



OHM Remediation Services Corp.

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Irvine, CA 92612-1692

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Fax. 949.474.8309

A Member of The IT Group

M60050.000245
MCAS EL TORO
SSIC #5090.3

October 8, 1999

Ms. Bozier H. Demaree, Code 02R.BD
Contracting Officer
Naval Facilities Engineering Command, Southwest Division
1220 Pacific Highway
San Diego, California 92132-5187

Attn: Ms. Lynn Marie Hornecker

**Subject: June 1999 Groundwater Sampling Analytical Data at El Toro
Contract N68711-93-D-1459, Delivery Order 112
Doc. Control No. SW 7269, MCAS El Toro, California**

Dear Ms. Hornecker:

Attached are copies of the chain of custody (COC) records, final analytical results, and data validation results for the June 1999 groundwater sampling event at MCAS El Toro. Also included is the summary table of the analytical results for the June 1999 groundwater sampling event.

Should you have any questions or comments, please feel free to contact either of the undersigned at (949) 660-5446.

Sincerely,
OHM Remediation Services Corporation

William Sedlak, P.E.
Project Manager

cc: Lucretria Holloway, SWDIV, COTR, 3EN.LH (1C/1E)
Diane Silva, Admin Record, 04N.DS (1C/1/E)
OHM PMO File (1C/1E)
Project File, Correspondence B.01

Attachment: June 1999 Groundwater Analytical Data



OHM Remediation Services Corp.

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OHM TRANSMITTAL/DELIVERABLE RECEIPT

CONTRACT N68711-93-D-1459

DOCUMENT CONTROL NO: SW7269

TO: Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Bozier H. Demaree, Code 02R1.BD
1220 Pacific Highway
San Diego, California 92132-5190

Date: 12-Oct-99

D.O.: 112

Location: MCAS EL TORO

FROM: *James Franklin* FOR
Stewart Bornhoff, Program Manager

Edwin G. Bond, Contracts Manager

DESCRIPTION OF ENCLOSURE: *June 1999 Groundwater Sampling Analytical Data, dated October 8, 1999*

TYPE: Contract Deliverable () D. O. Deliverable () Request for Change () Other (X)
(\$) (Tech)

VERSION: N/A

REVISION: 0

ADMIN RECORD: Yes (X) No () Category () Confidential ()

SCHEDULED DELIVERY DATE: 12-Oct-99 **ACTUAL DELIVERY DATE:** 12-Oct-99

NUMBER OF COPIES SUBMITTED TO THE NAVY: 1/O, 4/C, 4/E

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Name, Location

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L. Holloway, 3EN.LLH (1C/1E)

File (1C/1E)

L. Hornecker, 5BME.LH (1C/1E)

Chron.(1C)

D. Silva, 04N.DS (AR/2E)

W. Sedlak, Irv (1C/1E)

G. Tinker, 05BM.GT (1C)

D. Rawal, Irv (1C/1E)

55
14 21 130 66
99 OCT 12 14

Date/Time Received: COIR
RECEIVED

Table 1 - 1
Summary of Analytical Results - Groundwater — June 1999

Sample Identification		20242-929	20242-917	20242-922	20242-926	20242-927 (Dup)	20242-921	20242-914
Location Code		MW398-04	MW398-09	MW398-13	MW398-17	MW398-17	MW398-21	TF2-MW-01
Date Sampled		06/22/99	06/17/99	06/18/99	06/21/99	06/21/99	06/18/99	06/16/99
		Unit						
<i>CA LUFT 8015M</i>								
TPH as Diesel	mg/L	0.8	0.5 U	0.5 U	0.38	0.38	0.5 U	0.5 U
TPH as Gasoline	mg/L	0.79	0.05 U	0.05 U	0.85	0.92	0.05 U	1.04
TPH as Motor Oil	mg/L	0.5 U	0.5 U	0.5 U				
<i>EPA 8020</i>								
Benzene	µg/L	5.5	NA	0.5 U	24.8	24.3	0.5 U	NA
Ethylbenzene	µg/L	32.4	NA	0.5 U	14.0	14.8	0.5 U	NA
Methyl tert-butyl ether (MTBE)	µg/L	5 U	NA	5 U	5 U	5 U	5 U	NA
Toluene	µg/L	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	NA
Xylenes (total)	µg/L	8.1	NA	1.5 U	2.8	2.2	1.5 U	NA
<i>EPA 8260A</i>								
1,1,1-Trichloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,1,2,2-Tetrachloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,1,2-Trichloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,1-Dichloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,1-Dichloroethene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,2-Dichloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
1,2-Dichloropropane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
2-Butanone (MEK)	µg/L	NA	50 UJ	NA	NA	NA	NA	50 U
2-Chloroethyl vinyl ether	µg/L	NA	50 UJ	NA	NA	NA	NA	50 UJ
2-Hexanone	µg/L	NA	50 U	NA	NA	NA	NA	50 U
4-Methyl-2-pentanone (MIBK)	µg/L	NA	50 U	NA	NA	NA	NA	50 U
Acetone	µg/L	NA	50 UJ	NA	NA	NA	NA	50 U
Benzene	µg/L	NA	5 U	NA	NA	NA	NA	87
Bromodichloromethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Bromoform	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Bromomethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Carbon disulfide	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Carbon tetrachloride	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Chlorobenzene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Chloroethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Chloroform	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Chloromethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
cis-1,2-Dichloroethene	µg/L	NA	5 U	NA	NA	NA	NA	5 U

Table 1 - 1
Summary of Analytical Results - Groundwater — June 1999

Sample Identification		20242-929	20242-917	20242-922	20242-926	20242-927 (Dup)	20242-921	20242-914
Location Code		MW398-04	MW398-09	MW398-13	MW398-17	MW398-17	MW398-21	TF2-MW-01
Date Sampled		06/22/99	06/17/99	06/18/99	06/21/99	06/21/99	06/18/99	06/16/99
	Unit							
cis-1,3-Dichloropropene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Dibromochloromethane	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Ethylbenzene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Methyl tert-butyl ether (MTBE)	µg/L	NA	10 U	NA	NA	NA	NA	10 U
Methylene chloride	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Styrene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Tetrachloroethene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Toluene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
trans-1,2-Dichloroethene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
trans-1,3-Dichloropropene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Trichloroethene	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Vinyl acetate	µg/L	NA	50 U	NA	NA	NA	NA	50 U
Vinyl chloride	µg/L	NA	5 U	NA	NA	NA	NA	5 U
Xylenes (total)	µg/L	NA	15 U	NA	NA	NA	NA	110

