Final

Groundwater Monitoring Data Summary Report for Specified Petroleum Storage Sites at Former Marine Corps Air Station El Toro, California

U.S. Navy Contract Number GS-10F-0227J
Delivery Order N68711-00-F-0106

Prepared for:

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Naval Facilities Engineering Command
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04 November 2002

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File: etswtr5Nov2002GWSummarytoRWQCB.doc

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Subj: Groundwater Monitoring Data Summary
June 2002 Sampling Activities
Former Marine Corps Air Station, El Toro

Transmitted as the attachment is the subject report for groundwater sampling activities that were conducted in June 2002 at selected former petroleum storage sites at the former Marine Corps Air Station, El Toro. Included in the report is information for the Tank 398 Site, Former Tank Farm 555, Former Tank Farm 6, and Underground Storage Tank (UST) Group 651 (UST Sites 651-1, 651-2, 651-3, and 651-4).

Please do not hesitate to call me at (619) 532-0783 if you have questions pertaining to this transmittal.

Attachment:
Summary Report (CDM, 4 November 2002)

CF w/attachment:
Dean Gould (BRAC Environmental Coordinator, MCAS El Toro)
CSO/El Toro
Administrative Record File
Project File (MCAS El Toro)

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File: eltoroar.doc

TRANSMITTAL

Date: 5 Nov 2002

From: Lynn Marie Hornecker
MCAS El Toro

To: Diane Silva
Code ~~011S.DS~~ 05G.DS

Subj: CERCLA Administrative Record Materials
Marine Corps Air Station, El Toro

Installation: Marine Corps Air Station, El Toro

UIC Number: M60050

Document Title (or subject): Groundwater Data Summary

Author:

Recipient: John Broderick, RWQCB

Record Date: 4 Nov 2002

Approximate Number of Pages: 150

EPA Category: 01.1

Sites: UST Group 651, Tank 398 Site, Tank Farm 6, Tank Farm 555

Key Words: groundwater, petroleum sites

Contract: N/A

CTO Number: N/A

groundwater data will be used by IRP Site 18 (regional GW)

Executive Summary

The results of groundwater monitoring activities conducted during June 2002 at specified petroleum storage sites at the former Marine Corps Air Station (MCAS) El Toro in El Toro, California (see Figure 1-1) are presented in this groundwater monitoring data summary report. The groundwater monitoring activities described in this report were performed for the U.S. Department of the Navy, Southwest Division Naval Facilities Engineering Command (SWDIV) by CDM Federal Programs Corporation (CDM) under General Services Administration (GSA) Contract No. GS-10F-0227J, Delivery Order No. N68711-00-F-0106.

The groundwater sampling and analysis activities described in this report address groundwater sampling conducted from 24 through 26 June 2002 at four petroleum storage sites including Tank 398 Site, Tank Farm 6, Tank Farm 555, and underground storage tank (UST) Group 651. The monitoring well network for all four petroleum storage sites includes thirteen wells. All field activities were conducted in accordance with the Final Work Plan Addendum (CDM 2002a) except that two wells (MW398-30 and TF555MW-01) were not accessible during sampling and were therefore not sampled.

Groundwater level measurements and groundwater samples were collected from 11 monitoring wells during the June 2002 sampling event. All samples were analyzed for total petroleum hydrocarbons (TPH), volatile (gasoline) and extractable (diesel and motor oil), and for volatile organic compounds (VOCs). The results of groundwater sampling and analysis are summarized as follows:

Groundwater Level Measurements

Depth to groundwater measurements ranged from 42.16 feet below ground surface (bgs) to 188.88 feet bgs. Groundwater elevations ranged from 155.19 to 395.47 feet above mean sea level (MSL).

Results of Groundwater Analyses

Groundwater analytical results are presented in Table 3-1. Results are summarized as follows.

Tank 398 Site: TPH compounds were detected in groundwater collected from four of the six wells located at the Tank 398 Site at concentrations ranging from 0.01 milligram per liter (mg/L) to 1 mg/L. VOCs including benzene, ethylbenzene, and chloroform were detected in one sample collected from a Tank 398 Site well. Only benzene at a

concentration of 13 micrograms per liter (μg/L) was detected above its screening level (maximum contaminant level [MCL]) of 1 μg/L.

Tank Farm 6: TPH as gasoline was detected in a groundwater sample from one Tank Farm 6 well at a concentration of 0.41 mg/L. VOCs including benzene, xylenes, and tertiary butyl alcohol were also detected in the same sample. Only benzene at a concentration of 73 μg/L was detected above its MCL of 1 μg/L. An MCL has not been established for tertiary butyl alcohol.

Tank Farm 555: No TPH compounds or VOCs were detected in the one sample collected from Tank Farm 555.

UST Group 651: TPH as gasoline was detected in groundwater collected from one of the two wells sampled at UST Group 651 at a concentration of 2.51 mg/L. VOCs including benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tertiary butyl ether (MTBE), 1,2-dichloroethane (DCA), diisopropyl ether, ethyl tertiary butyl ether, and tertiary butyl alcohol were detected in the same well. Only benzene (415 μg/L), MTBE (1180 μg/L), and 1,2-DCA (29 μg/L) were detected above their respective MCLs. MCLs have not been established for diisopropyl ether, ethyl tertiary butyl ether, or tertiary butyl alcohol.

Status of Monitoring Program

Two monitoring wells in the monitoring well network were inaccessible during the June 2002 sampling event. Access to TF555MW-01 and MW398-30 will be arranged prior to the next sampling event to ensure that these wells are sampled. Groundwater monitoring occurs at former petroleum storage sites semiannually. The next sampling event will occur in December 2002.

Contents

Contents (Continued)

Tables

Figures

Appendices

Acronyms and Abbreviations

ASTM	American Society for Testing and Materials
APCL	Applied P & Ch Laboratory
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
CDM	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chain-of custody
DCA	dichloroethane
DO	dissolved oxygen
DVR	data validation report
gpm	gallons per minute
GSA	General Services Administration
ID	identification
IDW	investigation derived waste
J	estimated value (data validation qualifier)
JEG	Jacobs Engineering Group Inc.
LDC	Laboratory Data Consultants, Inc.
LUFT	California Leaking Underground Fuel Tank
MCAS	Marine Corps Air Station
MCL(s)	maximum contaminant level(s)
µg/L	micrograms per liter
mg/L	milligrams per liter
mL/min	milliliter per minute
MSL	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
MTBE	methyl-tertiary butyl ether
NTU	nephelometric turbidity units
ORP	oxidation-reduction potential
PARCC	precision, accuracy, representativeness, completeness, and comparability
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control

Acronyms and Abbreviations

R	rejected value (data validation qualifier)
RPD	relative percent difference
RWQCB	Regional Water Quality Control Board
SOPs	standard operating procedures
SC	specific conductivity
SDG	sample delivery group
SWDIV	Southwest Division Naval Facilities Engineering Command
TOC	top of casing
TPH	total petroleum hydrocarbons
U	nondetect (data validation qualifier)
UJ	nondetect, with estimated detection limit (data validation qualifier)
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank
VOC(s)	volatile organic compound(s)

Section 1
Introduction

The results of groundwater monitoring activities conducted during June 2002 at specified petroleum storage sites at the former Marine Corps Air Station (MCAS) El Toro in El Toro, California (see Figure 1-1) are presented in this groundwater monitoring data summary report. The groundwater monitoring activities described in this report were performed for the U.S. Department of the Navy, Southwest Division Naval Facilities Engineering Command (SWDIV) by CDM Federal Programs Corporation (CDM) under General Services Administration Contract No. GS-10F-0227J, Delivery Order No. N68711-00-F-0106.

The groundwater sampling and analysis activities described in this report address the June 2002 monitoring event at four petroleum storage sites including Tank 398 Site, Tank Farm 6, Tank Farm 555, and underground storage tank (UST) Group 651.

1.1 Background

MCAS El Toro is situated in a semiurban agricultural area in southern California, approximately 8 miles southeast of the city of Santa Ana and 12 miles northeast of the city of Laguna Beach (Figure 1-1). MCAS El Toro occupies 4,738 acres comprising runways, former aircraft maintenance and training facilities, former ground-support and construction equipment maintenance facilities, housing, shopping facilities, and other former support facilities.

In March 1993, MCAS El Toro was placed on the Base Realignment and Closure Act (BRAC) list of proposed military facilities considered for base closure and was formally selected for closure in September of that year. During 1998 and early 1999, all of the aircraft squadrons were transferred to other Marine Corps and Naval Air Stations. All remaining military operations ceased when MCAS El Toro formally closed on 02 July 1999.

The groundwater monitoring for specified petroleum storage sites is performed semiannually (June and December) in accordance with the Work Plan Addendum (CDM 2002a). Other groundwater monitoring under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is also conducted semiannually at former MCAS EL Toro. The last sampling round (Round 15) was conducted in March 2002. The Final Round 15 Groundwater Monitoring Report (CDM 2002b) discusses base-wide groundwater elevation trends as well as trends in concentrations of chemicals of potential concern. This data summary report presents only the results of sampling and analysis of selected wells at former petroleum storage sites including Tank 398 Site, Tank Farm 6, Tank Farm 555, and UST Group 651.

1.2 Monitoring Well Network

The monitoring well network for petroleum storage site groundwater monitoring includes seven wells at the Tank 398 Site, two wells at Tank Farm 6, two wells at Tank Farm 555, and two wells at UST Group 651. Well locations are shown on Figure 1-2. These sites are further described below.

Tank 398 Site

The Tank 398 site is located centrally on MCAS El Toro. A 108,000 gallon jet fuel (JP5) tank was removed several years ago and JP5 was detected in the vadose zone and groundwater. As of September 2002, the Navy is working with the Regional Water Quality Control Board (RWQCB) to develop a long-term management strategy for the Tank 398 Site. The monitoring well network for the Tank 398 Site comprises wells MW398-01, MW398-12, MW398-21, MW398-27, MW398-28, MW398-28, MW398-29, and MW398-30.

Tank Farm 6

Tank Farm 6 is also located centrally on MCAS El Toro and includes former UST Sites 204, 205, 206, and 207. Sites 205 and 207 were closed by the Orange County Health Care Agency. The Navy submitted a site assessment report for UST Site 204 during the summer of 2002 and is currently investigating the release of petroleum products at UST Site 206. Two wells are included in the monitoring well network for Tank Farm 6 including TF6MW-01 and TF6MW-02

Tank Farm 555

Tank Farm 555 is located in the eastern section of MCAS El Toro, near Wherry Housing. and includes UST Sites 547, 548, 549, 550, and 551. Jet fuel was formerly stored in these USTs. The Navy is currently addressing RWQCB comments on the work plan for the installation of a bioventing treatment system. Two wells are included in the monitoring well network for Tank Farm 555 including TF555MW-01 and TF555MW-05.

UST Group 651

UST Group 651 includes former UST Sites 651-1, 651-2, 651-2 and 651-4 at the former Exchange gasoline station located in the western portion of MCAS El Toro. The Navy conducted soil vapor extraction treatment at these sites and is currently working with the RWQCB on a confirmation sampling strategy. Two wells are included in the monitoring well network for UST Group 651 including MW651-01 and MW651-02.

1.3 Hydrogeologic Setting

MCAS El Toro is located in the Irvine Groundwater Subbasin and is underlain by unconsolidated alluvial sediments of Holocene and Pleistocene age. The alluvial sediments beneath MCAS El Toro and the off-station area to the west and northwest comprise three primary hydrogeologic units. These units consist of a coarse-grained interval designated the shallow groundwater unit, a deeper coarse-grained interval designated the principal aquifer, and a fine-grained intermediate zone that appears to provide some hydraulic separation between the two aquifer zones. Low-permeability semiconsolidated materials underlie the principal aquifer zone. The contact between the principal aquifer and the underlying low-permeability materials is considered the base of the water-bearing zone in this area (Herndon and Reilly 1989). Groundwater in the shallow groundwater unit is present under unconfined "water table" conditions, while groundwater in the principal aquifer is typically present under confined conditions.

Groundwater elevations in the shallow groundwater unit range from 83 feet above mean sea level (MSL) in Irvine to approximately 274 feet above MSL along the margin of the Tustin Plain near the southeastern boundary of MCAS El Toro (CDM 2002b). The direction of groundwater flow in the shallow unit is generally toward the northwest, except in the foothills area located at the northeast corner of MCAS El Toro where the groundwater flow is to the west. Groundwater elevations in the foothills area range from about 423 feet above MSL near the margin of the Tustin Plain up to approximately 624 feet above MSL at the northeastern boundary of MCAS El Toro.

The intermediate zone, which separates the shallow groundwater unit from the deeper principal aquifer consists of fine-grained alluvial sediments and ranges from approximately 70 to 140 feet thick (JEG 1996). Although the vertical thickness and low-permeability suggest that the intermediate zone acts as an aquitard throughout much of the Irvine subbasin, subsurface data also indicate that it is not a single, continuous, extensive geologic unit (JEG 1996). Monitoring data documenting the movement of VOCs from the shallow groundwater unit to the principal aquifer also indicate that some hydraulic interconnection occurs through the intermediate zone.

The principal aquifer is the main water-production zone in the Irvine area. The saturated thickness of the principal aquifer ranges from less than 50 feet in the eastern portion of the Irvine Subbasin to approximately 1,000 feet in the western portion (JEG 1996). Groundwater elevations in the principal aquifer under static (nonpumping) conditions range from approximately 70 feet above MSL near the western end of the Irvine Subbasin to about 160 feet above MSL along its eastern margin beneath the western corner of MCAS El Toro (CDM 2002b). Beneath MCAS El Toro, the direction of groundwater flow is generally toward the northwest and becomes more westerly in the downgradient direction off MCAS El Toro.

