

# MISSION VALLEY / ROCK COMPANY ASPHALT COMPANY READY MIX COMPANY

7999 ATHENOUR WAY SUNOL, CA 94586 (925) 862-2257

September 11, 2001

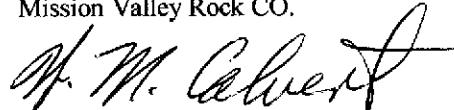
SEP 14 2001

Mr. Scott Seery  
Alameda County Health Care Services  
1131 Harbor Bay Parkway Suite 250  
Alameda, Ca. 94502-6577

Dear Mr. Seery:

Submitted herewith is the second quarter Groundwater Monitoring Report prepared by Mission Valley Rock Company's consultant, Tait Environmental Management Inc. If you require further information or clarification please direct your correspondence to Scott Ek of Tait Environment with a copy to Mission Valley Rock Company at the above address.

Thank you,  
Mission Valley Rock CO.



W. M. Calvert

SEP 14 2001

**Groundwater Monitoring Report  
Second Quarter 2001**

Mission Valley Rock Company  
7999 Athenour Way  
Sunol, California

Prepared by:  
**Tait Environmental Management, Inc.**

*September 4, 2001*

September 4, 2001

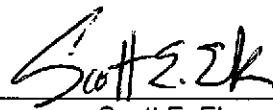
**Groundwater Monitoring Report  
First Quarter 2001**

Mission Valley Rock Company  
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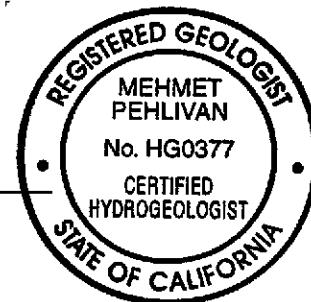
Prepared for:

Mr. Mort Calvert  
Mission Valley Rock Company  
7999 Athenour Way  
Sunol, California 94586

Prepared by:

  
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Tait Environmental Management  
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Project No. EM-5009

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**GROUNDWATER MONITORING REPORT - SECOND QUARTER 2001**  
**MISSION VALLEY ROCK COMPANY**  
**SUNOL, CALIFORNIA**

## **1.0 INTRODUCTION**

Tait Environmental Management, Inc. (TEM) is pleased to submit this Second Quarter 2001 Groundwater Monitoring Report for environmental services conducted at Mission Valley Rock Company (MVR) located at 7999 Athenour Way in Sunol, California (Site, see Figure 1). This report has been prepared by or under the direct supervision of a California Registered Geologist. The groundwater monitoring activities were conducted by TEM in accordance with the Alameda County Health Care Services Agency (ACHCSA) guidelines.

## **2.0 WORK CONDUCTED DURING PRESENT QUARTER**

Work conducted by TEM during the Second Quarter of 2001 included:

- Submitted to the client, *Groundwater Monitoring Report, First Quarter 2001*.
- Measured depth-to-groundwater in monitoring wells for evaluation of groundwater flow direction.
- Collected groundwater samples from each well for analysis of total petroleum hydrocarbons as diesel and gasoline (TPHd and TPHg, respectively); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl-tert-butyl ether (MTBE).

## **3.0 GROUNDWATER MONITORING ACTIVITIES**

### **3.1 *Groundwater Elevation Monitoring***

On June 27, 2001 TEM measured and recorded static groundwater levels in three (3) groundwater monitoring wells using a product/water interface meter. The meter was decontaminated prior to use at each well using a mild detergent solution and two (2) de-ionized water rinses.

Water levels were measured from the top of the well casings representing the well-head survey points. A slight sheen (0.06') was observed in monitoring well MW-2. No sheen or free-phase product was observed in monitoring wells MW-1. Monitoring well MW-3 was not accessible during our site visit due to a hot asphalt/rubber trailer occupying the space over the well.

Based on the data, the depth to groundwater measured at the Site was shallow during this sampling event and historically the depth to static groundwater conditions is 3 to 5 feet below ground surface (bgs). The apparent groundwater flow direction is to the east-southeast with a groundwater gradient of approximately 0.02 ft/ft. Groundwater elevation data is summarized in Table 1 and shown on Figure 2. A historical summary of groundwater elevation data is summarized in Table 3 and shown in Chart 1 (Appendix A).

### **3.2 *Groundwater Sampling***

Prior to collecting samples, groundwater was purged using a 12-volt DC submersible pump for each well. The polyethylene tubing for the pump discharge was discarded and replaced for each well. The pump was decontaminated prior to pumping each well, with a detergent bath followed by two (2) de-ionized water rinses.

A minimum of three (3) casing volumes of water were purged from each of the monitoring wells until measurements of temperature, pH, electrical conductivity, turbidity, dissolved oxygen, and oxygen reduction potential stabilized. Groundwater was allowed to recharge to at least 80 percent of the static level prior to collecting the groundwater samples. Copies of the well sampling field data sheets are presented in Appendix B.

Groundwater samples were collected using a new disposable bailer for each well. The groundwater samples were placed in chilled coolers and hand delivered to the laboratory using chain-of-custody procedures.

The purged groundwater and decontamination water was stored onsite in one (1) Department of Transportation (DOT) approved 55-gallon steel drum pending the results of the laboratory analysis.

#### **4.0 LABORATORY ANALYSES**

Groundwater samples collected from the groundwater monitoring wells were analyzed for:

- BTEX and MTBE using Method No. 8260B; and
- TPHd and TPHg using Method 8015B.

#### **4.1 *Groundwater Analytical Results***

Laboratory analyses of the groundwater samples were conducted by Severn Trent Laboratories, Inc. (STL), a State-Certified laboratory located in Santa Ana, California. Second Quarter 2001 groundwater sample analytical results are summarized in Table 2 and shown in Figure 3. Laboratory reports are presented in Appendix C. A historical summary of groundwater sample analytical results is summarized in Table 4. Charts 2A, 2B, and 2C present historic measurements of TPHd, TPHg and MTBE, respectively (Appendix A).

#### **5.0 SUMMARY**

Based upon the data presented in this report, previous investigations, current regulatory guidelines, and the judgment of TEM, the following summary of findings and conclusions are presented:

- Groundwater sampling was conducted for groundwater monitoring wells MW-1, MW-2. Analytical water samples were collected from both MW-1 and MW-2 and submitted STL using chain-of-custody procedures.
- Monitoring well MW-3 was not accessible during our site visit due to a hot asphalt/rubber trailer occupying the space above the well.
- The saturated zone is shallow at this site averaging only 3 to 4 feet bgs. The groundwater flow direction is to the east-southeast with a groundwater gradient of approximately 0.02 ft/ft.
- Seasonal groundwater fluctuations are relatively minor and do not appear to affect groundwater flow direction.
- A slight sheen (0.06') was observed in monitoring well MW-2.
- The highest TPHd and TPHg concentrations were detected in the groundwater sample collected from well MW-2. The TPHd concentration was 8.8 milligrams per Liter (mg/L) and the TPHg concentration was 1.8 mg/L.

- Benzene concentrations were not detected at or above the laboratory reporting limit (1.0 µg/L) in either of the two (2) wells sampled this quarter.
- The only MTBE concentration was reported in the sample collected from well MW-3 at a concentration of 6.7 micrograms per Liter (µg/L); and
- Interpretation of Charts 2A, 2B, and 2C would indicate that TPHd, TPHg, and MTBE have shown an overall decrease since groundwater sampling began in June 1998 with the exception of well MW-2 and MW-3 where MTBE concentrations have shown a minor increase since the December 2000 sampling event.

## **6.0 RECOMMENDATIONS**

Based on the data obtained, current regulatory guidelines, and the professional judgment of TEM, the following recommendations are presented for your consideration:

- Continue monitoring all wells for all free-phase product, and record field observations and measurements.
- Continue quarterly groundwater monitoring and sampling to evaluate groundwater gradient, flow direction and contaminant concentrations.

## **7.0 QUALITY ASSURANCE/QUALITY CONTROL**

To increase the confidence levels in the data obtained and minimize the likelihood that judgments were made from potentially erroneous data, a quality assurance/quality control (QA/QC) program was implemented. QA refers to management of actions designed to maintain precision, accuracy, completeness, and representativeness of the data developed from the project. QC refers to accepted formal procedures and activities specifically designed for the purpose of collecting data that are intended to be reliable and consistent for the Site conditions.

The laboratory reported all of the sample results to be within acceptable percent recoveries with no results exceeding the laboratory-established quality control parameters. The percent recoveries on the laboratory control sample (LCS) were well within the laboratories published QA/QC criteria. The results of the matrix spike (MS) and matrix spike duplicate (MSD) were also with acceptable limits. The samples arrived at the laboratory within the normal acceptable temperature range (4°C +/- 2°C) and were extracted and analyzed within acceptable holding times for each method and each sample.