Table 1 - 1
Summary of Analytical Results - Groundwater — June 1999

Sample Identification		20242-915 (Dup)	20242-906	20242-909	20242-910	20242-966
Location Code		TF2-MW-01	TF2-MW-02	TF2-MW-03	TF2-MW-04	TF555-MW01
Date Sampled		06/16/99	06/14/99	06/15/99	06/15/99	06/23/99
Unit						
CA LUFT 8015M						
TPH as Diesel	mg/L	0.04 J	0.5 U	0.5 U	0.5 U	0.03 J
TPH as Gasoline	mg/L	1.09	0.14	0.37	0.57	0.05 U
TPH as Motor Oil	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EPA 8020						
Benzene	µg/L	NA	NA	NA	NA	0.5 U
Ethylbenzene	µg/L	NA	NA	NA	NA	0.5 U
Methyl tert-butyl ether (MTBE)	µg/L	NA	NA	NA	NA	5 U
Toluene	µg/L	NA	NA	NA	NA	0.5 U
Xylenes (total)	µg/L	NA	NA	NA	NA	1.5 U
EPA 8260A						
1,1,1-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	NA
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	5 U	5 U	NA
1,1,2-Trichloroethane	µg/L	5 U	5 U	5 U	5 U	NA
1,1-Dichloroethane	µg/L	5 U	5 U	5 U	5 U	NA
1,1-Dichloroethene	µg/L	5 U	5 U	5 U	5 U	NA
1,2-Dichloroethane	µg/L	5 U	5 U	2 J	3 J	NA
1,2-Dichloropropane	µg/L	0.6 J	5 U	5 U	5 U	NA
2-Butanone (MEK)	µg/L	50 U	50 UJ	50 UJ	50 UJ	NA
2-Chloroethyl vinyl ether	µg/L	50 UJ	50 UJ	50 UJ	50 UJ	NA
2-Hexanone	µg/L	50 U	50 U	50 U	50 U	NA
4-Methyl-2-pentanone (MIBK)	µg/L	50 U	50 U	50 U	50 U	NA
Acetone	µg/L	50 U	50 UJ	50 UJ	50 UJ	NA
Benzene	µg/L	97	5 U	27	15	NA
Bromodichloromethane	µg/L	5 U	5 U	5 U	5 U	NA
Bromoform	µg/L	5 U	5 U	5 U	5 U	NA
Bromomethane	µg/L	5 U	5 U	5 U	5 U	NA
Carbon disulfide	µg/L	5 U	5 U	5 U	5 U	NA
Carbon tetrachloride	µg/L	5 U	5 U	5 U	5 U	NA
Chlorobenzene	µg/L	5 U	5 U	5 U	5 U	NA
Chloroethane	µg/L	5 U	5 U	5 U	5 U	NA
Chloroform	µg/L	5 U	2 J	5 U	5 U	NA
Chloromethane	µg/L	5 U	5 U	5 U	5 U	NA
cis-1,2-Dichloroethene	µg/L	5 U	5 U	5 U	5 U	NA

Table 1 - 1
Summary of Analytical Results - Groundwater — June 1999

Sample Identification		20242-915 (Dup)	20242-906	20242-909	20242-910	20242-966
Location Code		TF2-MW-01	TF2-MW-02	TF2-MW-03	TF2-MW-04	TF555-MW01
Date Sampled		06/16/99	06/14/99	06/15/99	06/15/99	06/23/99
	Unit					
cis-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	NA
Dibromochloromethane	µg/L	5 U	5 U	5 U	5 U	NA
Ethylbenzene	µg/L	5 U	5 U	5 U	5 U	NA
Methyl tert-butyl ether (MTBE)	µg/L	10 U	10 U	10 U	10 U	NA
Methylene chloride	µg/L	5 U	5 U	5 U	5 U	NA
Styrene	µg/L	5 U	5 U	5 U	5 U	NA
Tetrachloroethene	µg/L	5 U	5 U	5 U	5 U	NA
Toluene	µg/L	5 U	5 U	5 U	5 U	NA
trans-1,2-Dichloroethene	µg/L	5 U	5 U	5 U	5 U	NA
trans-1,3-Dichloropropene	µg/L	5 U	5 U	5 U	5 U	NA
Trichloroethene	µg/L	5 U	5 U	5 U	5 U	NA
Vinyl acetate	µg/L	50 U	50 UJ	50 U	50 U	NA
Vinyl chloride	µg/L	5 U	5 U	5 U	5 U	NA
Xylenes (total)	µg/L	100	15 U	17	30	NA

OHM Remediation Services Corp.

Table 1 - 1
Summary of Analytical Results - Groundwater — June 1999

CA LUFT - California leaking underground fuel tank
EPA - US Environmental Protection Agency
J - estimated value
M - modified
mg/L - milligrams per liter
MW - monitoring well
NA - not analyzed
OHM - OHM Remediation Services Corp.
TF - tank farm
TPH - total petroleum hydrocarbons
U - not detected at or above the stated reporting limit
UJ - estimated reporting limit
µg/L - micrograms per liter



OHM Remediation Services Corp.
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 U.S. Route 224 East • Findlay, Ohio 45840 • (419) 423-3526

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY
222551

TANK FARM I QUARTERLY GROUNDWATER FORM 0019 REV. 2-97

LAB COORDINATOR OJENKOWSKI	LAB COORDINATOR'S PHONE 949-660-7537	LAB COORDINATOR'S FAX 949-475-5433	LABORATORY SERVICE ID 994185	LABORATORY CONTACT APCL	MAIL REPORT (COMPANY NAME) IT GROUP
PROJECT NAME EL TORO	PROJECT LOCATION EL TORO, CA TANK FARM 2	PROJECT NUMBER	LABORATORY PHONE 909-570-1828	LABORATORY FAX	RECEIPT NAME SWAYNE ISAIDA
PROJECT CONTACT L. OJENKOWSKI	PROJECT PHONE NUMBER 949-660-7537	PROJECT FAX	LABORATORY ADDRESS 13760 MAGNOLIA	ADDRESS 3347 MCHILSON ST #200	
PROJECT ADDRESS	CITY, STATE AND ZIP CODE	CLIENT SWDIV	CITY, STATE AND ZIP CODE CHANO, CA.	CITY, STATE AND ZIP CODE IRVINE, CA.	
PROJECT MANAGER SEDLAK	PROJECT MANAGER'S PHONE 949-261-6441	PROJECT MANAGER'S FAX			

Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses			Comments	
								EA 8015 TOR-155	EA 8016 TOR-155	EA 8260 7MIX		
20292-902	w	6-14-99	0800	4C	2	III	5DA		X			<i>Cancel Sample</i>
20292-903	w	6-14	0830	4C	8	III	5DA	X	X	X		
20292-904	w	6-14	0930	4C	8	III	5DA	X	X	X		
20292-905	w	6-14	1100	4C	8	III	5DA	X	X	X		
20292-906	w	6-14	1400	4C	8	III	5DA	X	X	X		
20292-907 902	w	6-14	0800	4C	2	III	5DA		X			