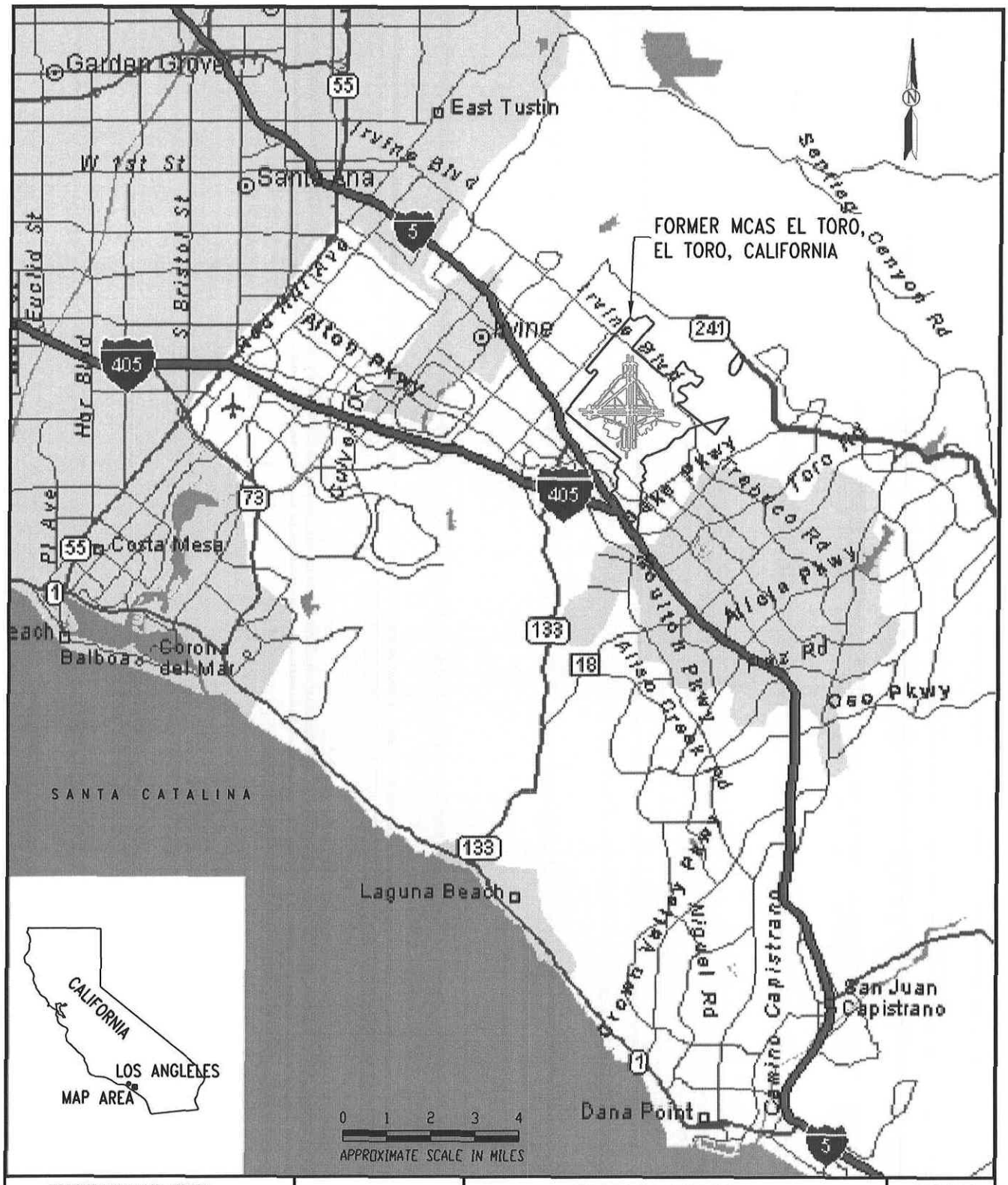
1.4 Report Organization

This report is organized as indicated below:

Section 2	Field Activities
Section 3	Summary of Monitoring Results
Section 4	Quality Assurance/Quality Control
Section 5	Recommendations
Section 6	References

The following two appendices are attached to this data summary report:

Appendix A	Monitoring Well Purging and Sampling Logs
Appendix B	Laboratory Data Validation Reports



FORMER MCAS EL TORO EL TORO, CALIFORNIA		**SITE VICINITY MAP**	FIGURE
CDM Federal Programs Corporation	DATE: 10/2002 FN: 003_1-1	Groundwater Monitoring Data Summary Report for Specified Petroleum Storage Sites, Former MCAS El Toro, California	**1-1**
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PAGE NO. 1-6

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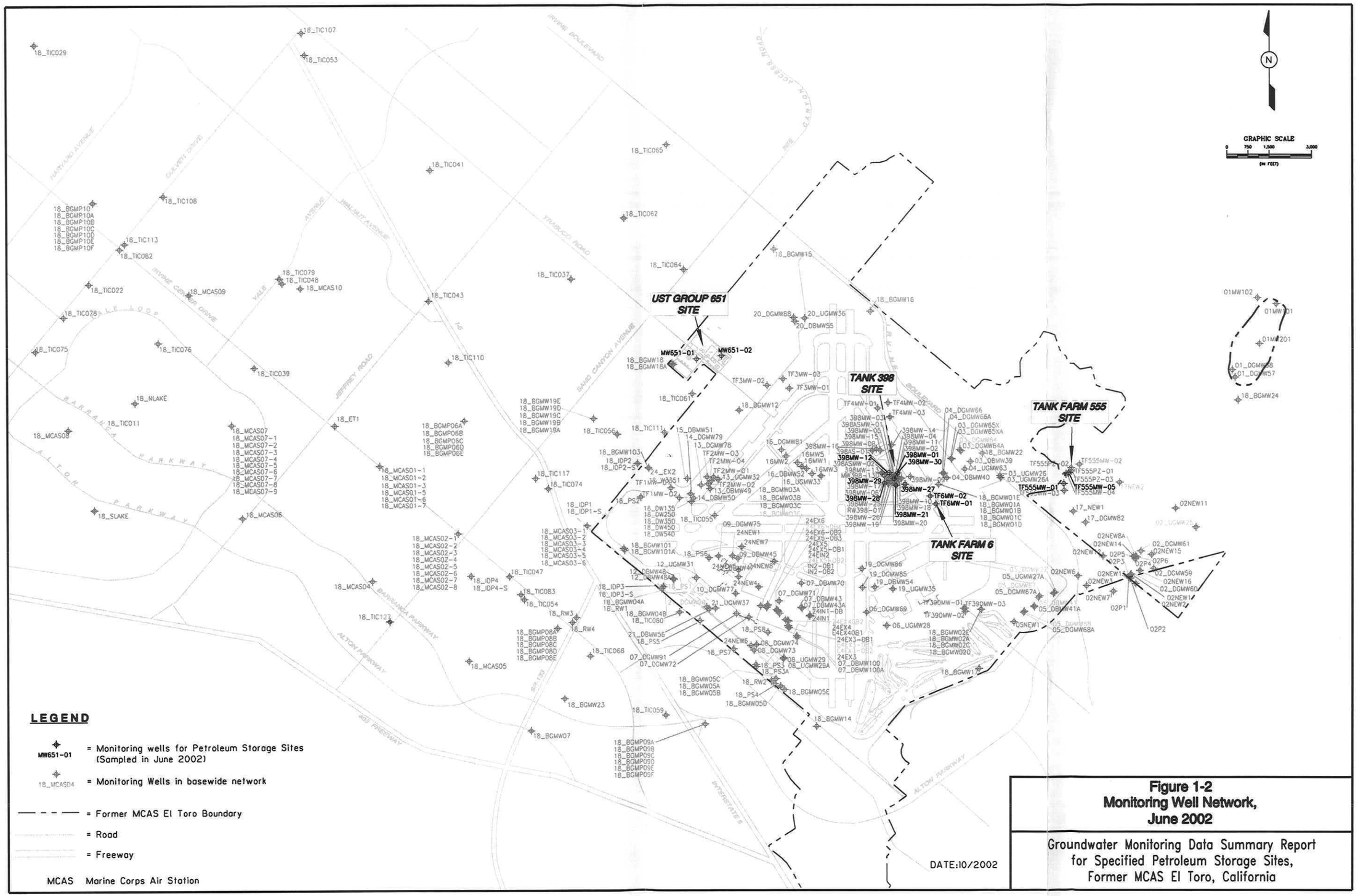

LEGEND

- MW651-01 = Monitoring wells for Petroleum Storage Sites (Sampled in June 2002)
- 18_MCAS04 = Monitoring Wells in basewide network
- = Former MCAS El Toro Boundary
- = Road
- = Freeway

MCAS Marine Corps Air Station

Figure 1-2
Monitoring Well Network, June 2002

Groundwater Monitoring Data Summary Report for Specified Petroleum Storage Sites, Former MCAS El Toro, California

Section 2
Field Activities

This section summarizes groundwater sampling activities performed by CDM from 24 though 26 June 2002 at former MCAS El Toro. A summary list of wells in the monitoring well network for petroleum storage site groundwater monitoring is included as Table 2-1. The table includes well construction information, depth to groundwater measurements, and groundwater elevations. Fieldwork was performed in accordance with the Final Work Plan Addendum (CDM 2002a).

2.1 Depth to Groundwater Measurements

Depth to groundwater measurements were collected using a water level meter equipped with a sounder prior to initiating groundwater purging. Two of the wells (MW398-30 and TF555-01) were inaccessible during sampling; therefore, groundwater level measurements and sampling could not be performed. Well MW398-30 was inside a locked Federal Aviation Administration gate. Well TF555-01 was also inside a locked fence and the Navy representative with the keys was not available during sampling; therefore, this well could not be accessed during the June 2002 sampling event.

Additional information regarding groundwater elevations at MCAS El Toro is described in the MCAS El Toro Round 15 Groundwater Monitoring Report (CDM 2002b).

2.2 Groundwater Sampling and Analysis

Groundwater sampling was conducted at 11 monitoring wells from 24 through 26 June 2002. As discussed previously, two wells planned for sampling (MW398-30 and TF555-01) were inaccessible during June 2002.

Monitoring wells were purged and sampled using a decontaminated, three-inch diameter, variable-speed Grundfos submersible pump. Purging was performed at pumping rates ranging from about 2 to 5 gallons per minute. The pumping rate and the drawdown were measured at multiple intervals during purging. A constant pumping rate was maintained at each well during purging unless the measured groundwater level approached the depth of the pump intake, necessitating a reduction in the pumping rate to reduce drawdown. During purging, field parameters (temperature, pH, specific conductivity [SC], dissolved oxygen [DO], and oxidation/reduction potential [ORP] were measured continuously using a Horiba U-22 water quality monitoring system with a flow-through cell. Measurements were logged at timed intervals. Turbidity was also measured at intervals using a portable turbidity meter. Samples were collected once the field parameters (pH, temperature, SC) had stabilized

(less than a 10 percent change in the last three measured sets of parameters) and after purging a minimum of three well volumes from each well. For sample collection, the discharge rate was reduced to between 200 and 500 milliliters per minute (mL/min). The temporary pump and piping used for purging and sampling were decontaminated prior to and after purging and sampling of each well.

2.3 Sample Handling and Laboratory Analysis

All samples were labeled and handled as described in the Final Work Plan Addendum (CDM 2002a). Samples were labeled with the following information: sample identification (ID), analyses required, sample matrix, preservative, date and time sampled, and the initials of the CDM sampler. Labels were affixed to the sample containers and taped with clear packing tape to avoid water damage to the label after sampling.

Samples were packaged and shipped in accordance with CDM's standard operating procedures (SOPs) presented in the Final Work Plan Addendum (CDM 2002a). Sample containers were placed in self-sealing plastic bags. Sample IDs and analytical requests were recorded on the appropriate chain-of-custody (COC) form. After all labeling and custody information was verified, the samples were placed in insulated coolers for shipment via courier to Applied P & Ch Laboratory (APCL) in Chino, California. APCL is a State of California certified laboratory. Adequate ice was used to maintain cooler temperatures at 4±2 degrees Celsius during shipment. The coolers were adequately sealed and two signed custody seals were applied to each cooler lid.

All groundwater samples were analyzed for the following:

- Volatile organic compounds (VOCs) including methyl tertiary-butyl ether (MTBE), using United States Environmental Protection Agency (U.S. EPA) method 8260B, and
- Total petroleum hydrocarbons (TPH) for both volatile (gasoline) and extractable (diesel and motor oil) hydrocarbons using California Leaking Underground Fuel Tank (LUFT) Method 8015 (modified).

2.4 Investigation Derived Waste

Investigation derived waste (IDW) consisting of purged groundwater and decontamination water was temporarily stored in a double-walled above ground polyethylene tank outside and adjacent to Building 368 at MCAS El Toro. Prime Environmental Services was contracted to pump out the tank and dispose of the non-hazardous wastewater on 09 August 2002.

