND TURNED OFF
KELLCO WORKS

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259
TECHNICIAN	Initials: MO	Date: 5-16-13	Weekday: Thur Time: 1100
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS: —	Alarms: None
UTILITIES	Gas Meter — cfm / therm	Electrical Meter	11134 KWh

PARAGON ET-250

Temperature	Process: °F	Post Cat.: °F				
Process Flow	scfm	Change Chart Paper?	Yes/No	Manifold Vacuum.:	°H_2O	
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Source Flow:	scfm	
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp.: °F	Effluent Flow:	scfm	
Blower	Amps: A	Lubricate?	Yes/No	Change Oil?	Yes/No	Belts OK? Yes/No
Dilution Valve	Auto: %open	Manual: %open				
LEL Reading	Set: %	PV %				
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm			
Monitoring Device		Calibration (type/date) /				

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line	Off-Line	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No
			60	90				

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	off	off	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	off	off	20 min	40 min	20 min	40 min
AS-7	2	off	off	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO			1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv

STATUS DEPARTURE:	ON/OFF	Drums:	1 empty 0 full

Notes: List all activities, observations, recommendations

CLEANED INSIDE OF THE COMPRESSOR CABINET
CHECKED ON SPRINKLER LEAK INSIDE COMPOUND WILL PURCHASE PARTS AND
REPAIR NEXT VISIT

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

Stantec Consulting Corporation

Air Sparging/Vapor Extraction Monitoring Log

SITE INFORMATION

CLIENT/SITE	Atlantic Richfield Company Station No. 5110	Unit:	King Buck MMC-5A Serial #9420
ADDRESS	5731 East Firestone Boulevard, South Gate, California	Permit No.:	SCAQMD Permit-to Operate No. F93259

TECHNICIAN	Initials MG	Date:	5-21-13	Weekday:	TUE	Time:	0800
ARRIVAL STATUS:	ON/OFF	OPERATING HOURS:	—	Alarms:	NONE		
UTILITIES	~~Gas Meter~~	cfm / therm	Electrical Meter	11227	KWh		

PARAGON ET-250

Temperature	Process: °F	Post Cat: °F					
Process Flow	scfm	Change Chart Paper?	Yes/No	Manifold Vacuum.:	"H_2O		
Source Well Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp: °F	Source Flow:	scfm		
Effluent Flow (Pitot Tube)	P: in H_2O	ΔP: in H_2O	Temp: °F	Effluent Flow:	scfm		
Blower	Amps: A	Lubricate?	Yes/No	Change Oil?	Yes/No	Belts OK?	Yes/No
Dilution Valve	Auto: %open	Manual: %open					
LEL Reading	Set %	PV %					
VES Concentrations	Influent (Diluted) ppm	Influent (Undiluted) ppm	Effluent ppm				
Monitoring Device		Calibration (type/date) /					

OFF

VAPOR EXTRACTION WELLS

WELL NO.	Well Interval	Status O/C	Vacuum ("wc)	Conc. (ppmv)	ΔP ("wc)	Temp (Deg. F)	Flow (scfm)	DTW (ft)	Well Screen (ft)
SVE-1	Shallow								8 to 28
	Deep								35 to 55
SVE-2	Shallow								7 to 27
	Deep								35 to 55
SVE-3	Shallow								8 to 28
	Deep								35 to 55
SVE-4	Shallow								7 to 27
	Deep								35 to 55
SVE-5	Shallow								6 to 28
	Deep								34 to 56
SVE-A7 (MW-A7)	Shallow								10 to 30
MW-A7	Deep								35 to 65
VEW-2	Shallow	NOT CONNECTED TO SYSTEM							4 to 7
	Mid	NOT CONNECTED TO SYSTEM							12 to 29
	Deep	NOT CONNECTED TO SYSTEM							34 to 54
D-3		NOT CONNECTED TO SYSTEM							7 to 47

OFF

AIR COMPRESSOR MAINTENANCE

Air Compressor	ON/OFF	Tank Pressure (psi)	On-Line	Off-Line	Changed Air Filter?	Yes/No	Changed Oil?	Yes/No
			100	90				

AIR SPARGING SYSTEM MONITORING

AS Well ID / Cycle Number		Flow (scfm)	Pressure (psi)	Cycle On	Cycle Off	Cycle On	Cycle Off
AS-1	1	2	6	20 min	40 min	20 min	40 min
AS-2	1	OFF	OFF	20 min	40 min	20 min	40 min
AS-3	3	2	5	20 min	40 min	20 min	40 min
AS-4	2	2	6	20 min	40 min	20 min	40 min
AS-5	3	OFF	OFF	20 min	40 min	20 min	40 min
AS-7	2	OFF	OFF	20 min	40 min	20 min	40 min

COMPLIANCE

DO NOT OPERATE VES UNLESS CONDITIONS ARE SATISFIED

Current Permit Posted?	Yes/No
VES Flow Rate <100 SCFM?	Yes/No
Temperature >650 °F?	Yes/No
Effluent VOC <30 ppmv (as Hex)?	Yes/No
Copies of Logs On-Site?	Yes/No