SAMPLES COLLECTED BY: C. PARRISH	CARRIER AND AIR BILL NUMBER: CEWRIER	COOLER TEMPERATURE UPON RECEIPT:
RECEIVED BY: R. Volney	DATE: 6-14-99	TIME: 1500
John W. Parrish	6-14-99	1700
Alvin Val	6-14-99	1930

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

**Project Information Section
 For Project Personnel Only
 Do Not Submit to Laboratory**

QTY GRO WATER TF2-MW2	Sample Type			
	G	C	F	QC
1. TRIP BLANK	X			X
2. FG RINSEATE	X			X
3. FG RINSEATE	X			X
4. SOURCE BLANK	X			X
5. TF2-MW2	X			
6. TRIP BLANK	X			X

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample



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CHAIN-OF-CUSTODY RECORD

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222563

FORM 0019 REV. 2-97

MW-398-09

OHM'S LAB COORDINATOR L. BieNKowski	LAB COORDINATOR'S PHONE 949-660-7537	LAB COORDINATOR'S FAX 949-475-5433	LABORATORY SERVICE ID 99427C	LABORATORY CONTACT APCL	MAIL REPORT (COMPANY NAME) IT Group
PROJECT NAME El Toro	PROJECT LOCATION El Toro	PROJECT NUMBER	LABORATORY PHONE 909570-1828	LABORATORY FAX	RECIPIENT NAME Dwayne Ishida
PROJECT CONTACT BieNKowski	PROJECT PHONE NUMBER 949-660-7537	PROJECT FAX	LABORATORY ADDRESS 13760 MAGNOLIA	ADDRESS 3347 Michelson 200	
PROJECT ADDRESS	CITY, STATE AND ZIP CODE	CLIENT SW Div.	CITY, STATE AND ZIP CODE CHINO, CA.	CITY, STATE AND ZIP CODE IRVINE, CA.	

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T	Analyses				Comments
									EPA 8015 TDR 51	EPA 8015 TDR 020	EPA 8015 TDR 020	8020 (LA)	
1	90242-916 T.D.	W	6/17	06:45	HCL	2	III	5 DAY				X	
2	90242-917 T.D.	W	6/17	12:30	4°C	8	III	5 DAY	X	X	X		
3	90242-918 T.D.	W	6/17	14:30	4°C	8	III	5 DAY	X	X	X		
4	90242-919 T.D.	W	6/17	14:45	4°C	8	III	5 DAY	X	X	X		

SAMPLES COLLECTED BY: TERRY V. DUSHAULT	CARRIER AND AIR BILL NUMBER: Carrier	COOLER TEMPERATURE UPON RECEIPT:
RELINQUISHED BY: [Signature]	RECEIVED BY: [Signature]	SAMPLE'S CONDITION UPON RECEIPT:
DATE: 6/17/09	TIME: 12:36	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

Project Information Section For Project Personnel Only Do Not Submit to Laboratory

Groundwater Quantity Sample Point Location	Sample Type			
	G	C	F	QC
1. TRIP BLANK	✓			✓
2. Well Samples MW 398-09	✓			
3. RINSATE EQUIP PUMP B	✓			✓
4. RINSATE EQUIP PUMP A	✓			✓

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample



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CHAIN-OF-CUSTODY RECORD

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MW 398-17

FORM 0019 REV. 2-97

OHM LAB COORDINATOR L. BIENKOWSKI	LAB COORDINATOR'S PHONE 949-660-7537	LAB COORDINATOR'S FAX 949-590-5433	LABORATORY SERVICE ID 994326	LABORATORY CONTACT APCL	MAIL REPORT (COMPANY NAME) IT GROUP
PROJECT NAME EL TORO	PROJECT LOCATION EL TORO	PROJECT NUMBER 20242	LABORATORY PHONE 909 570 1828	LABORATORY FAX	RECIPIENT NAME DWAYNE ISHIDA
PROJECT CONTACT BIENKOWSKI	PROJECT PHONE NUMBER 949-660-7537	PROJECT FAX	LABORATORY ADDRESS 13760 MAGNOLIA	ADDRESS 3347 MICHELSON 200	
PROJECT ADDRESS	CITY, STATE AND ZIP CODE	CLIENT SW Div	CITY, STATE AND ZIP CODE CHINO, CA.	CITY, STATE AND ZIP CODE IRVINE, CA.	
PROJECT MANAGER BILL SEDLAK	PROJECT MANAGER'S PHONE 949-261-6441	PROJECT MANAGER'S FAX	Analytes ED901C TOXEXT ED901C TOX BAC ED901C TOX METE		

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analytes			Comments
									ED901C TOXEXT	ED901C TOX BAC	ED901C TOX METE	
1	20242-923	W	6/21	07:10	HCL	2	III	5 DAY			X	
2	20242-924	W	6/21	07:40	4°C	8	III	5 DAY	X	X	X	
3	20242-925	W	6/21	08:00	4°C	8	III	5 DAY	X	X	X	
4	20242-926	W	6/21	11:25	4°C	8	III	5 DAY	X	X	X	
5	20242-927	W	6/21	11:30	4°C	8	III	5 DAY	X	X	X	
6												
7												
8												
9												
10												

SAMPLES COLLECTED BY: Terry ASSAULT	COURIER AND AIR BILL NUMBER: COURIER	COOLER TEMPERATURE UPON RECEIPT:
RELINQUISHED BY: Terry Assault	RECEIVED BY:	SAMPLE'S CONDITION UPON RECEIPT:
DATE:	TIME:	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

**Project Information Section
For Project Personnel Only
Do Not Submit to Laboratory**

Quaterly Gwater		Sample Type			
mw398-17		G	C	F	QC
Sample Point Location					
1. Trip Blanks		✓			✓
2. Equip Rinseate Pump B		✓			✓
3. Equip Rinseate Pump A		✓			✓
4. Well Samples MW-398-17		✓			✓
5. Duplicate Sample SAM277		✓			✓
Comments					
Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample					



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CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY

222566

FORM 0019 REV. 2-97

MW398-04

OHM LAB COORDINATOR L. BIENKOWSKI	LAB COORDINATOR'S PHONE 947-660-7537	LAB COORDINATOR'S FAX 949-590-5433	LABORATORY SERVICE ID 994360	LABORATORY CONTACT IT Group	MAIL REPORT (COMPANY NAME) IT Group
PROJECT NAME EL TORO	PROJECT LOCATION EL TORO	PROJECT NUMBER 20242	LABORATORY PHONE 909-570-1828	LABORATORY FAX	RECIPIENT NAME DWIGHT R. ICHIDA
PROJECT CONTACT L. BIENKOWSKI	PROJECT PHONE NUMBER 947-660-7537	PROJECT FAX	LABORATORY ADDRESS 13760 MARIANOLA	ADDRESS 3347 Michelsoni suite 200	
PROJECT ADDRESS	CITY, STATE AND ZIPCODE	CLIENT SW Div.	CITY, STATE AND ZIPCODE CHINO, CA	CITY, STATE AND ZIPCODE TRUEN, CA	
PROJECT MANAGER BILL SEDLAK	PROJECT MANAGER'S PHONE 947-261-6441	PROJECT MANAGER'S FAX	Analyzes EPA 9045 TBA EXT EPA 9045 TBA ORB EPA 9050 PRECHAMBE		