Table 2-1
Monitoring Well Network
Specified Petroleum Storage Sites
Former MCAS El Toro

Well ID	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Casing Diameter (inches)	Screen Interval (feet bgs)	Date Sampled	Depth to GW (feet bgs)	GW Elevation (feet MSL)	QC Samples
Tank 398 Site								
MW398-01	378.18	219	6	190-215	24-Jun-02	188.88	189.30	
MW398-12	372.68	242	4	190-240	25-Jun-02	188.48	184.20	
MW398-21	373.09	254	4	193-243	24-Jun-02	185.25	187.84	**Duplicate**
MW398-27	378.09	253	4	201.5-251.5	24-Jun-02	188.45	189.64	
MW398-28	366.91	213	4	175-205	24-Jun-02	181.25	185.66	
MW398-29	369.19	215	4	177-207	25-Jun-02	184.63	184.56	
MW398-30	377.69	220	4	183-213	NS	NS	NS	
Tank Farm 6								
TF6MW-01	383.57	225	4	184.5-224.5	26-Jun-02	181.25	202.32	**ER/FB**
TF6MW-02	384.65	230	4	190-230	25-Jun-02	186.10	198.55	
Tank Farm 555								
TF555MW-01	424.12	223	4	180-220	NS	NS	NS	
TF555MW-05	437.63	67	4	49.5-64.5	26-Jun-02	42.16	395.47	
UST Group 651								
MW651-01	286.44	165	4	123-158	26-Jun-02	131.25	155.19	
MW651-02	297.97	177	4	135-175	26-Jun-02	141.25	156.72	

Notes:
All wells are shallow, single screen completions and were all purged using a temporary submersible pump.
All samples were analyzed for VOCs (including MTBE) by EPA method 8260B and TPH by CA LUFT 8015M.

bgs = below ground surface
EPA = United States Environmental Protection Agency
ER/FB = equipment rinsate/field blank
GW = groundwater
MCAS = Marine Corps Air Station
MSL = mean sea level
MTBE = methyl tertiary butyl ether
NS = not sampled
QC = quality control
TOC = top of casing
TPH = total petroleum hydrocarbons (both volatile and extractable)
UST = underground storage tank
VOCs = volatile organic compounds

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Section 3
Summary of Monitoring Results

This section summarizes the results of groundwater level measurements and sampling conducted in June 2002. Table 3-1 presents a summary of analytes detected in groundwater samples collected during the June 2002 sampling event as well as available historical results from previous sampling events. Groundwater purging and sampling logs are included in Appendix A, and laboratory validation reports are included in Appendix B.

3.1 Depth to Groundwater Measurements

Depth to groundwater measurements and elevations, presented in Table 2-1, ranged from 42.16 feet below ground surface (bgs) to 188.88 feet bgs. Groundwater elevations ranged from 155.19 to 395.47 feet above MSL. Additional information regarding base-wide groundwater elevations and flow patterns are described in the CERCLA groundwater monitoring reports. Generally, groundwater flows in a westerly direction beneath MCAS El Toro (CDM 2002b).

3.2 Groundwater Analyses Results

3.2.1 Total Petroleum Hydrocarbon Analyses

TPH compounds were detected in six of the eleven wells sampled during June 2002. There is currently no screening level established for TPH. The results of TPH analysis for samples collected during June 2002 are discussed in the following paragraphs. Detected TPH compounds are presented in Figure 3-1.

Tank 398 Site

TPH compounds were detected in groundwater collected from four of the six wells at Tank 398 Site sampled in June 2002. TPH as gasoline was detected in the groundwater sample collected from MW398-01 at a concentration of 0.03 milligrams per liter (mg/L). TPH as diesel was detected in groundwater samples collected from four of the six Tank 398 Site wells at concentrations ranging from 0.01 mg/L to 0.7 mg/L. TPH as motor oil was detected in groundwater samples collected from three Tank 398 Site wells at concentrations ranging from 0.6 mg/L to 1 mg/L.

Tank Farm 6

TPH as gasoline was detected in the sample collected from well TF6MW-01 at a concentration of 0.41 mg/L. TPH as diesel and TPH as motor oil were not detected in either of the samples collected from two Tank Farm 6 wells.

Tank Farm 555

No TPH compounds were detected in the sample collected from Tank Farm 555 well TF555MW-05.

UST Group 651

TPH as gasoline was detected in the sample collected from UST Group 651 well MW651-02 at a concentration of 2.51 mg/L. TPH as diesel and TPH as motor oil were not detected in samples collected from either of the UST Group 651 wells.

3.2.2 Volatile Organic Compound Analyses

Based on available historical data, the most common VOCs detected over time at these petroleum storage site locations have been benzene, toluene, ethylbenzene, xylenes (BTEX), and MTBE. Results from the June 2002 sampling event indicate groundwater samples collected from three wells had detectable concentrations of VOCs. Detected VOCs included BTEX, MTBE, tertiary butyl alcohol, ethyl tertiary butyl ether, diisopropyl ether, chloroform, and 1,2 dichloroethane (1,2-DCA) (see Table 3-1). These results are discussed further in the following paragraphs. Figure 3-2 presents detected VOCs during the June 2002 sampling event.

Tank 398 Site

Benzene, ethylbenzene, and chloroform were detected in the sample collected fromone Tank 398 Site well (MW398-01). Only benzene at a concentration of 13 micrograms per liter (µg/L) was detected above its screening level (maximum contaminant levels [MCL]) of 1 µg/L.

Tank Farm 6

Benzene, xylenes, and tertiary butyl alcohol were detected in the sample collected from one Tank Farm 6 well (TF6MW-01). Only benzene was detected above its screening level at a concentration of 73 µg/L (MCL is 1 µg/L). An MCL has not been established for tertiary butyl alcohol.

Tank Farm 555

No VOCs were detected in the sample collected from Tank Farm 555 well TF555MW-05 during the June 2002 sampling event.

UST Group 651

BTEX, MTBE, 1,2-DCA, diisopropyl ether, ethyl tertiary butyl ether, and tertiary butyl alcohol were detected in the sample collected from UST Group 651 well MW651-02. Only benzene (415 µg/L), MTBE (1180 µg/L), and 1,2-DCA (29 µg/L) were detected

above their respective MCLs. MCLs have not been established for diisopropyl ether, ethyl tertiary butyl ether, or tertiary butyl alcohol.

3.3 Field Parameter Measurements

Field parameter data collected during the June 2002 sampling event included measurements of temperature, pH, SC, DO, ORP and turbidity. Except for turbidity, a Horiba U-22 water quality monitoring system equipped with a flow-through cell was used to measure water quality parameters. Turbidity was measured with a Lamotte 2020 portable turbidity meter. Field parameter measurements collected just prior to sample collection are summarized in Table 3-2.

High turbidity readings (above 10 nephelometric turbidity units [NTU]) were measured in four wells. High turbidity readings can be caused by many factors including improper development of a well, high clay content in soil, aging well components, and purging groundwater with a submersible pump located close to the bottom of the well and thereby stirring up sediments. The high turbidity readings recorded during the June 2002 sampling event (ranging from 12 NTU to 60.2 NTU) are consistent with other turbidity readings on MCAS El Toro measured during CERCLA groundwater monitoring (CDM 2002b).

Table 3-1
Detected Analytes in Groundwater
Specified Petroleum Storage Sites
Former MCAS El Toro

Station ID	Screen Interval (ft. bgs)	Sample Date	TPH (mg/L)			Detected VOCs (µg/L)						
			TPH Gasoline	TPH Diesel	TPH Motor Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Other VOCs Detected	
Screening Levels (1)			NE	NE	NE	1	150	700	1750	13		Result
Tank 398 Site												
MW398-01	190-215	29-Dec-97	0.002	2	NA	19	2.8	50	73	6.4 J		
		2-Apr-98	0.002	0.0037	NA	11	0.65	36	40	2.9 J		
		24-Jun-02	0.03 J	0.7	1	13	5 U	12	5 U	5 U	chloroform	5
MW398-12	190-240	30-Nov-95	NA	NA	NA	0.5 U	0.5 U	0.5 U	1.5 U	NA		
		14-Feb-96	NA	NA	NA	2	0.5 U	2.5	1.5 U	NA		
		22-May-96	NA	0.5 U	NA	6.7	0.5 U	0.5 U	1.5 U	0.5 U		
		16-Aug-96	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U		
		19-Dec-96	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U		
		4-Apr-97	0.1 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U		
		6-Aug-97	0.1 U	0.1 U	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		3-Apr-98	0.1 U	0.1 U	NA	0.5 U	0.5 U	0.5 U	1 U	5 U		
		25-Jun-02	0.05 U	0.49 U	0.49 U	5 U	5 U	5 U	5 U	5 U		
MW398-21	193-243	3-Mar-97	0.05 U	0.5 U	NA	1 U	1 U	1 U	1 U	1 U		
		4-Apr-97	0.1 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U		
		6-Aug-97	0.1 U	0.5 U	NA	0.3 U	0.3 U	0.3 U	0.3 U	1 U		
		24-Jun-02	0.05 U	0.01 J	0.06 J	5 U	5 UJ	5 U	5 U	5 U		
MW398-27	201.5-251.5	9-Feb-96	NA	NA	NA	0.5 U	0.5 U	0.5 U	1.5 U	NA		
		14-May-96	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	NA		
		21-Aug-96	NA	0.5 U	NA	2.5	0.5 U	2.1	1.5 U	0.5 U		
		20-Dec-96	NA	0.5 U	NA	0.5 U	1.1 U	0.5 U	1.5 U	0.5 U		
		4-Apr-97	0.1 U	0.1 U	NA	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U		
		24-Jun-02	0.05 U	0.05 J	0.2 J	5 U	5 U	5 U	5 U	5 U		
MW398-28	175-205	24-Jun-02	0.05 U	0.03 J	0.49 U	5 U	5 U	5 U	5 U	5 U		
MW398-29	177-207	25-Jun-02	0.05 U	0.49 U	0.49 U	5 U	5 U	5 U	5 U	5 U		
MW398-30	183-213	25-Jun-02	NS	NS	NS	NS	NS	NS	NS	NS		
Tank Farm 6												
TF6MW-01	184.5-224.5	17-Sep-96	1.3	0.57 U	0.35 J	310	1 U	5 U	63.2	1 U		
		16-Jan-97	1.4	0.48 U	0.48 U	270	1 U	0.7 J	26	1 U		
		30-Apr-97	1.71	0.5 U	NA	190	1 U	1 U	31	1 U		
		12-Aug-97	1.4	0.51	NA	150	0.84	0.3 U	37	1 U		
		11-Dec-97	0.85	2	NA	NA	NA	NA	NA	NA		
		18-Mar-98	1.45	0.1 U	NA	NA	NA	NA	NA	NA		
		26-Jun-02	0.41	0.49 U	0.49 U	73	5 U	5 U	1 J	5 U	tertiary butyl alcohol	77 J
TF6MW-02	190-230	18-Sep-96	0.065	0.52 U	0.5 U	1 U	1 U	1 U	1 U	1 U		
		20-Jan-97	0.063	0.5 U	0.5 U	0.8 J	1 U	1 U	1 U	1 U		
		30-Apr-97	1.06	0.5 U	NA	1 U	1 U	1 U	1 U	1 U		
		14-Aug-97	0.42	0.1 U	NA	0.3 U	1 U	0.3 U	1 U	1 U		
		12-Dec-97	0.54	0.1 U	NA	NA	NA	NA	NA	NA		
		23-Mar-98	0.39	0.1 U	NA	NA	NA	NA	NA	NA		
		25-Jun-02	0.05 U	0.49 U	0.49 U	5 U	5 U	5 U	5 U	5 U		
Tank Farm 555												
TF555MW-01	180-220	25-Sep-96	0.1 U	0.22	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		4-Feb-97	0.1 U	0.1 U	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		9-May-97	0.367	0.11	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		18-Dec-97	0.1 U	0.1 U	NA	0.72	0.3 U	0.3 U	1 U	NA		
		24-Mar-02	0.1 U	0.1 U	NA	0.5 U	0.5 U	0.5 U	1 U	NA		
		26-Jun-02	NS	NS	NS	NS	NS	NS	NS	NS		
TF555MW-05	49.5-64.5	25-Sep-96	0.1 U	0.1 U	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		23-Jan-97	0.1 U	0.1 U	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		12-May-97	0.1 U	0.1 U	NA	0.3 U	0.3 U	0.3 U	1 U	1 U		
		18-Dec-97	NA	NA	NA	0.72	0.3 U	0.3 U	1.34	NA		
		24-Mar-98	NA	NA	NA	0.5 U	0.5 U	0.5 U	1.5 U	1 U		
		26-Jun-02	0.05 U	0.49 U	0.49 U	5 U	5 U	5 U	5 U	5 U		
UST Group 651												
MW651-01	123-158	26-Jun-02	0.05 U	0.49 U	0.49 U	5 U	5 U	5 U	5 U	5 U		
MW651-02	135-175	26-Jun-02	2.51	0.49 U	0.49 U	415	3 J	46	46	1180	1,2-dichloroethane	29
											diisopropyl ether	8
											ethyl tertiary butyl ether	4 J
											tertiary butyl alcohol	491 J

Table 3-1 (continued)
Detected Analytes in Groundwater
Specified Petroleum Storage Sites
Former MCAS El Toro

Notes:

1. California Department of Health Services primary maximum contaminant levels (MCLs) were used as screening levels for groundwater. "NE" indicates that a screening level has not been established for the analyte.

