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9:56 am, Dec 16, 2011

Alameda County
Environmental Health

December 15, 2011

Alameda County Environmental Health
Attn: Barbara Jakub, P.G.
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: Status Report
Second Half 2009
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Dear Ms. Jakub:

Enclosed please find a copy of the subject Status Report dated February 9, 2010, prepared by BSK Associates.

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

Sincerely,


Randall Nahas



**STATUS REPORT
SECOND HALF 2009**

**FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA**

BSK PROJECT E0805401S

PREPARED FOR:

**MR. RANDALL NAHAS
P.O. BOX 3049
SAN RAMON, CA 94583**

FEBRUARY 9, 2010

Engineers, Geologists, Inspectors and Scientists

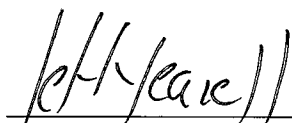
**STATUS REPORT
SECOND HALF 2009
FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA**

Prepared for:

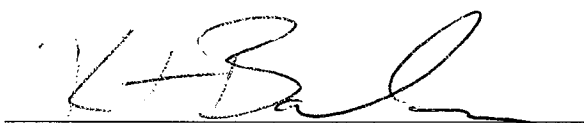
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BSK Project: E0805401S

February 9, 2010



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BSK

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**STATUS REPORT
SECOND HALF 2009
FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA**

1.0 INTRODUCTION

At the request of Mr. Randall Nahas, BSK Associates performed groundwater monitoring and prepared this report summarizing data collected from the semi-annual monitoring of six groundwater monitoring wells located at the Former Unocal Service Station, 20405 Redwood Road, Castro Valley, California (the site). The site vicinity is shown on Figure 1.

2.0 PROJECT SITE DESCRIPTION AND HISTORY

December 1989, Soil Investigation and Monitoring Well Installation: In December 1989, three groundwater monitoring wells (MW-2, MW-3 and MW-4) were installed at the locations shown on Figure 2. Soil samples were collected from soil borings MW-1 and MW-1A; however, they were not converted to monitoring wells (BSK, 1995). Summaries of soil sample analytical results are presented in Table 1 (petroleum hydrocarbons) and Table 2 (volatile and semi-volatile organic compounds). Monitoring well groundwater sample analytical results are summarized in Table 3.

March 1991, Soil Investigation: Thirteen soil borings (SB-1 through SB-13) were advanced at the locations shown on Figure 2 to depths ranging between approximately 10 and 20 feet bgs (BSK, 1996). Soil sample analytical results are summarized in Table 1.

March through April 1992, Soil Borings and Monitoring Well Installation: Soil borings MW-5, MW-6, MW-7, SB-14, and SB-15 were drilled at the locations shown on Figure 2. A summary of soil sample analytical results is presented in Table 1. Borings MW-5, MW-6, and MW-7 were completed as groundwater monitoring wells.

October 1992, Chromatograph Evaluation: BSK identified a non-standard peak in the chromatograph from a groundwater sample from well MW-7. The peak was not typical of petroleum hydrocarbons.

November 1992, Groundwater Sampling: Groundwater samples from monitoring well MW-7 were analyzed for volatile halocarbons by EPA Method 601. Analytical results are summarized in Table 3. Tetrachloroethylene (PCE) and trichloroethylene (TCE) were detected in groundwater samples from well MW-7 at concentrations of 14,000 µg/L and 660 µg/L, respectively. BSK Associates attributed the previous concentrations of TPHg to the presence of PCE and concluded gasoline contamination may not occur in a significant quantity in monitoring well MW-7 and attributed the contamination to another source. BSK Associates recommended ceasing any further investigation of the gasoline plume south of well MW-7 (BSK, 1992b).

November 1993, Soil Borings: Soil borings SP-1 and SP-2 were advanced at the locations shown on Figure 2. Soil and groundwater samples were collected from each boring. Summaries of soil sample analytical results are presented in Table 1 (petroleum hydrocarbons) and Table 2 (volatile and semi-volatile organic compounds). Monitoring well groundwater sample analytical results are summarized in Table 3 (Philip Environmental, 1996).

December 1995, Feasibility Study: Excavation and on-site treatment of excavated soil was selected as the remedial alternative for soil impacts. As a part of the feasibility study, an aquifer pump test was conducted. Groundwater extraction well MW-101 was installed at the location shown on Figure 2. Pump-and-treat was determined to be a feasible remedial alternative for groundwater impacts at the site. (BSK, 1995).

June 1996, Revised Corrective Action Plan: Philip Environmental prepared a Revised Corrective Action Plan. The plan stated that the site operator and property owner planned to cease operation of the site as a service station, which would require closure of the underground storage tanks. Philip Environmental recommended removal of the USTs, soil excavation and limited groundwater extraction (Philip Environmental, 1996).

As part of the Revised Corrective Action Plan, Tier I and Tier II Risk Assessments were conducted. Results of the Tier I Risk Assessment show benzene levels in soil at the site exceeded the risk based screening levels for volatilization from soil to outdoor air, vapor intrusion from soil to on-site buildings, soil ingestion, and leachate from soil to water exposure pathways. Toluene levels in soil at the site exceeded the risk based screening levels for the vapor intrusion from soil to on-site buildings exposure pathway. Results of the Tier II Risk Assessment indicated that concentrations of phase separated hydrocarbons and benzene in soil and groundwater exceed Tier II site specific screening levels in the area adjacent to the USTs and the southern property boundary (Philip Environmental, 1996).

Summer 1997, Service Station Building Demolition: The service station building was demolished and fuel dispensers removed (Life Springs Environmental Inc., 1999).

November 1998, UST Removal: The concrete slabs and foundation of the building, fueling area, and pump islands, were broken up and hauled to a recycling facility. The three USTs and associated piping were removed and transported to Ecology Control Industries (ECI) in Richmond, California. Two hydraulic hoists and clarifier sump were also removed. No holes were observed in the gasoline USTs, but small holes were observed in the waste oil UST. The excavated soil (approximately 175 cubic yards) was stockpiled. Figure 3 shows the approximate extent of the excavation.

Soil samples were collected after excavation. Sample locations are shown on Figure 3. Tables 1 and 2 provide summaries of soil sample analytical results. The release of petroleum hydrocarbons at the site appears to have primarily impacted the backfill material surrounding the two 10,000 gallon gasoline USTs (Life Springs Environmental Inc., 1999).

The UST pit was backfilled with aggregate base to within 5 feet of ground surface. Winter weather conditions led Life Springs Environmental Inc. to place impacted soil back in the excavations of the waste oil UST and clarifier sump (Life Springs Environmental Inc., 1999).

April 1999, Stockpiled Soil Remediation: Beginning in April 1999, impacted soil from the main UST excavation was laid out in shallow beds and aerated by periodic tilling.

May 1999, Soil Re-Excavation and Sampling: The waste oil UST and clarifier sump areas were re-excavated, with the second excavation extending slightly deeper than the first. Excavated soil from the waste oil UST and clarifier sump pits was disposed of at Vasco Road Sanitary Landfill in Livermore, California (Life Springs Environmental Inc., 2000). Soil samples were collected from native soil in both pits and analyzed for TPHd and total oil and grease. A section of the pipe trench area was excavated to a depth of 3 feet bgs. Excavated soil from the trench was laid out in shallow beds for aeration. A soil sample was collected from the trench re-excavation (sample name: GASLINE). The sample was analyzed for TPHg/BTEX and MTBE. Table 1 provides a summary of soil sample analytical results. Figure 3 shows the approximate extent of re-excavation and sample locations.

August 1999, Waste Oil and Clarifier Sump Pit Sampling and Soil Stockpiling: The aerated soil from previous excavations was stockpiled. Soil samples were collected from the bottom of the waste oil and clarifier sump pits at depths of 10 and 7 feet bgs respectively (Life Springs Environmental Inc., 1999). Table 1 provides a summary of soil sample analytical results, Figure 3 shows the approximate sample locations.

September 1999, Waste Oil Pit Sampling: A soil sample was collected from within the waste oil pit at a depth of 11.5 bgs and analyzed for chlorinated hydrocarbons and TPHd. Table 1 provides a summary of soil sample analytical results, Figure 3 shows the approximate sample location.

October 1999, Clarifier Sump Pit Sampling: A soil sample was collected within the clarifier sump pit at a depth of 9.5 feet bgs. Table 1 provides a summary of soil sample analytical results, Figure 3 shows the approximate sample location.

November 1999, Permission to Re-Use Stockpiled Soil: Permission was granted by Alameda County Environmental Health Services for the re-use of the stockpiled soil that had been remediated by aeration (Life Springs Environmental Inc., 2000).

December 1999, Waste Oil and Clarifier Sump Pit Deepening and Sampling: The waste oil pit was deepened to 10 feet bgs and the clarifier sump pit was deepened to 14 feet bgs. Soil removed from the over-excavation was also transported to the Vasco Road Sanitary Landfill in Livermore, California. Approximately 36.1 tons of soil were removed from both the waste oil pit and the clarifier sump pit during both re-excavation and over-excavation events. Soil samples were collected from the native soil in the bottom of each pit. The two excavations along with the final five feet of the main excavation were filled in with the remediated soil from the main excavation. Table 1 provides a summary of soil sample analytical results. Figure 3 shows the approximate extent of the over-excavation and sample locations.

Monitoring well MW-4 was abandoned by pressure grouting and drilling out. The vault boxes for monitoring wells MW-2 and MW-101 were replaced (Life Springs Environmental Inc., 2000).

Groundwater Monitoring Program: From August 1990 through 1999, groundwater monitoring activities were performed on a quarterly basis. Groundwater monitoring was performed semi-annually starting in 1999 through September 2003. Groundwater monitoring was not conducted from the third quarter of 2003 through the third quarter of 2008. Groundwater monitoring analytical data are summarized in Table 3 (petroleum hydrocarbon constituents) and Table 4 (volatile organic hydrocarbons). Groundwater elevation data are summarized in Table 5.

3.0 PURPOSE AND SCOPE

The purpose of quarterly monitoring is to collect data on groundwater quality, groundwater depths, and direction of flow beneath the subject property with the intention of evaluating residual hydrocarbon contamination in groundwater beneath the site. BSK performed the following tasks:

- Measured depth to groundwater in three of the six monitoring wells on August 25, 2009. At the time of sampling, monitoring wells MW-2, MW-3, and MW-7 were inaccessible. Monitoring well MW-2 could not be opened by the sample technician because the bolts were seized. MW-3 was covered by a layer of mulch and could not be located, and MW-7 has been paved over.
- Purged and sampled two of the three accessible groundwater monitoring wells. Monitoring well MW-6 was dry.
- Analyzed groundwater samples from each accessible monitoring well, for:
 - Total petroleum hydrocarbons as diesel (TPHd)
 - Total petroleum hydrocarbons as gasoline (TPHg)
 - Benzene, toluene, ethylbenzene, and xylenes (BTEX)
 - Fuel Oxygenates
 - Lead Scavengers
- Prepared this status report summarizing the condition of the wells, depth to groundwater, groundwater flow direction, and laboratory analytical results.

4.0 GROUNDWATER FLOW DIRECTION

Groundwater depths were measured in the three accessible monitoring wells prior to purging and sampling on August 25, 2009. Depths were measured relative to the north side of the top of each well casing.

Groundwater flow direction and gradient could not be calculated for this monitoring event. Figure 4 presents a groundwater elevation contour map for the February 2009 monitoring event, and includes a rose diagram depicting the groundwater flow direction. Table 5 summarizes groundwater elevations recorded during the investigation. Table 6 summarizes associated groundwater gradient and flow direction data.

5.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

Groundwater sampling was conducted on August 25, 2009. Each well was purged of a minimum of three casing volumes using an electric submersible pump. Water temperature, pH, and conductivity were measured after removal of each approximate casing volume. Water sample logs are included in Appendix A.

After purging, water samples were collected from each well using a clean disposable bailer. The samples were labeled with the sample identification, date and time collected, and project identification. Samples were preserved in a chilled cooler and transported with completed chain-of-custody forms to BSK's state-certified analytical laboratory. The samples were analyzed for TPHd and TPHg by EPA Method 8015B, BTEX by EPA Method 8021B, and fuel oxygenates and lead scavengers by EPA Method 8260B. Equipment used during purging and sampling activities was cleaned with non-phosphate detergent wash and rinsed prior to use at each well location. The purged groundwater was stored in appropriately-labeled 55-gallon drums at the site.

Tables 3 and 4 summarize past quarterly monitoring analytical results. Figures 5 through 9 present time series plots for monitoring wells MW-2, MW-3, MW-6, MW-7, and MW-101 respectively. Appendix B contains laboratory data reports and chain-of-custody documentation for the samples collected this quarter.

6.0 DISCUSSION AND RECOMMENDATIONS

BSK has had significant difficulties in efficiently locating monitoring wells MW-2 and MW-3. Between sampling events, the wells become covered with bark and debris, and we have had minimal success in locating them with GPS devices and metal detectors. The vault box of MW-7 has been paved over. It needs to be uncovered so that downgradient groundwater conditions can be monitored.

BSK recommends the following:

1. Prior to the first half 2010 sampling event, attempt to uncover monitoring well MW-7.
2. Locate monitoring wells MW-1 and MW-2 and install a crash post next to their vault boxes. The crash posts will allow us to readily locate the wells in the future and also help in protecting the vault boxes from potential damage in the future.

7.0 LIMITATIONS

This report has been prepared for the exclusive use of Mr. Randall Nahas. Unauthorized use of or reliance on the information contained in this report by others, unless given the express written consent by BSK Associates, is prohibited.

The conclusions presented in this report are professional opinions based on the indicated data described in this report. This report has been prepared in accordance with generally accepted methodologies and standards of professional practice. No other warranties, either expressed or implied, are made as to the findings or conclusions included in the report. Conclusions and recommendations are intended only for the purpose, site location and project indicated.

Opinions presented in this report apply to site conditions existing at the time of our study and those reasonably foreseeable. They cannot necessarily apply to site changes of which this office is not aware and has not evaluated. Changes in the conditions of the subject property may occur with time, because of natural processes or the works of man, on the subject site or on adjacent properties.