Item	Sample Identifier	Matrix	PPM Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyzes				Comments	
									EPA 9045 TBA EXT	EPA 9045 TBA ORB	EPA 9050 PRECHAMBE			
1	20242-928	w)	6/22	08:00	HCL	2	III	5 DAY			X			
2	20242-929	w)	6/22	10:50	4°C	8	III	5 DAY	X	X	X			
3	20242-964-A	w)	6/22	12:45	4°C	8	III	5 DAY	X	X	X			
4	20242-965-A	w)	6/22	13:00	4°C	8	III	5 DAY	X	X	X			
5														
6														
7														
8														
9														
10														

SAMPLES COLLECTED BY: TERRY DUGGENT	CARRIER AND AIR BILL NUMBER: GOV 109	COOLER TEMPERATURE UPON RECEIPT:
RELEASING BY: <i>[Signature]</i>	RECEIVED BY: <i>[Signature]</i>	SAMPLE'S CONDITION UPON RECEIPT:
DATE: 6/24/04	TIME: 15:20	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

Project Information Section For Project Personnel Only Do Not Submit to Laboratory

Quarterly Groundwater
MW-398-04

Sample Point Location	Sample Type			
	G	C	F	QC
1. TRIP BLANKS				✓
2. WELL Sample MultiB-04	✓			
3. RINSE EQUIP. Pump A	✓			✓
4. RINSE EQUIP. Pump B	✓			✓

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample

Applied P & Ch Laboratory
Organic Analysis Results for Method 8260

Client Name: OIM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/14/1999
Project ID: El Toro	Service ID: 994185	Collected by: C.Parrish
Sample ID: 20242-906	Lab Sample ID: 99-4185-5	Received Date: 06/14/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: 8260	Prep. Method: 5030	Instrument ID: GC/MS: G
Batch No: 99G3159	Prep. Date: 06/22/99	Anal. Date: 06/22/99
Data File Name: 4185-05	Prep. No: -	Anal. Time: 08:43
Methanol Vol: -	Sample Amount: 25 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 25 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	< 50	U
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 (MEK)	78-93-3	µg/L	50	< 50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLORO BENZENE	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	50	< 50	U
13	CHLOROFORM	67-66-3	µg/L	5	2	J
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	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	< 5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	< 5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
24	2-HEXANONE	591-78-6	µg/L	50	< 50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
26	1-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	< 50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	< 10	U
28	STYRENE	100-42-5	µg/L	5	< 5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	< 5	U
31	TOLUENE	108-88-3	µg/L	5	< 5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	< 5	U
35	VINYL ACETATE	108-05-4	µg/L	50	< 50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
37	XYLENES (TOTAL)	1330-20-7	µg/L	15	< 15	U

Surrogates

Control Limit, %

Surro. Rec.%

Surrogates			Control Limit, %	Surro. Rec. %
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	80-119	99
2	DIBROMOFLUOROMETHANE	1868-53-7	79-120	108
3	1,2-DICHLOROETHANE-D4	17060-07-0	81-119	87
4	TOLUENE-D8	2037-26-5	81-118	106
# of out-of-control				0
Internal Standard			Control Limit, %	IS Rec. %
1	CHLOROBENZENE-D5	3114-55-4	50-200	100
2	1,3-DICHLOROBENZENE-D4	3855-82-1	50-200	104
3	FLUOROBENZENE	462-06-6	50-200	104
# 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

E - Exceed calibration range

J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)

B - A positive value was found in the method blank

D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/14/1999
Project ID: El Toro	Service ID: 994185	Collected by: C.Parrish
Sample ID: 20242-906	Lab Sample ID: 99-4185-5	Received Date: 06/14/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3078	Prep. Date: 06/15/99	Anal. Date: 06/15/99
Data File Name: 4185.005	Prep. No: -	Anal. Time: 20:00
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	0.14	
Surrogates				Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4		68-124	96	
	# of out-of-control				0	

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

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/14/1999
Project ID: El Toro	Service ID: 994185	Collected by: C.Parrish
Sample ID: 20242-906	Lab Sample ID: 99-4185-5	Received Date: 06/14/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3094	Prep. Date: 06/16/99	Anal. Date: 06/17/99
Data File Name: 4185.005	Prep. No: 1 of 1	Anal. Time: 02:56
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		50-149	81	
# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Organic Analysis Results for Method 8260

Client Name:	OHM Remediation Services (Irvine)	Project No:		Collection Date:	06/15/1999
Project ID:	El Toro	Service ID:	994194	Collected by:	1
		Lab Sample ID:	99-4194-3	Received Date:	06/15/1999
Sample ID:	20242-909	Sample Matrix:	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	8260	Prep. Date:	06/18/99	Anal. Date:	06/18/99
Batch No:	99G3105	Prep. No:	-	Anal. Time:	22:21
Data File Name:	4194-03	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	-				
Test Level:	Low	Spurge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	< 50	U
2	BENZENE	71-43-2	µg/L	5	27	
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 (MEK)	78-93-3	µg/L	50	< 50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	< 5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	< 5	U
9	CHLOROETHYLENE	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	50	< 50	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	2	J
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	< 5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	< 5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
24	2-HEXANONE	591-78-6	µg/L	50	< 50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
26	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	< 50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	< 10	U
28	STYRENE	100-42-5	µg/L	5	< 5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	< 5	U
31	TOLUENE	108-88-3	µg/L	5	< 5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	< 5	U
35	VINYL ACETATE	108-05-4	µg/L	50	< 50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
37	XYLENES (TOTAL)	1330-20-7	µg/L	15	17	

Surrogates

Control Limit, %

Surro. Rec.%

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	75-125	96
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	110
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	95
4	TOLUENE-D8	2037-26-5	75-125	100
# of out-of-control				0
Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	96
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	102
3	FLUOROBENZENE	462-06-6	50-200	100
# 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: OHM Remediation Services (Irvine)	Project No:	Collection Date: 06/15/1999
Project ID: El Toro	Service ID: 994194	Collected by: 1
Sample ID: 20242-909	Lab Sample ID: 99-4194-3	Received Date: 06/15/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3186	Prep. Date: 06/22/99	Anal. Date: 06/22/99
Data File Name: 4194.003	Prep. No: -	Anal. Time: 23:13
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	0.37	
Surrogates				Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4		74-138	94	
	# of out-of-control				0	