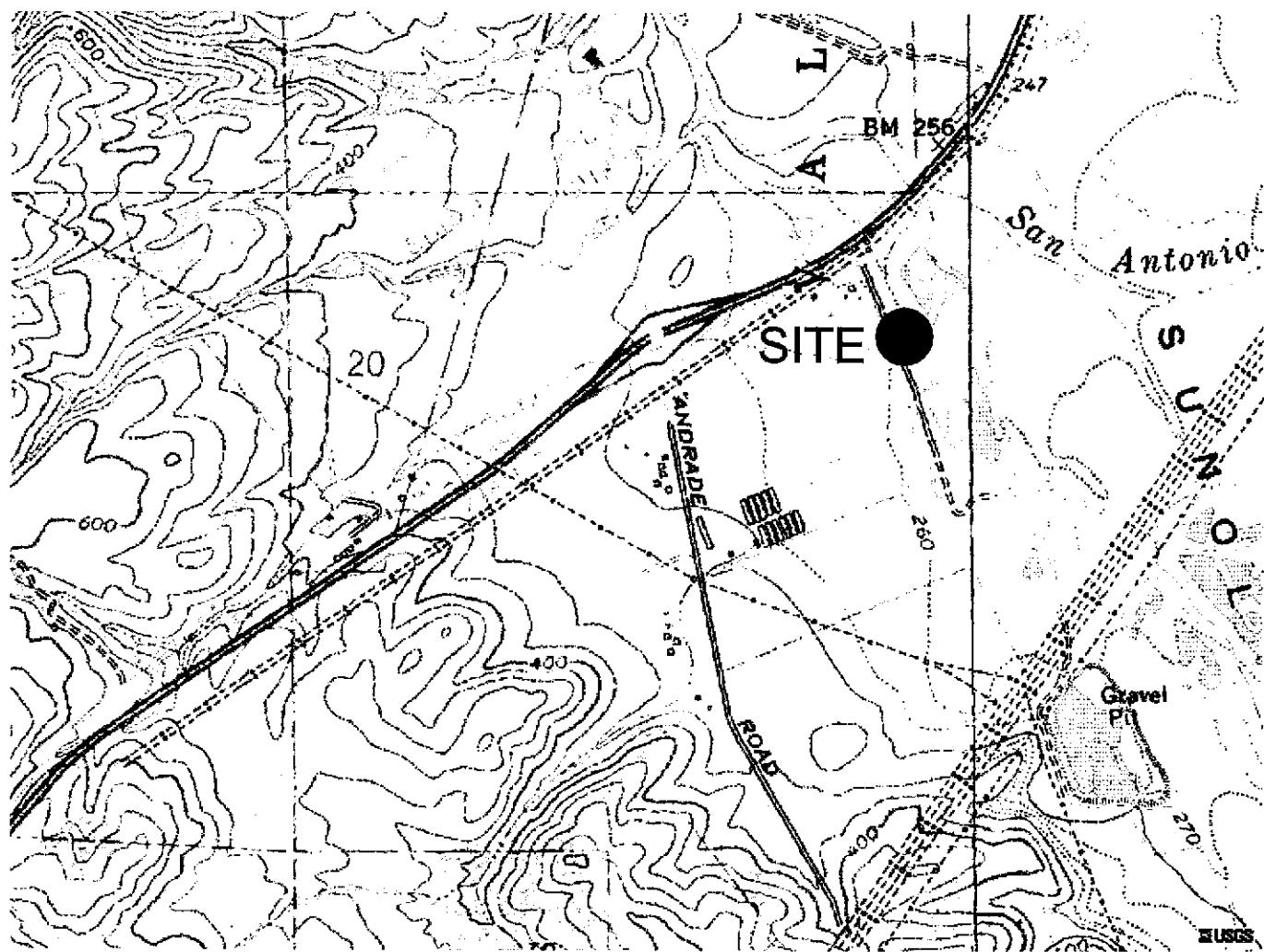
Several of the laboratories reporting limits exceeded cleanup criteria in groundwater appropriate for this site. In all instances this was because of sample dilution and elevated concentrations of hydrocarbons were detected in the samples that were affected. The QA/QC objectives for this project have been met.

## **8.0 LIMITATIONS**

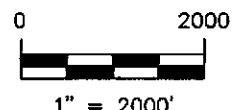
No investigation is considered thorough enough to exclude the presence of hazardous materials at a given site. Any opinions and/or recommendations presented apply to site conditions existing at the time of the performance of services.

TEM is unable to report on or accurately predict events which may impact the site following conduct of the described services, whether occurring naturally or caused by external forces. TEM assumes no responsibility for conditions that we were not authorized to investigate or conditions not generally recognized as environmentally unacceptable at the time services were performed.

Services hereunder were performed in accordance with our agreement and understanding with, and solely for the use of, Mission Valley Rock Company. We are not responsible for the subsequent separation, detachment or partial use of this document. Any reliance on this report by a third party shall be at such party's sole risk.



NORTH



NOTES:

BASE MAP TAKEN FROM TERRASERVER.COM, UNITED STATES GEOLOGICAL SURVEY (USGS), FREEMONT QUADRANGLE, ALAMEDA COUNTY, CALIFORNIA. PRINTED JULY 1, 1989.

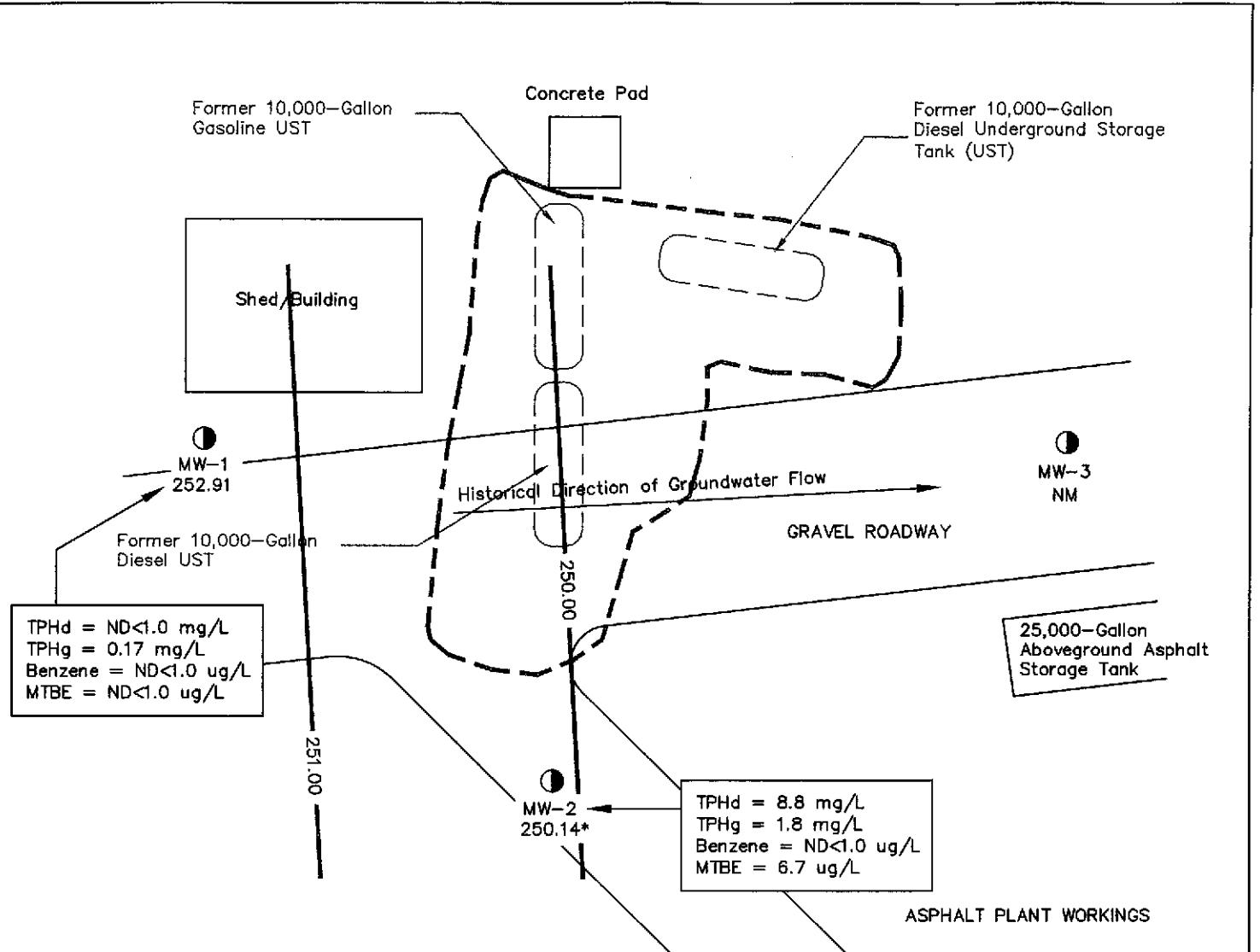


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SITE VICINITY MAP  
MISSION VALLEY ROCK CO.  
7999 ATHENOUR WAY  
SUNOL, CALIFORNIA

PROJECT NO. EM-5009

FIGURE 1



LEGEND:

BASE MAP REFERENCED FROM TANK PROTECT ENGINEERING

ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE

ND = NOT DETECTED ABOVE CORRESPONDING REPORTING LIMIT

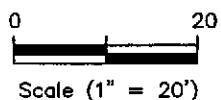
NM = NOT MEASURED - WELL WAS INACCESSIBLE

mg/L = MILLIGRAMS PER LITER (PARTS PER MILLION)

ug/L = MICROGRAMS PER LITER (PARTS PER BILLION)

TPHd/TPHg = TOTAL PETROLEUM HYDROCARBONS AS DIESEL/GASOLINE

MTBE = METHY-TERT-BUTYL ETHER



- MW-1 GROUNDWATER MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
- 250.00 — GROUNDWATER CONTOUR WITH ELEVATION IN FEET ABOVE MSL
- GENERAL DIRECTION OF GROUNDWATER FLOW
- - - - LIMITS OF FORMER UST EXCAVATION
- 250.14\* CORRECTED GROUNDWATER ELEVATION

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SITE PLAN WITH SELECT ANALYTICAL CONCENTRATIONS AND GROUNDWATER ELEVATIONS (JUNE 27, 2001)

MISSION VALLEY ROCK CO.  
7999 ATHENOUR WAY  
SUNOL, CALIFORNIA

PROJECT NO. EM-5009

FIGURE 2

**Table 1**  
**Well Construction and Groundwater Elevation Data**  
**Second Quarter 2001**  
**Mission Valley Rock Company**  
**Sunol, California**

Well ID	Casing Diameter	Depth to LNAPL	Depth to Water	Total Depth	Screened Interval	Measuring Point Elevation	Groundwater Elevation	Comments
MW-1	2	Not Detected	3.60	15.71	5.0 - 20.0	256.51	252.91	Well in good condition, monument cover missing 1 bolt
MW-2	2	0.06	3.31	19.15	5.0 - 20.0	256.70	250.14*	Slight sheen present
MW-3	2	-	-	-	-	-	-	Well not accessible

Screened intervals are approximated. Screened interval in wells is lower than total depth due to silting in bottom of wells.