8.0 REFERENCES

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Table 1
Soil Sample Analytical Results
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Location	Depth (feet bgs)	TPHg (mg/kg)	TPHd (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Oil and Grease (mg/kg)	Total Lead (mg/kg)	MTBE (mg/kg)
December 1989, Soil Investigation and Monitoring Well Installation										
MW-1	5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
	10	89	-	1.8	7.8	3.8	20	-	-	-
	15	<10	-	0.09	<0.02	<0.02	<0.02	-	-	-
	19	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
MW-1A	5	<10	<10	<0.02	<0.02	<0.02	<0.02	-	<2.0	-
	10	110	50 ^b	2.2	11	5.4	25	-	<2.0	-
	13	11	<10	0.64	0.71	0.64	3.5	-	<2.0	-
	16.5	<10	<10	<0.02	<0.02	<0.02	<0.02	-	<2.0	-
MW-2	5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
	10	<10	-	0.05	<0.02	<0.02	0.03	-	-	-
	15	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
	20	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
MW-3	5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
	10	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
	15	92	-	ND	ND	0.97	4.0	-	-	-
	19	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
MW-4 ^a	5	-	<10	<0.02	<0.02	<0.02	<0.02	<100	-	-
	8.5	-	<10	<0.02	<0.02	<0.02	<0.02	<100	-	-
	13	-	<10	<0.02	<0.02	<0.02	<0.02	<100	-	-
March 1991, Soil Investigation										
SB-1	14.5	<10	-	0.05	0.03	<0.02	0.06	-	-	-
SB-2	10.5	440	-	4.5	18	11	55	-	<2.0	-
	13	810	340 ^b	5.3	4.2	13	76	-	-	-
SB-3	13.5	15	<10	0.09	0.18	0.19	1.1	-	<2.0	-
	17	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
SB-4	14	<10	<10	<0.02	<0.02	<0.02	0.1	-	-	-
SB-5	14.5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
SB-6	15	310	-	0.8	15	6.2	36	-	-	-
SB-8	20.5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
SB-10	16	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
SB-11	10.5	31	-	0.09	0.03	0.49	1.8	-	-	-
SB-12	15.5	<10	-	<0.02	<0.02	<0.02	<0.02	-	-	-
SB-13	10.5	1100	-	5.5	67	27	140	-	-	-
	14	530	-	7.8	48	14	73	-	-	-
March through April 1992, Soil Borings and Monitoring Well Installation										
SB-14	21	<1	<1	<0.005	<0.005	<0.005	<0.005	-	-	-
SB-15	20.5	<1	3	<0.005	0.007	<0.005	<0.008	-	-	-
MW-5	21	<1	<1	<0.005	<0.005	<0.005	<0.005	-	-	-
MW-6	16	<1	<1	<0.005	<0.005	<0.005	<0.005	-	-	-
MW-7	15.5	<1	<1	<0.005	<0.005	<0.005	<0.005	-	-	-
November 1993, Soil Borings										
SP-2	14	9	-	0.14	0.52	0.19	1.0	-	-	-
SP-1	16	-	-	0.18	<0.005	0.075	0.055	-	-	-
December 1995, Monitoring Well Installation										
MW-101	10	120	-	<0.005	0.95	2.1	11	-	-	-
	15	63	-	ND	1.5	0.87	9.8	-	-	-

Table 1
Soil Sample Analytical Results
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Location	Depth (feet bgs)	TPHg (mg/kg)	TPHd (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Oil and Grease (mg/kg)	Total Lead (mg/kg)	MTBE (mg/kg)
November 1998, UST Removal										
WO	8	<1.0	270	<0.005	0.0061	0.027	0.079	2300	9.0	<0.005
PIT NE COR	12	47	-	<0.62	<0.62	0.74	3.4	-	-	<0.62
PIT NE BOT	13	14	-	<0.62	<0.62	<0.62	<0.62	-	-	<0.62
PIT SE	12	31	-	<0.62	1.8	<0.62	3.0	-	-	<0.62
PIT SE	unk	100	-	<2.5	<2.5	2.6	14	-	-	<2.5
PIT SW	11.5	22	-	<0.62	<0.62	<0.62	3.0	-	-	<0.62
PIT NW	12	2.6	-	0.088	0.0054	0.11	0.52	-	-	0.014
WL NW	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	0.018
WL J	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
WIS S	2	410	-	3.6	11	12	72	-	-	0.80
WIS N	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
EJ	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
EIS S	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
EIS N	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
CJ	2	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	<0.005
WEST HOIST ³	8.5	-	1000 ^{a,1}	-	-	-	-	-	-	-
EAST HOIST ³	8.5	-	<1.0 ^{**}	-	-	-	-	-	-	-
SUMP	4.5	<1.0	120 ¹	<0.005	<0.005	<0.005	<0.005	96	7.9	<0.005
May 1999, Soil Re-excavation and Sampling										
GASLINE	3	<1.0	-	<0.005	<0.005	<0.005	<0.005	-	-	-
SUMP	4	-	2700 ¹ /4800 ^c	-	-	-	-	-	-	-
WO	9	-	38 ¹	-	-	-	-	140	-	-
August 1999, Waste Oil and Clarifier Sump Pit Sampling										
SUMP	7	-	84	-	-	-	-	88	-	-
WO	10	-	560	-	-	-	-	1400	-	-
September 1999, Waste Oil Pit Sampling										
WO	11.5	<1.0	1.2 ¹	<0.005	<0.005	<0.005	<0.005	<50	-	-
October 1999, Clarifier Sump Pit Sampling										
SUMP ³	9.5	71 ¹	270 ²	<0.62	<0.62	<0.62	<0.62	220	-	<0.62
December 1999, Waste Oil and Clarifier Sump Pit Deepening and Sampling										
WO ³	11	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<50	-	<0.005
SUMP ³	15	6.3 ¹	690 ¹	<0.005	<0.005	0.14	0.25	1200	-	<0.005

Notes:

-: Not analyzed.

unk: Unknown.

¹: Hydrocarbon reported does not match the pattern of Chromalab, Inc. standard.

²: Estimated concentration reported due to overlapping fuel patterns.

³: Exact location not mapped.

* West Hoist also had 2000 mg/kg hydraulic oil.

**East Hoist <50 mg/kg hydraulic oil.

^a: Soil samples at were also analyzed for VOCs by EPA method 8010. None were detected.

^b: Sample contains lower molecular weight hydrocarbons.

^c: Reported as motor oil

Table 2
Soil Sample Analytical Results
Volatile and Semi-Volatile Organic Compounds
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Depth	Phenanthrene (mg/kg)	Fluoranthene (mg/kg)	Pyrene (mg/kg)	bis(2-Ethylhexyl) phthalate (mg/kg)
December 1989, Soil Investigation and Monitoring Well Installation					
MW-4*	5	-	-	-	-
	8.5	-	-	-	-
	13	-	-	-	-
November 1993, Soil Borings					
SP-2*	1	-	-	-	-
SP-1*	16	-	-	-	-
November 1998, UST Removal					
WO	8	0.10	0.17	0.22	0.6
SUMP	4.5	<0.10	<0.10	<0.10	<0.50
August 1999, Waste Oil and Clarifier Sump Pit Sampling					
SUMP	7	<0.10	<0.10	<0.10	<0.50
WO	10	<0.10	0.13	0.20	0.82
September 1999, Waste Oil Pit Sampling					
WO	11.5	<0.10	<0.10	<0.10	<0.50
Notes:					
-: Not analyzed					
*: Samples were analyzed for VOCs by EPA Method 8260 only; none were detected above reportable detection limits					

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-2	12/89	72	-	-	<0.5	<0.5	<0.5	<0.5	-
	08/90	180	-	-	21	3.9	7.2	28	-
	01/91	430	-	-	50	33	22	110	-
	04/91	4,800	-	-	640	520	140	790	-
	07/91	220	-	-	14	1	17	8	-
	10/91	170	-	-	2.9	ND	2.5	6	-
	01/92	5,200	-	-	480	870	160	860	-
	4/20/92	300	-	-	70	0.3	15	7	-
	7/9/92	84	-	-	10	ND	0.6	2.3	-
	10/8/92	ND	-	-	2.3	ND	2.3	3	-
	1/12/93	170	-	-	11	5.1	1.4	6.3	-
	3/4/93	720	-	-	110	32	67	28	-
	7/1/93	220	-	-	17	1.1	6	12	-
	10/19/93	98	-	-	4.0	ND	2.3	3.1	-
	1/12/94	130	-	-	13	3.4	4.9	9.2	-
	4/25/94	270	-	-	23	1.1	8.2	17	-
	7/28/94	180	-	-	14	0.7	5.8	12	-
	10/13/94	97	-	-	2.8	ND	2.9	1.8	-
	1/10/95	440	-	-	48	2.8	15	27	-
	4/19/95	480	-	-	72	2.8	47	22	-
	10/12/95	450	-	-	7.4	ND	5.1	5.5	-
	4/12/96	690	-	-	41	2.8	27	50	-
	10/8/96	180	-	-	9.4	0.5	7.2	9.4	1,400
	4/9/97	470	-	-	23	1.6	21	31.4	1,800
	11/5/97	360	-	-	6.8	0.64	4.7	8.2	1,200
	3/1/00	560	-	-	14	0.92	16	24	1,400
	09/00	180	-	-	0.89	ND	1	0.65	620
	3/22/01	1,000	-	-	ND	ND	ND	ND	1,300 ¹ /1,200
	8/23/01	160	-	-	22	1.5	17	27	690 ¹ /820
	03/02	140	-	-	2.6	0.31	2	1.7	420
	10/02	92	-	-	ND	ND	ND	ND	280
	03/03	IA	IA	IA	IA	IA	IA	IA	IA
	9/17/03	IA	IA	IA	IA	IA	IA	IA	IA
11/20/08	IA	IA	IA	IA	IA	IA	IA	IA	
2/11/09*	<50	<50	-	<0.3	<0.3	<0.3	<0.3	62	
8/25/09	IA	IA	IA	IA	IA	IA	IA	IA	

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-3	12/89	<50	-	-	<0.5	<0.5	<0.5	<0.5	-
	08/90	290	-	-	55	3.8	20	59	-
	01/91	110	-	-	29	3.3	9.7	34	-
	04/91	3,600	-	-	450	270	150	760	-
	07/91	220	-	-	14	14	33	8.0	-
	10/91	ND	ND	ND	ND	ND	ND	ND	-
	01/92	60	-	-	4.0	10	2.0	8.0	-
	4/20/92	ND	-	-	1.0	0.4	ND	0.9	-
	7/9/92	ND	-	-	1.3	0.40	ND	1.3	-
	10/8/92	ND	-	-	2.1	ND	ND	0.30	-
	1/12/93	ND	-	-	1.2	1.0	0.60	4.1	-
	3/4/93	330	-	-	32	0.90	64	13	-
	7/1/93	330	-	-	24	11	14	82	-
	10/19/93	ND	-	-	5.0	ND	0.60	1.2	-
	1/12/94	69	-	-	13	3.4	4.9	9.2	-
	4/25/94	62	-	-	17	1.0	4.9	24	-
	7/28/94	52	-	-	7.2	0.4	1.6	4.6	-
	10/13/94	ND	-	-	0.9	ND	ND	ND	-
	1/10/95	250	-	-	26	0.60	14	45	-
	4/19/95	450	-	-	26	0.60	40	19	-
	10/12/95	340	-	-	9.0	3.9	8.5	34	-
	4/12/96	170	-	-	41	2.8	27	50	-
	10/8/96	79	-	-	3.8	1.5	2.1	6.8	55
	4/9/97	120	-	-	7.3	ND	3.3	5.4	230
	11/5/97	62	-	-	1.7	1.4	2.3	8.3	65
	3/1/00	96	-	-	0.61	ND	ND	ND	240
	09/00	ND	-	-	ND	ND	ND	ND	98
	3/22/01	ND	-	-	ND	ND	ND	ND	190
	8/23/01	ND	-	-	ND	ND	ND	ND	26
	03/02	ND	-	-	ND	ND	ND	ND	26
	10/02	ND	-	-	ND	ND	ND	ND	15
	03/03	IA	IA	IA	IA	IA	IA	IA	IA
	9/17/03	ND	-	-	ND	ND	ND	ND	13
	11/20/08	IA	IA	IA	IA	IA	IA	IA	IA
	2/11/09*	<50	<50	-	<0.3	<0.3	<0.3	<0.3	12
	8/25/09	IA	IA	IA	IA	IA	IA	IA	IA

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-4	12/89	<50	<100	<5,000	<0.5	<0.5	<0.5	<0.5	.
	08/90	ND	ND	ND	ND	ND	ND	ND	.
	01/91	.	.	.	.	.	.	.	.
	04/91	ND	ND	ND	ND	ND	ND	ND	.
	07/91	.	.	.	.	.	.	.	.
	10/91	ND	ND	ND	ND	ND	ND	ND	.
	01/92	.	.	.	.	.	.	.	.
	4/20/92	ND	ND	ND	ND	ND	ND	ND	.
	7/9/92	.	.	.	.	.	.	.	.
	10/8/92	ND	120	ND	ND	ND	ND	ND	.
	1/12/93	ND	ND	ND	ND	ND	ND	ND	.
	3/4/93	ND	ND	ND	ND	ND	ND	ND	.
	7/1/93	ND	ND	1,000	ND	ND	ND	ND	.
	10/19/93	ND	ND	ND	0.40	ND	ND	0.40	.
	4/25/94	ND	ND	ND	ND	ND	ND	0.40	.
	7/28/94	ND	86	ND	ND	0.60	ND	ND	.
	10/13/94	70	ND	ND	ND	36	ND	1.3	.
	1/10/95	ND	ND	2,000	ND	ND	ND	ND	.
	4/19/95	ND	ND	ND	ND	ND	ND	ND	.
10/12/95	ND	ND	.	ND	ND	ND	ND	.	
4/12/96	ND	ND	.	ND	ND	ND	ND	.	
10/8/96	ND	ND	.	ND	ND	ND	ND	ND	
4/9/97	ND	ND	.	ND	ND	ND	ND	ND	
11/5/97	ND	ND	.	ND	ND	ND	ND	ND	
Abandoned December 1999.									