MONTHLY CERTIFIED VAPOR SAMPLING

NOTE: Influent and Effluent Samples must be collected within 15 minutes of one another	Collect Sample	Sample Collected?	Sample Date	Sample Time	REQUIRED ANALYSIS AND SAMPLING CONTAINERS: GRO (TO-3)	BTEX & Standard Oxygenates (TO-3)	Benzene (EPA 410A)	EFFLUENT LIMITATIONS
Influent	Monthly	YES/NO			1 Tedlar Bag			VOCs < 30 ppmv
Effluent	Monthly	YES/NO			1 Tedlar Bag		1 Tedlar Bag	Benzene < 0.25 ppmv MTBE <0.20 ppmv

STATUS DEPARTURE:	ON/OFF	Drums:	1 empty	0 full

Notes: List all activities, observations, recommendations

BUMPED SYSTEM (GOT UP TO TEMP THEN SHUT OFF)
REPAIRED SPRINKLER PIPE IN COMPOUND
CLEANED UP TRASH AND PULLED WEEDS
* NO CURRENT WRAP ON SITE (USING ONE FROM OLD H.A.S.P)

All O&M activities must be conducted every seven days or sooner unless otherwise indicated by a "*(Monthly)*" note.

APPENDIX P

WASTE DISPOSAL DOCUMENTS

1/2

NO. 49509 16

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME: BP West Coast Products LLC

GENERATING SITE: BP 05110

ADDRESS: P.O. Box 80249

5731 Firestone Blvd.

CITY, STATE, ZIP: Rancho Santa Margarita, CA 92688

South Gate, CA 90280

PHONE NO.: (949) 753-5820

SITE CONTACT:

PROFILE NO.:

CONTAINERS: No. 1 GALLONS (X) 105 Gallons WEIGHT:

TYPE: [X] TANK TRUCK [ ] DUMP TRUCK [ ] DRUMS [ ] CARTONS [ ] OTHER

WASTE DESCRIPTION: Non-Hazardous Water

GENERATING PROCESS: Purged Groundwater

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. Water	99-100%		4.		
2. TPH	<1%		5.		
3.			6. BESI # 219345		

PROPERTIES: pH 7 [ ] SOLID [X] LIQUID [ ] SLUDGE [ ] SLURRY [ ] OTHER

HANDLING INSTRUCTIONS: Wear Appropriate Protective Clothing

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Moothart as Agent of BP West Coast Products LLC — 05 / 08 / 13

TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

TRANSPORTER

NAME: NIETO AND SONS TRUCKING, INC.

EPA I.D. NO.:

ADDRESS: 1281 BREA CANYON ROAD

SERVICE ORDER NO.:

CITY, STATE, ZIP: BREA, CALIFORNIA 92821

PICK UP DATE: 05 / 08 / 13

PHONE NO.: (714) 990-6855

TRUCK, UNIT, I.D. NO.: 508

RAFAEL UREVA — 05 / 08 / 13

TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

TSD FACILITY

NAME: DeMenno Kerdoon

EPA I.D. NO.: CAT080013352

ADDRESS: 2000 N. Alameda Street

DISPOSAL METHOD: [ ] LANDFILL [X] RECYCLER

CITY, STATE, ZIP: Compton, CA 90222

PHONE NO.: (310) 537-7100

SOPHAL P. SVAY — 5/14/13

TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

GEN	OLD/NEW	L A	TONS
TRANS		S B	
C/Q		RT/CD	HWDF NONE

DISCREPANCY

05110
878500

2/2

NO. 49512 16

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

		GENERATING SITE
NAME	BP West Coast Products LLC	BP 05110
ADDRESS	P.O. Box 80249	5731 Firestone Blvd.
CITY, STATE, ZIP	Rancho Santa Margarita, CA 92688	South Gate, CA 90280

PHONE NO. (949) 753-5820 SITE CONTACT _____ PROFILE NO. _____

CONTAINERS: No. 1 GALLONS 48 Gallons WEIGHT _____

TYPE: [X] TANK TRUCK [ ] DUMP TRUCK [ ] DRUMS [ ] CARTONS [ ] OTHER _____

WASTE DESCRIPTION Non-Hazardous Water GENERATING PROCESS Purged Groundwater

COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%
1. Water	99-100%		4.		
2. TPH	<1%		5.		
3.			6. BESI # 219345		

PROPERTIES pH 7 [ ] SOLID [X] LIQUID [ ] SLUDGE [ ] SLURRY [ ] OTHER _____

HANDLING INSTRUCTIONS: Wear Appropriate Protective Clothing

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Moothart as Agent of BP West Coast Products LLC 05 / 09 / 13

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME NIETO AND SONS TRUCKING, INC. EPA I.D. NO. _____

ADDRESS 1281 BREA CANYON ROAD SERVICE ORDER NO. _____

CITY, STATE, ZIP BREA, CALIFORNIA 92821 PICK UP DATE 05 / 09 / 13

PHONE NO. (714) 990-6855

TRUCK, UNIT, I.D. NO. 508

RAFAEL UREZA 05 / 09 / 13

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME DeMenno Kerdoon EPA I.D. NO. CAT080013352

ADDRESS 2000 N. Alameda Street DISPOSAL METHOD [ ] LANDFILL [X] RECYCLER _____

CITY, STATE, ZIP Compton, CA 90222

PHONE NO. (310) 537-7100

Sophia P. Stan 5 / 14 / 13

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS
TRANS		S B	
C/O		RT/CD	HWDF NONE

DISCREPANCY

05110
878491