The measurement point for the above eleven wells is the north side of the top of casing.

Depth to water and total depth measurements taken by Tait Environmental Management, Inc. personnel on June 27, 2001.

Casing diameter reported in inches (in); depth to LPH, depth to water, and total depths reported in feet below measuring point (ft-bmp); screened interval reported in feet; measuring point elevation and groundwater elevations reported in feet above mean sea level (ft-msl).

Total depth and depth to water measurements taken by Tait Environmental Management from designated measurement point.

\* Adjusted groundwater elevation = Measurement Point Elevation - Depth to Water + LPH Thickness

**Table 2**  
**Summary of Groundwater Sample Analytical Results**  
**Second Quarter 2001**  
**Mission Valley Rock Company**  
**Sunol, California**

Sample ID	MW-1	MW-2	Sample ID	MW-1	MW-2
Date Sampled	6/27/01	6/27/01	Date Sampled	6/27/01	6/27/01
GC/MS Volatiles		ug/L	GC/MS Volatiles		ug/L
Acetone	ND<10	ND<10	1,1-Dichloropropene	ND<1.0	ND<1.0
Benzene	ND<1.0	ND<1.0	cis-1,3-Dichloropropene	ND<1.0	ND<1.0
Bromobenzene	ND<1.0	ND<1.0	trans-1,3-Dichloropropene	ND<1.0	ND<1.0
Bromoform	ND<2.0	ND<2.0	Ethylbenzene	1.2	ND<1.0
Bromomethane	ND<5.0	ND<5.0	Hexachlorobutadiene	ND<1.0	ND<1.0
2-Butanone	ND<1.0	ND<1.0	2-Hexanone	ND<5.0	ND<5.0
n-Butylbenzene	ND<1.0	ND<1.0	Isopropylbenzene	ND<1.0	ND<1.0
sec-Butylbenzene	ND<1.0	ND<1.0	p-Isopropyltoluene	ND<1.0	ND<1.0
tert-Butylbenzene	ND<1.0	ND<1.0	Methylene Chloride	ND<1.0	ND<1.0
Carbon Disulfide	ND<1.0	ND<1.0	4-Methyl-2-Pentanone	ND<5.0	ND<5.0
Carbon Tetrachloride	ND<1.0	ND<1.0	Methyl Tert-Butyl Ether	ND<1.0	6.7
Chlorobenzene	ND<1.0	ND<1.0	Naphthalene	ND<1.0	ND<1.0
Dibromochloromethane	ND<1.0	ND<1.0	n-Propylbenzene	1.5	1.0
Bromodichloromethane	ND<1.0	ND<1.0	Styrene	ND<1.0	ND<1.0
Chloroethane	ND<2.0	ND<2.0	1,1,1,2-Tetrachloroethane	ND<1.0	ND<1.0
Chloroform	ND<1.0	ND<1.0	1,1,2,2-Tetrachloroethane	ND<1.0	ND<1.0
Chloromethane	ND<2.0	ND<2.0	Tetrachloroethene	ND<1.0	ND<1.0
2-Chlorotoluene	ND<1.0	ND<1.0	Toluene	ND<1.0	ND<1.0
4-Chlorotoluene	ND<1.0	ND<1.0	1,2,3-Trichlorobenzene	ND<1.0	ND<1.0
1,2-Dibromo-3-Chloro-Propane	ND<2.0	ND<2.0	1,2,4-Trichlorobenzene	ND<1.0	ND<1.0
1,2-Dibromoethane (EDB)	ND<1.0	ND<1.0	1,1,1-Trichloroethane	ND<1.0	ND<1.0
Dibromomethane	ND<1.0	ND<1.0	1,1,2-Trichloroethane	ND<1.0	ND<1.0
1,2-Dichlorobenzene	ND<1.0	ND<1.0	Trichloroethene	ND<1.0	ND<1.0
1,3-Dichlorobenzene	ND<1.0	ND<1.0	Trichlorofluoromethane	ND<2.0	ND<2.0
1,4-Dichlorobenzene	ND<1.0	ND<1.0	1,2,3-Trichloropropane	ND<1.0	ND<1.0
Dichlorodifluoromethane	ND<2.0	ND<2.0	1,1,2-Trichlorotrifluoroethane	ND<1.0	ND<1.0
1,1-Dichloroethane	ND<1.0	ND<1.0	1,2,4-Trimethylbenzene	ND<1.0	ND<1.0
1,2-Dichloroethane	ND<1.0	ND<1.0	1,3,5-Trimethylbenzene	ND<1.0	ND<1.0
1,1-Dichloroethene	ND<1.0	ND<1.0	Vinyl Chloride	ND<2.0	ND<2.0
cis-1,2-Dichloroethene	ND<1.0	ND<1.0	m-Xylene & p-Xylene	ND<1.0	ND<1.0
trans-1,2-Dichloroethene	ND<1.0	ND<1.0	o-Xylene	ND<1.0	ND<1.0
1,2-Dichloropropane	ND<1.0	ND<1.0	Tert-Amyl Methyl Ether	ND<2.0	ND<2.0
1,3-Dichloropropane	ND<1.0	ND<1.0	Tert-Butyl Ethyl Ether	ND<2.0	ND<2.0
2,2-Dichloropropane	ND<1.0	ND<1.0	t-Butanol	ND<25	ND<25
GC Semi-Volatiles		mg/L	GC Volatiles		mg/L
TPHd	ND<1.0	8.8	TPHg	0.17	1.8

GC/MS Volatile analyses performed by Severn Trent Laboratories, Inc. using EPA method 8260B.

GC Semi-Volatile and GC Volatile analyses performed by Severn Trent Laboratories, Inc. using EPA Method 8015B.

mg/L = Milligrams per Liter

TPHd = Total petroleum hydrocarbons as diesel

ug/L = Micrograms per Liter

TPHg = Total petroleum hydrocarbons as gasoline

ND = Not detected at or above corresponding reporting limit

**Table 3**  
**Historical Summary of Groundwater Data**  
**Second Quarter 2001**  
**Mission Valley Rock Company**  
**Sunol, California**

Well	Date	Depth to Water	Groundwater Elevation	LPH Thickness
MW-1	Jun-98	1.32	255.19	ND
	Jan-99	2.28	254.23	ND
	Mar-99	1.88	254.63	ND
	Jun-99	3.35	253.16	ND
	Sep-99	3.66	252.85	ND
	Dec-99	2.94	253.57	ND
	Mar-00	2.72	253.79	Odor
	Jun-00	4.01	252.50	Slight Odor
	Sep-00	5.11	251.40	Slight Odor
	Dec-00	4.95	251.56	ND
	Mar-01	2.28	254.23	ND
	Jun-01	3.60	252.91	ND
MW-2	Jun-98	1.72	254.98	0.005
	Jan-99	2.69	254.01	4.00
	Mar-99	2.50	254.20	ND
	Jun-99	4.00	252.70	Sheen
	Sep-99	4.54	252.16	0.50
	Dec-99	3.85	252.85	0.13
	Mar-00	3.20	253.50	0.03
	Jun-00	4.62	252.08	0.02
	Sep-00	5.95	250.75	>0.01
	Dec-00	5.65	251.05	0.07
	Mar-01	3.21	253.39*	0.10
	Jun-01	3.31	250.14*	0.06
MW-3	Jun-98	2.66	254.06	ND
	Jan-99	4.47	252.25	Slight Odor
	Mar-99	3.96	252.76	Sheen
	Jun-99	5.54	251.18	ND
	Sep-99	6.18	250.54	Sheen
	Dec-99	5.52	251.20	Odor
	Mar-00	4.61	252.11	Odor
	Jun-00	6.35	250.37	Very Slight Odor
	Sep-00	7.30	249.42	Very Slight Odor
	Dec-00	7.29	249.43	ND
	Mar-01	4.73	251.99	ND
	Jun-01	NM	NM	NM

Depth to water and liquid phase hydrocarbon (LPH) thickness reported in feet below measurement point.  
 Groundwater elevations reported in feet above mean sea level.

\* Adjusted groundwater elevation = Measurement Point Elevation - Depth to Water + LPH Thickness

NM = Not Measured

ND = Not Detected

**Table 4**  
**Historical Summary of Groundwater Sample Analytical Results**  
**Second Quarter 2001**  
**Mission Valley Rock Company**  
**Sunol, California**

Well	Date	TPHd	TPHg	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
<b>MW-1</b>	Jun-98	<50	3100	110	19	2.3	91	48
	Oct-98	<50	2300	<0.5	3.1	4.2	5	15
	Dec-98	350	<50	<0.5	12	7.5	20	6.2
	Mar-99	190	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-99	210	1800	<0.5	1.2	0.9	1.5	4.6
	Sep-99	62	180	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-99	290	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-00	86	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-00	70	450	7.6	2.1	<0.5	2.1	1.4
	Sep-00	<50	850	9.8	5.4	<0.5	9.4	2.6
	Dec-00	<1.0	0.37	55	5.3	<1.0	2.7	<3.0
	Mar-01	<1.0	0.7	<1.0	<1.0	<1.0	1.4	<1.0
	Jun-01	<1.0	0.17	<1.0	<1.0	<1.0	1.2	<1.0
<b>MW-2</b>	Jun-98	12000	2500	14	0.68	<0.5	1.2	0.57
	Oct-98	4300	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-98	38000	<5000	<500	<50	<50	51	190
	Mar-99	580	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-99	4500	24000	<0.5	38	27	41	98
	Sep-99	24000	1400	27	<0.5	<0.5	<0.5	<0.5
	Dec-99	2300	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-00	620	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-00	1700	270	17	<0.5	<0.5	<0.5	<0.5
	Sep-00	5800	130	12	<0.5	<0.5	<0.5	0.94
	Dec-00	19	7.1	<250	<50	<50	<50	<150
	Mar-01	610	3.3	9	<1.0	<1.0	<1.0	<1.0
	Jun-01	8.8	1.8	6.7	<1.0	<1.0	<1.0	<1.0
<b>MW-3</b>	Jun-98	12000	300	150	0.8	<0.5	<0.5	<0.5
	Oct-98	6400	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Dec-98	5600	<100	110	1.6	1.4	<1	<1
	Mar-99	150	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-99	620	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Sep-99	1500	230	89	<0.5	<0.5	<0.5	<0.5
	Dec-99	58	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Mar-00	94	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	Jun-00	240	170	100	<0.5	0.52	<0.5	<0.5
	Sep-00	850	170	68	0.81	<0.5	<0.5	<0.5
	Dec-00	1.6	0.23	80	<1.0	<1.0	<1.0	<3.0
	Mar-01	1.1	0.14	83	<1.0	<1.0	<1.0	<1.0
	Jun-01	NS	NS	NS	NS	NS	NS	NS