Bold and shaded results indicate that the concentration is above the screening limit for the respective analyte.

bgs	=	below ground surface
ft	=	feet
J	=	concentration is estimated; the concentration detected is below the reporting limits but higher than the method detection limit.
MCAS	=	Marine Corps Air Station
mg/L	=	milligrams per liter
µg/L	=	micrograms per liter
MTBE	=	methyl tertiary butyl ether
NA	=	not analyzed
NS	=	not sampled
TPH	=	total petroleum hydrocarbons
U	=	not detected above the reporting limit
UST	=	underground storage tank
VOCs	=	volatile organic compounds

Table 3-2
Summary of Water Quality Field Parameter Measurements, June 2002
Specified Petroleum Storage Sites
Former MCAS El Toro

Well ID	Date	Temp (°C)	pH	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
Tank 398 Site							
MW398-01	06/24/02	26.97	9.01	1.64	6.01	-169	3.69
MW398-12	06/25/02	25.79	7.66	1.30	6.49	109	0.72
MW398-21	06/24/02	25.46	7.59	1.17	7.49	108	3.23
MW398-27	06/24/02	26.30	7.87	1.18	7.53	83	5.21
MW398-28	06/24/02	24.68	7.62	1.03	6.12	67	26.7
MW398-29	06/25/02	26.81	7.67	0.931	8.02	114	2.33
Tank Farm 6							
TF6MW-01	06/26/02	23.71	8.98	1.34	6.01	-111	49.2
TF6MW-02	06/25/02	27.09	8.24	1.17	7.82	-104	9.1
Tank Farm 555							
TF555MW-05	06/26/02	24.46	8.92	1.06	5.01	-30	12.0
UST Group 651							
MW651-01	06/26/02	26.32	8.52	3.01	7.28	-47	60.2
MW651-02	06/26/02	26.80	8.38	2.91	6.26	-57	7.59

Notes:

Measurements in this table are from the last reading taken just prior to sample collection.

°C = degrees centigrade
ID = identification
MCAS = Marine Corps Air Station
mS/cm = millisiemens per centimeter
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
UST = underground storage tank

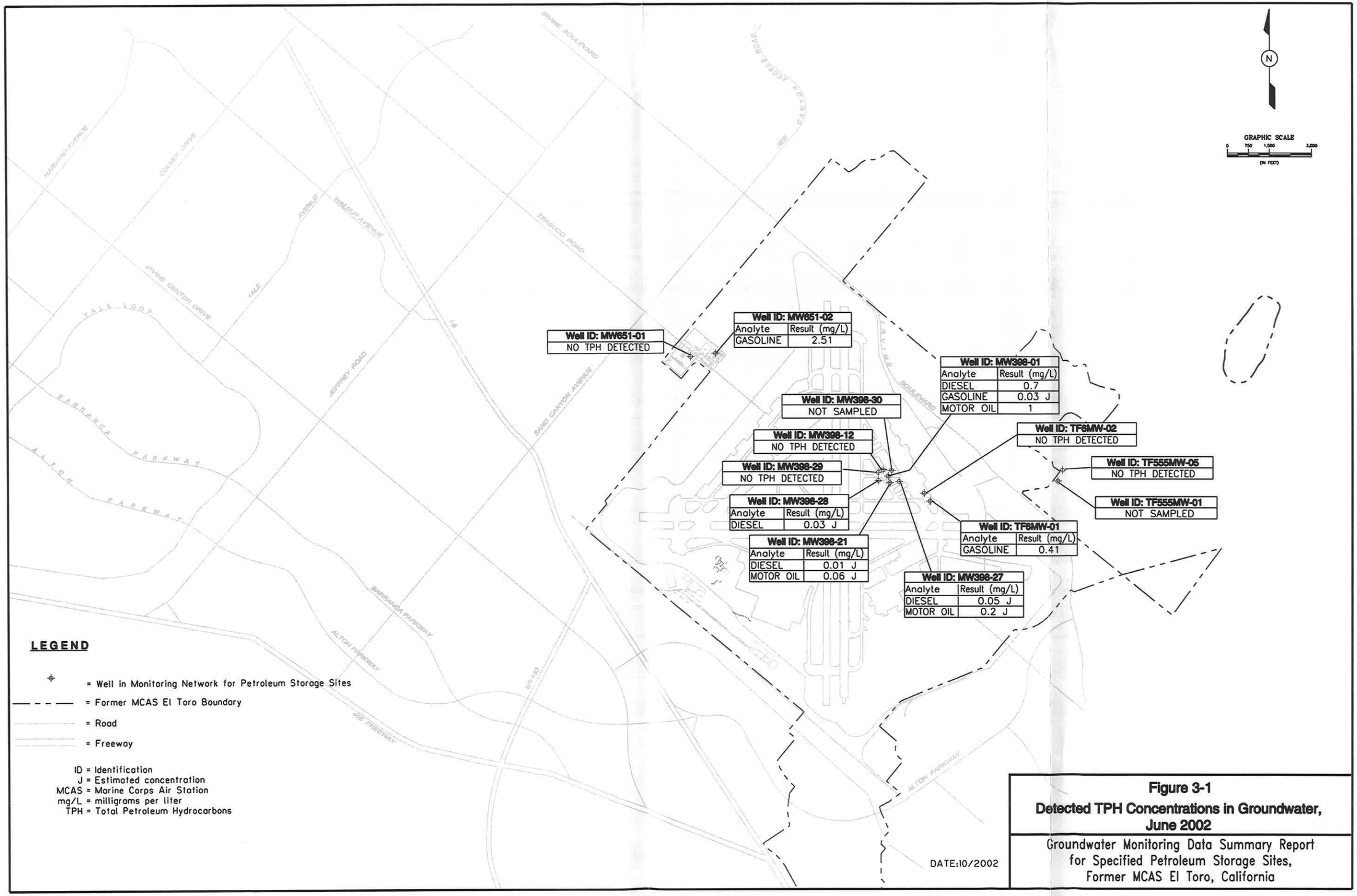

Figure 3-1
Detected TPH Concentrations in Groundwater, June 2002

Groundwater Monitoring Data Summary Report
for Specified Petroleum Storage Sites,
Former MCAS El Toro, California

PAGE NO. 3-8

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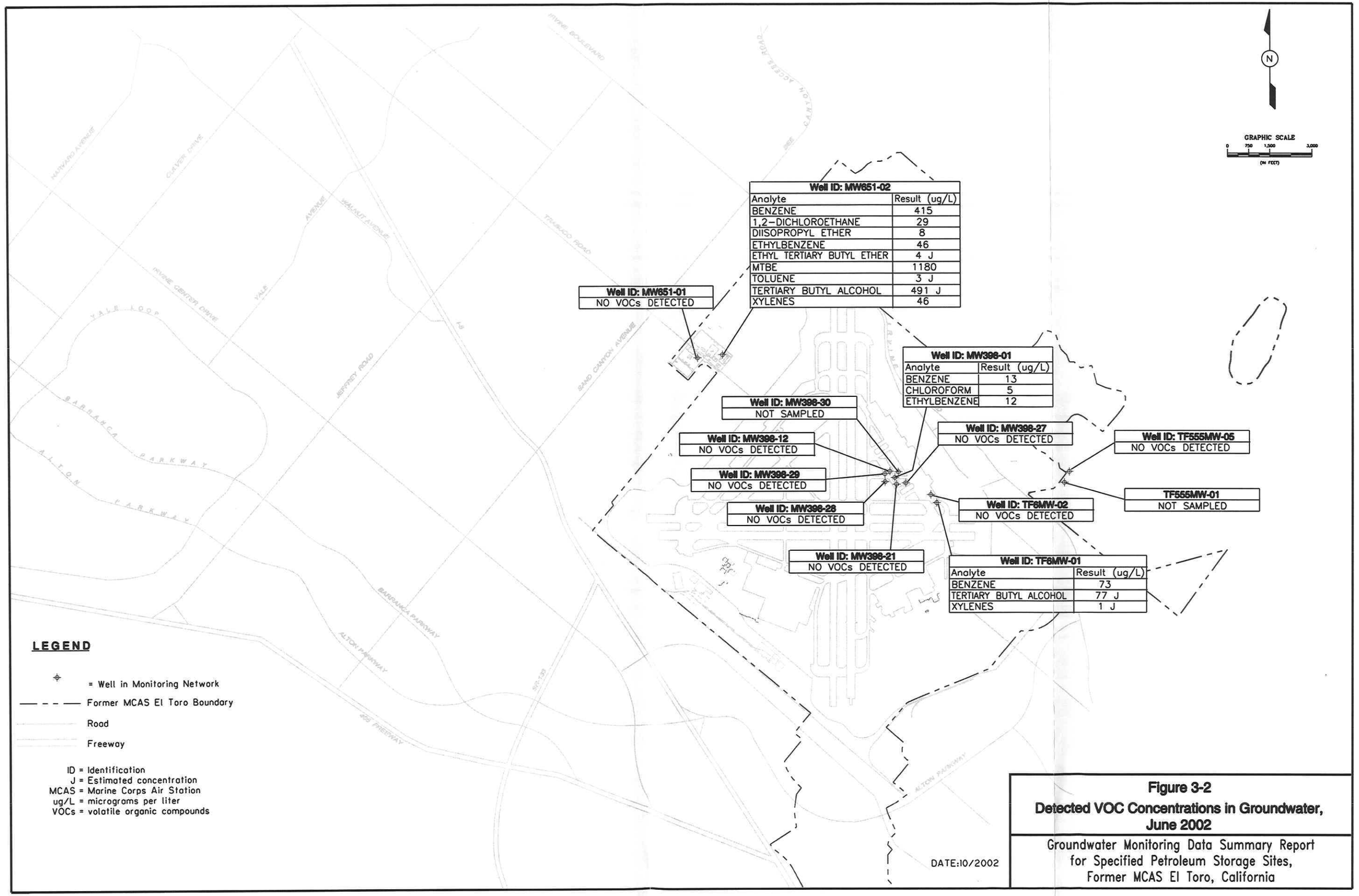

Figure 3-2
Detected VOC Concentrations in Groundwater, June 2002

Groundwater Monitoring Data Summary Report
for Specified Petroleum Storage Sites,
Former MCAS El Toro, California

Section 4
Quality Assurance/Quality Control

The groundwater sampling and analysis activities for the June 2002 sampling event were performed according to guidance and quality assurance/quality control (QA/QC) procedures described in the Final Work Plan Addendum (CDM 2002a), the Quality Assurance Project Plan (QAPP) (CDM 2000a) and the Quality Implementation Plan for this contract (CDM 2000b). The collection of field data was performed following the Final Work Plan Addendum and SOPs provided in the QAPP. The laboratory analyses were performed according to analytical methods and QA/QC procedures described in these documents. This section summarizes the performance of the field and analytical procedures, data quality assessment, and data validation activities.

During the June 2002 sampling event, groundwater samples were collected from a total of 11 monitoring wells. All samples were analyzed for TPH (both volatile and extractable) and VOCs. During field sampling, the following QA/QC samples were collected and analyzed: one field duplicate sample, one equipment rinsate blank sample, and one American Society for Testing and Materials (ASTM) Type II water field blank sample. In addition, three trip blank samples were analyzed for VOCs during this sampling event. Specific analyses performed for the QC samples and their results are summarized below. Refer to the laboratory reports and the data validation reports in Appendix B for complete results.

4.1 Deviations from Sampling and Analysis Plan and Quality Assurance Project Plan

No deviations occurred from the above referenced documents for the June 2002 sampling event except that two monitoring wells (MW398-30 and TF555MW-01) were inaccessible due to locked gates and were therefore not sampled during this sampling event.

4.2 Quality Control Procedures

Data verification procedures and laboratory and field QC samples used for this project are identified below.

4.2.1 Data Verification

Data collected were subjected to the data verification process. Data verification includes proofreading and editing hard-copy data reports to assure that data correctly represent the analytical measurements. In general, data verification identifies nontechnical errors in the data package that can be corrected (e.g., typographical errors). Data verification

also includes verifying that the sample identifiers on laboratory reports (hard copy) match those on the chain-of-custody record.

4.2.2 Laboratory QC Samples

Laboratory QC samples are used to:

- Verify that procedures such as sample handling, storage, and preparation are not introducing variables into the sampling chain that could render the validity of samples questionable; and
- Assess data quality in terms of precision and accuracy.

Laboratory QC samples are regularly prepared in the laboratory so that all phases of the sampling process are monitored. The types of laboratory QC samples prepared during the analysis of water samples from the field activities are discussed below.

Method Blanks

One method blank was analyzed per batch of samples (not greater than 20 samples). The method blank was processed following the same preparatory and analytical procedures as the field-collected samples. These QC samples were used to detect the presence and magnitude of contaminants or other anomalies resulting from the sample preparation and analytical procedures.

Matrix Spikes/Matrix Spike Duplicates

At a minimum, one matrix spike /matrix spike duplicate (MS/MSD) pair was prepared and analyzed for every 20 samples for organic analyses. The MS/MSD samples are prepared by spiking a known amount of certain analytes of interest for each method into a sample of the matrix. The spiked samples are then subjected to the same procedures as the unspiked field-collected samples. The percent recoveries of the spiked compounds are used as an indication of the accuracy and appropriateness of the methods for the matrix. The precision of the methods is also assessed by calculating and evaluating the relative percent difference (RPD) between the results of the MS and MSD.

Surrogates

Surrogate compounds (artificial compounds with similar chemical properties and behavior to the compounds of interest) are added to each sample analyzed for applicable organic analytical methods. The percent recoveries of these spiked surrogate compounds are used to assess the accuracy of sample preparation and analysis procedures.

4.2.3 Field QC Samples

Field QC samples are collected to evaluate the ambient sampling conditions, the thoroughness of the decontamination procedures, and the reproducibility of the field sampling techniques.

Field Duplicate Samples

During this sampling round, one field duplicate sample was collected and analyzed for the same parameters (TPH and VOCs) as the field samples. Field duplicate sample results are reviewed as part of the data validation activity performed for this sampling event. The results of the duplicate sample analysis are discussed in Section 4.3.

Equipment Rinsate Blank Samples

One equipment rinsate blank sample was collected during this sampling event and analyzed for TPH and VOCs. TPH-diesel (0.05 mg/L), TPH-motor oil (0.30 mg/L), and acetone (16 µg/L) were detected in the equipment rinsate blank. All affected data points have been qualified accordingly.