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

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No:	Collection Date: 06/15/1999
Project ID: El Toro	Service ID: 994194	Collected by: 1
Sample ID: 20242-909	Lab Sample ID: 99-4194-3	Received Date: 06/15/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3135	Prep. Date: 06/18/99	Anal. Date: 06/18/99
Data File Name: 4194.003	Prep. No: 1 of 1	Anal. Time: 23:31
Extract Vol. 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	77	
# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method 8260

Client Name: OHM Remediation Services (Irvine)	Project No:	Collection Date: 06/15/1999
Project ID: El Toro	Service ID: 994194	Collected by: 1
Sample ID: 20242-910	Lab Sample ID: 99-4194-4	Received Date: 06/15/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: 8260	Prep. Method: 5030	Instrument ID: GC/MS: G
Batch No: 99G3105	Prep. Date: 06/18/99	Anal. Date: 06/18/99
Data File Name: 4194-04	Prep. No: -	Anal. Time: 22:51
Methanol Vol. -	Sample Amount: 25 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 25 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	< 50	U
2	BENZENE	71-43-2	µg/L	5	15	
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 (MEK)	78-93-3	µg/L	50	< 50	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	50	< 50	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	3	J
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	< 5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	< 5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	< 5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
24	2-HEXANONE	591-78-6	µg/L	50	< 50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
26	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	< 50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	< 10	U
28	STYRENE	100-42-5	µg/L	5	< 5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	< 5	U
31	TOLUENE	108-88-3	µg/L	5	< 5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	< 5	U
35	VINYL ACETATE	108-05-4	µg/L	50	< 50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
37	XYLENES (TOTAL)	1330-20-7	µg/L	15	30	

Surrogates

Control Limit, %

Surro. Rec.%

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	75-125	100
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	115
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	100
4	TOLUENE-D8	2037-26-5	75-125	106
# of out-of-control				0
Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	92
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	99
3	FLUOROBENZENE	462-06-6	50-200	95
# 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

E - Exceed calibration range

J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)

B - A positive value was found in the method blank

D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No:	Collection Date: 06/15/1999
Project ID: El Toro	Service ID: 994194	Collected by: 1
Sample ID: 20242-910	Lab Sample ID: 99-4194-4	Received Date: 06/15/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3186	Prep. Date: 06/22/99	Anal. Date: 06/22/99
Data File Name: 4194.004	Prep. No: -	Anal. Time: 23:38
Methanol Vol. -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	0.57	
Surrogates				Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4		74-138	93	
	# of out-of-control				0	

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

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No:	Collection Date: 06/15/1999
Project ID: El Toro	Service ID: 994194	Collected by: 1
Sample ID: 20242-910	Lab Sample ID: 99-4194-4	Received Date: 06/15/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3135	Prep. Date: 06/18/99	Anal. Date: 06/18/99
Data File Name: 4194.004	Prep. No: 1 of 1	Anal. Time: 23:56
Extract Vol. 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	77	
# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method 8260

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/16/1999
Project ID: El Toro MCAS	Service ID: 994234	Collected by: C.Parrish
	Lab Sample ID: 99-4234-4	Received Date: 06/16/1999
Sample ID: 20242-914	Sample Matrix: Water	Moisture %: -
Sample Type: Field Sample	Prep. Method: 5030	Instrument ID: GC/MS: C
Anal. Method: 8260	Prep. Date: 06/24/99	Anal. Date: 06/24/99
Batch No: 99G3216	Prep. No: -	Anal. Time: 17:09
Data File Name: 4234-04	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	ACETONE	67-64-1	µg/L	50	<50	U
2	BENZENE	71-43-2	µg/L	5	87	
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 (MEK)	78-93-3	µg/L	50	<50	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	CHLOROFORM	67-66-3	µg/L	5	<5	U
13	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
14	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	50	<50	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	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	<5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	<5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
24	2-HEXANONE	591-78-6	µg/L	50	<50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
26	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	<50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	<10	U
28	STYRENE	100-42-5	µg/L	5	<5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	<5	U
31	TOLUENE	108-88-3	µg/L	5	<5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	<5	U
35	VINYL ACETATE	108-05-4	µg/L	50	<50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
37	XYLENES (TOTAL)	1330-20-7	µg/L	15	110	

Surrogates

Control Limit, %

Surro. Rec.%

115724

Surrogates				Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4		75-125	89
2	DIBROMOFLUOROMETHANE	1868-53-7		75-125	94
3	1,2-DICHLOROETHANE-D4	17060-07-0		62-139	86
4	TOLUENE-D8	2037-26-5		75-125	102
# of out-of-control					0
Internal Standard				Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4		50-200	74
2	1,4-DICHLOROBENZENE-D4	3855-82-1		50-200	73
3	FLUOROBENZENE	462-06-6		50-200	75
# 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

115725

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/16/1999
Project ID: El Toro MCAS	Service ID: 994234	Collected by: C.Parrish
Sample ID: 20242-914	Lab Sample ID: 99-4234-4	Received Date: 06/16/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3136	Prep. Date: 06/19/99	Anal. Date: 06/19/99
Data File Name: 4234.004	Prep. No: -	Anal. Time: 00:11
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	1.04	
Surrogates				Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4		74-138	95	
# of out-of-control					0	

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

115856

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/16/1999
Project ID: El Toro MCAS	Service ID: 994234	Collected by: C.Parrish
Sample ID: 20242-914	Lab Sample ID: 99-4234-4	Received Date: 06/16/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: H
Batch No: 99G3162	Prep. Date: 06/21/99	Anal. Date: 06/21/99
Data File Name: 4234.004	Prep. No: 1 of 1	Anal. Time: 21:16
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

115938

Applied P & Ch Laboratory
Organic Analysis Results for Method 8260

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/16/1999
Project ID: El Toro MCAS	Service ID: 994234	Collected by: C.Parrish
	Lab Sample ID: 99-4234-5	Received Date: 06/16/1999
Sample ID: 20242-915	Sample Matrix: Water	Moisture %: -
Sample Type: Field Sample	Prep. Method: 5030	Instrument ID: GC/MS: C
Anal. Method: 8260	Prep. Date: 06/24/99	Anal. Date: 06/24/99
Batch No: 99G3216	Prep. No: -	Anal. Time: 17:42
Data File Name: 4234-05	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	ACETONE	67-64-1	µg/L	50	< 50	U
2	BENZENE	71-43-2	µg/L	5	97	
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 (MEK)	78-93-3	µg/L	50	< 50	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	CHLOROFORM	67-66-3	µg/L	5	< 5	U
13	CHLOROMETHANE	74-87-3	µg/L	5	< 5	U
14	2-CHLOROETHYL VINYL ETHER	110-75-8	µg/L	50	< 50	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	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	< 5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	< 5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	0.6	J
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
24	2-HEXANONE	591-78-6	µg/L	50	< 50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
26	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	< 50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	< 10	U
28	STYRENE	100-42-5	µg/L	5	< 5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	< 5	U
31	TOLUENE	108-88-3	µg/L	5	< 5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	< 5	U
35	VINYL ACETATE	108-05-4	µg/L	50	< 50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
37	OLEFINS (TOTAL)	1330-20-7	µg/L	15	100	