TPHd = Total petroleum hydrocarbons as diesel reported in milligrams per Liter (mg/L)

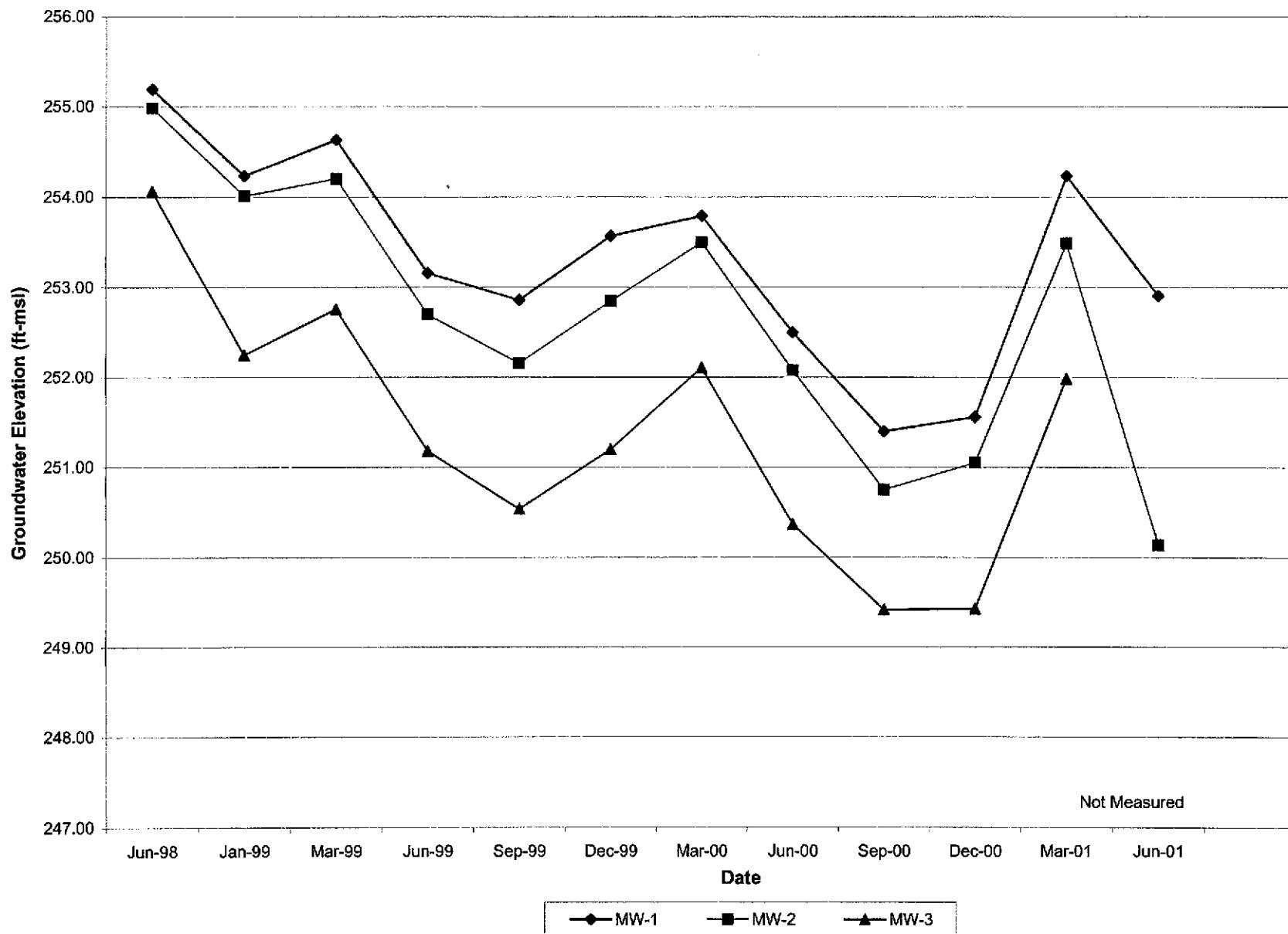
TPHg = Total petroleum hydrocarbons as gasoline reported in mg/L

All other concentrations reported in micrograms per Liter (ug/L).