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	
MW-5	4/13/92	ND	.	.	ND	ND	ND	ND	.	
	4/27/92	ND	.	.	ND	ND	ND	ND	.	
	7/9/92	ND	.	.	ND	ND	ND	ND	.	
	10/8/92	ND	.	.	ND	0.40	ND	ND	.	
	1/12/93	ND	.	.	ND	ND	ND	ND	.	
	3/4/93	ND	.	.	ND	ND	ND	ND	.	
	7/1/93	ND	.	.	ND	ND	ND	ND	.	
	10/19/93	ND	.	.	ND	ND	ND	ND	.	
	4/25/94	ND	.	.	ND	0.40	ND	1.0	.	
	07/94	-	.	.	-	-	-	-	.	
	10/13/94	87	ND	ND	ND	36	ND	1.3	.	
	01/95	-	.	.	-	-	-	-	.	
	4/19/95	ND	.	.	ND	ND	ND	ND	.	
	10/12/95	ND	.	.	ND	ND	ND	ND	.	
	4/12/96	ND	.	.	ND	ND	ND	ND	.	
	10/8/96	ND	.	.	ND	ND	ND	ND	ND	
	4/9/97	ND	.	.	ND	ND	ND	ND	ND	
	11/5/97	ND	ND	.	ND	ND	ND	ND	ND	
	3/1/00	ND	.	.	ND	ND	ND	ND	ND	
	09/00	ND	.	.	ND	ND	ND	ND	ND	
	3/22/01	ND	.	.	ND	ND	ND	ND	ND	
	8/23/01	NS	NS	NS	NS	NS	NS	NS	NS	
	03/02	NS	NS	NS	NS	NS	NS	NS	NS	
	10/02	NS	NS	NS	NS	NS	NS	NS	NS	
	03/03	NS	NS	NS	NS	NS	NS	NS	NS	
	9/17/03	NS	NS	NS	NS	NS	NS	NS	NS	
	11/20/08*	<50	<50	.	.	0.31	<0.3	<0.3	0.38	<5.0
	2/6/09*	<50	<50	.	.	<0.3	<0.3	<0.3	<0.3	<5.0
	8/25/09	<50	<50	.	.	.	<0.5	<0.5	<0.5	<5.0

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-6	4/13/92	ND	.	.	ND	0.30	ND	ND	.
	4/27/92	ND	.	.	ND	ND	ND	ND	.
	7/9/92	ND	.	.	ND	ND	ND	ND	.
	10/8/92	ND	.	.	ND	ND	ND	ND	.
	1/12/93	ND	.	.	ND	ND	ND	ND	.
	3/4/93	ND	.	.	ND	ND	ND	ND	.
	7/1/93	ND	.	.	ND	ND	ND	ND	.
	10/19/93	ND	.	.	ND	ND	ND	ND	.
	4/25/94	ND	.	.	ND	0.30	ND	0.40	.
	07/94	-	.	.	-	-	-	-	.
	10/13/94	160	.	.	0.40	140	0.5	2.3	.
	01/95	-	.	.	-	-	-	-	.
	4/19/95	ND	.	.	ND	ND	ND	ND	.
	10/12/95	ND	.	.	ND	ND	ND	ND	.
	4/12/96	ND	.	.	2.9	2.9	ND	ND	.
	10/8/96	ND	.	.	ND	ND	ND	ND	17
	4/9/97	ND	.	.	ND	ND	ND	ND	ND
	11/5/97	ND	ND	.	ND	ND	ND	ND	9.0
	3/1/00	78	.	.	ND	0.49	ND	ND	260
	09/00	54	.	.	ND	ND	ND	ND	170
	3/22/01	130	.	.	ND	ND	ND	ND	440
	8/23/01	79	.	.	ND	ND	ND	ND	280 ¹ /350
	03/02	91	.	.	ND	ND	ND	ND	370
	10/02	83	.	.	ND	ND	ND	ND	260
	03/03	61	.	.	ND	ND	ND	ND	200
9/17/03	140	.	.	ND	ND	ND	ND	440	
11/20/08*	<50	<50	.	0.81	<0.3	<0.3	<0.3	300	
2/6/09*	97	<50	.	<0.3	<0.3	<0.3	<0.3	200	
8/25/09	NS	NS	.	NS	NS	NS	NS	NS	

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-7	04/13/92	1,300	-	-	0.40	0.30	0.30	0.9	-
	4/27/92	1,100	-	-	ND	ND	ND	ND	-
	7/9/92	830	-	-	ND	ND	ND	ND	-
	10/8/92	3,900	-	-	ND	ND	ND	ND	-
	11/30/92	2,700	ND	-	-	-	-	-	-
	1/12/93	U	U	U	U	U	U	U	U
	01/93	1,900	-	-	ND	ND	ND	ND	-
	3/4/93	830	-	-	ND	ND	ND	ND	-
	7/1/93	680	-	-	ND	ND	ND	ND	-
	10/19/93	360	-	-	ND	ND	ND	0.70	-
	1/12/94	330	-	-	ND	ND	ND	ND	-
	4/25/94	360	-	-	ND	ND	ND	ND	-
	7/28/94	-	-	-	-	-	-	-	-
	10/13/94	-	-	-	-	-	-	-	-
	01/95	-	-	-	-	-	-	-	-
	4/19/95	-	-	-	ND	ND	ND	ND	-
	10/12/95	-	-	-	ND	ND	ND	ND	-
	4/12/96	-	-	-	ND	ND	ND	ND	-
	10/8/96	-	-	-	-	-	-	-	-
	4/9/97	-	-	-	-	-	-	-	-
	11/5/97	-	-	-	-	-	-	-	-
	3/1/00	ND	-	-	890	ND	ND	ND	ND
	09/00	770	-	-	3.0	0.32	13	27	ND
	3/22/01	630	-	-	ND	ND	ND	ND	ND
	8/23/01	800	-	-	ND	ND	ND	ND	7.3 ¹ /ND
	03/02	280	-	-	0.35	ND	0.91	2.2	7.7
	10/02	IA	IA	IA	IA	IA	IA	IA	IA
	03/03	IA	IA	IA	IA	IA	IA	IA	IA
9/17/03	IA	IA	IA	IA	IA	IA	IA	IA	
11/20/08	520	70	-	<0.3	<0.3	<0.3	<0.3	<5.0	
2/6/09*	400	<50	-	<0.3	<0.3	<0.3	<0.3	<5.0	
8/25/09	IA	IA	IA	IA	IA	IA	IA	IA	

Table 3
Groundwater Monitoring Analytical Results - Petroleum Hydrocarbon Constituents
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	TPHg (µg/L)	TPHd (µg/L)	Total Oil and Grease (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-101	09/95	9,400	-	-	170	94	150	710	-
	03/01/00	40,000	-	-	2,500	490	4,300	10,000	2,400 ¹ /1,400
	09/00	770	-	-	3.0	0.32	13	27	-
	03/01	34,000	-	-	1,400	62	3,400	7,700	970
	08/23/01	12,000	-	-	630	ND	1,500	480	1,400
	03/02	19,000	-	-	600	25	1,600	3,100	1,600 ¹ /870
	10/02	5,200	-	-	240	0.74	230	76	1,500 ¹ /1,400
	03/03	6,300	-	-	330	ND	440	370	1,400 ¹ /840
	9/17/03	3,000	-	-	150	ND	100	110	850 ¹ /1,100
	11/20/08*	2,800	5,400	-	61	<0.3	38	1.6	570
	2/6/09*	<50	3,600	-	<0.3	<0.3	<0.3	<0.3	630
8/25/09	2,200	1,500	-	9.9	<0.5	14	5.6	440	
SP-1	11/1993	49,000	-	-	3,900	13,000	2,800	15,000	-
SP-2	11/1993	1,400	-	-	54	240	87	390	-

Notes:
 ND: Not detected.
 <: Not detected above laboratory's indicated reportable detection limit.
 NS: No sample collected.
 IA: Well inaccessible at time of sampling.
 U: Unavailable.
 -: Not analyzed.
 *: Other fuel oxygenates and 1,2-DCA not detected above 5 µg/L (50 µg/L for TBA).
¹: MTBE by EPA method 8015/8020; otherwise by EPA Method 8260.

Table 4
Groundwater Monitoring Analytical Results
Volatile Organic Compounds
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date	Chlorobenzene	Chloroform	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloroethane	Tetrachloroethene	Trichloroethene
MW-2	Mar-93	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
	10/19/93	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-4	12/14/89	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
	3/4/93	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/19/93	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.9
MW-5	3/4/93	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5
MW-6	3/4/93	<0.5	<0.5	<0.5	<0.5	<0.5	3.5	<0.5
MW-7	11/30/92	2.0	2.0	180	1.5	-	14,000	660
	3/4/93	-	<20	-	<20	<20	3,700	210
SP-1	11/18/93	unknown	unknown	28	15	12	22	20
SP-2	11/18/93	unknown	unknown	ND	ND	ND	ND	ND
Notes:								
<: Not detected above laboratory's indicated reportable detection limit.								
-: Not analyzed								

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-101	09/95	U	U	-
	3/1/00		9.75	-
	09/00		U	-
	03/01		U	-
	08/23/01		9.70	-
	03/02		U	-
	10/02		U	-
	03/03		U	-
	9/17/03		9.80	-
	11/20/08		10.69	-
	2/6/09		10.46	-
8/25/09	10.53	-		

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-2	12/89	U	U	-
	08/90		U	-
	01/91		U	-
	04/91		U	-
	07/91		U	-
	10/91		U	-
	01/92		U	-
	4/20/92	183.10	10.36	172.74
	7/9/92		10.65	172.45
	10/8/92	183.47	11.60	171.87
	1/12/93		9.11	174.36
	3/4/93		9.28	174.19
	7/1/93		10.37	173.10
	10/19/93		10.82	172.65
	1/12/94		10.66	172.81
	4/25/94		10.23	173.24
	7/28/94		10.70	172.77
	10/13/94		14.19	169.28
	1/10/95		8.12	175.35
	4/19/95		9.24	174.23
	10/12/95		10.66	172.81
	4/12/96		10.05	173.42
	10/8/96		10.61	172.86
	4/9/97		10.40	173.07
	11/5/97		10.88	172.59
	3/1/00		8.49	174.98
	09/00		U	-
	3/22/01		9.65	173.82
	8/23/01		9.65	173.82
	03/2002		U	-
	10/2002		U	-
03/2003		IA	-	
9/17/03		IA	-	
11/20/08		IA	-	
2/11/09		U	-	
8/25/09		IA	-	

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-3	12/89	U	U	-
	08/90		U	-
	01/91		U	-
	04/91		U	-
	07/91		U	-
	10/91		U	-
	01/92		U	-
	4/20/92	183.52	10.34	173.18
	7/9/92		10.84	172.68
	10/8/92	184.03	11.96	172.07
	1/12/93		9.28	174.75
	3/4/93		9.53	174.50
	7/1/93		10.56	173.47
	10/19/93		11.04	172.99
	1/12/94		10.90	173.13
	4/25/94		10.37	173.66
	7/28/94		10.95	173.08
	10/13/94		14.37	169.66
	1/10/95		8.23	175.80
	4/19/95		9.54	174.49
	10/12/95		10.97	173.06
	4/12/96		10.06	173.97
	10/8/96		10.87	173.16
	4/9/97		10.40	173.63
	11/5/97		10.97	173.06
	3/1/00		8.68	175.35
	09/00		U	-
	3/22/01		10.22	173.81
	8/23/01		10.02	174.01
	03/02		U	-
10/02		U	-	
03/03		U	-	
9/17/03		10.00	174.03	
11/20/08		IA	-	
2/11/09		U	-	
8/25/09		IA	-	

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-4	12/89	U	U	-
	08/90		U	-
	01/91		U	-
	04/91		U	-
	07/91		U	-
	10/91		U	-
	01/92		U	-
	4/20/92		10.89	
	7/9/92	184.33	10.65	173.68
	10/8/92	184.61	12.78	171.83
	1/12/93		9.67	174.94
	3/4/93		10.20	174.41
	7/1/93		11.41	173.20
	10/19/93		11.92	172.69
	4/25/94		10.94	173.67
	7/28/94		11.74	172.87
	10/13/94		15.31	169.30
	1/10/95		8.02	176.59
	4/19/95		9.97	174.64
	10/12/95		11.70	172.91
4/12/96		10.33	174.28	
10/8/96		11.65	172.96	
4/9/97		10.93	173.68	
11/5/97		11.82	172.79	

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-5	4/27/92	183.62	11.72	171.90
	7/9/92		12.24	171.38
	10/8/92	183.92	13.24	170.68
	1/12/93		10.30	173.62
	3/4/93		10.53	173.39
	7/1/93		11.85	172.07
	10/19/93		12.32	171.60
	4/25/94		11.58	172.34
	07/94		U	-
	10/13/94		15.71	168.21
	01/95		U	-
	4/19/95		10.41	173.51
	10/12/95		12.12	171.80
	4/12/96		10.85	173.07
	10/8/96		12.00	171.92
	4/9/97		11.40	172.52
	11/5/97		12.19	171.73
	3/1/00		9.45	174.47
	09/00		U	-
	3/22/01		11.04	172.88
	8/23/01		11.06	172.86
	03/02	NS	-	
	10/02	NS	-	
03/03	NS	-		
9/17/03	11.03	172.89		
11/20/08	11.80	172.12		
2/6/09	11.56	172.36		
8/25/09	11.90	172.02		

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-6	4/27/92	U	11.90	171.80
	7/9/92	183.70	12.34	171.36
	10/8/92	183.96	13.3	170.66
	1/12/93	183.60	10.59	173.01
	3/4/93		10.86	172.74
	7/1/93		12.00	171.60
	10/19/93		12.48	171.12
	4/25/94		11.86	171.74
	07/94		U	-
	10/13/94		15.87	167.73
	01/95		U	-
	4/19/95		10.70	172.90
	10/12/95		12.32	171.28
	4/12/96		11.09	172.51
	10/8/96		12.19	171.41
	4/9/97		11.70	171.90
	11/5/97		12.33	171.27
	3/1/00		9.73	173.87
	09/00		U	-
	3/22/01		11.01	172.59
	8/23/01		11.21	172.39
	03/02		U	-
	10/02		U	-
03/03		U	-	
9/17/03		11.50	172.10	
11/20/08		12.10	171.50	
2/6/09		11.83	171.77	
8/25/09		Dry	-	

Table 5
Summary of Groundwater Elevation Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Well	Date Measured	Casing Elevation (Feet above MSL)	Depth to Groundwater (Feet)	Groundwater Elevation (Feet above MSL)
MW-7	4/27/92	182.52	10.97	171.55
	7/9/92		11.43	171.09
	10/8/92	182.78	12.40	170.38
	11/30/92		12.00	170.78
	1/12/93		9.51	173.27
	01/93		U	-
	3/4/93		9.88	172.90
	7/1/93		11.07	171.71
	10/19/93		11.55	171.23
	1/12/94		182.42	11.36	171.06
	4/25/94	10.85		171.57
	7/28/94	NS		-
	10/13/94	NS		-
	01/95	U		-
	4/19/95	9.66		172.76
	10/12/95	11.34		171.08
	4/12/96	10.06		172.36
	10/8/96	11.16		171.26
	4/9/97	11.70		170.72
	11/5/97	11.36		171.06
	3/1/00	8.72		173.70
	09/00	U		-
	3/22/01	10.04		172.38
	8/23/01	10.18		172.24
	03/02	U		-
	10/02	IA		-
	03/03	IA		-
	9/17/03	IA		-
	11/20/08	11.05		171.37
	2/6/09	10.76	171.66	
8/25/09	IA	-		

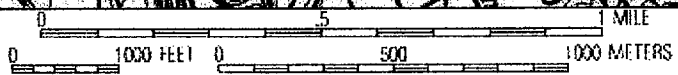
Notes:
IA: Well Inaccessible
NS: Well Not Sampled
U: Data Unavailable
-: Unable to calculate elevation