Solvents

Control Limit, % Surro. Rec %

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	75-125	90
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	96
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	94
4	TOLUENE-D8	2037-26-5	75-125	102
# of out-of-control				0
Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	75
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	71
3	FLUOROBENZENE	462-06-6	50-200	72
# 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

E - Exceed calibration range

J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)

B - A positive value was found in the method blank

D - Diluted

115726

Organic Analysis Results for Method M8015V

Client Name:	OHM Remediation Services (Irvine)	Project No:	20242	Collection Date:	06/16/1999
Project ID:	El Toro MCAS	Service ID:	994234	Collected by:	C.Parrish
Sample ID:	20242-915	Lab Sample ID:	99-4234-5	Received Date:	06/16/1999
Sample Type:	Field Sample	Sample Matrix:	Water	Moisture %:	-
Anal. Method:	M8015V	Prep. Method:	5030	Instrument ID:	GC: N
Batch No:	99G3136	Prep. Date:	06/19/99	Anal. Date:	06/19/99
Data File Name:	4234.005	Prep. No:	-	Anal. Time:	00:36
Methanol Vol.:	-	Sample Amount:	5.0 mL	Dilution Factor:	1
Test Level:	Low	Sparge Size:	5 mL	Heated Purge:	(Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	1.09	
Surrogates				Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4		74-138	96	
# of out-of-control					0	

Qualifier: U - Not Detected or less than MDL

E - Exceed calibration range

J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)

B - A positive value was found in the method blank

D - Diluted

115858

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/16/1999
Project ID: El Toro MCAS	Service ID: 994234	Collected by: C.Parrish
Sample ID: 20242-915	Lab Sample ID: 99-4234-5	Received Date: 06/16/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: H
Batch No: 99G3162	Prep. Date: 06/21/99	Anal. Date: 06/21/99
Data File Name: 4234.005	Prep. No: 1 of 1	Anal. Time: 21:43
Extract Vol. 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	0.04 ^(a)	J
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	< 0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	84	
# of out-of-control					0	

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

^(a)Not a diesel 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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115939

Applied P & Ch Laboratory
Organic Analysis Results for Method 8260

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/17/1999
Project ID: El Toro	Service ID: 994276	Collected by:
	Lab Sample ID: 99-4276-2	Received Date: 06/17/1999
Sample ID: 20242-917	Sample Matrix: Water	Moisture %: -
Sample Type: Field Sample	Prep. Method: 5030	Instrument ID: GC/MS: G
Anal. Method: 8260	Prep. Date: 06/30/99	Anal. Date: 06/30/99
Batch No: 99G3311	Prep. No: -	Anal. Time: 23:08
Data File Name: 4276-02	Sample Amount: 25 mL	Dilution Factor: 1
Methanol Vol: -		
Test Level: Low	Sparge Size: 25 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	< 50	U
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 (MEK)	78-93-3	µg/L	50	< 50	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	50	< 50	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	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	< 5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	< 5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	< 5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	< 5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	< 5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	< 5	U
24	2-HEXANONE	591-78-6	µg/L	50	< 50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	< 5	U
26	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	50	< 50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	< 10	U
28	STYRENE	100-42-5	µg/L	5	< 5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	< 5	U
30	TETRACHLOROETHENE	127-18-4	µg/L	5	< 5	U
31	TOLUENE	108-88-3	µg/L	5	< 5	U
32	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	< 5	U
33	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	< 5	U
34	TRICHLOROETHENE	79-01-6	µg/L	5	< 5	U
35	VINYL ACETATE	108-05-4	µg/L	50	< 50	U
36	VINYL CHLORIDE	75-01-4	µg/L	5	< 5	U
37	XYLENES (TOTAL)	1330-20-7	µg/L	15	< 15	U

Surrogates

Control Limit, %

Surro. Rec.%

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	75-125	100
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	111
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	99
4	TOLUENE-D8	2037-26-5	75-125	100
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	90
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	95
3	FLUOROBENZENE	462-06-6	50-200	96
# 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

Organic Analysis Results for Method M8015V

Client Name:	OHM Remediation Services (Irvine)	Project No:	20242	Collection Date:	06/17/1999
Project ID:	El Toro	Service ID:	994276	Collected by:	
Sample ID:	20242-917	Lab Sample ID:	99-4276-2	Received Date:	06/17/1999
Sample Type:	Field Sample	Sample Matrix:	Water	Moisture %:	-
Anal. Method:	M8015V	Prep. Method:	5030	Instrument ID:	GC: N
Batch No:	99G3156	Prep. Date:	06/22/99	Anal. Date:	06/22/99
Data File Name:	4276.002	Prep. No:	-	Anal. Time:	03:51
Methanol Vol.	-	Sample Amount:	5.00 mL	Dilution Factor:	1
Test Level:	Low	Spurge Size:	5 mL	Heated Purge: (Y/N)	N

#	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		74-138	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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/17/1999
Project ID: El Toro	Service ID: 994276	Collected by:
Sample ID: 20242-917	Lab Sample ID: 99-4276-2	Received Date: 06/17/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3183	Prep. Date: 06/22/99	Anal. Date: 06/23/99
Data File Name: 4276.002	Prep. No: 1 of 1	Anal. Time: 03:41
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	90	
	# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/18/1999
Project ID: El Toro	Service ID: 994282	Collected by: Terry
Sample ID: 20242-921	Lab Sample ID: 99-4282-2	Received Date: 06/18/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3151	Prep. Date: 06/21/99	Anal. Date: 06/21/99
Data File Name: 4282.002	Prep. No: -	Anal. Time: 23:14
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Spurge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	< 0.05	U
2	BENZENE	71-43-2	µg/L	0.5	< 0.5	U
3	ETHYLBENZENE	100-41-4	µg/L	0.5	< 0.5	U
4	TOLUENE	108-88-3	µg/L	0.5	< 0.5	U
5	XYLENE (TOTAL)	1330-20-7	µg/L	1.5	< 1.5	U
6	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	5	< 5	U