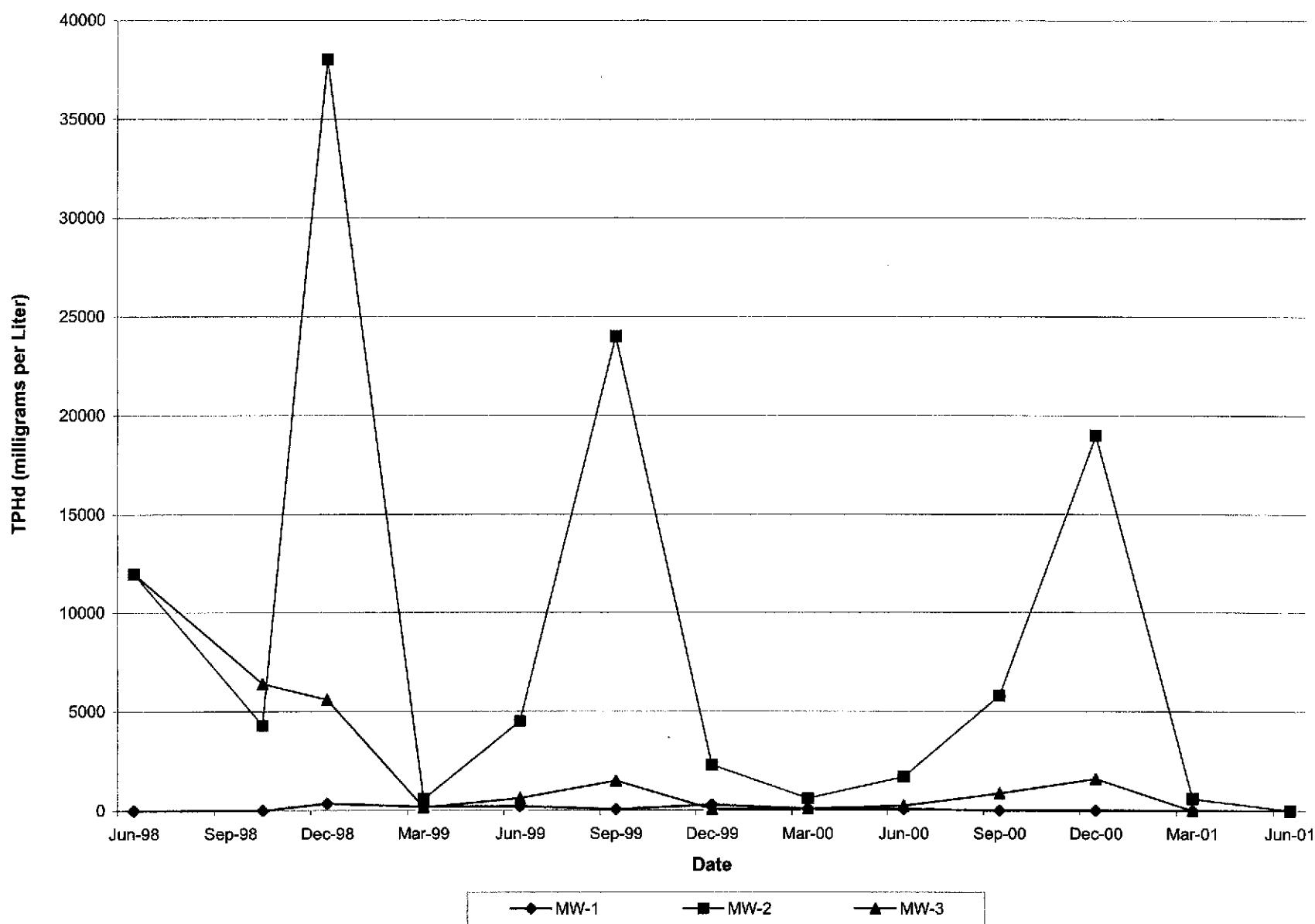
MTBE = Methyl-tert-Butyl Ether

NS = Not Sampled

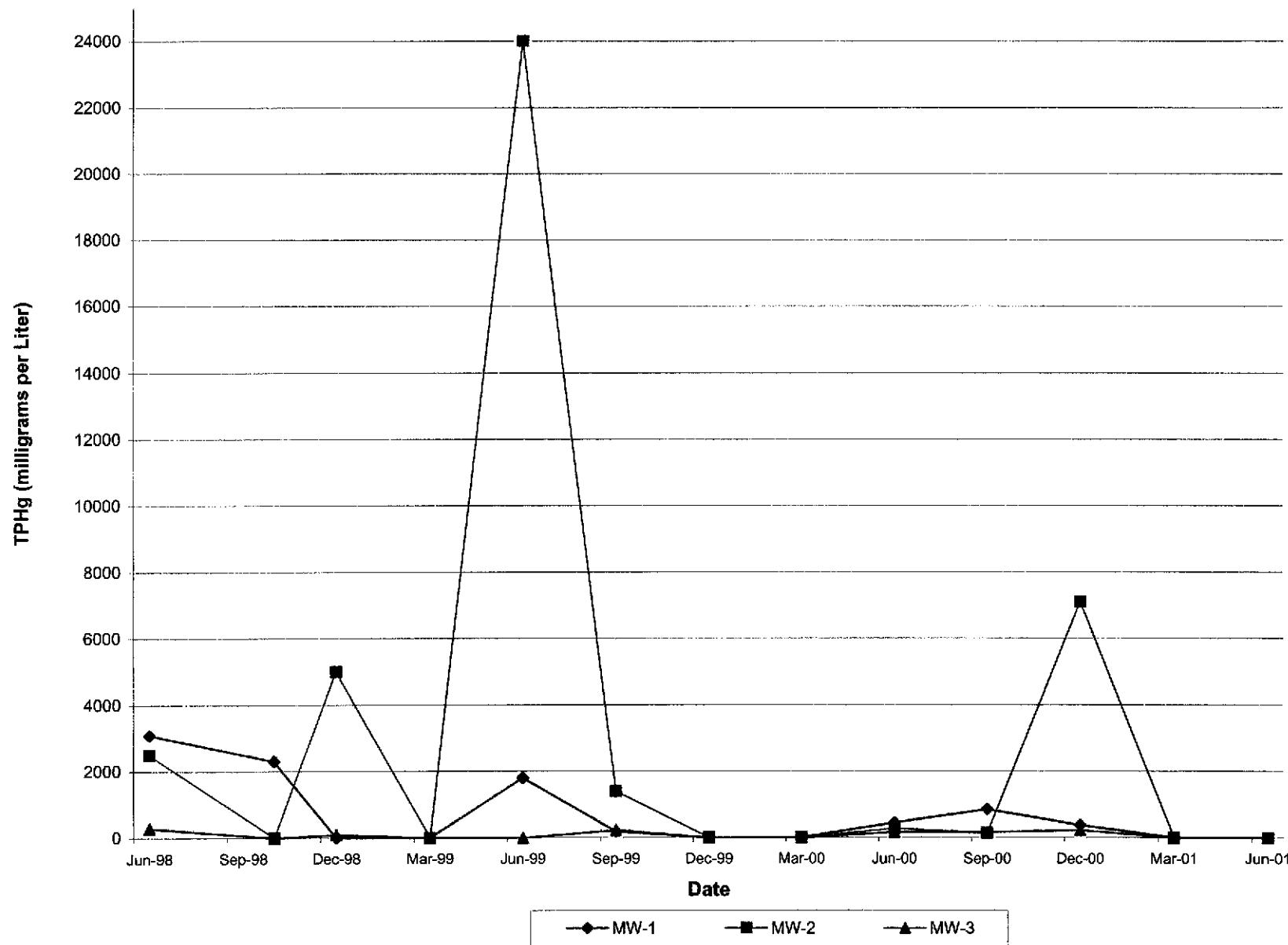
Chart 1  
Historical Groundwater Elevations  
Mission Valley Rock Company  
Sunol, California



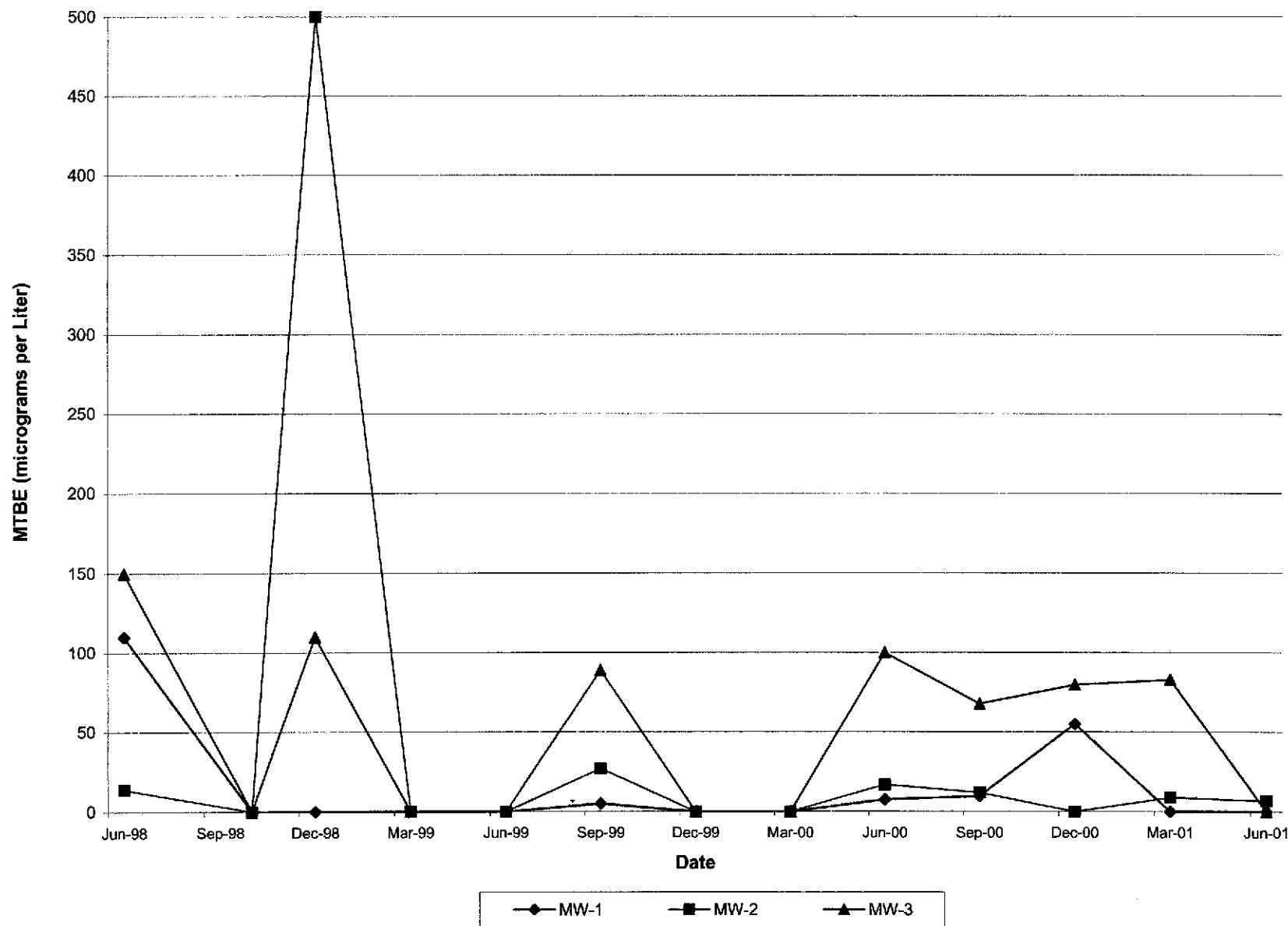
**Chart 2A**  
**Historical TPHd Concentrations in Groundwater**  
**Mission Valley Rock Company**  
**Sunol, California**



**Chart 2B**  
**Historical TPHg Concentrations in Groundwater**  
**Mission Valley Rock Company**  
**Sunol, California**



**Chart 2C**  
**Historical MTBE Concentrations in Groundwater**  
**Mission Valley Rock Company**  
**Sunol, California**





TAIT Environmental Management, Inc

## Groundwater Sampling Data Sheet

Page \_\_\_ of \_\_\_

Project Name: Mission Rock				Date: 6/27/01									
Project No.: EM 5009				Prepared By: SEE									
Well Identification: MW-1				Weather: overcast									
Measurement Point Description: TOC-north													
Static Water Level (ft-bmp)	Well Total Depth (ft-bmp)	Depth to Sediment (ft-bmp)	Water Column Height (ft)	Top of Free Phase Chemicals (ft-bmp)	Bottom of Free Phase Chemicals (ft-bmp)	Free Phase Chemical Thickness (ft)	One (1) Casing Volume (gallons)	Three (3) Casing Volumes (gallons)					
3.60	silted	15.71	12.11	ND	ND	ND	1.9(2)	6					
Well Diameter (in)		Gallons/Foot			Field Equipment: Heron Interface; Horiba U-22								
		0.75	2	4	6	Purge Method: Waterra w/ dedicated tubing							
0.75	2	4	6	0.02	0.16	0.65	1.47	Well Condition: Good, top cover missing one bolt					
Time	Casing Volumes Purged	Volume Purged (gallons)	Flow Rate (gpm)	Water Level (ft-bmp)	pH	Temperature (°C)	Turbidity (NTU)	Conductivity (µS/m)	Dissolved Oxygen (mg/L)	ORP (mV)	Observations		
12:07	0	0	-	NM	8.09	19.7	480	0.14	9.9	-127	clear gray/green		
12:14	1	2		NM	9.60	20.1	370	0.14	8.3	-127	" "		
12:21	2	4		NM	9.21	19.2	950	0.14	7.7	-137	" "		
12:29	3	6			9.35	19.2	380	0.14	7.1	-137	clear pale yellow		
Purge Start Time	Purge End Time	Average Flow (gpm)	Total Gallons Purged	Total Casing Volumes Purged	80% Recovery Water Level Depth	Water Level at Sampling Time (ft-bmp)	Sample Collection Time	Sample Identification					
12:07	12:29	6	3	6.02	3.85	12:34		mw-1					