Table 6
Summary of Groundwater Flow Direction and Gradient Data
Former Unocal Service Station
20405 Redwood Road
Castro Valley, California

Date	Flow Direction	Gradient (Feet/Foot)
11/1/1992	Southeast	0.006
1/27/1993	Southeast	0.010
3/4/1993	Southeast	0.012
7/1/1993	Southeast	0.012
10/19/1993	South	0.005
1/12/1994	South	0.001
5/13/1994	Southwest	0.007
10/13/1994	South	0.001
1/31/1995	South	0.002
5/17/1995	South	0.009
10/30/1995	South	0.007
4/12/1996	South	0.008
11/5/1996	South	0.008
4/9/1997	South	0.010
8/23/2001	South	0.008
9/17/2003	Southeast	0.012
11/20/2008	Southeast	0.010
2/5/2009	South-southeast	0.010
8/25/2009	-	-
Notes:		
-: Unable to calculate flow direction		



TN \uparrow /MIN
15°

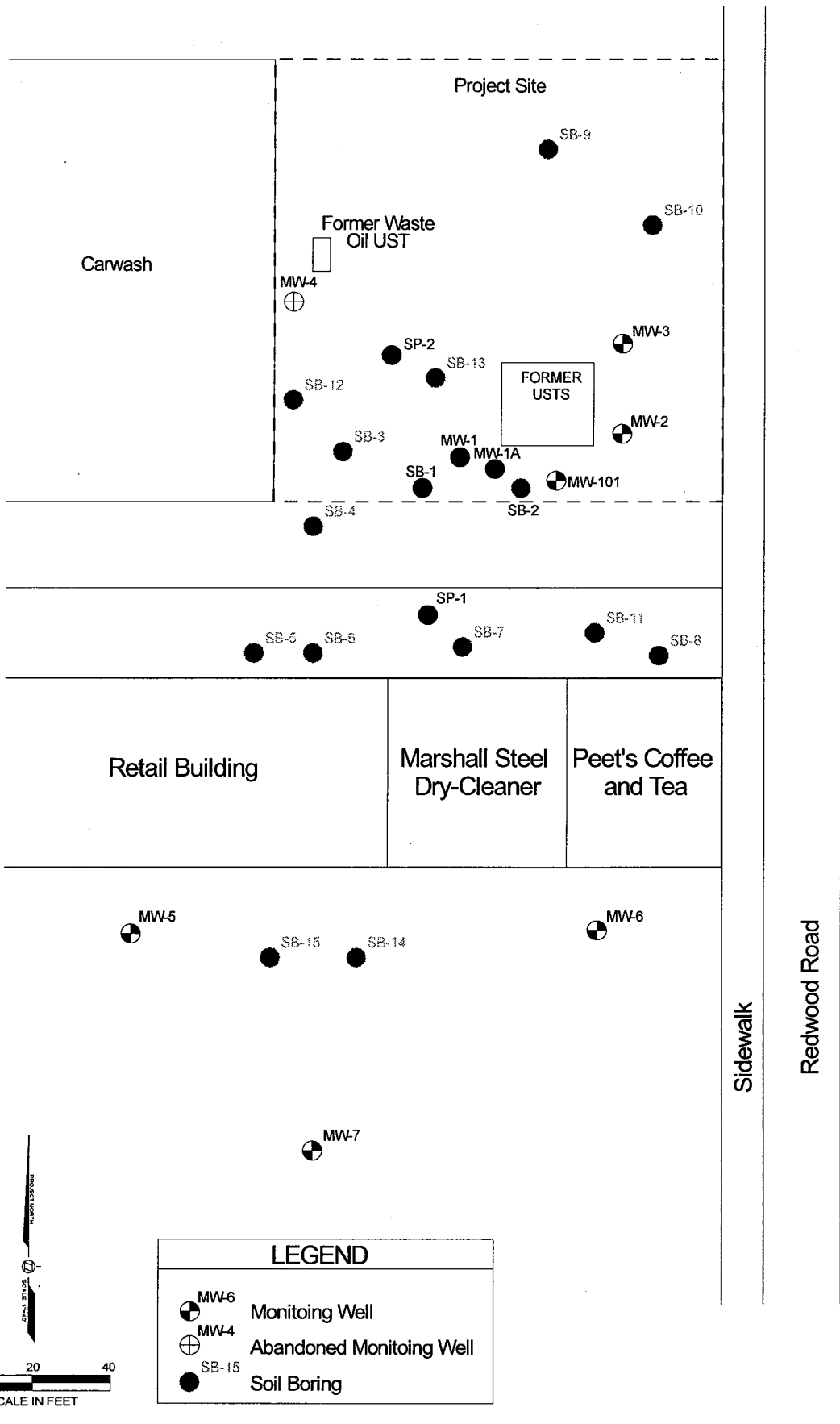


Map created with TOPO!© ©2003 National Geographic (www.nationalgeographic.com/topo)

BSK
Associates
Engineers & Laboratories

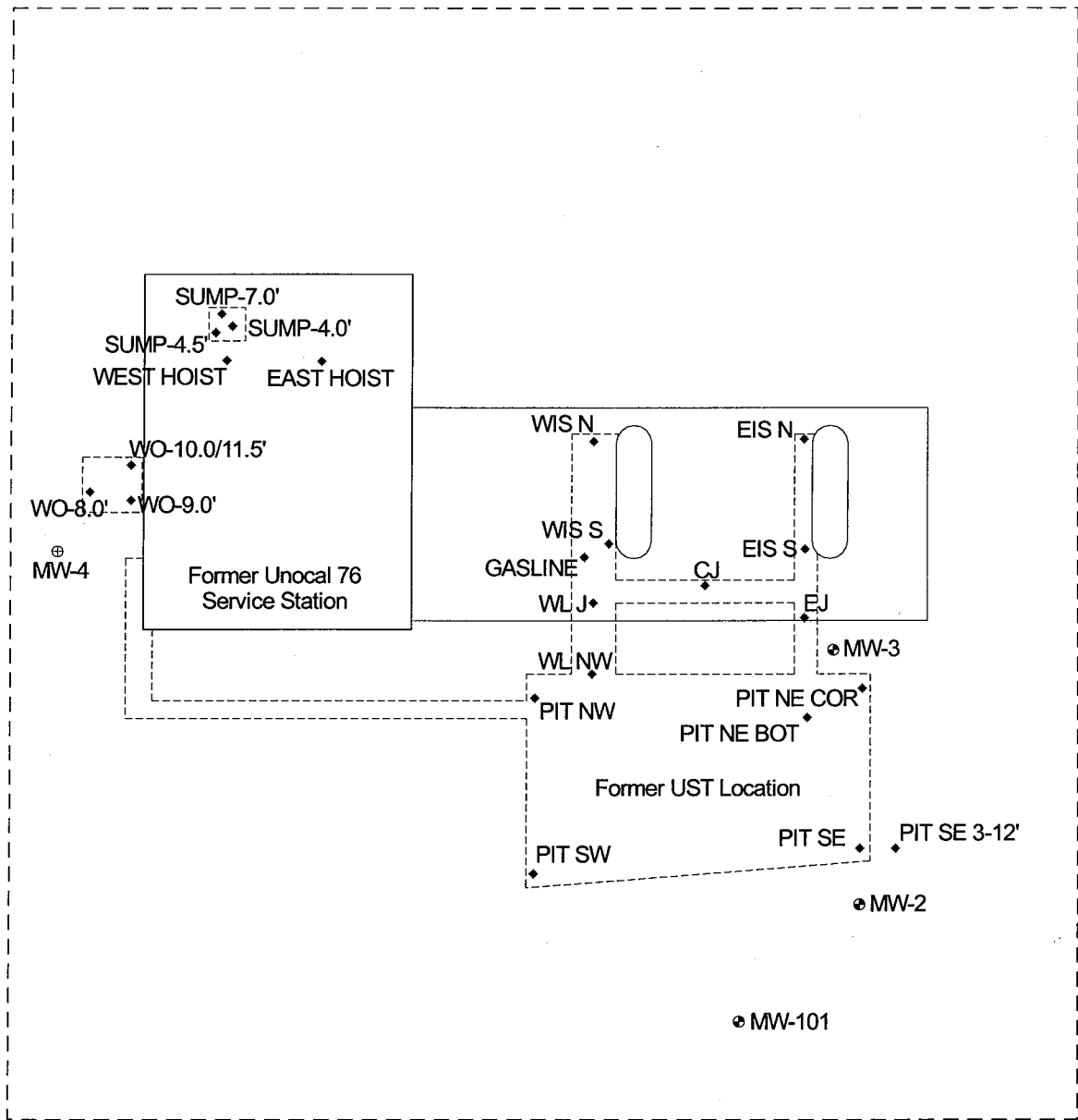
SITE VICINITY
FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA

FIGURE 1
PROJECT: E0805401S



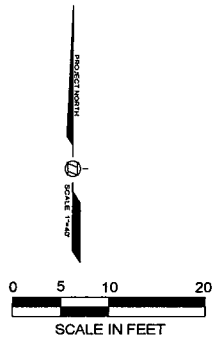
SITE PLAN
FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA

FIGURE 2
PROJECT: E0805401S
DATE: 1/21/09



Redwood Road

← Driveway to Shopping Center



LEGEND	
◆	Soil Sample Location
⊞	Approximate Extent of Excavation
●	Monitoring Well Location
⊕	Abandoned Monitoring Well Location

BSK
Associates
Engineers & Laboratories

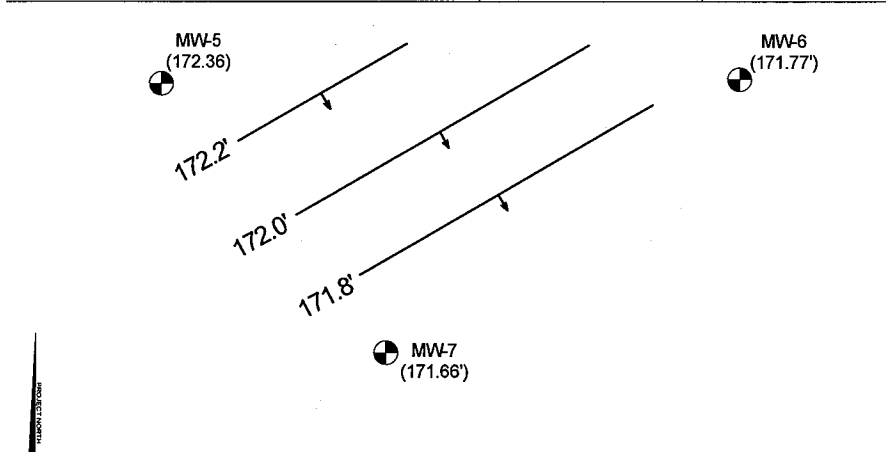
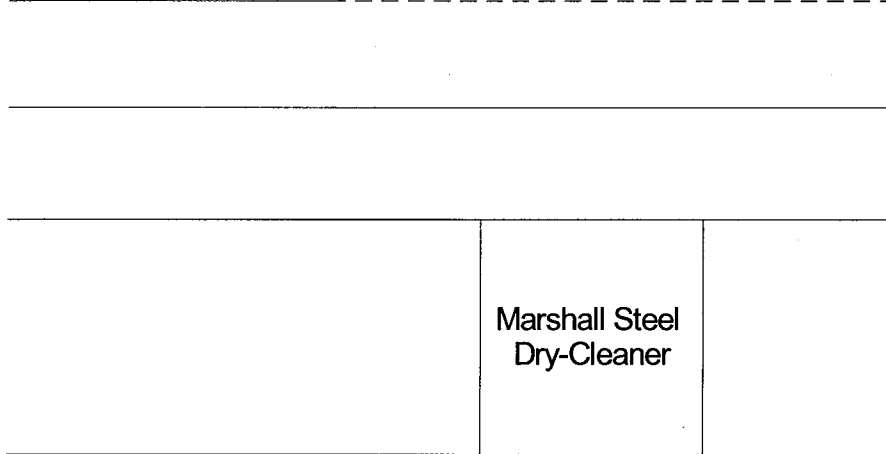
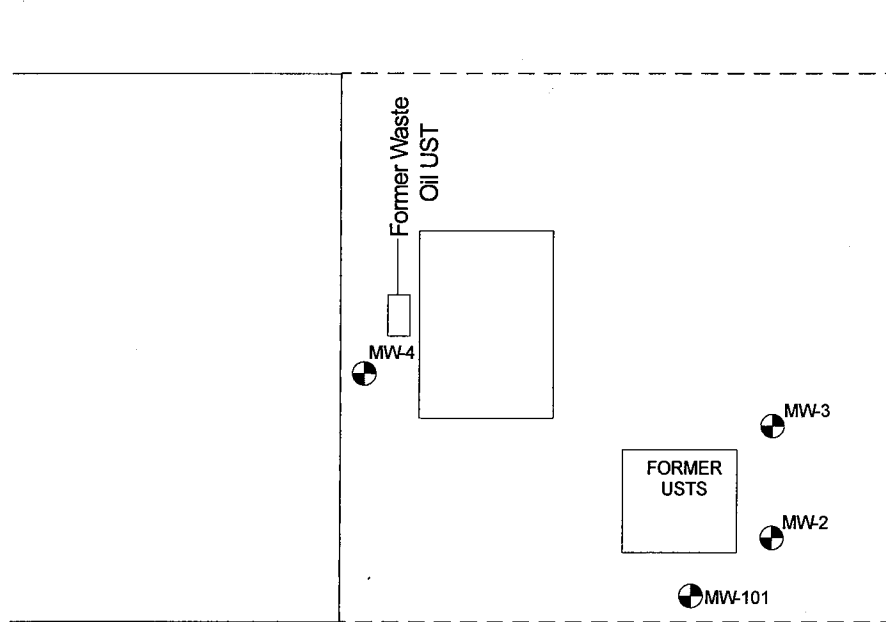
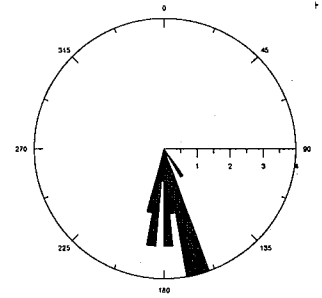
EXTENT OF EXCAVATIONS AND
EXCAVATION SOIL SAMPLE LOCATIONS
FORMER UNOCAL SERVICE STATION
20405 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA

FIGURE 3

PROJECT: E0805401S

DATE: 2/12/09

Groundwater Flow Direction



Sidewalk

Redwood Road

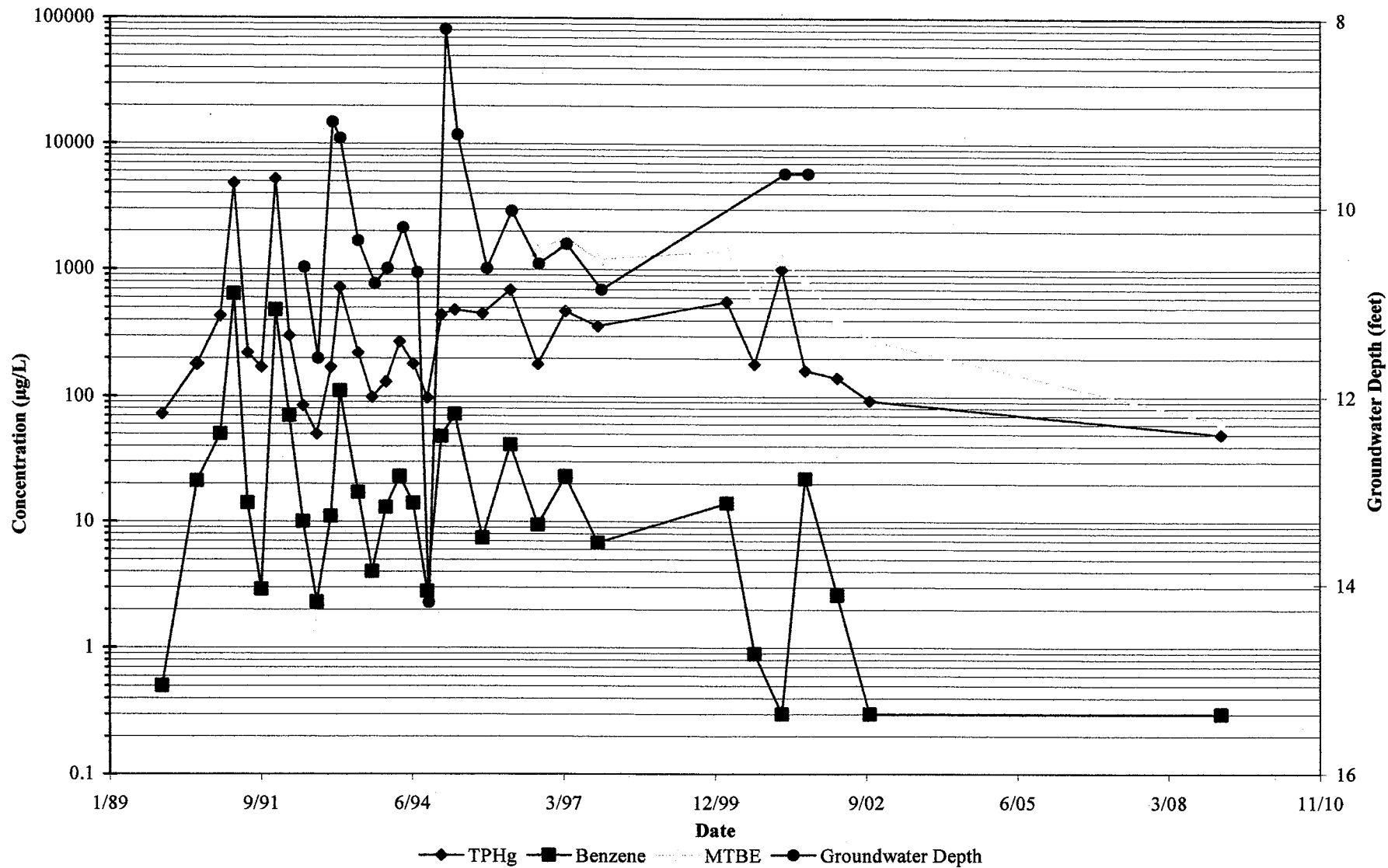


LEGEND	
	Generalized Groundwater Contour Line
	Monitoring Well (Groundwater Elevation, feet above MSL)

BSK
 Associates
 Engineers & Laboratories

GENERALIZED GROUNDWATER ELEVATION MAP
 FEBRUARY 2009
 FORMER UNOCAL SERVICE STATION
 20405 REDWOOD ROAD
 CASTRO VALLEY, CALIFORNIA

FIGURE 4
 PROJECT: E0805401S
 DATE: 4/13/09



Non-detects plotted as 1/2 of the reportable detection limits (typically 50 µg/L for TPH, 0.3 µg/L for Benzene, and 5 µg/L for MTBE).

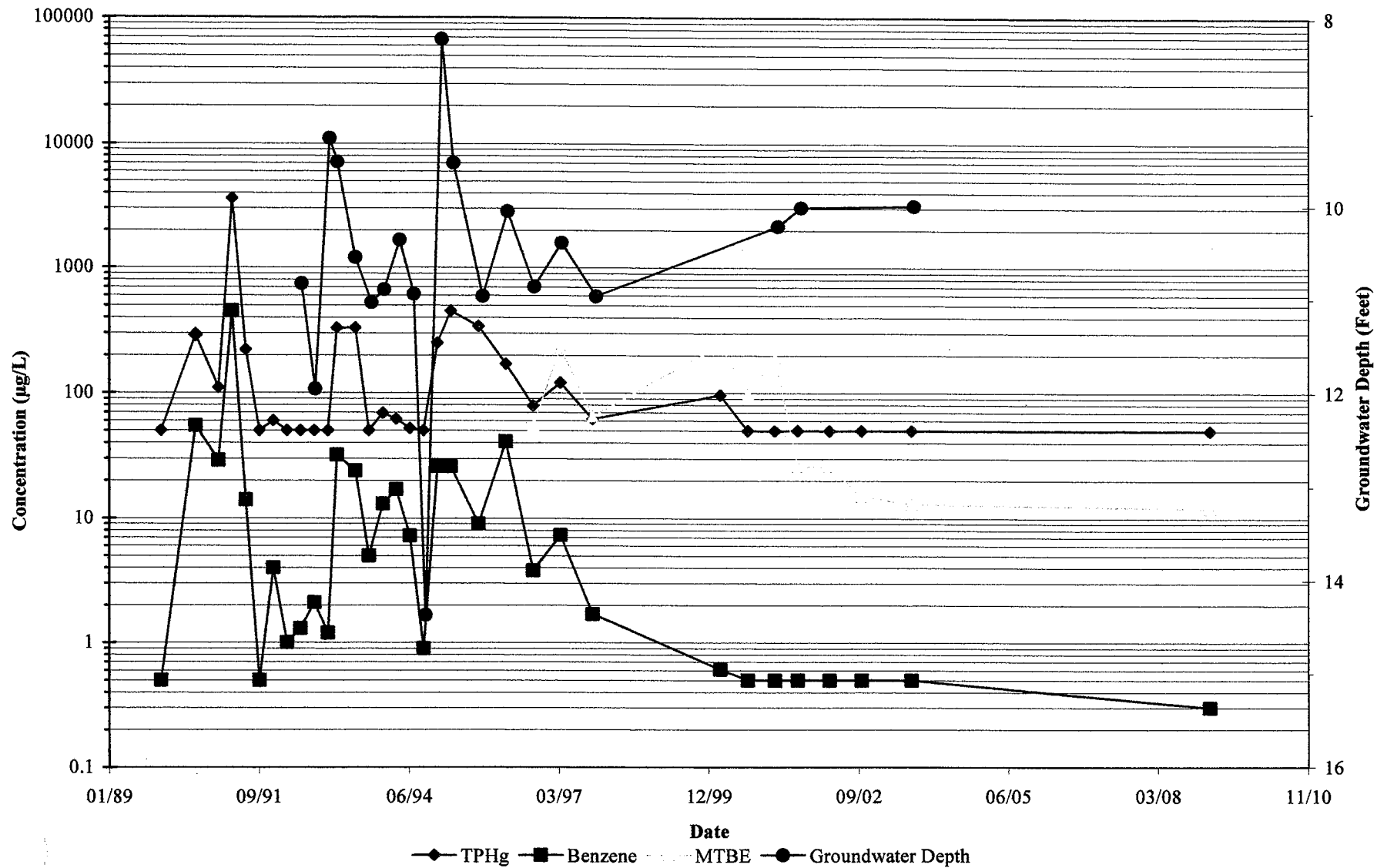


MW-2 TIME-SERIES PLOTS
 FORMER UNOCAL SERVICE STATION
 20405 REDWOOD ROAD
 CASTRO VALLEY, CALIFORNIA

FIGURE 5

PROJECT: E0503102S

DATE: 9/16/09

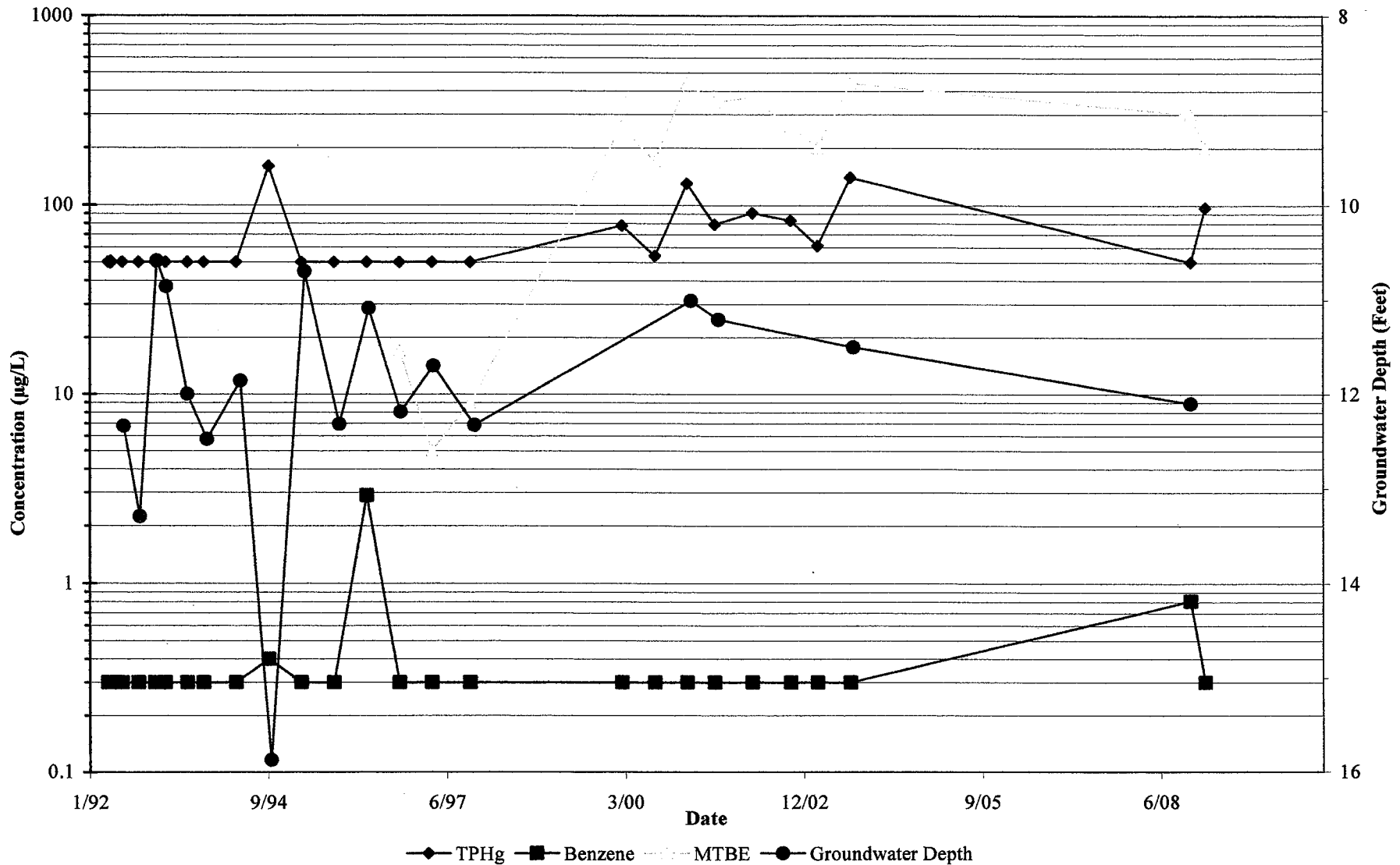


Non-detects plotted as 1/2 of the reportable detection limits (typically 50 µg/L for TPH, 0.3 µg/L for Benzene, and 5 µg/L for MTBE).

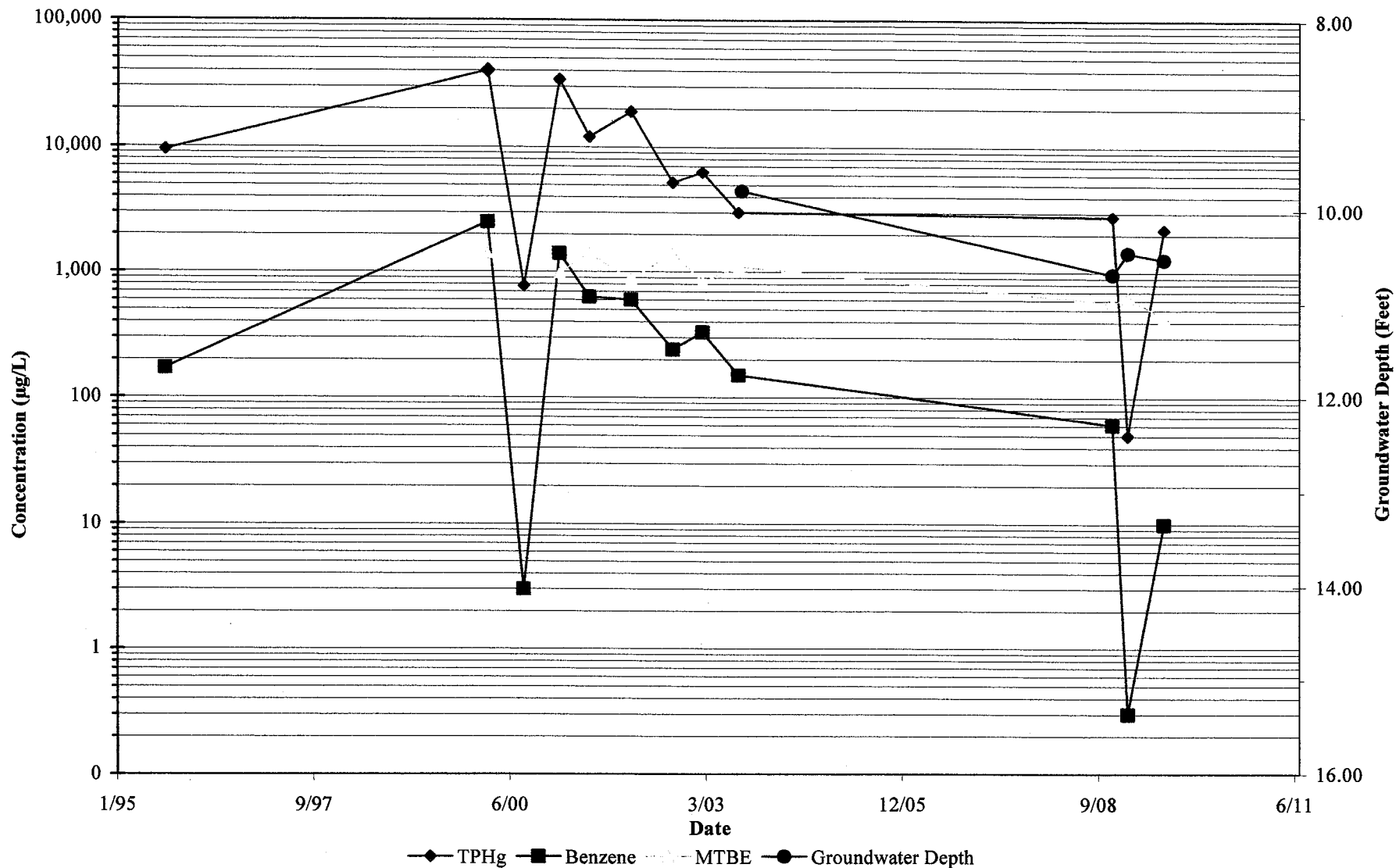


MW-3 TIME-SERIES PLOTS
 FORMER UNOCAL SERVICE STATION
 20405 REDWOOD ROAD
 CASTRO VALLEY, CALIFORNIA

FIGURE 6
 PROJECT: E0503102S
 DATE: 9/16/09



Non-detects plotted as 1/2 of the reportable detection limits (typically 50 µg/L for TPH, 0.3 µg/L for Benzene, and 5 µg/L for MTBE).