Trip Blank Samples

Trip blank samples were provided by the subcontract laboratory, APCL, and were included with each sample shipment for VOC analysis. Three trip blanks were analyzed during this sampling event. Xylenes (total) were detected in one trip blank. All affected data points have been qualified accordingly.

Source Water Blank

A source water blank sample was collected using ASTM Type II water. No TPH compounds or VOCs were detected above their respective detection limits in the source water blank sample.

4.3 Data Quality Assessment

4.3.1 General Data Review

The field and laboratory data collected during the June 2002 sampling event have been reviewed according to the criteria described in the QAPP (CDM 2000a). The laboratory hard-copy analytical reports and case narratives were reviewed to verify correct sample designation, identification, and chain-of-custody records and to assure that analytical method, holding time, and detection limit requirements were met.

The water level and field parameter measurements collected during June 2002 were reviewed and verified from field sampling records. Section 3.3 provides discussion of field parameter data.

4.3.2 Laboratory Data Validation

The subcontract laboratory, APCL, prepared Level D analytical data packages for all groundwater sample analyses performed. Laboratory Data Consultants, Inc. (LDC) performed an independent data validation. Data validation was performed following SWDIV's Environmental Work Instruction #1 (SWDIV 2001). The data validation guidelines were supplemented by the U.S. EPA guidance document for data validation entitled U.S.EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (U.S.EPA 1994).

The results of the June 2002 data validation are presented in data validation reports (DVRs) included as Appendix B of this report. The DVRs consist of three separate reports each for the two sample delivery groups (SDGs) representing the analyses of TPH as gasoline, TPH as extractables, and VOCs.

For the selected sample results reviewed, the project goals for precision, accuracy, representativeness, completeness, and comparability (PARCC), as defined in the QAPP, were evaluated (CDM 2000a). Except as noted below, the data validation indicates that the analytical data obtained during this sampling event are considered to be usable for the intended purposes of monitoring groundwater quality.

A summary of the data validation and qualifications identified in the DVRs are provided below.

TPH as Gasoline

TPH as gasoline was detected in the method blank and the equipment rinsate. As a result, all of the detections of TPH as gasoline in one of the SDGs (02-3592) had their final concentrations modified and flagged as non-detect "U" as the detections were less than 5 times the method blank concentrations.

TPH as Extractables

The precision results for field duplicate results were outside of method criteria for TPH as diesel in SDG 02-3579. As a result, TPH as diesel concentrations for one sample and its associated duplicate were qualified as estimated ("J").

TPH as diesel and TPH as motor oil were detected in the equipment rinsate. All of the detections of TPH as diesel and TPH as motor oil in SDG 02-3592 had their final concentrations modified and flagged as non-detect ("U") as the detections were less than 5 times the method blank concentrations;

Volatile Organic Compounds

The following data validation was performed for VOCs:

- Tert-butanol was identified as not meeting relative response factor criteria for initial calibration in both SDGs. All detections of tertiary butanol were qualified as estimated ("J") and non-detections were qualified as rejected ("R");
- The continuing calibration was outside of criteria for several analytes in both of the SDGs. These include acetone, tert-butanol, 2-chloroethylvinyl ether, carbon disulfide, and bromomethane. All related detects were qualified as estimated ("J.") All non-detects were qualified as estimated value ("UJ") except for tert-butanol and 2-chloroethylvinyl ether, which were rejected ("R") due to relative response factor criteria not being met;
- Acetone, methylene chloride, benzene, and toluene were detected in the method blanks. Final concentrations of all detections of these analytes were modified and flagged as non-detect ("U") as the detections were less than 5 times the method blank concentrations;
- Benzene, toluene, and xylenes were detected in one of the trip blanks. All detections of these compounds in SDG 02-3579 had their final concentrations modified and flagged as non-detect ("U") as the detections were less than 5 times the trip blank concentrations; and
- The precision results for field duplicate results were outside of criteria for toluene (in SDG 02-3579). Associated results for this analyte were qualified as estimated ("J").

The data is considered acceptable for use for which it was intended based on the data validation process. Data qualifiers were added to results where applicable (as described above).

4.3.3 Field Parameter Measurements

The groundwater field parameters collected at the 11 monitoring wells sampled during the June 2002 sampling event are presented on the groundwater monitoring well purging and sampling logs in Appendix A. Overall, the field parameters collected are consistent with the expected range of values for groundwater conditions based on previous results from CERCLA groundwater monitoring at MCAS El Toro (CDM 2002b).

4.4 QC Evaluation of the Analytical Data

This section presents the results of the internal evaluation of both field and laboratory QC checks. Data quality is assessed against established data quality objectives. The evaluation of the validated data sets compared the objective versus the actual data results through the use of the PARCC parameters. The data quality objectives were met for the June 2002 sampling event.

Precision, accuracy, and completeness goals for the major chemical analyses that were performed on samples collected from the site were those specified in the U.S. EPA Contract Laboratory Program statement of work.

4.4.1 Precision and Accuracy

The procedures in this section are designed to assess QC data for blanks, duplicates, spikes, and surrogates. The review of these data provides information concerning the precision and accuracy measurements conducted by the laboratories and field procedures.

Laboratory Method Blanks

TPH as gasoline, TPH as diesel, TPH as motor oil, benzene, toluene, and methylene chloride were reported in the laboratory method blanks. All affected data points have been qualified accordingly as a result of the data validation process.

Matrix Spikes/Matrix Spike Duplicates

MS/MSD results that were prepared and analyzed by the laboratory were within control limits.

Surrogates

Surrogates were added to all samples and blanks as required. All surrogate recoveries aree within quality control limits.

4.4.2 Representativeness

Representativeness is the reliability with which a measurement or measurement system reflects the true conditions under investigation (U.S. EPA 1989). Representativeness is influenced by the number and location of the sampling points, sampling timing and frequency of monitoring efforts, and the field and laboratory sampling procedures (U.S. EPA 1989).

The representativeness of data was enhanced by the use of established field and laboratory procedures and their consistent application. Samples that were collected are considered to be representative of the location of sample collection.

4.4.3 Completeness

The completeness of the data is described as a ratio of the amount of data expected from the field program versus the amount of valid data actually received. Valid data are considered to be those data that have not been rejected (were not R-qualified either from data validation or internal data review). Completeness can be expressed by the following equation:

$$C = \frac{\text{(number of valid results)}}{\text{total number of requested results}} X\ 100$$

For the June 2002 sampling round, 24 out of 952 results were rejected. Based on the data validation and internal review, the completeness of the sample set submitted for analysis is approximately 98 percent. This is within the completeness goals set for this project.

4.4.4 Comparability

Comparability evaluates whether the reported data is comparable with similar data reported by other organizations. The comparability of the laboratory results was found to be acceptable. Samples from other CERCLA groundwater monitoring have been been analyzed by the same laboratory, using the complete list of published methods specified in the field sampling plan. All units were consistent and appropriate for the matrix sampled.

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Section 5
Status of Monitoring Program

Two monitoring wells in the monitoring well network were inaccessible during the June 2002 sampling event. Access to TF555MW-01 and MW398-30 will be arranged prior to the next sampling event to ensure that these wells are sampled. Groundwater monitoring occurs at former petroleum storage sites semiannually. The next sampling event will occur in December 2002.

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Section 6
References

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Appendix A

Groundwater Monitoring Well Purging and Sampling Logs

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW 398-01
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW398-01-06/2002A
DATE: 06/24/02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 0945

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 76 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		
219	- 188.88 ≅ 30	x 0.66	≅ 20gal X 3 casg vol.	≅ 60gal

Initial Groundwater Level: 188.88 Final Groundwater Level: 189.20

Actual Time	Volume Purged (gallons)	Temperature	pH	Conductance ~~(S/M)~~ mS/cm	Dissolved oxygen	ORP	Turbidity NTu	Description
0950	10	26.86	7.82	1.84	7.01	-191	5.68	Clear
0958	26	26.82	8.88	1.80	8.01	-199	4.23	"
1001	32	26.90	8.90	1.71	6.76	-173	8.93	"
1004	38	26.61	8.84	1.67	6.86	-169	9.04	"
1007	44	26.95	8.90	1.67	6.40	-170	5.90	"
1010	50	26.95	9.01	1.67	6.41	-170	5.17	"
1013	56	26.95	8.99	1.66	6.42	-171	4.49	"
1016	62	26.97	9.01	1.64	6.01	-169	3.67	"
1019	Sample Time							
1023	END Sampling / PUMP OFF							
				Require	Buffered			6-24-02

Average Purge Rate: 2 gpm Total Time: 38 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Pump set at 200' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW398-12
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW398-12-6/2002-1
DATE: 06/25/02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1140

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 150 gallons

Well Total Depth	Original DTW		Casing Volume		Purge Volume
		4"=0.66 5"=0.93 6"=1.5			
242	- 188.475 = 53.53	x 0.66	= 35.33	X 3 casg vol.	≈ 106 gal

Initial Groundwater Level: 188.475 Final Groundwater Level: 188.76

Actual Time	Volume Purged gallons	Temperature	pH	Conductance ~~(S/M)~~ mS/cm	Dissolved oxygen	ORP	Turbidity NTu	Description
1143	15	27.39	7.76	1.24	8.62	112	11.2	clear
1146	30	26.34	7.79	1.21	8.66	115	3.95	"
1149	45	25.89	7.76	1.22	8.80	109	5.11	"
1152	60	26.08	7.70	1.29	7.82	106	1.53	"
1155	75	25.85	7.68	1.26	6.89	116	1.15	"
1158	90	25.89	7.66	1.24	7.31	113	1.07	"
1201	105	25.75	7.66	1.29	6.99	109	0.94	"
1204	120	25.79	7.66	1.30	6.49	109	0.72	"
1210	SAMPLE TIME							
				Regina Clifford				6-25-02

Average Purge Rate: 5 gpm Total Time: 30 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump @ 200' bgs

QC Sample Collected? ~~Yes~~ (X) No (X) If YES, then type of sample and sample ID:

6-25-02

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW398-21
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW398-21-06/2002-1
DATE: 06-24-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1445

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 5 gpm for total of 146 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		

254 - 185.25 ≈ 69 x 0.66 = 45.6 X 3 casg vol. ≈ 137

Initial Groundwater Level: 185.25 Final Groundwater Level: 185.25

Actual Time	Volume Purged gallons	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1450	25	26.98	7.80	1.15	8.05	63	4.01	clear
1453	40	26.24	7.77	1.16	8.01	100	5.16	"
1456	55	26.67	7.69	1.17	7.83	106	5.63	"
1459	70	25.61	7.72	1.17	7.74	106	5.03	"
1502	85	25.46	7.65	1.17	7.63	107	5.31	"
1505	100	25.30	7.53	1.17	7.39	106	3.49	"
1508	115	25.45	7.58	1.17	7.67	107	2.94	"
1511	130	25.48	7.61	1.17	7.60	109	2.99	"
1514	145	25.46	7.59	1.17	7.49	108	3.23	"
1515	SAMPLE TIME							
1518	Duplicate Sample Time							
		Regina Clifford					6-24-02	

Average Purge Rate: 5 gpm Total Time: 31

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 10

Comments: Set pump at 200' bgs

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID:
Duplicate MW398-21-6/2002-3

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 1801-003 June 2002	SAMPLE LOCATION: MW398-27
PROJECT NAME: MCAS El Toro	SAMPLE ID: MW398-27-06/2002-1
DATE: 06-24-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1230

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 157 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		
253	- 188.45 ≙ 65	x 0.66	≙ 43	X 3 casg vol. ≙ 130 gallons

Initial Groundwater Level: 188.45 Final Groundwater Level: 189.95

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1240	50	28.76	7.98	1.25	9.50	31	5.08	Clear
1243	65	27.71	7.93	1.18	7.77	63	4.67	"
1246	80	27.15	7.89	1.20	7.66	73	4.91	"
1249	95	26.65	7.86	1.23	7.78	80	4.31	"
1252	110	26.36	7.84	1.19	7.64	92	4.71	"
1255	125	26.39	7.86	1.18	7.49	84	5.01	"
1258	140	26.30	7.87	1.18	7.53	83	5.21	"
1259	SAMPLE TIME Slow Pump down to 2 gpm							
1305	END SAMPLING							
								6-24-02
			Regina	Clifford				

Average Purge Rate: 5 gpm Total Time: 35 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: pump set at 200' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 1801-003 June 2002	SAMPLE LOCATION: MW398-28
PROJECT NAME: MCAS El Toro	SAMPLE ID: MW398-28-06122002-1
DATE: 06-24-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1647

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 78 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		

213 - 181.25 = 31.75 x 0.66 = 21 X 3 casg vol. ≈ 63

Initial Groundwater Level: 181.25 Final Groundwater Level: 182.53

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1650	9	25.24	7.97	1.06	9.01	77	15.8	clear
1652	15	24.66	7.78	1.05	7.43	75	11.2	clear
1654	21	24.67	7.86	1.02	6.44	39	19.4	clear
1656	27	24.74	7.71	1.05	6.04	45	27.1	Slightly Cloudy
1658	33	24.71	7.69	1.04	6.00	57	21.4	"
1700	39	24.68	7.67	1.03	5.98	60	29.2	"
1703	48	24.66	7.64	1.03	6.05	62	23.2	"
1706	57	24.65	7.64	1.03	6.12	63	21.2	"
1708	66	24.68	7.62	1.03	6.12	67	26.7	"
1710	SAMPLE TIME							
1712	END SAMPLING							
			Regina Clifford 6-24-02					