Notes: six(6) vda's, one(1) Amber

ft-bmp = feet below measuring point

C:\My Documents\Forms\Field Forms\Well Sampling Sheet (4-20-2001).DOC



TAIT Environmental Management, Inc

## Groundwater Sampling Data Sheet

Page \_\_\_ of \_\_\_

Project Name: Mission Rock				Date: 6/27/01									
Project No.: EM 5009				Prepared By: SE									
Well Identification: MW-2				Weather: overcast									
Measurement Point Description: TCC - north													
Static Water Level (ft-bmp)	Well Total Depth (ft-bmp)	Depth to Sediment (ft-bmp)	Water Column Height (ft)	Top of Free Phase Chemicals (ft-bmp)	Bottom of Free Phase Chemicals (ft-bmp)	Free Phase Chemical Thickness (ft)	One (1) Casing Volume (gallons)	Three (3) Casing Volumes (gallons)					
3.31	silted	19.15	15.84	3.37	3.31	0.06	2.5	7.5					
Well Diameter (in)		Gallons/Foot			Field Equipment:								
		0.75	2	4	6	Purge Method:							
0.75	2	4	6	0.02	0.16	0.65	1.47	Well Condition:					
Time	Casing Volumes Purged	Volume Purged (gallons)	Flow Rate (gpm)	Water Level (ft-bmp)	pH	Temperature (°C)	Turbidity (NTU)	Conductivity (µS/m)	Dissolved Oxygen (mg/L)	ORP (mV)	Observations		
12:52	0	0	-	NM	9.81	20.9	>990	0.14	7.8	-159	clear/black		
13:00	1	2.5		NM	9.07	20.2	310	0.14	8.3	-134	clear/sheen		
13:08	2	5.0		NM	8.98	19.8	150	0.14	8.7	-133	clear		
13:17	3	7.5		NM	9.04	20.0	71	0.14	5.3	-123	clear		
Purge Start Time	Purge End Time	Average Flow (gpm)	Total Gallons Purged	Total Casing Volumes Purged	80% Recovery Water Level Depth	Water Level at Sampling Time (ft-bmp)	Sample Collection Time	Sample Identification					
12:52	13:17		7.5	3	6.47	6.31	13:23	MW-2					

**Notes:** Sheen present and slight odor of degraded oil.



TAIT Environmental Management, Inc

## Groundwater Sampling Data Sheet

Page \_\_\_ of \_\_\_

<b>Project Name:</b>					<b>Date:</b>								
<b>Project No.:</b>					<b>Prepared By:</b>								
<b>Well Identification:</b> MW-3					<b>Weather:</b>								
<b>Measurement Point Description:</b>													
<b>Static Water Level (ft-bmp)</b>	<b>Well Total Depth (ft-bmp)</b>		<b>Depth to Sediment (ft-bmp)</b>		<b>Water Column Height (ft)</b>	<b>Top of Free Phase Chemicals (ft-bmp)</b>	<b>Bottom of Free Phase Chemicals (ft-bmp)</b>	<b>Free Phase Chemical Thickness (ft)</b>	<b>One (1) Casing Volume (gallons)</b>	<b>Three (3) Casing Volumes (gallons)</b>			
<b>Well Diameter (in)</b>			<b>Gallons/Foot</b>			<b>Field Equipment:</b>							
			0.75	2	4	6	<b>Purge Method:</b>						
0.75	2	4	6	0.02	0.16	0.65	1.47	<b>Well Condition:</b>					
Time	Casing Volumes Purged	Volume Purged (gallons)	Flow Rate (gpm)	Water Level (ft-bmp)	Ph	Temperature (°C)	Turbidity (NTU)	Conductivity (mS/m)	Dissolved Oxygen (mg/L)	ORP (mV)	Observations		
<b>Purge Start Time</b>	<b>Purge End Time</b>	<b>Average Flow (gpm)</b>	<b>Total Gallons Purged</b>	<b>Total Casing Volumes Purged</b>	<b>80% Recovery Water Level Depth</b>	<b>Water Level at Sampling Time (ft-bmp)</b>	<b>Sample Collection Time</b>	<b>Sample Identification</b>					

**Notes:** MW-3 was not accessible this quarter. Mission Rock had a rubber making plant (tractor-trailer) full of hot rubber which was parked over the well and not safe to go under the trailer/plant.

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July 5, 2001

**STL LOT NUMBER: E1F280279**

Scott Ek  
Tait Environmental  
701 Park Center Dr  
Santa Ana, CA 92705

Dear Mr. Ek:

This report contains the analytical results for the two samples received under chain of custody by STL Los Angeles on June 28, 2001. These samples are associated with your **MISSION VALLEY ROCK, SUNOL, CA** project.

STL Los Angeles certifies that the test results provided in this report meet all the requirements of NELAC. NELAP Certification Number for STL Los Angeles is 01118CA.

Any matrix related anomaly is footnoted within the report. A cooler receipt temperature between 2-6 degrees Celsius is within EPA acceptance criteria. The temperature of the cooler received for this project can be found on the Project Receipt Checklist. All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page.

Preliminary results were sent via facsimile on June 30, 2001.

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**000031**

This report contains \_\_\_\_\_ pages.

**000001**

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### CASE NARRATIVE

For 8015B (TPH as Diesel) analysis, there was insufficient sample volume provided to prepare a project-specific MS/MSD. A duplicate LCS has been prepared to provide accuracy and precision measurement for the samples in this project.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

*Marisol Tabirara*

Marisol Tabirara  
Project Manager

CC: Project File

000002

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## **ANALYTICAL REPORT**

**MISSION VALLEY ROCK, SUNOL, CA**

**Lot #: E1F280279**

**Scott Ek**

**Tait Environmental**

**SEVERN TRENT LABORATORIES, INC.**

**Marisol Tabirara  
Project Manager**

**July 5, 2001**

**000005**

## **EXECUTIVE SUMMARY - Detection Highlights**

**E1F280279**

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
<b>MW-1 06/27/01 12:34 001</b>				
TPH (as Gasoline)	0.17	0.10	mg/L	SW846 8015B
Ethylbenzene	1.2	1.0	ug/L	SW846 8260B
n-Propylbenzene	1.5	1.0	ug/L	SW846 8260B
<b>MW-2 06/27/01 13:23 002</b>				
TPH (as Diesel)	8.8	1.0	mg/L	SW846 8015B
TPH (as Gasoline)	1.8	1.0	mg/L	SW846 8015B
Methyl tert-butyl ether	6.7	1.0	ug/L	SW846 8260B
n-Propylbenzene	1.0	1.0	ug/L	SW846 8260B

**000006**

## METHODS SUMMARY

E1F280279

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Extractable Petroleum Hydrocarbons	SW846 8015B	SW846 3510
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
Volatile Petroleum Hydrocarbons	SW846 8015B	SW846 5030

### References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

000007

# SAMPLE SUMMARY

E1F280279

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
EFN01	001	MW-1	06/27/01	12:34
EFN09	002	MW-2	06/27/01	13:23

## NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

000008

TAIT ENVIRONMENTAL

Client Sample ID: MW-1

GC Semivolatiles

Lot-Sample #....: E1F280279-001 Work Order #....: EFN011AA Matrix.....: WATER  
Date Sampled....: 06/27/01 12:34 Date Received...: 06/28/01 11:30 MS Run #.....:  
Prep Date.....: 06/29/01 Analysis Date...: 06/29/01  
Prep Batch #....: 1180278 Analysis Time...: 16:14  
Dilution Factor: 1  
Analyst ID.....: 356074 Instrument ID...: G01  
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Diesel)	ND	1.0	mg/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
Benzo (a) pyrene	107	(60 - 130)	

000009

TAIT ENVIRONMENTAL

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #....: E1F280279-001    Work Order #....: EFN011AC    Matrix.....: WATER  
Date Sampled....: 06/27/01 12:34    Date Received...: 06/28/01 11:30 MS Run #.....: 1180188  
Prep Date.....: 06/28/01    Analysis Date...: 06/28/01  
Prep Batch #....: 1180342    Analysis Time...: 21:07  
Dilution Factor: 1  
Analyst ID.....: 001464    Instrument ID...: G16  
                    Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
TPH (as Gasoline)	0.17	0.10	mg/L
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS	
a,a,a-Trifluorotoluene (TFT)	98	(60 - 130)	

000010

## TAIT ENVIRONMENTAL

Client Sample ID: MW-1

## GC/MS Volatiles

Lot-Sample #....: E1F280279-001    Work Order #....: EFN011AD    Matrix.....: WATER  
 Date Sampled....: 06/27/01 12:34    Date Received...: 06/28/01 11:30 MS Run #....: 1180080  
 Prep Date.....: 06/29/01    Analysis Date...: 06/29/01  
 Prep Batch #....: 1180196    Analysis Time...: 00:38  
 Dilution Factor: 1  
 Analyst ID.....: 004648    Instrument ID...: MSC  
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
2-Butanone	ND	5.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L

(Continued on next page)

000011

## TAIT ENVIRONMENTAL

Client Sample ID: MW-1

## GC/MS Volatiles

Lot-Sample #....: E1F280279-001 Work Order #....: EFN011AD Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
<b>Ethylbenzene</b>	<b>1.2</b>	<b>1.0</b>	<b>ug/L</b>
Hexachlorobutadiene	ND	1.0	ug/L
2-Hexanone	ND	5.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Methyl tert-butyl ether	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
<b>n-Propylbenzene</b>	<b>1.5</b>	<b>1.0</b>	<b>ug/L</b>
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trichloro- benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,1,2-Trichlorotrifluoro- ethane	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	2.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Tert-amyl methyl ether	ND	2.0	ug/L
Tert-butyl ethyl ether	ND	2.0	ug/L
t-Butanol	ND	25	ug/L
Isopropyl ether	ND	2.0	ug/L
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
Bromofluorobenzene	98	(75 - 120)	
1,2-Dichloroethane-d4	99	(65 - 130)	
Toluene-d8	102	(80 - 130)	

000012

TAIT ENVIRONMENTAL

Client Sample ID: MW-2

GC Semivolatiles

Lot-Sample #....: E1F280279-002    Work Order #....: EFN091AA    Matrix.....: WATER  
Date Sampled....: 06/27/01 13:23    Date Received...: 06/28/01 11:30 MS Run #.....:  
Prep Date.....: 06/29/01    Analysis Date...: 06/29/01  
Prep Batch #....: 1180278    Analysis Time...: 16:44  
Dilution Factor: 1  
Analyst ID.....: 356074    Instrument ID...: G01  
                            Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
TPH (as Diesel)	8.8	1.0	mg/L
SURROGATE	PERCENT	RECOVERY	LIMITS
Benzo (a) pyrene	RECOVERY	(60 - 130)	
	108		

NOTE(S) :

The pattern is unknown hydrocarbons; c range- C10 to C24.