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	54-133	95
2	4-BROMO-FLUOROBENZENE (PID)	460-00-4	68-129	117
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	α, α, α-TRIFLUOROTOLUENE	98-08-8	50-200	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: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/18/1999
Project ID: El Toro	Service ID: 994282	Collected by: Terry
Sample ID: 20242-921	Lab Sample ID: 99-4282-2	Received Date: 06/18/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3183	Prep. Date: 06/22/99	Anal. Date: 06/23/99
Data File Name: 4282.002	Prep. No: 1 of 1	Anal. Time: 05:47
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	89	
	# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/18/1999
Project ID: El Toro	Service ID: 994282	Collected by: Terry
Sample ID: 20242-922	Lab Sample ID: 99-4282-3	Received Date: 06/18/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3151	Prep. Date: 06/21/99	Anal. Date: 06/21/99
Data File Name: 4282.003	Prep. No: -	Anal. Time: 23:39
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U
2	BENZENE	71-43-2	µg/L	0.5	<0.5	U
3	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
4	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
5	XYLENE (TOTAL)	1330-20-7	µg/L	1.5	<1.5	U
6	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	5	<5	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	54-133	95
2	4-BROMO-FLUOROBENZENE (PID)	68-129	117
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1	α, α, α-TRIFLUOROTOLUENE	50-200	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: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/18/1999
Project ID: El Toro	Service ID: 994282	Collected by: Terry
	Lab Sample ID: 99-4282-3	Received Date: 06/18/1999
Sample ID: 20242-922	Sample Matrix: Water	Moisture %: -
Sample Type: Field Sample	Prep. Method: 3510	Instrument ID: GC: W
Anal. Method: M8015E	Prep. Date: 06/22/99	Anal. Date: 06/23/99
Batch No: 99G3183	Prep. No: 1 of 1	Anal. Time: 07:03
Data File Name: 4282.003	Sample Amount: 1000 mL	Dilution Factor: 1
Extract Vol: 1.0 mL		

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	<0.5	U
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	92	
	# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

Applied P & Ch Laboratory
Organic Analysis Results for Method 8020

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/21/1999
Project ID: El Toro-MCAS	Service ID: 994326	Collected by: C.Parrish
Sample ID: 20242-926	Lab Sample ID: 99-4326-4	Received Date: 06/21/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: 8020	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3208	Prep. Date: 06/24/99	Anal. Date: 06/24/99
Data File Name: 4326.004	Prep. No: -	Anal. Time: 20:53
Methanol Vol: -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	24.8	
2	ETHYLBENZENE	100-41-4	µg/L	0.5	14.0	
3	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
4	MTBE	1634-04-4	µg/L	5	<5	U
5	XYLENES (TOTAL)	1330-20-7	µg/L	1.5	2.8	
6	GASOLINE	8006-61-9	mg/L	0.1	0.85	

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (PID)	68-129	115
2	4-BROMO-FLUOROBENZENE (FID)	74-138	96
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1	α, α, α-TRIFLUOROTOLUENE	50-200	97
# 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

114540

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/21/1999
Project ID: El Toro-MCAS	Service ID: 994326	Collected by: C.Parrish
	Lab Sample ID: 99-4326-4	Received Date: 06/21/1999
Sample ID: 20242-926	Sample Matrix: Water	Moisture %: -
Sample Type: Field Sample	Prep. Method: 3510	Instrument ID: GC: H
Anal. Method: M8015E	Prep. Date: 06/23/99	Anal. Date: 06/25/99
Batch No: 99G3211	Prep. No: 1 of 1	Anal. Time: 05:51
Data File Name: 4326.004	Sample Amount: 1000 mL	Dilution Factor: 1
Extract Vol: 1.0 mL		

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.1	0.38 ^(a)	
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	90	
	# of out-of-control				0	

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

^(a)Similar to JP-5.

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

114618

Applied P & Ch Laboratory
Organic Analysis Results for Method 8020

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/21/1999
Project ID: El Toro-MCAS	Service ID: 994326	Collected by: C.Parrish
Sample ID: 20242-927	Lab Sample ID: 99-4326-5	Received Date: 06/21/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %:
Anal. Method: 8020	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3208	Prep. Date: 06/24/99	Anal. Date: 06/24/99
Data File Name: 4326.005	Prep. No: --	Anal. Time: 21:18
Methanol Vol.:	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Sparge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	24.3	
2	ETHYLBENZENE	100-41-4	µg/L	0.5	14.8	
3	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
4	MTBE	1634-04-4	µg/L	5	<5	U
5	XYLENES (TOTAL)	1330-20-7	µg/L	1.5	2.2	
6	GASOLINE	8006-61-9	mg/L	0.1	0.92	

Surrogates		Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (PID)	460-00-4	68-129	116
2	4-BROMO-FLUOROBENZENE (FID)	460-00-4	74-138	96
# of out-of-control			0	

Internal Standard		Control Limit, %	IS Rec.%	
1	α, α, α-TRIFLUOROTOLUENE	98-08-8	50-200	97
# 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: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/21/1999
Project ID: El Toro-MCAS	Service ID: 994326	Collected by: C.Parrish
Sample ID: 20242-927	Lab Sample ID: 99-4326-5	Received Date: 06/21/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: H
Batch No: 99G3211	Prep. Date: 06/23/99	Anal. Date: 06/25/99
Data File Name: 4326.005	Prep. No: 1 of 1	Anal. Time: 06:18
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	1PH AS DIESEL	68334-30-5	mg/L	0.1	0.38 ^(a)	
2	1PH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	82	
# of out-of-control					0	

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

^(a)Similar to IP-5.

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

Organic Analysis Results for Method M8015V

Client Name:	OHM Remediation Services (Irvine)	Project No:	20242	Collection Date:	06/22/1999
Project ID:	El Toro	Service ID:	994360	Collected by:	Terry
Sample ID:	20242-929	Lab Sample ID:	99-4360-2	Received Date:	06/22/1999
Sample Type:	Field Sample	Sample Matrix:	Water	Moisture %:	-
Anal. Method:	M8015V	Prep. Method:	5030	Instrument ID:	GC: N
Batch No:	99G3224	Prep. Date:	06/25/99	Anal. Date:	06/25/99
Data File Name:	4360.102	Prep. No:	-	Anal. Time:	15:14
Methanol Vol.	-	Sample Amount:	5.0 mL	Dilution Factor:	1
Test Level:	Low	Spurge Size:	5 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	0.79	
2	BENZENE	71-43-2	µg/L	0.5	5.5	
3	ETHYLBENZENE	100-41-4	µg/L	0.5	32.4	
4	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
5	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	5	<5	U
6	XYLENES (TOTAL)	1330-20-7	µg/L	1.5	8.1	

Surrogates		Control Limit, %	Surro. Rec.%	
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	54-133	97
2	4-BROMO-FLUOROBENZENE (PID)	460-00-4	68-129	112
# of out-of-control				0

Internal Standard		Control Limit, %	IS Rec.%	
1	α, α, α-TRIFLUOROTOLUENE	98-08-8	50-200	96
# 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: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/22/1999
Project ID: El Toro	Service ID: 994360	Collected by: Terry
Sample ID: 20242-929	Lab Sample ID: 99-4360-2	Received Date: 06/22/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: W
Batch No: 99G3247	Prep. Date: 06/25/99	Anal. Date: 06/26/99
Data File Name: 4360.002	Prep. No: 1 of 1	Anal. Time: 22:16
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.5	0.8 ^(a)	
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	96	
	# of out-of-control				0	

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

^(a)Similar to JP-5.