Average Purge Rate: 3gpm Total Time: 25 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump @ 190' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW398-29
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW398-29-6/2002-1
DATE: 6-25-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 0927

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 117 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		
215	- 184.625 = 30.38	x 0.66	= 20.05	X 3 casg vol. ≈ 61 gallons

Initial Groundwater Level: 184.625 Final Groundwater Level: 185.150

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
0932	15	26.73	5.49	1.05	10.21	220	354	cloudy
0935	24	26.29	6.73	1.04	9.29	165	191	"
0938	33	25.95	7.09	0.960	8.99	156	58.5	"
0940	39	26.03	7.28	0.958	8.82	148	24.9	clear
0942	45	26.34	7.61	0.933	8.17	108	12.2	"
0945	54	25.94	7.63	0.940	8.20	110	10.1	"
0948	63	26.35	7.64	0.935	8.10	120	6.55	"
0952	69	26.73	7.72	0.933	8.22	123	3.73	"
0955	78	26.89	7.72	0.952	7.89	115	2.17	"
0958	87	26.81	7.67	0.931	8.02	114	2.33	"
1008	SAMPLE TIME							
	Regina Clifford 6-25-02							

Average Purge Rate: 3gpm Total Time: 38 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump @ 190' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 1801-003 June 2002	SAMPLE LOCATION: TF6MW01
PROJECT NAME: MCAS El Toro	SAMPLE ID: TF6MW01-6/2002-1
DATE: 06-26-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 0815

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: ~100 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		

225 - 181.25 = 44 x 0.66 = 29 X 3 casg vol. = 87 gallons

Initial Groundwater Level: 181.25 Final Groundwater Level: 186.35

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
0818	12	20.38	6.50	1.40	8.81	47	14.5	clear
0821	24	22.46	8.37	1.37	7.04	-62	12.4	"
0823	32	22.07	9.01	1.37	6.33	-114	14.9	"
0825	40	23.03	9.11	1.36	6.88	-121	9.2	"
0827	48	23.38	9.12	1.35	6.81	-119	19.2	"
0829	56	23.48	9.08	1.35	6.89	-118	24.1	slightly cloudy
0831	64	23.52	9.07	1.35	6.99	-117	29.2	"
0833	72	23.41	9.03	1.35	6.61	-115	31.3	"
0835	80	23.44	9.04	1.36	6.91	-116	39.2	"
0837	88	23.62	8.99	1.36	6.19	-113	46.9	"
0839	96	23.71	8.98	1.34	6.01	-111	49.2	"
0840	SAMPLE TIME					RA 6-26-02		

Average Purge Rate: 4 gpm Total Time: 25 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 12

Comments: Set pump @ 210

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID:
FB TF6MW01-6/2002-7 ER TF6MW01-6/2002-5

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 1801-003 June 2002	SAMPLE LOCATION: TF6mw02
PROJECT NAME: MCAS El Toro	SAMPLE ID: TF6mw02-06/2002-1
DATE: 6-25-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1525

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 4 gpm for total of 112 gallons

Well Total Depth	Original DTW	4"=0.66 5"=0.93 6"=1.5	Casing Volume	Purge Volume
230	- 186.10 ≈ 44	x 0.66 ≈ 29	X 3 casg vol. ≈ 87	

Initial Groundwater Level: 186.10 Final Groundwater Level: 202.65

Actual Time	Volume Purged (Gallons)	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1528	12	27.33	8.09	1.15	8.17	-163	10.1	clear
1531	24	27.15	8.17	1.07	6.99	-85	8.4	"
1534	No WATER	WL @ 204' bgs			Pump @ 200' bgs			
	turned off pump & let well recharge							
1540	Start pump again WL @ -190' bgs							
1542	32	27.57	8.15	1.19	7.09	-91	11.4	clear
1545	44	27.31	8.21	1.18	7.19	-99	9.3	clear
1547	No water	turned off pump and let recharge						
1550	Added another 10' to lower pump to 210' bgs							
1558	Began Pumping							
1603	64	27.27	8.29	1.18	7.11	-106	10.4	clear
1606	76	27.19	8.27	1.18	7.91	-106	12.2	clear

Average Purge Rate: 3-4 gpm Total Time: 55 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump @ 200' bgs then lowered to 210' bgs.

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 1801-003 June 2002	SAMPLE LOCATION: TF6MW02
PROJECT NAME: MCAS El Toro	SAMPLE ID: TF6MW02-6/2002-1
DATE: 6-25-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1525

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: SEE SHEET 1

Well Total Depth	Original DTW		4"=0.66 5"=0.93 6"=1.5	Casing Volume		Purge Volume
SEE SHEET #1						
_____	- _____	= _____	x	= _____	X 3 casg vol.	= _____

Initial Groundwater Level: 186.10 Final Groundwater Level: 202.65

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1608	TURNED OFF PUMP AGAIN WL @ 212' bgs							
1620	Began Pumping again							
1622	88	27.09	8.24	1.17	7.82	-104	9.1	clear
1630	112	Sample TIME						
								6-25-02
								Offered
		Refuse						

Average Purge Rate: 3-4 GPM Total Time: 55 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: TF555mw05
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: TF555mw05-6b2002-1
DATE: 6-26-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1030

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 60 gallons

Well Total Depth	Original DTW		Casing Volume	Purge Volume
		4"=0.66 5"=0.93 6"=1.5		

67 - 42.125 ≈ 25 x 0.66 = 16.41 X 3 casg vol. ≈ 50 gallons

Initial Groundwater Level: 42.125 Final Groundwater Level: 44.165

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1035	15	27.02	8.70	1.10	7.02	30	4.32	clear
1037	21	25.65	9.06	1.08	5.63	-34	3.61	"
1039	27	24.57	9.02	1.08	4.26	-32	16.0	"
1041	33	24.58	8.93	1.07	5.17	-34	12.5	"
1043	39	24.59	8.96	1.07	4.99	-34	10.9	"
1045	45	24.43	8.94	1.07	4.29	-33	11.9	"
1047	51	24.46	8.92	1.06	5.01	-30	12.0	"
1048	SAMPLE TIME							
							6-26-02	
		Regina		Clifford				

Average Purge Rate: 3 gpm Total Time: 18 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set Pump at 60' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW651-1
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW651-1-6/2002-1
DATE: 6/26/02	SAMPLED BY: R. Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1410

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 75 gallons

Well Total Depth	Original DTW	4"=0.66 5"=0.93 6"=1.5 Casing Volume	Purge Volume
165	- 131.25 ≈ 34	x 0.66 ≈ 23	X 3 casg vol. ≈ 70 gal

Initial Groundwater Level: 131.25 Final Groundwater Level: 133.25

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1413	9	33.21	8.14	3.06	8.01	-73	180	very cloudy
1416	18	29.44	8.32	3.22	7.16	-84	337	"
1419	27	27.89	8.40	3.19	7.52	-82	216	"
1422	36	26.94	8.49	3.10	7.65	-65	118	cloudy
1425	45	26.53	8.52	3.02	7.86	-59	91	"
1428	54	26.19	8.56	3.01	7.53	-51	80.9	"
1431	63	26.24	8.54	3.02	7.14	-48	72.3	"
1434	72	26.32	8.52	3.01	7.28	-47	60.2	"
1435	SAMPLE TIME							

Average Purge Rate: 3 gpm Total Time: 25 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump at 150' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **1801-003 June 2002**	SAMPLE LOCATION: MW651-2
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: MW651-2-6/2002-1
DATE: 6-26-02	SAMPLED BY: Regina Clifford
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1240

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

Total Volume Removed: 90 gallons

Well Total Depth	Original DTW	4"=0.66 5"=0.93 6"=1.5	Casing Volume	Purge Volume
177	- 141.125 = 36	x 0.66 = 24	X 3 casg vol.	≅ 72

Initial Groundwater Level: 141.25 Final Groundwater Level: 142.59

Actual Time	Volume Purged	Temperature	pH	Conductance (S/M)	Dissolved oxygen	ORP	Turbidity NTu	Description
1243	9	35.01	7.84	2.67	7.31	9	11.6	clear
1245	15	29.70	8.15	2.87	7.12	-10	6.40	"
1248	24	28.04	8.36	2.94	7.01	-53	4.2	"
1251	33	26.80	8.52	2.98	6.33	-74	6.29	"
1254	42	26.98	8.49	2.92	6.19	-63	4.92	"
1257	51	26.98	8.42	2.92	6.31	-59	6.99	"
1300	60	26.87	8.39	2.91	6.89	-55	7.19	"
1303	69	26.69	8.40	2.88	6.53	-58	8.25	"
1305	75	26.71	8.39	2.89	6.38	-56	6.10	"
1307	81	26.80	8.38	2.91	6.26	-57	7.59	"
1310	SAMPLE TIME							
				RL 6-26-02				

Average Purge Rate: 3 gpm Total Time: 30 minutes

Laboratory Analysis: VOCs (X) TPH (X) Metals Filtered ( )
Perchlorate ( ) General chemistry ( ) Gross Alpha/Beta ( )

Total number of bottles: 5

Comments: Set pump at 160' bgs

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

Appendix B

Laboratory Data Validation Reports

MCAS El Toro, GW Monitoring Project
Data Validation Reports
LDC# 8938

TPH as Gasoline

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 24, 2002

LDC Report Date: August 29, 2002

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3579

Sample Identification

MW398-01-06/2002-1**
MW398-21-06/2002-1
MW398-21-06/2002-3
MW398-27-06/2002-1
MW398-28-06/2002-1

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-3579	TPH as gasoline	No MS/MSD associated with these samples.	MS/MSD required.	None	P

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

IX. Field Duplicates

Samples MW398-21-06/2002-1 and MW398-21-06/2002-3 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 02-3579

SDG	Sample	Compound	Flag	A or P	Reason
02-3579	MW398-01-06/2002-1** MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1	TPH as gasoline	None	P	Matrix spike/Matrix spike duplicates

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 02-3579

No Sample Data Qualified in this SDG

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 02-3579

No Sample Data Qualified in this SDG

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-2	Received Date:	06/25/2002
Sample ID:	**MW398-01-06/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: U
Anal. Method:	M8015V	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2949	Prep. No:	-	Anal. Time:	15:17
Data File Name:	3579.002	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	0.03	J

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	65-134	114
# of out-of-control				0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-3	Received Date:	06/25/2002
Sample ID:	**MW398-21-06/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: U
Anal. Method:	M8015V	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2949	Prep. No:	-	Anal. Time:	16:00
Data File Name:	3579.003	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	65-134	118
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-4	Received Date:	06/25/2002
Sample ID:	**MW398-21-06/2002-3**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: U
Anal. Method:	M8015V	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2949	Prep. No:	–	Anal. Time:	16:37
Data File Name:	3579.004	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	113
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-5	Received Date:	06/25/2002
Sample ID:	**MW398-27-06/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: U
Anal. Method:	M8015V	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2949	Prep. No:	–	Anal. Time:	17:19
Data File Name:	3579.005	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	118
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-6	Received Date:	06/25/2002
Sample ID:	**MW398-28-06/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: U
Anal. Method:	M8015V	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2949	Prep. No:	–	Anal. Time:	17:57
Data File Name:	3579.006	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	110
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 26, 2002

LDC Report Date: August 30, 2002

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3592

Sample Identification

MW398-12-6/2002-1
MW398-29-6/2002-1
MW651-1-6/2002-1
MW651-2-6/2002-1**
TF6MW01-6/2002-1
TF6MW01-6/2002-5
TF6MW02-6/2002-1
TF555MW05-6/2002-1
MW398-12-6/2002-1MS
MW398-12-6/2002-1MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
02G2980-MB-02	6/28/02	TPH as gasoline	0.02 ug/L	All samples in SDG 02-3592

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW398-12-6/2002-1	TPH as gasoline	0.05 ug/L	0.05U ug/L
MW398-29-6/2002-1	TPH as gasoline	0.02 ug/L	0.05U ug/L
MW651-1-6/2002-1	TPH as gasoline	0.01 ug/L	0.05U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
TF6MW01-6/2002-5	TPH as gasoline	0.02 ug/L	0.05U ug/L
TF6MW02-6/2002-1	TPH as gasoline	0.05 ug/L	0.05U ug/L
TF555MW05-6/2002-1	TPH as gasoline	0.02 ug/L	0.05U ug/L

Sample TF6MW01-6/2002-5 was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
TF6MW01-6/2002-5	6/26/02	TPH as gasoline	0.02 mg/L	MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF6MW02-6/2002-1 TF555MW05-6/2002-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW398-12-6/2002-1	TPH as gasoline	0.05 ug/L	0.05U ug/L
MW398-29-6/2002-1	TPH as gasoline	0.02 ug/L	0.05U ug/L
MW651-1-6/2002-1	TPH as gasoline	0.01 ug/L	0.05U ug/L
TF6MW02-6/2002-1	TPH as gasoline	0.05 ug/L	0.05U ug/L
TF555MW05-6/2002-1	TPH as gasoline	0.02 ug/L	0.05U ug/L

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 02-3592

No Sample Data Qualified in this SDG

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3592	MW398-12-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	MW398-29-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	MW651-1-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	TF6MW01-6/2002-5	TPH as gasoline	0.05U ug/L	A
02-3592	TF6MW02-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	TF555MW05-6/2002-1	TPH as gasoline	0.05U ug/L	A

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3592	MW398-12-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	MW398-29-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	MW651-1-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	TF6MW02-6/2002-1	TPH as gasoline	0.05U ug/L	A
02-3592	TF555MW05-6/2002-1	TPH as gasoline	0.05U ug/L	A