Non-detects plotted as 1/2 of the reportable detection limits (typically 50 µg/L for TPH, 0.3 µg/L for Benzene, and 5 µg/L for MTBE).

WELL SAMPLE LOG

Project Name: <u>Oroca</u>	Job #: <u>EO8054015</u>	Field Personnel: <u>KL, TF</u>
Day: Mon <input type="radio"/> Tu <input checked="" type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun (Circle)	Date: <u>8/25/09</u>	Weather: Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Rain <input type="checkbox"/> (Circle) Cold <input type="checkbox"/> Cool <input type="checkbox"/> Warm <input type="checkbox"/> Hot <input type="checkbox"/> Very Hot <input type="checkbox"/>

Well: <u>MW-2</u>	Water Level Measurement Technique: <input type="checkbox"/> Electric Sounder <input type="checkbox"/> Not Measured
Static Depth to Water (Ft.) (A) ¹⁾ ²⁾	Purge Method: <input type="checkbox"/> Grundfos Submersible Pump <input type="checkbox"/> Pneumatic Pump (Circle) <input type="checkbox"/> Electric Pump <input type="checkbox"/> Hand Bailed Other _____
Total Depth of Casing (Ft.) (B)	
Total Ft. of Water (B-A)	
Casing Diameter (in.)	Dedicated System: Yes No
Casing Capacity-gal/ft (C)	pH Calibration: ___ 4.0 ___ 7.0 ___ 10.0
Gallons per Casing Volume ((B-A)*C)	EC Calibration(μmhos) _____

Time	Gallons Purged	PH	EC (μmhos)	Temp (°F) / (°C)	Other	Remarks (Color, Odor, Turbidity, etc.)

Purge Pump On	Discharge Measurement: (Circle) <input type="checkbox"/> Bucket <input type="checkbox"/> Tank <input type="checkbox"/> Flowmeter
Purge Pump Off	Sample Collection Method: ___ Direct From Discharge Hose ___ Teflon Bailer ___ Disposable Bailer
Total Gallons Purged	
Purge Rate (gpm)	Ice Chest Coolant: ___ Crushed Ice ___ Blue Ice Ice Chest Temp (°C) _____

Sample Time	Analyses	Amount/Container Used	Sample Description

Well Vault Type:	Floating Product: ___ Yes ___ No ___ NA
Lock Number/Type:	Thickness: _____
Drums Filled/Used:	Description: _____

* Located but could not open *

WELL SAMPLE LOG

Project Name: <u>UNCCU</u>	Job #: <u>E08054015</u>	Field Personnel: <u>KL, TF</u>
Day: Mon <input checked="" type="radio"/> Tu <input type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun <input type="radio"/> (Circle)	Date: <u>8/25/09</u>	Weather: Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Rain <input type="checkbox"/> (Circle) Cold <input type="checkbox"/> Cool <input type="checkbox"/> Warm <input type="checkbox"/> Hot <input type="checkbox"/> Very Hot <input type="checkbox"/>

Well: <u>MW-3</u>	Water Level Measurement Technique: Electric Sounder <input type="checkbox"/> Not Measured <input type="checkbox"/>
Static Depth to Water (Ft.) (A) ¹⁾ <input type="text"/> ²⁾ <input type="text"/>	Purge Method: Grundfos Submersible Pump <input type="checkbox"/> Pneumatic Pump <input type="checkbox"/> (Circle) Electric Pump <input type="checkbox"/> Hand Bailed <input type="checkbox"/>
Total Depth of Casing (Ft.) (B) <input type="text"/>	Other <input type="text"/>
Total Ft. of Water (B-A) <input type="text"/>	Dedicated System: Yes <input type="checkbox"/> No <input type="checkbox"/>
Casing Diameter (in.) <input type="text"/>	pH Calibration: <input type="text"/> 4.0 <input type="text"/> 7.0 <input type="text"/> 10.0
Casing Capacity-gal/ft (C) <input type="text"/>	EC Calibration(μmhos) <input type="text"/>
Gallons per Casing Volume ((B-A)*C) <input type="text"/>	

Time	Gallons Purged	PH	EC (μmhos)	Temp (°F)/(°C)	Other	Remarks (Color, Odor, Turbidity, etc.)

Purge Pump On <input type="checkbox"/>	Discharge Measurement: (Circle) Bucket <input type="checkbox"/> Tank <input type="checkbox"/> Flowmeter <input type="checkbox"/>
Purge Pump Off <input type="checkbox"/>	Sample Collection Method: <input type="checkbox"/> Direct From Discharge Hose <input type="checkbox"/> <input type="checkbox"/> Teflon Bailer <input type="checkbox"/> Disposable Bailer
Total Gallons Purged <input type="text"/>	
Purge Rate (gpm) <input type="text"/>	Ice Chest Coolant: <input type="checkbox"/> Crushed Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Ice Chest Temp (°C) <input type="text"/>

Sample Time	Analyses	Amount/Container Used	Sample Description

Well Vault Type: <input type="text"/>	Floating Product: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Lock Number/Type: <input type="text"/>	Thickness: <input type="text"/>
Drums Filled/Used: <input type="text"/>	Description: <input type="text"/>

** could not locate **

WELL SAMPLE LOG

Project Name: <u>Unocal</u>	Job #: <u>E08.054.01S</u>	Field Personnel: <u>KL, TLF</u>
Day: Mon <input type="radio"/> Tu <input checked="" type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun (Circle)	Date: <u>8-25-09</u>	Weather: <input checked="" type="radio"/> Clear <input type="radio"/> Partly Cloudy <input type="radio"/> Overcast <input type="radio"/> Rain (Circle) Cold <input checked="" type="radio"/> Warm <input type="radio"/> Hot <input type="radio"/> Very Hot

Well: <u>MW-5</u>	Water Level Measurement Technique: <input checked="" type="checkbox"/> Electric Sounder <input type="checkbox"/> Not Measured <u>Solinst-Model 101</u>
Static Depth to Water (Ft.) (A) <u>11.90</u> <u>11.90</u>	Purge Method: Grundfos Submersible Pump Pneumatic Pump (Circle) Electric Pump Hand Bailed Other _____
Total Depth of Casing (Ft.) (B) <u>34.01</u>	
Total Ft. of Water (B-A) <u>22.11</u>	Dedicated System: Yes <input type="radio"/> No <input checked="" type="radio"/>
Casing Diameter (in.) <u>2"</u>	pH Calibration: <input checked="" type="checkbox"/> 4.0 <input checked="" type="checkbox"/> 7.0 <input type="checkbox"/> 10.0
Casing Capacity-gal/ft (C) <u>.163</u>	EC Calibration(µmhos) _____
Gallons per Casing Volume ((B-A)*C) <u>3.60</u>	

Time	Gallons Purged	PH	EC (µmhos)	Temp (°F) (°C)	Other	Remarks (Color, Odor, Turbidity, etc.)
	<u>4</u>	<u>6.51</u>	<u>566</u>	<u>69.8</u>		<u>Clear, no odor</u>
	<u>8</u>	<u>6.45</u>	<u>554</u>	<u>69.6</u>		<u>" "</u>
	<u>12</u>	<u>6.49</u>	<u>418</u>	<u>69.4</u>		<u>" "</u>

Purge Pump On	<u>11:30</u>	Discharge Measurement: (Circle) <input checked="" type="radio"/> Bucket <input type="radio"/> Tank <input type="radio"/> Flowmeter
Purge Pump Off	<u>11:34</u>	Sample Collection Method: <input type="checkbox"/> Direct From Discharge Hose <input type="checkbox"/> Teflon Bailer <input checked="" type="checkbox"/> Disposable Bailer
Total Gallons Purged		
Purge Rate (gpm)		Ice Chest Coolant: <input type="checkbox"/> Crushed Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> Ice Chest Temp (°C) _____

Sample Time	Analyses	Amount/Container Used	Sample Description
<u>12:15</u>			

Well Vault Type: <u>flush mount</u>	Lock Number/Type: <u>—</u>	Floating Product: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
Drums Filled/Used:		Thickness: _____ Description: _____

WELL SAMPLE LOG

Project Name: <u>Unocal</u>	Job #: <u>E08.054.01S</u>	Field Personnel: <u>KL, TLF</u>
Day: Mon <input checked="" type="radio"/> Tu <input type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun (Circle)	Date: <u>8-25-09</u>	Weather: Clear <input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Overcast <input type="checkbox"/> Rain <input type="checkbox"/> (Circle) Cold <input type="checkbox"/> Cool <input type="checkbox"/> Warm <input type="checkbox"/> Hot <input type="checkbox"/> Very Hot <input type="checkbox"/>

Well: <u>MW-6</u>	Water Level Measurement Technique: <input checked="" type="checkbox"/> Electric Sounder <input type="checkbox"/> Not Measured <u>Solinst-Model 101</u>
Static Depth to Water (Ft.) (A): <u>26 Dry</u>	Purge Method: Grundfos Submersible Pump <input type="checkbox"/> Pneumatic Pump <input type="checkbox"/> Electric Pump <input type="checkbox"/> Hand Bailed <input type="checkbox"/> Other _____
Total Depth of Casing (Ft.) (B): <u>26.52</u>	
Total Ft. of Water (B-A)	Dedicated System: Yes <input type="checkbox"/> No <input type="checkbox"/>
Casing Diameter (in.)	pH Calibration: <u>4.0</u> <u>7.0</u> <u>10.0</u>
Casing Capacity-gal/ft (C)	EC Calibration(μmhos) _____
Gallons per Casing Volume ((B-A)*C)	

Time	Gallons Purged	PH	EC (μmhos)	Temp (°F)/(°C)	Other	Remarks (Color, Odor, Turbidity, etc.)

Purge Pump On	Discharge Measurement: (Circle) Bucket <input type="checkbox"/> Tank <input type="checkbox"/> Flowmeter <input type="checkbox"/>
Purge Pump Off	Sample Collection Method: <input type="checkbox"/> Direct From Discharge Hose <input type="checkbox"/> Teflon Bailer <input type="checkbox"/> Disposable Bailer
Total Gallons Purged	
Purge Rate (gpm)	Ice Chest Coolant: <input type="checkbox"/> Crushed Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Ice Chest Temp (°C) _____

Sample Time	Analyses	Amount/Container Used	Sample Description

Well Vault Type:	Floating Product: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Lock Number/Type:	Thickness: _____
Drums Filled/Used:	Description: _____

WELL SAMPLE LOG

Project Name: <u>Unocal</u>	Job #: <u>E08.054.01S</u>	Field Personnel: <u>TZF, KL</u>
Day: Mon <input checked="" type="radio"/> Tu <input type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun (Circle)	Date: <u>8-25-04</u>	Weather: Clear <input type="radio"/> Partly Cloudy <input type="radio"/> Overcast <input type="radio"/> Rain <input type="radio"/> (Circle) Cold <input type="radio"/> Cool <input type="radio"/> Warm <input type="radio"/> Hot <input type="radio"/> Very Hot <input type="radio"/>

Well: <u>MW-7</u>	Water Level Measurement Technique: <input type="checkbox"/> Electric Sounder <input type="checkbox"/> Not Measured
Static Depth to Water (Ft.) (A) ¹⁾ <input type="text"/> ²⁾ <input type="text"/>	Purge Method: <input type="checkbox"/> Grundfos Submersible Pump <input type="checkbox"/> Pneumatic Pump (Circle) <input type="checkbox"/> Electric Pump <input type="checkbox"/> Hand Bailed <input type="checkbox"/> Other _____
Total Depth of Casing (Ft.) (B) <input type="text"/>	
Total Ft. of Water (B-A) <input type="text"/>	Dedicated System: Yes <input type="checkbox"/> No <input type="checkbox"/>
Casing Diameter (in.) <input type="text"/>	pH Calibration: <input type="checkbox"/> 4.0 <input type="checkbox"/> 7.0 <input type="checkbox"/> 10.0
Casing Capacity-gal/ft (C) <input type="text"/>	EC Calibration(μmhos) <input type="text"/>
Gallons per Casing Volume ((B-A)*C) <input type="text"/>	

Time	Gallons Purged	PH	EC (μmhos)	Temp (°F) / (°C)	Other	Remarks (Color, Odor, Turbidity, etc.)