000013

TAIT ENVIRONMENTAL

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #....: E1F280279-002    Work Order #....: EFN091AC    Matrix.....: WATER  
Date Sampled....: 06/27/01 13:23    Date Received...: 06/28/01 11:30 MS Run #.....: 1180188  
Prep Date.....: 06/28/01    Analysis Date...: 06/28/01  
Prep Batch #....: 1180342    Analysis Time...: 21:35  
Dilution Factor: 10  
Analyst ID.....: 001464    Instrument ID...: G16  
                    Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
TPH (as Gasoline)	1.8	1.0	mg/L
SURROGATE	PERCENT	RECOVERY	
	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene (TFT)	81	(60 - 130)	

000014

## TAIT ENVIRONMENTAL

Client Sample ID: MW-2

## GC/MS Volatiles

Lot-Sample #....: E1F280279-002    Work Order #....: EFN091AD    Matrix.....: WATER  
 Date Sampled...: 06/27/01 13:23    Date Received...: 06/28/01 11:30 MS Run #....: 1180080  
 Prep Date.....: 06/29/01    Analysis Date...: 06/29/01  
 Prep Batch #....: 1180196    Analysis Time...: 01:08  
 Dilution Factor: 1  
 Analyst ID.....: 004648    Instrument ID...: MSC  
 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
2-Butanone	ND	5.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
1,2-Dibromo-3-chloro- propane	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L

(Continued on next page)

000015

## TAIT ENVIRONMENTAL

Client Sample ID: MW-2

## GC/MS Volatiles

Lot-Sample #....: E1F280279-002 Work Order #....: EFN091AD Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	1.0	ug/L
2-Hexanone	ND	5.0	ug/L
Isopropylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
<b>Methyl tert-butyl ether</b>	<b>6.7</b>	<b>1.0</b>	<b>ug/L</b>
Naphthalene	ND	1.0	ug/L
<b>n-Propylbenzene</b>	<b>1.0</b>	<b>1.0</b>	<b>ug/L</b>
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trichloro- benzene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,1,2-Trichlorotrifluoro- ethane	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	2.0	ug/L
m-Xylene & p-Xylene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Tert-amyl methyl ether	ND	2.0	ug/L
Tert-butyl ethyl ether	ND	2.0	ug/L
t-Butanol	ND	25	ug/L
Isopropyl ether	ND	2.0	ug/L
<u>SURROGATE</u>		<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Bromofluorobenzene	101	(75 - 120)	
1,2-Dichloroethane-d4	106	(65 - 130)	
Toluene-d8	101	(80 - 130)	

000016

# QC DATA ASSOCIATION SUMMARY

E1F280279

## Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	SW846 8015B		1180278	
	WATER	SW846 8015B		1180342	1180188
	WATER	SW846 8260B		1180196	1180080
002	WATER	SW846 8015B		1180278	
	WATER	SW846 8015B		1180342	1180188
	WATER	SW846 8260B		1180196	1180080

000017

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #....: E1F280279  
 MB Lot-Sample #: E1F290000-196  
 Analysis Date...: 06/28/01  
 Dilution Factor: 1

Work Order #....: EFP4P1AA  
 Prep Date.....: 06/28/01  
 Prep Batch #....: 1180196  
 Analyst ID.....: 004648

Matrix.....: WATER  
 Analysis Time..: 17:42  
 Instrument ID..: MSC

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromobenzene	ND	1.0	ug/L	SW846 8260B
Bromochloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
2-Butanone	ND	5.0	ug/L	SW846 8260B
n-Butylbenzene	ND	1.0	ug/L	SW846 8260B
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260B
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260B
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B

(Continued on next page)

000018

## METHOD BLANK REPORT

## GC/MS Volatiles

Client Lot #....: E1F280279

Work Order #....: EFP4P1AA

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Isopropylbenzene	ND	1.0	ug/L	SW846 8260B
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260B
Naphthalene	ND	1.0	ug/L	SW846 8260B
n-Propylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,2,4-Trichloro- benzene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichlorotrifluoro- ethane	ND	1.0	ug/L	SW846 8260B
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B
Tert-amyl methyl ether	ND	2.0	ug/L	SW846 8260B
Tert-butyl ethyl ether	ND	2.0	ug/L	SW846 8260B
t-Butanol	ND	25	ug/L	SW846 8260B
Isopropyl ether	ND	2.0	ug/L	SW846 8260B
<u>SURROGATE</u>		<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	
Bromofluorobenzene	104		(75 - 120)	
1,2-Dichloroethane-d4	103		(65 - 130)	
Toluene-d8	99		(80 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

000013

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #....: E1F280279  
MB Lot-Sample #: E1F290000-278  
Analysis Date...: 06/29/01  
Dilution Factor: 1

Work Order #....: EFQQ71AA  
Prep Date.....: 06/29/01  
Prep Batch #....: 1180278  
Analyst ID.....: 356074

Matrix.....: WATER  
Analysis Time..: 14:45  
Instrument ID..: G01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH (as Diesel)	ND	1.0	mg/L	SW846 8015B
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
Benzo (a) pyrene	108	(60 - 130)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

000020

METHOD BLANK REPORT

GC Volatiles

Client Lot #....: E1F280279  
MB Lot-Sample #: E1F290000-342  
  
Analysis Date...: 06/28/01  
Dilution Factor: 1

Work Order #....: EFQ881AA  
  
Prep Date.....: 06/28/01  
Prep Batch #....: 1180342  
  
Analyst ID.....: 001464

Matrix.....: WATER  
  
Analysis Time...: 11:31  
Instrument ID...: G16

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH (as Gasoline)	ND	0.10	mg/L	SW846 8015B
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
a,a,a-Trifluorotoluene (TFT)	76	(60 - 130)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

000021

## LABORATORY CONTROL SAMPLE DATA REPORT

## GC Semivolatiles

Client Lot #....: E1F280279      Work Order #....: EFQQ71AC-LCS      Matrix.....: WATER  
LCS Lot-Sample#: E1F290000-278      EFQQ71AD-LCSD  
Prep Date.....: 06/29/01      Analysis Date...: 06/29/01  
Prep Batch #:....: 1180278      Analysis Time..: 15:15  
Dilution Factor: 1      Instrument ID...: G01  
Analyst ID.....: 356074

PARAMETER	SPIKE	MEASURED		PERCENT		METHOD
	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	
TPH (as Diesel)	5.00	5.25	mg/L	105		SW846 8015B
	5.00	5.30	mg/L	106	0.89	SW846 8015B

SURROGATE	PERCENT		RECOVERY
	RECOVERY	LIMITS	
Benzo (a) pyrene	105	(60 - 130)	
	109	(60 - 130)	

## NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

000022

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: E1F280279      Work Order #....: EFQQ71AC-LCS      Matrix.....: WATER  
LCS Lot-Sample#: E1F290000-278      EFQQ71AD-LCSD  
Prep Date.....: 06/29/01      Analysis Date...: 06/29/01  
Prep Batch #:....: 1180278      Analysis Time...: 15:15  
Dilution Factor: 1      Instrument ID...: G01  
Analyst ID.....: 356074

PARAMETER	PERCENT	RECOVERY	RPD	METHOD
	<u>RECOVERY</u>	<u>LIMITS</u>	<u>RPD</u>	
TPH (as Diesel)	105	(65 - 140)		SW846 8015B
	106	(65 - 140)	0.89 (0-25)	SW846 8015B

SURROGATE	PERCENT	RECOVERY
	<u>RECOVERY</u>	<u>LIMITS</u>
Benzo (a) pyrene	105	(60 - 130)
	109	(60 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

## LABORATORY CONTROL SAMPLE DATA REPORT

## GC/MS Volatiles

**Client Lot #....:** E1F280279      **Work Order #....:** EFP4P1AC      **Matrix.....:** WATER  
**LCS Lot-Sample#:** E1F290000-196  
**Prep Date.....:** 06/28/01      **Analysis Date...:** 06/28/01  
**Prep Batch #....:** 1180196      **Analysis Time...:** 17:12  
**Dilution Factor:** 1      **Instrument ID...:** MSC  
**Analyst ID.....:** 004648

<u>PARAMETER</u>	SPIKE <u>AMOUNT</u>	MEASURED <u>AMOUNT</u>	UNITS	PERCENT <u>RECOVERY</u>	METHOD
Benzene	10.0	9.87	ug/L	99	SW846 8260B
Chlorobenzene	10.0	9.58	ug/L	96	SW846 8260B
1,1-Dichloroethene	10.0	10.0	ug/L	100	SW846 8260B
Toluene	10.0	9.59	ug/L	96	SW846 8260B
Trichloroethene	10.0	9.81	ug/L	98	SW846 8260B

<u>SURROGATE</u>	PERCENT <u>RECOVERY</u>	RECOVERY <u>LIMITS</u>
Bromofluorobenzene	106	(75 - 120)
1,2-Dichloroethane-d4	101	(65 - 130)
Toluene-d8	105	(80 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

## LABORATORY CONTROL SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: E1F280279      Work Order #....: EFQ881AC      Matrix.....: WATER  
LCS Lot-Sample#: E1F290000-342  
Prep Date.....: 06/28/01      Analysis Date...: 06/28/01  
Prep Batch #:....: 1180342      Analysis Time...: 11:02  
Dilution Factor: 1      Instrument ID...: G16  
Analyst ID.....: 001464