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Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-3	Received Date:	06/26/2002
Sample ID:	**MW398-12-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	–	Anal. Time:	17:25
Data File Name:	3592.003	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.05	J U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	98
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-4	Received Date:	06/26/2002
Sample ID:	**MW398-29-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	–	Anal. Time:	17:49
Data File Name:	3592.004	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.02	J 0.05U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	97
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-5	Received Date:	06/26/2002
Sample ID:	**MW651-1-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	–	Anal. Time:	18:12
Data File Name:	3592.005	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.01	J 0.054

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	98
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-6	Received Date:	06/26/2002
Sample ID:	**MW651-2-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	-	Anal. Time:	18:35
Data File Name:	3592.006	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	2.51 (b)	

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	114
# of out-of-control			0

(b) Not a typical Gasoline pattern.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-7	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	-	Anal. Time:	18:58
Data File Name:	3592.007	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.41 [b]	

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	98
# of out-of-control			0

[b] Not a typical Gasoline pattern.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-8	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-5**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	–	Anal. Time:	19:22
Data File Name:	3592.008	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.02	J 0.05U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	95
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-10	Received Date:	06/26/2002
Sample ID:	**TF6MW02-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	-	Anal. Time:	19:45
Data File Name:	3592.010	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.05	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	65-134	95
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

1820

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Organic Analysis Results for Method M8015V

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/200
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-11	Received Date:	06/26/2002
Sample ID:	**TF555MW05-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2980	Prep. No:	-	Anal. Time:	20:08
Data File Name:	3592.011	Sample Amount:	5 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: GASOLINE	8006-61-9	mg/L	0.05	0.02	J 0.054

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	65-134	98
# of out-of-control				0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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MCAS El Toro, GW Monitoring Project
Data Validation Reports
LDC# 8938

TPH as Extractables

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 24, 2002

LDC Report Date: August 29, 2002

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3579

Sample Identification

MW398-01-06/2002-1**
MW398-21-06/2002-1
MW398-21-06/2002-3
MW398-27-06/2002-1
MW398-28-06/2002-1

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-3579	TPH as extractables	No MS/MSD associated with these samples.	MS/MSD required.	None	P

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

IX. Field Duplicates

Samples MW398-21-06/2002-1 and MW398-21-06/2002-3 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	MW398-21-06/2002-1	MW398-21-06/2002-3			
TPH as diesel	0.49U	0.01	200 (≤20)	J (all detects) UJ (all non-detects)	A
TPH as motor oil	0.06	0.06	0 (≤20)	-	-

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 02-3579

SDG	Sample	Compound	Flag	A or P	Reason
02-3579	MW398-01-06/2002-1** MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1	TPH as extractables	None	P	Matrix spike/Matrix spike duplicates
02-3579	MW398-21-06/2002-1 MW398-21-06/2002-3	TPH as diesel	J (all detects) UJ (all non-detects)	A	Field duplicates (RPD)

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 02-3579

No Sample Data Qualified in this SDG

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 02-3579

No Sample Data Qualified in this SDG

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-2	Received Date:	06/25/2002
Sample ID:	**MW398-01-06/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2946	Prep. No:	1 of 1	Anal. Time:	22:56
Data File Name:	3579.002	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	DIESEL	11-84-7	mg/L	0.49	0.7 [a]	
2	MOTOR OILS		mg/L	0.49	1	

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	59
# of out-of-control				0

[a] Not a Diesel pattern, unknown mixture in Diesel range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-3	Received Date:	06/25/2002
Sample ID:	**MW398-21-06/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2946	Prep. No:	1 of 1	Anal. Time:	23:25
Data File Name:	3579.003	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	DIESEL	11-84-7	mg/L	0.49	< 0.49	U UJ
2	MOTOR OILS		mg/L	0.49	0.06 [b]	J

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	95
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

[b] Not a Motor Oil pattern, sample chromatogram contained an unknown isolated peak at about C_{23} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-4	Received Date:	06/25/2002
Sample ID:	**MW398-21-06/2002-3**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2946	Prep. No:	1 of 1	Anal. Time:	23:54
Data File Name:	3579.004	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	DIESEL	11-84-7	mg/L	0.49	0.01	J J
2	MOTOR OILS		mg/L	0.49	0.06 (b)	J

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	95
# of out-of-control				0

(b) Not a Motor Oil pattern, sample chromatogram contained an unknown isolated peak at about C_{23} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-5	Received Date:	06/25/2002
Sample ID:	**MW398-27-06/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/26/02	Anal. Date:	06/27/02
Batch No:	02G2946	Prep. No:	1 of 1	Anal. Time:	00:22
Data File Name:	3579.005	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	DIESEL	11-84-7	mg/L	0.49	0.05	J
2	MOTOR OILS		mg/L	0.49	0.2 [b]	J

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	94
# of out-of-control				0

[b] Not a Motor Oil pattern, sample chromatogram contained an unknown isolated peak at about C_{23} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-6	Received Date:	06/25/2002
Sample ID:	**MW398-28-06/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/26/02	Anal. Date:	06/27/02
Batch No:	02G2946	Prep. No:	1 of 1	Anal. Time:	00:51
Data File Name:	3579.006	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	DIESEL	11-84-7	mg/L	0.49	0.03	J
2	MOTOR OILS		mg/L	0.49	<0.49	U

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	87
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 26, 2002

LDC Report Date: August 30, 2002

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3592

Sample Identification

MW398-12-6/2002-1
MW398-29-6/2002-1
MW651-1-6/2002-1
MW651-2-6/2002-1**
TF6MW01-6/2002-1
TF6MW01-6/2002-5
TF6MW02-6/2002-1
TF555MW05-6/2002-1

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample TF6MW01-6/2002-5 was identified as an equipment rinsate. No total petroleum hydrocarbons as extractable contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
TF6MW01-6/2002-5	6/26/02	TPH as diesel TPH as motor oil	0.05 mg/L 0.3 mg/L	MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF6MW02-6/2002-1 TF555MW05-6/2002-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW398-29-6/2002-1	TPH as diesel TPH as motor oil	0.01 mg/L 0.1 mg/L	0.49U mg/L 0.49U mg/L
MW651-1-6/2002-1	TPH as motor oil	0.09 mg/L	0.49U mg/L
MW651-2-6/2002-1**	TPH as diesel TPH as motor oil	0.2 mg/L 0.07 mg/L	0.49U mg/L 0.49U mg/L
TF6MW01-6/2002-1	TPH as diesel TPH as motor oil	0.03 mg/L 0.2 mg/L	0.49U mg/L 0.49U mg/L
TF6MW02-6/2002-1	TPH as diesel	0.04 mg/L	0.49U mg/L
TF555MW05-6/2002-1	TPH as diesel TPH as motor oil	0.1 mg/L 0.08 mg/L	0.49U mg/L 0.49U mg/L

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-3592	TPH as extractables	No MS/MSD associated with these samples.	MS/MSD required.	None	P

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound	Flag	A or P	Reason
02-3592	MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF6MW01-6/2002-5 TF6MW02-6/2002-1 TF555MW05-6/2002-1	TPH as extractables	None	P	Matrix spike/Matrix spike duplicates

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 02-3592

No Sample Data Qualified in this SDG

MCAS El Toro, GW Monitoring Project
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3592	MW398-29-6/2002-1	TPH as diesel TPH as motor oil	0.49U mg/L 0.49U mg/L	A
02-3592	MW651-1-6/2002-1	TPH as motor oil	0.49U mg/L	A
02-3592	MW651-2-6/2002-1**	TPH as diesel TPH as motor oil	0.49U mg/L 0.49U mg/L	A
02-3592	TF6MW01-6/2002-1	TPH as diesel TPH as motor oil	0.49U mg/L 0.49U mg/L	A
02-3592	TF6MW02-6/2002-1	TPH as diesel	0.49U mg/L	A
02-3592	TF555MW05-6/2002-1	TPH as diesel TPH as motor oil	0.49U mg/L 0.49U mg/L	A

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-3	Received Date:	06/26/2002
Sample ID:	**MW398-12-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	19:17
Data File Name:	3592.003	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	<0.49	U
2	MOTOR OILS		mg/L	0.49	<0.49	U

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	79
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

1882

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-4	Received Date:	06/26/2002
Sample ID:	**MW398-29-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	19:46
Data File Name:	3592.004	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.01	J 0.494
2	MOTOR OILS		mg/L	0.49	0.1 [a]	J 0.494

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	97
# of out-of-control				0

[a]Sample chromatogram only contained an unknown isolated peak at about C_{23}-C_{24} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

1826

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-5	Received Date:	06/26/2002
Sample ID:	**MW651-1-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	20:14
Data File Name:	3592.005	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	<0.49	U
2	MOTOR OILS		mg/L	0.49	0.09	J 0.49 U

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	101
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

1801

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-6	Received Date:	06/26/2002
Sample ID:	**MW651-2-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	20:43
Data File Name:	3592.006	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.2 [c]	J 0.494
2	MOTOR OILS		mg/L	0.49	0.07	J 0.494

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	95
# of out-of-control				0

[c] Unknown mixture in Gasoline/JP-5 range. Quantified as JP-5.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-7	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	21:12
Data File Name:	3592.007	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.03 [a]	J 0.494
2	MOTOR OILS		mg/L	0.49	0.2 [a]	J 0.494

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	100
# of out-of-control				0

[a]Sample chromatogram only contained an unknown isolated peak at about C_{23}-C_{24} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-8	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-5**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	21:41
Data File Name:	3592.008	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.05 [a]	J
2	MOTOR OILS		mg/L	0.49	0.3	J

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	83
# of out-of-control				0

[a]Sample chromatogram only contained an unknown isolated peak at about C_{23}-C_{24} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-10	Received Date:	06/26/2002
Sample ID:	**TF6MW02-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	22:09
Data File Name:	3592.010	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.04	J 0.494
2	MOTOR OILS		mg/L	0.49	<0.49	U

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	94
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-11	Received Date:	06/26/2002
Sample ID:	**TF555MW05-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	3510	Instrument ID:	GC: H
Anal. Method:	M8015E	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2989	Prep. No:	1 of 1	Anal. Time:	23:35
Data File Name:	3592.011	Sample Amount:	1020 mL	Dilution Factor:	0.98
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH: DIESEL	11-84-7	mg/L	0.49	0.1 [d]	J 0.494
2	MOTOR OILS		mg/L	0.49	0.08	J 0.494

Surrogates			Control Limit, %	Surro. Rec.%
1	N-OCTACOSANE	630-02-4	50-139	92
# of out-of-control				0

[d]Not a Diesel. Sample chromatogram mainly contained two isolated peaks at about C_{14}-C_{23} range.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

1801

MCAS El Toro, GW Monitoring Project
Data Validation Reports
LDC# 8938

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 24, 2002

LDC Report Date: August 29, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3579

Sample Identification

BT01-06/2002-9
MW398-01-06/2002-1**
MW398-21-06/2002-1
MW398-21-06/2002-3
MW398-27-06/2002-1
MW398-28-06/2002-1
MW398-21-06/2002-3MS
MW398-21-06/2002-3MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/30/02	tert-Butanol	0.0211 (≥0.05)	All samples in SDG 02-3579	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/28/02	Acetone 2-Chloroethylvinyl ether	33.12 99.70	MW398-01-06/2002-1** 02G2973MB	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
6/26/02	Acetone tert-Butanol	39.17 48.05	BT01-06/2002-9 MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1 MW398-21-06/2002-3MS MW398-21-06/2002-3MSD 02G2950MB	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/28/02	tert-Butanol 2-Chloroethylvinyl ether	0.026 (≥0.05) 0.005 (≥0.05)	MW398-01-06/2002-1** 02G2973MB	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A
6/26/02	tert-Butanol	0.031 (≥0.05)	BT01-06/2002-9 MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1 MW398-21-06/2002-3MS MW398-21-06/2002-3MSD 02G2950MB	J (all detects) R (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G2950MB	6/26/02	Benzene Toluene	0.5 ug/L 0.4 ug/L	BT01-06/2002-9 MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
BT01-06/2002-9	Benzene Toluene	1 ug/L 0.9 ug/L	5U ug/L 5U ug/L
MW398-21-06/2002-1	Toluene	0.3 ug/L	5U ug/L

Sample BT01-06/2002-9 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
BT01-06/2002-9	6/24/02	Benzene Toluene Xylenes, total	1 ug/L 0.9 ug/L 0.4 ug/L	MW398-01-06/2002-1** MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW398-01-06/2002-1**	Toluene Xylenes, total	0.3 ug/L 3 ug/L	5U ug/L 5U ug/L
MW398-21-06/2002-1	Toluene	0.3 ug/L	5U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW398-01-06/2002-1**	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW398-21-06/2002-1 and MW398-21-06/2002-3 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	MW398-21-06/2002-1	MW398-21-06/2002-3			
Toluene	0.3	5U	200 (≤20)	J (all detects) UJ (all non-detects)	A

MCAS El Toro, GW Monitoring Project
Volatiles - Data Qualification Summary - SDG 02-3579

SDG	Sample	Compound	Flag	A or P	Reason
02-3579	BT01-06/2002-9 MW398-01-06/2002-1** MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1	tert-Butanol	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
02-3579	MW398-01-06/2002-1**	Acetone 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
02-3579	BT01-06/2002-9 MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1	Acetone tert-Butanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
02-3579	MW398-01-06/2002-1**	tert-Butanol 2-Chloroethylvinyl ether	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
02-3579	BT01-06/2002-9 MW398-21-06/2002-1 MW398-21-06/2002-3 MW398-27-06/2002-1 MW398-28-06/2002-1	tert-Butanol	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
02-3579	MW398-01-06/2002-1**	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates
02-3579	MW398-21-06/2002-1 MW398-21-06/2002-3	Toluene	J (all detects) UJ (all non-detects)	A	Field duplicates (RPD)