Purge Pump On	Discharge Measurement: (Circle) <input type="checkbox"/> Bucket <input type="checkbox"/> Tank <input type="checkbox"/> Flowmeter
Purge Pump Off	Sample Collection Method: <input type="checkbox"/> Direct From Discharge Hose
Total Gallons Purged	<input type="checkbox"/> Teflon Bailer <input type="checkbox"/> Disposable Bailer
Purge Rate (gpm)	Ice Chest Coolant: <input type="checkbox"/> Crushed Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Ice Chest Temp (°C) <input type="text"/>

Sample Time	Analyses	Amount/Container Used	Sample Description

Well Vault Type: <input type="text"/>	Lock Number/Type: <input type="text"/>	Drums Filled/Used: <input type="text"/>	Floating Product: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA Thickness: <input type="text"/> Description: <input type="text"/>
---------------------------------------	--	---	--

** Well covered by freshly paved asphalt*

WELL SAMPLE LOG

Project Name: UNOCA	Job #: E08054015	Field Personnel: KL
Day: Mon <input type="radio"/> Tu <input checked="" type="radio"/> Wed <input type="radio"/> Thur <input type="radio"/> Fri <input type="radio"/> Sat <input type="radio"/> Sun (Circle)	Date: 8/25/09	Weather: <input checked="" type="radio"/> Clear <input type="radio"/> Partly Cloudy <input type="radio"/> Overcast <input type="radio"/> Rain (Circle) <input type="radio"/> Cold <input checked="" type="radio"/> Cool <input type="radio"/> Warm <input type="radio"/> Hot <input type="radio"/> Very Hot

Well: MW-101	Water Level Measurement Technique: <input checked="" type="checkbox"/> Electric Sounder <input type="checkbox"/> Not Measured
Static Depth to Water (Ft.) (A) 10.53	Purge Method: <input checked="" type="checkbox"/> Grundfos Submersible Pump <input type="checkbox"/> Pneumatic Pump (Circle) <input checked="" type="checkbox"/> Electric Pump <input type="checkbox"/> Hand Bailed Other _____
Total Depth of Casing (Ft.) (B) 29.3	
Total Ft. of Water (B-A) 18.77	Dedicated System: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Casing Diameter (in.) 4 1/4"	pH Calibration: <input checked="" type="checkbox"/> 4.0 <input checked="" type="checkbox"/> 7.0 <input type="checkbox"/> 10.0
Casing Capacity-gal/ft (C) 0.67	EC Calibration(μmhos) _____
Gallons per Casing Volume ((B-A)*C) 12.57	

Time	Gallons Purged	PH	EC (μmhos)	Temp (°F) (°C)	Other	Remarks (Color, Odor, Turbidity, etc.)
	13	6.62	884	72.0		Clear, very strong odor
	26	6.68	553	70.2		" "
	39	6.96	860	69.8		" "

Purge Pump On	10:13	Discharge Measurement: (Circle) <input checked="" type="checkbox"/> Bucket <input type="checkbox"/> Tank <input type="checkbox"/> Flowmeter
Purge Pump Off	10:30	Sample Collection Method: <input checked="" type="checkbox"/> Direct From Discharge Hose <input type="checkbox"/> Teflon Bailer <input checked="" type="checkbox"/> Disposable Bailer
Total Gallons Purged		
Purge Rate (gpm)		Ice Chest Coolant: <input type="checkbox"/> Crushed Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> Ice Chest Temp (°C) _____

Sample Time	Analyses	Amount/Container Used	Sample Description
1145		250 ml Amber 4 x 40ml vials	H ₂ SO ₄

Well Vault Type:	Floating Product: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
Lock Number/Type:	Thickness: _____
Drums Filled/Used:	Description: _____



1414 Stanislaus Street
Fresno, California 93706
(559) 497-2888
Fax (559) 485-6935

BSK Submission Number: 2009081966

Jeff Yeazell
BSK Associates - Sacramento
3140 Gold Camp Drive Suite 160
Rancho Cordova, CA 95670

09/08/2009

Dear Jeff Yeazell,

Thank you for selecting BSK Analytical Laboratories for your analytical testing needs. We have prepared this report in response to your request for analytical services. Please find enclosed the following sections for your complete laboratory report, each uniquely paginated:

CASE NARRATIVE: An overview of the work performed.
CERTIFICATE OF ANALYSIS: Analytical results.
QUALITY CONTROL (QC) SUMMARY: QC supporting the results presented herein.
REPORT OF SAMPLE INTEGRITY
CHAIN OF CUSTODY FORM
SUBCONTRACTED ANALYTICAL REPORT(S)

Certification: BSK Analytical Laboratories certifies that the test results contained in this report meet all requirements of the NELAC Standards for applicable certified drinking water chemistry analyses under CA NELAP Certificate #04227CA, CA-ELAP Certificate #1180, and Nevada Certificate #CA79. For all other matrices and bacteriological analyses, this data package is in compliance with ELAP Standards for applicable certified analyses under CA-ELAP Certificate #1180. Any exceptions to applicable standards have been noted in the case narrative. Please note that certifications are applicable only to tests and/or analytes specified on each. Certification information may be obtained by contacting the laboratory or visiting our website at www.bsklabs.com. The results in this report pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from BSK Analytical Laboratories.

If additional clarification of any information is required, please contact your Client Services Representative, Dan Larkin, at (800) 877-8310 or (559) 497-2888.

BSK ANALYTICAL LABORATORIES

A handwritten signature in black ink, appearing to read "Dan Larkin", is written over a horizontal line.

Dan Larkin
Client Services Representative



SAMPLE AND RECEIPT INFORMATION

The sample(s) was received, prepared, and analyzed within the method specified holding times unless otherwise noted on the Certificate of Analysis. Samples, when shipped, arrived within acceptable temperature requirements of 0° to 6° Celsius unless otherwise noted on the Report of Sample Integrity. Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.

QUALITY CONTROL

All analytical quality controls are within established method criteria except when noted in the Quality Control section or on the Certificate of Analysis. All positive results for EPA Methods 504.1, 502.2, and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed. OC samples may include analytes not requested in this submission.

SAMPLE RESULT INFORMATION

Samples are analyzed as received (wet weight basis) unless noted here. The results relate only to the items tested. Any exceptions to be considered when evaluating these results are also listed here, if applicable. Results contained in this package shall not be reproduced, except in full, without written approval of BSK Analytical Laboratories.

<u>ORDER</u>	<u>TEST</u>	<u>ANALYTE</u>	<u>COMMENT</u>
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Jeff Yeazell
BSK Associates - Sacramento
3140 Gold Camp Drive Suite 160
Rancho Cordova, CA 95670

BSK Submission #: 2009081966

BSK Sample ID #: 1153819

Report Issue Date: 09/08/2009

Project ID: E0805401S

Project Desc: Unocal Castro Valley

Submission Comments:

Sample Type: Liquid

Date Sampled: 08/25/2009

Sample Description: MW-101

Time Sampled: 1145

Sample Comments:

Date Received: 08/26/2009

Organics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
1,2-Dibromoethane	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
1,2-Dichloroethane	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Di-isopropyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Ethyl t-Butyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Methyl-t-Butyl Ether	EPA 8260B	440	µg/L	5.0	20	100	08/27/09	08/27/09
t-Amyl Methyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
tert-Butyl Alcohol	EPA 8260B	ND	µg/L	50	1	50	08/26/09	08/26/09
Surrogate								
Toluene-d8	EPA 8260B	100	% Rec	-	1	N/A	08/26/09	08/26/09

mg/L: Milligrams/Liter (ppm)
mg/Kg: Milligrams/Kilogram (ppm)
µg/L: Micrograms/Liter (ppb)
µg/Kg: Micrograms/Kilogram (ppb)
%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit
DLR: Detection Limit for Reporting
: PQL x Dilution
ND: None Detected at DLR
pCi/L: Picocurie per Liter

H: Analyzed outside of hold time
P: Preliminary result
S: Suspect result. See Case Narrative for comments.
E: Analysis performed by External laboratory.
See External Laboratory Report attachments.
MDC: Min Detectable Concentration



Jeff Yeazell
BSK Associates - Sacramento
3140 Gold Camp Drive Suite 160
Rancho Cordova, CA 95670

BSK Submission #: 2009081966

BSK Sample ID #: 1153820

Report Issue Date: 09/08/2009

Project ID: E0805401S

Project Desc: Unocal Castro Valley

Submission Comments:

Sample Type: Liquid

Date Sampled: 08/25/2009

Sample Description: MW-5

Time Sampled: 1215

Sample Comments:

Date Received: 08/26/2009

Organics

Analyte	Method	Result	Units	PQL	Dilution	DLR	Prep Date/Time	Analysis Date/Time
1,2-Dibromoethane	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
1,2-Dichloroethane	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Di-isopropyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Ethyl t-Butyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
Methyl-t-Butyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
t-Amyl Methyl Ether	EPA 8260B	ND	µg/L	5.0	1	5.0	08/26/09	08/26/09
tert-Butyl Alcohol	EPA 8260B	ND	µg/L	50	1	50	08/26/09	08/26/09

Surrogate

Toluene-d8	EPA 8260B	98	% Rec	-	1	N/A	08/26/09	08/26/09
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mg/L: Milligrams/Liter (ppm)

mg/Kg: Milligrams/Kilogram (ppm)

µg/L: Micrograms/Liter (ppb)

µg/Kg: Micrograms/Kilogram (ppb)

%Rec: Percent Recovered (surrogates)

PQL: Practical Quantitation Limit

DLR: Detection Limit for Reporting

: PQL x Dilution

ND: None Detected at DLR

pCi/L: Picocurie per Liter

H: Analyzed outside of hold time

P: Preliminary result

S: Suspect result. See Case Narrative for comments.

E: Analysis performed by External laboratory.

See External Laboratory Report attachments.

MDC: Min Detectable Concentration

Report Authentication Code:



QC Summary Report

09/08/2009



BSK Submission : **2009081966**
Client : **BSK Associates - Sacramento**
Date Submitted : **08/26/2009**
Project ID : **E0805401S**

NELAP Certificate #04227CA
ELAP Certificate #1180

Project Desc : **Unocal Castro Valley**

BSK StarLims Run #: 177666



Analyst Initials: **AMYN**

Method Number: **82600X**

Analyte Results

Analyte	QC Type	Matrix Spike ID	Result	Units	% Rec or RPD	Spike RPD	Spk Conc	Matrix Conc	UCL	LCL	Date	
1,2-Dibromoethane	LCS	N/A	12	µg/L	93		12.5	ND	130	80	08/26/09	Acceptable
1,2-Dichloroethane	LCS	N/A	12	µg/L	98		12.5	ND	130	75	08/26/09	Acceptable
Di-isopropyl Ether	LCS	N/A	14	µg/L	109		12.5	ND	130	80	08/26/09	Acceptable
Ethyl t-Butyl Ether	LCS	N/A	14	µg/L	108		12.5	ND	130	70	08/26/09	Acceptable
Methyl-t-Butyl Ether	LCS	N/A	12	µg/L	94		12.5	ND	130	80	08/26/09	Acceptable
t-Amyl Methyl Ether	LCS	N/A	12	µg/L	93		12.5	ND	140	60	08/26/09	Acceptable
tert-Butyl Alcohol	LCS	N/A	110	µg/L	89		125.0	ND	140	60	08/26/09	Acceptable
1,2-Dibromoethane	LCSD	N/A	12	µg/L	93	0.0	12.5	ND	130	80	08/26/09	Acceptable
1,2-Dichloroethane	LCSD	N/A	13	µg/L	101	3.8	12.5	ND	130	75	08/26/09	Acceptable
Di-isopropyl Ether	LCSD	N/A	14	µg/L	113	3.6	12.5	ND	130	80	08/26/09	Acceptable
Ethyl t-Butyl Ether	LCSD	N/A	14	µg/L	111	3	12.5	ND	130	70	08/26/09	Acceptable
Methyl-t-Butyl Ether	LCSD	N/A	12	µg/L	94	0.16	12.5	ND	130	80	08/26/09	Acceptable
t-Amyl Methyl Ether	LCSD	N/A	12	µg/L	95	2.3	12.5	ND	140	60	08/26/09	Acceptable
tert-Butyl Alcohol	LCSD	N/A	110	µg/L	88	1.7	125.0	ND	140	60	08/26/09	Acceptable
1,2-Dibromoethane	MS	1153881	13	µg/L	103		12.5	ND	130	80	08/27/09	Acceptable
1,2-Dichloroethane	MS	1153881	17	µg/L	103		12.5	4.3	130	75	08/27/09	Acceptable
Di-isopropyl Ether	MS	1153881	15	µg/L	117		12.5	ND	130	70	08/27/09	Acceptable
Ethyl t-Butyl Ether	MS	1153881	14	µg/L	116		12.5	ND	130	70	08/27/09	Acceptable
Methyl-t-Butyl Ether	MS	1153881	16	µg/L	101		12.5	3.9	145	70	08/27/09	Acceptable
t-Amyl Methyl Ether	MS	1153881	13	µg/L	101		12.5	ND	125	70	08/27/09	Acceptable
tert-Butyl Alcohol	MS	1153881	120	µg/L	96		125.0	ND	140	70	08/27/09	Acceptable
1,2-Dibromoethane	MSD	1153881	12	µg/L	100	2.4	12.5	ND	130	80	08/27/09	Acceptable
1,2-Dichloroethane	MSD	1153881	19	µg/L	114	8	12.5	4.3	130	75	08/27/09	Acceptable
Di-isopropyl Ether	MSD	1153881	15	µg/L	121	4	12.5	ND	130	70	08/27/09	Acceptable
Ethyl t-Butyl Ether	MSD	1153881	15	µg/L	119	2.3	12.5	ND	130	70	08/27/09	Acceptable
Methyl-t-Butyl Ether	MSD	1153881	17	µg/L	101	0.3	12.5	3.9	145	70	08/27/09	Acceptable
t-Amyl Methyl Ether	MSD	1153881	13	µg/L	104	2.6	12.5	ND	125	70	08/27/09	Acceptable
tert-Butyl Alcohol	MSD	1153881	120	µg/L	95	1.9	125.0	ND	140	70	08/27/09	Acceptable
1,2-Dibromoethane	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
1,2-Dichloroethane	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
Di-isopropyl Ether	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
Ethyl t-Butyl Ether	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
Methyl-t-Butyl Ether	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
t-Amyl Methyl Ether	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable
tert-Butyl Alcohol	RBLK	N/A	ND	µg/L	< 5.0				5.0	N/A	08/26/09	Acceptable

%Rec: Percent Recovered
RPD: Relative Percent Difference
UCL: Upper Control Limit
LCL: Lower Control Limit
LCS: Laboratory Control Sample
LCSD: Laboratory Control Sample Duplicate
LDUP: Laboratory Sample Duplicate

Parent Sample: Sample used as background matrix for MS/MSD
OOS-High: QC Result Above UCL
OOS-Low: QC Result Below LCL
MS: Matrix Spike
MSD: Matrix Spike Duplicate
RBLK: Reagent (Method) Blank

Surrogate results for QC standards are not evaluated for acceptability (due to definition of a surrogate standard)

QC Summary Report

09/08/2009



NELAP Certificate #04227CA
ELAP Certificate #1180

BSK Submission : 2009081966
Client : BSK Associates - Sacramento
Date Submitted : 08/26/2009
Project ID : E0805401S