PARAMETER	SPIKE <u>AMOUNT</u>	MEASURED <u>AMOUNT</u>	UNITS	PERCENT <u>RECOVERY</u>	METHOD
TPH (as Gasoline)	1.00	1.26	mg/L	126	SW846 8015B
SURROGATE		PERCENT <u>RECOVERY</u>	RECOVERY	LIMITS	
a,a,a-Trifluorotoluene (TFT)		115		(60 - 130)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

000025

## LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC/MS Volatiles

Client Lot #....: E1F280279      Work Order #....: EFP4P1AC      Matrix.....: WATER  
LCS Lot-Sample#: E1F290000-196  
Prep Date.....: 06/28/01      Analysis Date...: 06/28/01  
Prep Batch #....: 1180196      Analysis Time...: 17:12  
Dilution Factor: 1      Instrument ID...: MSC  
Analyst ID.....: 004648

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
Benzene	99	(75 - 120)	<b>SW846 8260B</b>
Chlorobenzene	96	(80 - 120)	<b>SW846 8260B</b>
1,1-Dichloroethene	100	(70 - 130)	<b>SW846 8260B</b>
Toluene	96	(80 - 120)	<b>SW846 8260B</b>
Trichloroethene	98	(75 - 130)	<b>SW846 8260B</b>

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Bromofluorobenzene	106	(75 - 120)
1,2-Dichloroethane-d4	101	(65 - 130)
Toluene-d8	105	(80 - 130)

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

000026

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: E1F280279      Work Order #....: EFQ881AC      Matrix.....: WATER  
LCS Lot-Sample#: E1F290000-342  
Prep Date.....: 06/28/01      Analysis Date...: 06/28/01  
Prep Batch #....: 1180342      Analysis Time...: 11:02  
Dilution Factor: 1      Instrument ID..: G16  
Analyst ID.....: 001464

PARAMETER	PERCENT	RECOVERY	METHOD
	<u>RECOVERY</u>	<u>LIMITS</u>	
TPH (as Gasoline)	126	(60 - 130)	<b>SW846 8015B</b>
SURROGATE	PERCENT	RECOVERY	
a,a,a-Trifluorotoluene (TFT)	<u>RECOVERY</u>	<u>LIMITS</u>	
	115	(60 - 130)	

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

000027

## MATRIX SPIKE SAMPLE DATA REPORT

## GC Volatiles

Client Lot #....: E1F280279      Work Order #....: EFL1V1AG-MS      Matrix.....: WATER  
 MS Lot-Sample #: E1F270299-007      EFL1V1AH-MSD  
 Date Sampled....: 06/26/01 08:25      Date Received...: 06/27/01 16:00      MS Run #.....: 1180188  
 Prep Date.....: 06/28/01      Analysis Date...: 06/28/01  
 Prep Batch #....: 1180342      Analysis Time...: 15:22  
 Dilution Factor: 1      Analyst ID.....: 001464      Instrument ID..: G16

<u>PARAMETER</u>	<u>SAMPLE</u>	<u>SPIKE</u>	<u>MEASRD</u>	<u>PERCENT</u>			
	<u>AMOUNT</u>	<u>AMT</u>	<u>AMOUNT</u>	<u>UNITS</u>	<u>RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
TPH (as Gasoline)	ND	1.00	1.14	mg/L	114		SW846 8015B
	ND	1.00	1.14	mg/L	114	0.22	SW846 8015B
<u>SURROGATE</u>				<u>PERCENT</u>			
a,a,a-Trifluorotoluene (TFT)				<u>RECOVERY</u>			
				117			
					(60 - 130)		
				120			
					(60 - 130)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

**MATRIX SPIKE SAMPLE DATA REPORT**

**GC/MS Volatiles**

Client Lot #....: E1F280279	Work Order #....: EFNAV1AD-MS	Matrix.....: WATER
MS Lot-Sample #: E1F280210-002		EFNAV1AE-MSD
Date Sampled....: 06/27/01 09:51	Date Received...: 06/28/01 10:10	MS Run #.....: 1180080
Prep Date.....: 06/29/01	Analysis Date...: 06/29/01	
Prep Batch #....: 1180196	Analysis Time...: 01:38	
Dilution Factor: 1	Analyst ID.....: 004648	Instrument ID..: MSC

PARAMETER	SAMPLE	SPIKE	MEASRD	UNITS	PERCENT		METHOD
	AMOUNT	AMT	AMOUNT		RECOVERY	RPD	
Benzene	ND	10.0	9.59	ug/L	96		SW846 8260B
	ND	10.0	9.75	ug/L	98	1.6	SW846 8260B
Chlorobenzene	ND	10.0	9.47	ug/L	95		SW846 8260B
	ND	10.0	9.65	ug/L	96	1.9	SW846 8260B
1,1-Dichloroethene	ND	10.0	9.62	ug/L	96		SW846 8260B
	ND	10.0	9.75	ug/L	98	1.3	SW846 8260B
Toluene	ND	10.0	9.35	ug/L	94		SW846 8260B
	ND	10.0	9.54	ug/L	95	2.0	SW846 8260B
Trichloroethene	ND	10.0	9.50	ug/L	95		SW846 8260B
	ND	10.0	9.67	ug/L	97	1.8	SW846 8260B

SURROGATE	PERCENT		RECOVERY
	RECOVERY	LIMITS	
Bromofluorobenzene	102	(75 - 120)	
	103	(75 - 120)	
1,2-Dichloroethane-d4	100	(65 - 130)	
	101	(65 - 130)	
Toluene-d8	102	(80 - 130)	
	102	(80 - 130)	

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

## MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>
<b>TPH (as Gasoline)</b>	<b>114</b>	<b>(60 - 130)</b>			<b>SW846 8015B</b>
	<b>114</b>	<b>(60 - 130)</b>	<b>0.22</b>	<b>(0-25)</b>	<b>SW846 8015B</b>
<u>SURROGATE</u>		<u>PERCENT RECOVERY</u>		<u>RECOVERY LIMITS</u>	
a,a,a-Trifluorotoluene (TFT)		117		(60 - 130)	
		120		(60 - 130)	

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Bold print** denotes control parameters

000030

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E1F280279      Work Order #....: EFNAV1AD-MS      Matrix.....: WATER  
 MS Lot-Sample #: E1F280210-002      EFNAV1AE-MSD  
 Date Sampled....: 06/27/01 09:51      Date Received...: 06/28/01 10:10      MS Run #.....: 1180080  
 Prep Date.....: 06/29/01      Analysis Date...: 06/29/01  
 Prep Batch #....: 1180196      Analysis Time...: 01:38  
 Dilution Factor: 1      Analyst ID.....: 004648      Instrument ID..: MSC

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>LIMITS</u>	<u>METHOD</u>
Benzene	96	(75 - 120)			SW846 8260B
	98	(75 - 120)	1.6	(0-25)	SW846 8260B
Chlorobenzene	95	(80 - 120)			SW846 8260B
	96	(80 - 120)	1.9	(0-25)	SW846 8260B
1,1-Dichloroethene	96	(70 - 130)			SW846 8260B
	98	(70 - 130)	1.3	(0-25)	SW846 8260B
Toluene	94	(80 - 120)			SW846 8260B
	95	(80 - 120)	2.0	(0-25)	SW846 8260B
Trichloroethene	95	(75 - 130)			SW846 8260B
	97	(75 - 130)	1.8	(0-25)	SW846 8260B
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>			
Bromofluorobenzene	102	(75 - 120)			
	103	(75 - 120)			
1,2-Dichloroethane-d4	100	(65 - 130)			
	101	(65 - 130)			
Toluene-d8	102	(80 - 130)			
	102	(80 - 130)			

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

**Chain of Custody Record**

**SEVERN  
TRENT  
SERVICES**

**Severn Trent Laboratories, Inc.**

STL-4124 (0700)

### Comments

**DISTRIBUTION:** WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

**STL - LOS ANGELES  
PROJECT RECEIPT CHECKLIST**

Date: 6/28/01

Quantums Lot #: EFF28029

Client Name: TAIT

Received by: 141-1

Delivered by :  Client  Airborne  Fed Ex  
 UPS  DHL  Other

**Quote #:**

Project: MIS SION VALLEY ROCK

Date/Time Received: 6/28/01 11:30

DHL  Ultra-Ex  Rev B.

Custody Seal Status:  Intact  Broken  None ..... MLT 6/28/01

Custody Seal #s:  No Seal at

Custody Seal #(s): Sample Container(s):  STI-1A  Client  N/A

Temperature(s) (COOLER/BLANK) in °C: 5°C (CORRECTED TEMP)

Temperature(s) (COOLER/BLANK) in °C: \_\_\_\_\_

Thermometer Used :  IR (Intra-red)  Digital Probe .....  Broken  Other

Samples:  Intact  Broken  Other \_\_\_\_\_

Anomalies:  No  Yes (See Clouseau) .....

Labeled by .....

**Labeling checked by** ..... **Date** .....

◀ PREVIOUS ▶ NEXT □ PUBLISH □ NORMAL

Short-Hold Notification:  Ph  Wet Chem  Metals (Filter/Pres)  Encore  N/A ...

\*\*\*\*\* LEAVE NO BLANK SPACES : USE N/A \*\*\*\*\*

**Reagents**  
 - HCl      **reagent** Sodium Hydroxide      **reagent** Zinc Acetate/Sodium Hydroxide      **reagent** H2SO4      **reagent** HNO3      **reagent** HClO4-Free Starch      **reagent** STARCH-L30 Starch  
 CG Clear Glass Jar      CGR-Clear Glass Scale      AGE-Amber Glass Jar      AGE-Amber Glass Scale      PB-Poly Bottle      E-Eaton Sampler      V-YOA

\* Number of VOA's w/ Headspace present

LOGGED BY/DATE: Ms. 001-2810

**REVIEWED BY/DATE:**

MT 6/28/01