MCAS El Toro, GW Monitoring Project
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-3579

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3579	BT01-06/2002-9	Benzene Toluene	5U ug/L 5U ug/L	A
02-3579	MW398-21-06/2002-1	Toluene	5U ug/L	A

MCAS El Toro, GW Monitoring Project
Volatiles - Field Blank Data Qualification Summary - SDG 02-3579

SDG	Sample	Compound	Modified Final Concentration	A or P
02-3579	MW398-01-06/2002-1**	Toluene Xylenes, total	5U ug/L 5U ug/L	A
02-3579	MW398-21-06/2002-1	Toluene	5U ug/L	A

4938A

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/200
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-1	Received Date:	06/25/2002
Sample ID:	**BT01-06/2002-9**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2950	Prep. No:	-	Anal. Time:	19:50
Data File Name:	3579-01	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	1	JB 5U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	0.9	JB 5U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	0.4	J
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-2	Received Date:	06/25/2002
Sample ID:	MW398-01-06/2002-1	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2973	Prep. No:	-	Anal. Time:	06:02
Data File Name:	3579-02A	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	13	
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U F
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ R
13	CHLOROFORM	67-66-3	µg/L	5	5	
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	12	
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	0.3	J 5U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	3	J 5U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/200
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-3	Received Date:	06/25/2002
Sample ID:	MW398-21-06/2002-1	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2950	Prep. No:	–	Anal. Time:	20:43
Data File Name:	3579-03	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	0.3	JB 5U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-4	Received Date:	06/25/2002
Sample ID:	MW398-21-06/2002-3	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2950	Prep. No:	-	Anal. Time:	21:09
Data File Name:	3579-04	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U UJ
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/20
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-5	Received Date:	06/25/2002
Sample ID:	MW398-27-06/2002-1	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2950	Prep. No:	-	Anal. Time:	21:36
Data File Name:	3579-05	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

Applied P & Ch Laboratory

Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/24/2002
Project ID:	MCAS El Toro	Service ID:	023579	Collected by:	
		Lab Sample ID:	02-3579-6	Received Date:	06/25/2002
Sample ID:	MW398-28-06/2002-1	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/26/02	Anal. Date:	06/26/02
Batch No:	02G2950	Prep. No:	–	Anal. Time:	22:02
Data File Name:	3579-06	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, GW Monitoring Project

Collection Date: June 25 through June 26, 2002

LDC Report Date: August 30, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-3592

Sample Identification

BT02-6/2002-9
BT03-6/2002-9
MW398-12-6/2002-1
MW398-29-6/2002-1
MW651-1-6/2002-1
MW651-2-6/2002-1**
TF6MW01-6/2002-1
TF6MW01-6/2002-5
TF6MW01-6/2002-7
TF6MW02-6/2002-1
TF555MW05-6/2002-1
BT03-6/2002-9MS
BT03-6/2002-9MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
3/25/02	tert-Butanol	0.025 (≥0.05)	TF6MW01-6/2002-5 02G3060MB	J (all detects) R (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/30/02	tert-Butanol	0.0211 (≥0.05)	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1 BT03-6/2002-9MS BT03-6/2002-9MSD 02G2994MB 02G3092MB	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/28/02	2-Chloroethylvinyl ether Acetone	68.69 60.16	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1 BT03-6/2002-9MS BT03-6/2002-9MSD 02G2994MB	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
7/3/02	Acetone Carbon disulfide 2-Chloroethylvinyl ether	62.56 25.07 99.9	TF6MW01-6/2002-1 02G3092MB	J (all detects) UJ (all non-detects)	A
7/5/02	Bromomethane Acetone	26.16 43.60	TF6MW01-6/2002-5 02G3060MB	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/28/02	tert-Butanol	0.024 (≥0.05)	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1 BT03-6/2002-9MS BT03-6/2002-9MSD 02G2994MB	J (all detects) R (all non-detects)	A
7/3/02	tert-Butanol 2-Chloroethylvinyl ether	0.023 (≥0.05) 0.000 (≥0.05)	TF6MW01-6/2002-1 02G3092MB	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A
7/5/02	tert-Butanol	0.022 (≥0.05)	TF6MW01-6/2002-5 02G3060MB	J (all detects) R (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G3060MB	7/5/02	Methylene chloride	1 ug/L	TF6MW01-6/2002-5

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TF6MW01-6/2002-5	Methylene chloride	0.8 ug/L	5U ug/L

Samples BT02-6/2002-9 and BT03-6/2002-9 were identified as trip blanks. No volatile contaminants were found in these blanks.

Sample TF6MW01-6/2002-7 was identified as a field blank. No volatile contaminants were found in this blank.

Sample TF6MW01-6/2002-5 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
TF6MW01-6/2002-5	6/26/02	Methylene chloride Acetone	0.8 ug/L 16 ug/L	MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF555MW05-6/2002-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
TF6MW01-6/2002-1	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, GW Monitoring Project
Volatiles - Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound	Flag	A or P	Reason
02-3592	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-1 TF6MW01-6/2002-5 TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1	tert-Butanol	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
02-3592	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1	2-Chloroethylvinyl ether Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
02-3592	TF6MW01-6/2002-1	Acetone Carbon disulfide 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
	TF6MW01-6/2002-5	Bromomethane Acetone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
02-3592	BT02-6/2002-9 BT03-6/2002-9 MW398-12-6/2002-1 MW398-29-6/2002-1 MW651-1-6/2002-1 MW651-2-6/2002-1** TF6MW01-6/2002-7 TF6MW02-6/2002-1 TF555MW05-6/2002-1 TF6MW01-6/2002-5	tert-Butanol	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
02-3592	TF6MW01-6/2002-1	tert-Butanol 2-Chloroethylvinyl ether	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
02-3592	TF6MW01-6/2002-1	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

MCAS El Toro, GW Monitoring Project
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-3592

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-3592	TF6MW01-6/2002-5	Methylene chloride	5U ug/L	A

MCAS El Toro, GW Monitoring Project
Volatiles - Field Blank Data Qualification Summary - SDG 02-3592

No Sample Data Qualified in this SDG

8939B

Applied P & Ch Laboratory

Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-1	Received Date:	06/26/2002
Sample ID:	**BT02-6/2002-9**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	20:32
Data File Name:	3592-01	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	< 10	U UJ
2	BENZENE	71-43-2	µg/L	5	< 5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	< 5	U
4	BROMOFORM	75-25-2	µg/L	5	< 5	U
5	BROMOMETHANE	74-83-9	µg/L	5	< 5	U
6	2-BUTANONE	78-93-3	µg/L	10	< 10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	< 5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	< 5	U
11	CHLOROETHANE	75-00-3	µg/L	5	< 5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	< 20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	< 5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	< 5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	< 5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	< 5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	< 5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
23	2-HEXANONE	591-78-6	µg/L	5	< 5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	< 5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	< 5	U
27	STYRENE	100-42-5	µg/L	5	< 5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	< 5	U
30	TOLUENE	108-88-3	µg/L	5	< 5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	< 5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
35	XYLENES, TOTAL		µg/L	5	< 5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	< 20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	< 5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	< 5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	< 5	U

8260B

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-2	Received Date:	06/26/2002
Sample ID:	**BT03-6/2002-9**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	–	Anal. Time:	20:59
Data File Name:	3592-02	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	< 10	U UJ
2	BENZENE	71-43-2	µg/L	5	< 5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	< 5	U
4	BROMOFORM	75-25-2	µg/L	5	< 5	U
5	BROMOMETHANE	74-83-9	µg/L	5	< 5	U
6	2-BUTANONE	78-93-3	µg/L	10	< 10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	< 5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	< 5	U
11	CHLOROETHANE	75-00-3	µg/L	5	< 5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	< 20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	< 5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	< 5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	< 5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	< 5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	< 5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
23	2-HEXANONE	591-78-6	µg/L	5	< 5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	< 5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	< 5	U
27	STYRENE	100-42-5	µg/L	5	< 5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	< 5	U
30	TOLUENE	108-88-3	µg/L	5	< 5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	< 5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
35	XYLENES, TOTAL		µg/L	5	< 5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	< 20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	< 5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	< 5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	< 5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-3	Received Date:	06/26/2002
Sample ID:	MW398-12-6/2002-1	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	21:25
Data File Name:	3592-03	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	< 10	U UJ
2	BENZENE	71-43-2	µg/L	5	< 5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	< 5	U
4	BROMOFORM	75-25-2	µg/L	5	< 5	U
5	BROMOMETHANE	74-83-9	µg/L	5	< 5	U
6	2-BUTANONE	78-93-3	µg/L	10	< 10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	< 5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	< 5	U
11	CHLOROETHANE	75-00-3	µg/L	5	< 5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	< 20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	< 5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	< 5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	< 5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	< 5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	< 5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
23	2-HEXANONE	591-78-6	µg/L	5	< 5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	< 5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	< 5	U
27	STYRENE	100-42-5	µg/L	5	< 5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	< 5	U
30	TOLUENE	108-88-3	µg/L	5	< 5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	< 5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
35	XYLENES, TOTAL		µg/L	5	< 5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	< 20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	< 5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	< 5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	< 5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-4	Received Date:	06/26/2002
Sample ID:	MW398-29-6/2002-1	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	21:51
Data File Name:	3592-04	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-5	Received Date:	06/26/2002
Sample ID:	**MW651-1-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	–	Anal. Time:	22:17
Data File Name:	3592-05	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	< 10	U UJ
2	BENZENE	71-43-2	µg/L	5	< 5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	< 5	U
4	BROMOFORM	75-25-2	µg/L	5	< 5	U
5	BROMOMETHANE	74-83-9	µg/L	5	< 5	U
6	2-BUTANONE	78-93-3	µg/L	10	< 10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	< 5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	< 5	U
11	CHLOROETHANE	75-00-3	µg/L	5	< 5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	< 20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	< 5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	< 5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	< 5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	< 5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	< 5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
23	2-HEXANONE	591-78-6	µg/L	5	< 5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	< 5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	< 5	U
27	STYRENE	100-42-5	µg/L	5	< 5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	< 5	U
30	TOLUENE	108-88-3	µg/L	5	< 5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	< 5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
35	XYLENES, TOTAL		µg/L	5	< 5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	< 20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	< 5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	< 5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	< 5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-6	Received Date:	06/26/2002
Sample ID:	**MW651-2-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/28/02	Anal. Date:	06/28/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	22:43
Data File Name:	3592-06	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	415 (e)	
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	29	
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	1180 (e)	
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	3	J
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	46	
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	491	J
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	8	
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	4	J
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-9	Received Date:	06/26/2002
Sample ID:	TF6MW01-6/2002-7	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/29/02	Anal. Date:	06/29/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	00:02
Data File Name:	3592-09	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/25/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-10	Received Date:	06/26/2002
Sample ID:	**TF6MW02-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/29/02	Anal. Date:	06/29/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	00:28
Data File Name:	3592-10	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-11	Received Date:	06/26/2002
Sample ID:	**TF555MW05-6/2002-1**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	06/29/02	Anal. Date:	06/29/02
Batch No:	02G2994	Prep. No:	-	Anal. Time:	00:54
Data File Name:	3592-11	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U UJ
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

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Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/2002
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-7	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-1**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	8260B	Prep. Date:	07/03/02	Anal. Date:	07/03/02
Batch No:	02G3029	Prep. No:	–	Anal. Time:	04:42
Data File Name:	3592-07A	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	<10	U UJ
2	BENZENE	71-43-2	µg/L	5	73	
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U UJ
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U R
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	1	J
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	77	J
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U

Applied P & Ch Laboratory

Organic Analysis Results for Method 8260B

Client Name:	CDM Federal Programs Corp.	Project No:	1801-003	Collection Date:	06/26/200
Project ID:	MCAS El Toro	Service ID:	023592	Collected by:	
		Lab Sample ID:	02-3592-8	Received Date:	06/26/2002
Sample ID:	**TF6MW01-6/2002-5**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: X
Anal. Method:	8260B	Prep. Date:	07/05/02	Anal. Date:	07/05/02
Batch No:	02G3060	Prep. No:	–	Anal. Time:	14:00
Data File Name:	3592-08B	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	10	16	J
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U UJ
6	2-BUTANONE	78-93-3	µg/L	10	<10	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	20	<20	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	TOTAL-1,2-DICHLOROETHERNE	540-59-0	µg/L	5	<5	U
19	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
20	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
21	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
22	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
23	2-HEXANONE	591-78-6	µg/L	5	<5	U
24	METHYLENE CHLORIDE	75-09-2	µg/L	5	0.8	J 5U
25	4-METHYL-2-PENTANONE	108-10-1	µg/L	5	<5	U
26	TERT-BUTYL METHYL ETHER	1634-04-4	µg/L	5	<5	U
27	STYRENE	100-42-5	µg/L	5	<5	U
28	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
29	TETRACHLOROETHENE(PCE)	127-18-4	µg/L	5	<5	U
30	TOLUENE	108-88-3	µg/L	5	<5	U
31	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
32	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
33	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
34	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
35	XYLENES, TOTAL		µg/L	5	<5	U
36	TERTIARY BUTYL ALCOHOL	75-65-0	µg/L	20	<20	U R
37	DIISOPROPYL ETHER	108-20-3	µg/L	5	<5	U
38	ETHYL TERTIARY BUTYL ETHER	637-92-3	µg/L	5	<5	U
39	TERTIARY AMYL ETHER	994-05-8	µg/L	5	<5	U