Project Desc : Unocal Castro Valley

BSK StarLims Run #: 177666



Analyst Initials: AMYN

Method Number: 82600X

Surrogate Results

Analyte	QC Type	Surr. Result	UCL	LCL	Date
Toluene-d8	LCS N/A	100 % Rec	100	120	80 08/26/09 <i>Acceptable</i>
Toluene-d8	LCSD N/A	99 % Rec	100	120	80 08/26/09 <i>Acceptable</i>
Toluene-d8	MS 1153881	100 % Rec	99	130	80 08/27/09 <i>Acceptable</i>
Toluene-d8	MSD 1153881	99 % Rec	99	130	80 08/27/09 <i>Acceptable</i>
Toluene-d8	RBLK N/A	100 % Rec	N/A	N/A	80 08/26/09 <i>Acceptable</i>

StarLims Run 177666 includes the following BSK Sample ID# :

1153360 1153819 1153820 1153875 1153876 1153877 1153878 1153879 1153880 1153881 1154447 1154448 1154449 1154450 1154451

Sample Integrity

Pg. 1 of 2

CLIEN 2009081966 08/26/2009
 BSK S TAT: Standard
 826025
 Pre I

Date Received 8/26/09



Section 1- Sampled Same Day
 Sample Transport: Walk In ~~88~~ SJVC BSK-Courier Transported In: Ice Chest Box Hand
 Has chilling process begun? Y N Samples Received: Chilled to Touch / Ambient / On Ice

Section 2- Sampled Previously
 Sample Transport: CAO UPS SJVC Walk-In BSK-Courier GSO Fed Exp. Other: _____
 No. Coolers/Ice Chests: 1 Temperature(s): 0
 Was Temperature In Range Y N Received On Ice: Wet Blue
 Describe type of packing materials: Bubble Wrap Foam Packing Peanuts Paper Other: _____
 Were ice chest custody seals present? Y N Intact: Y N

Section 3- COC Info.	Completed		Info From Container	Completed		Info From Container
	Yes	No		Yes	No	
Was COC Received	—				Analysis Requested	—
Date Sampled	—				Any hold times less than 72hr	—
Time Sampled	—				Client Name	—
Sample ID	—				Address	—
Special Storage/Handling Ins.		—			Telephone #	—

Section 4- Bottles / Analysis	Yes	No	N/A	Comment
Did all bottles arrive unbroken and intact?:	—			
Were bottle custody seals present?		—		
Were bottle custody seals intact?		—		
Did all bottle labels agree with COC?:	—			
Were correct containers used for the tests requested?:	—			
Were correct preservations used for the tests requested?:	—			
Was a sufficient amount of sample sent for tests indicated?:	—			
Were bubbles present in VOA Vials?: (Volatile Methods Only)		—		
Were Ascorbic Acid Bottles received with the VOAs		—		

Section 5- Comments / Discrepancies
 Sample(s) Split/Preserve: Yes No Container: _____ Preservation: _____ Init.: _____
 Was Client Service Rep. notified of discrepancies: Yes No N/A CSR: _____ Notified By: _____
 Explanations / Comments

 Report Comment Entered:

Labeled by: A
 IIII

Labels checked by: [Signature]
 1120

Sample Integrity Pg 2 of 2

SR-FL-0002-02

BSK Bottles (Yes) No

2009081966

08/26/2009

BSK S

TAT: Standard

826025



8oz (A) 16oz (B) 32oz (C) Amber Glass (AG)

Container(s) Received	1-2						
Bacti Na ₂ S ₂ O ₃							
None (p) ^{White Cap}							
None (p) ^{Blue Cap}							
HNO ₃ (p) ^{Red Cap}							
H ₂ SO ₄ (p) ^{Yellow Cap}							
NaOH (p) ^{Green Cap}							
Other:							
Dissolved Oxygen 300ml (g)							
250ml (AG) None							
250ml (AG) H ₂ SO ₄ COD ^{Yellow Label}							
250ml (AG) Na ₂ S ₂ O ₃ 515,547 ^{Blue Label}							
250ml (AG) Na ₂ S ₂ O ₃ + MCAA 531.1 ^{Orange Label}							
250ml (AG) NH ₄ Cl 552 ^{Purple Label}							
250ml (AG) EDA DBPs ^{Brown Label}							
250ml (AG) Other:							
500ml (AG) None							
500ml (AG) H ₂ SO ₄ TPH-Diesel ^{Yellow Label}	1						
1 Liter (AG) None							
1 Liter (AG) H ₂ SO ₄ O&G ^{Yellow Label}							
1 Liter (AG) Na ₂ S ₂ O ₃ 548 / 525 / 521 ^{Blue Label}							
1 Liter (P) Na ₂ S ₂ O ₃ + H ₂ SO ₄ 549							
1 Liter (AG) NaOH+ZnAc Sulfide							
1 Liter (AG) Ascorbic/EDTA/Pot Citrate 527 ^{Grey Label}							
1 Liter (AG) CuSO ₄ /Trizma 529 ^{Turquoise Label}							
1 Liter (AG) Na ₂ SO ₃ / HCL 525 UCMR ^{Neon Green Label}							
1 Liter (AG) Ammonium Chloride 535 ^{Purple Label}							
40ml VOA Vial Clear - HCL	4						
40ml VOA Vial Amber - Na ₂ S ₂ O ₃							
40ml VOA Vial Clear - None							
40ml VOA Vial Clear - Na ₂ S ₂ O ₃ 504, 505							
40ml VOA Vial Clear - H ₃ PO ₄							
Other:							
Asbestos 32oz Plastic/Foil							
Radiological GA / GB (1/2 Gal Plastic)							
Radiological 226 / 228 (32 oz plastic N-BSK)							
Radon 200ml Clear (g)							
Low Level Hg/Metals Double Baggie							
THM-FP 4-40ml VOA None							
250 Clear Glass Jar							
500 Clear Glass Jar							
1 Liter Clear Glass Jar							
Plastic Bag							
Soil Tube Brass / Steel / Plastic							
Tedlar Bags							

S

8/26/09

SS

BSK ANALYTICAL LABORATORIES

1414 Stanislaus, Fresno CA 93706
 (559) 497-2888, (800) 877-8310, FAX (559) 485-6935

BSK Submission:
 COC Number:
 Global ID Number:

2009081966 08/26/2009
 BSK S
 826025 TAT: Standard



Facility/Project Name			Report Attention			Method Preserved					Analyse				Rush Priority (1-Day, 2-Day, 5-1)
Unocal Castro Valley			Jeff Yeazell			HCl	HNO3	H2SO4	NONE	OTHER (List)	BTEX/TPH-G (8020/8015M)	TPH-Diesel (8015M)	Fuel Oxygenates (8260B)	Lead Scavengers (8260B)	
Address			BSK Job No.:												
City, State, Zip			Copy to:												
Phone			FAX												
Lab Use Only		Sampling Info		Sampled by:											
S#	T	#C	Date	Time	Field Point Name										
1	LS		8/25/09	11:45	MW-101						X	X	X	X	11/5/09 ↓ 30
2	LS		↓	12:15	MW-5						X	X	X	X	

QC Report Type: Level 2 3 4

Formal COC Required:

Electronic Data Format Required:

Email EDF To: jyeazell@bskinc.com

Low Level Fuel Oxygenates Detection Limits Req:

Signature	Print Name	Company	Date/Time
	Katie Lockhart	BSK-S	8/25/09 14:00
Received / Relinquished by:			
Received / Relinquished by:			
Received / Relinquished by:			
Received / Relinquished by:	Samantha Carter	BSK Lab	8/26/09 8:00

CASTLE ANALYTICAL LABORATORY

Environmental Testing Services
Certificate No. 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930
Fax: (209) 384-1507

BSK Analytical Laboratories
1414 Stanislaus St.
Fresno, CA 93706
Attn: Dan Larkin

Client Project ID: 2009081966
Lab Reference Number: 0909021
Sample Description: Water
Sample Prep/Analysis Method: EPA 5030/8015, 8020
Lab Numbers: 0909021-01, 02

Sampled: 08-25-09
Received: 09-03-09
Extracted: 09-04-09
Analyzed: 09-04-09
Reported: 09-08-09

TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE ID	SAMPLE ID
		MW-101 (1153819) (ug/L)	MW-5 (1153820) (ug/L)
BENZENE	0.50	9.9	ND
TOLUENE	0.50	ND	ND
ETHYL BENZENE	0.50	14	ND
TOTAL XYLENES	0.50	5.6	ND
GASOLINE RANGE HYDROCARBONS	50	2200	ND
Report Limit Multiplication Factor:		10	1

Surrogate % Recovery:
Instrument ID:

FID: 160% / PID: 126% FID: 80.6% / PID: 92.1%
VAR-GC1 VAR-GC1

Analytes reported as ND were not detected or below the Practical Quantitation Limit
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

APPROVED BY:



James C. Phillips / Laboratory Director or
Clari J. Cone / Laboratory Manager

BSK Analytical Laboratories

Sub-contracting Chain of Custody

Print Date : 09/02/2009

Sub-Contracted to:

Report and Invoice to:

Castle Analytical
2333 Shuttle Drive
Atwater, CA 95301
Attention: 0

BSK Analytical Laboratories
Attention: Dan Larkin
1414 Stanislaus St.
Fresno, CA 93706
(559) 497-2888 +228

BSK Project # 2009081966

JOB 00101370



Turnaround (Days): 2 5 10 Other STD

State Forms: Yes No

QC Deliverables: Std II III IV

1909021-
-01
↓
-02

Sample ID Matrix Sample Description
1153819 Liquid MW-101

Sample Date/Time: 08/25/2009 @ 1145

Sampled by: TF and KL

Employed by: BSK Associates - Sacramento

Tests Requested Method

BTEX (External)

EPA 8020

Bottle Sent: (2) 40 ML

~~TPH(D) (External)~~

EPA 8015(M)

Bottle Sent: Vials w HCL

TPH(G) (External)

EPA 8015(M)

Bottle Sent:

1153820 Liquid MW-5

Sample Date/Time: 08/25/2009 @ 1215

Sampled by: TF and KL

Employed by: BSK Associates - Sacramento

Tests Requested Method

BTEX (External)

EPA 8020

Bottle Sent: (3) 40 ML

~~TPH(D) (External)~~

EPA 8015(M)

Bottle Sent: Vials w HCL

TPH(G) (External)

EPA 8015(M)

Bottle Sent:

Please send all electronic and hardcopy results to the attention of Dan Larkin / Mamie Zamora

	Name	Signature	Company	Date / Time
1. Relinquished by:			BSK	9/2/09
1. Received by:	James Phillips		Castle Analytical	9/3/09
2. Relinquished by:				
2. Received by:				

Don LARKIN

C

BSK INC

.com

Must have California State Forms and EDT yes no

CASTLE ANALYTICAL LABORATORY

Environmental Testing Services
Certificate # 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930
Fax: (209) 384-1507

BSK Analytical Laboratories
1414 Stanislaus St.
Fresno, CA 93706
Attn: Dan Larkin

Client Project ID: 2009081966
Lab Reference Number: 0908123
Sample Description: Water
Sample Prep/Analysis Method: LUFT/EPA 8015B
Lab Numbers: 0908123-01, 02

Sampled: 08-25-09
Received: 08-27-09
Extracted: 08-28-09
Analyzed: 08-31-09
Reported: 09-03-09

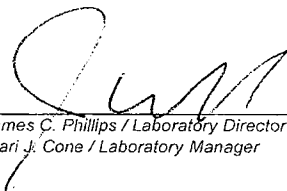
TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE

ANALYTE	REPORTING LIMIT (µg/L)	SAMPLE ID	SAMPLE ID
		MW-101 (1153819) (µg/L)	MW-5 (1153820) (µg/L)
DIESEL RANGE HYDROCARBONS C10-C28	50	1500	ND
Report Limit Multiplication Factor:		1	1
		non-diesel pattern	
		lighter hydrocarbons present	

Instrument ID:	HP-GC1	HP-GC1
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Analytes reported as ND were not detected or below the Practical Quantitation Limit
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

APPROVED BY:



James C. Phillips / Laboratory Director or
Clari J. Cone / Laboratory Manager

CASTLE ANALYTICAL LABORATORY

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BSK Analytical Laboratories
1414 Stanislaus St.
Fresno, CA 93706
Attn: Dan Larkin

Client Project ID: 2009081966
Lab Reference Number: 0908123
Matrix: Water
Analyst: Jim Phillips

Method: LUFT/EPA 8015B
Instrument ID: HP-GC1
Extracted: 08-28-09
Analyzed: 08-31-09
Reported: 09-04-09


QUALITY CONTROL DATA REPORT

ANALYTE	TPH-Diesel
Spike Concentration:	250
Units:	ug/L
Batch #:	TPHDW-8319
Method Blank:	ND
LCSA % Recovery:	104%
LCSB % Recovery:	97.9%
Control Limits:	55-130 %
Relative % Difference:	6.30%
<hr/>	
MS/MSD Batch #:	TPHDW-8319
MS % Recovery:	See Note
MSD % Recovery:	See Note
Relative % Difference:	See Note

Note: Insufficient sample material to prepare MS/MSD samples. LCS samples prepared in duplicate.

The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

APPROVED BY:


James C. Phillips / Laboratory Director or
Clari J. Cone / Laboratory Manager

BSK Analytical Laboratories

Sub-contracting Chain of Custody

Print Date : 08/26/2009

Sub-Contracted to:

Report and Invoice to:

Castle Analytical
2333 Shuttle Drive
Atwater, CA 95301
Attention: 0

BSK Analytical Laboratories
Attention: Dan Larkin
1414 Stanislaus St.
Fresno, CA 93706
(559) 497-2888 +228

Geotrucker required

BSK Project # 2009081966

T0600101370

Turnaround (Days): 2 5 10 Other STD

State Forms: Yes No

QC Deliverables: Std II III IV

Sample ID Matrix Sample Description

1153819 Liquid MW-101

Sample Date/Time: 08/25/2009 @ 1145

Sampled by: TF and KL

Employed by: BSK Associates - Sacramento

Tests Requested

Method

TPH(D) (External)

EPA 8015(M)

Bottle Sent: 500 mL AG w H2SO4

1153820 Liquid MW-5

Sample Date/Time: 08/25/2009 @ 1215

Sampled by: TF and KL

Employed by: BSK Associates - Sacramento

Tests Requested

Method

TPH(D) (External)

EPA 8015(M)

Bottle Sent:

Please send all electronic and hardcopy results to the attention of Dan Larkin Mamie Zamora

	Name	Signature	Company	Date / Time
1. Relinquished by:	<i>[Signature]</i>	<i>[Signature]</i>	<u>BSK</u>	<u>8/26/09</u>
1. Received by:	<u>James Phillips</u>	<i>[Signature]</i>	<u>Castle Analytical</u>	<u>8/27/09</u>
2. Relinquished by:				
2. Received by:				

DLARKIN@BSKINC.COM

Must have California State Forms and EDT yes no