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

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015V

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/23/1999
Project ID: El Toro DO-112	Service ID: 994424	Collected by: C.Parrish
Sample ID: 20242-966	Lab Sample ID: 99-4424-1	Received Date: 06/24/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015V	Prep. Method: 5030	Instrument ID: GC: N
Batch No: 99G3280	Prep. Date: 06/28/99	Anal. Date: 06/28/99
Data File Name: 4424.001	Prep. No: -	Anal. Time: 20:57
Methanol Vol. -	Sample Amount: 5.0 mL	Dilution Factor: 1
Test Level: Low	Spurge Size: 5 mL	Heated Purge: (Y/N) N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.05	<0.05	U
2	BENZENE	71-43-2	µg/L	0.5	<0.5	U
3	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
4	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
5	XYLENES (TOTAL)	1330-20-7	µg/L	1.5	<1.5	U
6	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	5	<5	U

Surrogates		Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (FID)	460-00-4	54-133
2	4-BROMO-FLUOROBENZENE (PID)	460-00-4	68-129
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1	α, α, α-TRIFLUOROTOLUENE	98-08-8	50-200
# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

130007

Applied P & Ch Laboratory
Organic Analysis Results for Method M8015E

Client Name: OHM Remediation Services (Irvine)	Project No: 20242	Collection Date: 06/23/1999
Project ID: El Toro DO-112	Service ID: 994424	Collected by: C.Parrish
Sample ID: 20242-966	Lab Sample ID: 99-4424-1	Received Date: 06/24/1999
Sample Type: Field Sample	Sample Matrix: Water	Moisture %: -
Anal. Method: M8015E	Prep. Method: 3510	Instrument ID: GC: H
Batch No: 99G3313	Prep. Date: 06/30/99	Anal. Date: 07/01/99
Data File Name: 4424.101	Prep. No: 1 of 1	Anal. Time: 21:53
Extract Vol: 1.0 mL	Sample Amount: 1000 mL	Dilution Factor: 1

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.1	0.03	J
2	TPH AS MOTOR OIL	TBD-0002	mg/L	0.5	<0.5	U
Surrogates				Control Limit, %	Surro. Rec.%	
1	OCTACOSANE, C ₂₈	630-02-4		26-152	105	
	# 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	E - Exceed calibration range
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)	B - A positive value was found in the method blank
	D - Diluted

130028

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 14, 1999
LDC Report Date: August 9, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994185

Sample Identification

20242-903
20242-904
20242-905
20242-906

V

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Samples 20242-903 and 20242-904 were identified as equipment rinsates. No total petroleum hydrocarbons as extractable contaminants were found in these blanks.

Sample 20242-905 was identified as a source blank. No total petroleum hydrocarbons as extractable contaminants were found in this blank.

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994185**

No Sample Data Qualified in this SDG

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994185**

No Sample Data Qualified in this SDG

LDC #: 3985H8

VALIDATION COMPLETENESS WORKSHEET

Date: 8-6-99

SDG #: 994185

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *JS*

2nd Reviewer: *LA*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-14-99
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	limit specified
IVc.	Laboratory control samples	A	LOS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	ER = 1, 2 SB = 3

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsete
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples: *All H₂O's*

1	20242-903	11		21		31	
2	20242-904	12		22		32	
3	20242-905	13		23		33	
4	20242-906	14		24		34	
5	9963094-MB-01	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 14, 1999
LDC Report Date: August 13, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994185

COPY

Sample Identification

20242-903
20242-904
20242-905
20242-906
20242-903MS
20242-903MSD



Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Samples 20242-903 and 20242-904 were identified as equipment rinsates. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

Sample 20242-905 was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG
994185**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification
Summary - SDG 994185**

No Sample Data Qualified in this SDG

LDC #: 3985H7

VALIDATION COMPLETENESS WORKSHEET

Date: 8/11/99

SDG #: 994185

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Gasoline

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/14/99
IIa.	Initial calibration	A	70 RSD
IIb.	Calibration verification	A	70 D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	FR = 1, 2. SB = 3

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinstate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

SB = Source Blank

Validated Samples:

All H=0

1	20242-903	11		21		31	
2	20242-904	12		22		32	
3	20242-905	13		23		33	
4	20242-906	14		24		34	
5	20242-903MS	15		25		35	
6	20242-903MSD	16		26		36	
7	9963078-MB-01	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 14, 1999
LDC Report Date: August 11, 1999
Matrix: Water
Parameters: Volatiles
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994185

COPY

Sample Identification

20242-902
20242-903
20242-904
20242-905
20242-906
20242-906MS
20242-906MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260A 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.

Raw data were not reviewed for this SDG. The review was 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 30.0% for all calibration check compounds and less than or equal to 50.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected calibration. The coefficient of determination (r^2) was greater than or equal to 0.990 with the following exceptions:

Date	Compound	r^2	Associated Samples	Flag	A or P
5/19/99	2-Chloroethylvinyl ether	0.960	All samples in SDG 994185	J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/19/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.016 (≥ 0.05) 0.033 (≥ 0.05) 0.013 (≥ 0.05)	All samples in SDG 994185	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% for all calibration check compounds and less than or equal to 50.0% for all other compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/22/99	Vinyl acetate 2-Chloroethylvinyl ether	90.7 80.22	All samples in SDG 994185	J J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/22/99	Acetone Vinyl acetate 2-Butanone 2-Chloroethylvinyl ether	0.017 (≥ 0.05) 0.024 (≥ 0.05) 0.033 (≥ 0.05) 0.001 (≥ 0.05)	All samples in SDG 994185	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.

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. 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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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.

XVII. Field Blanks

Sample 20242-902 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
20242-902	Chloroform	1

Samples 20242-903 and 20242-904 were identified as equipment rinsates. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
20242-904	Acetone	25
	Chloroform	1

Sample 20242-905 was identified as a source blank. No volatile contaminants were found in this blank with the following exceptions:

Source Blank ID	Compound	Concentration (ug/L)
20242-905	Acetone	22

MCAS EI Toro
Volatiles - Data Qualification Summary - SDG 994185

SDG	Sample	Compound	Flag	A or P	Reason
994185	20242-902 20242-903 20242-904 20242-905 20242-906	2-Chloroethylvinyl ether	J	A	Initial calibration (r ²)
994185	20242-902 20242-903 20242-904 20242-905 20242-906	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) P (all non detects)	A	Initial calibration (RRF)
994185	20242-902 20242-903 20242-904 20242-905 20242-906	Vinyl acetate 2-Chloroethylvinyl ether	J J	A	Continuing calibration (%D)
994185	20242-902 20242-903 20242-904 20242-905 20242-906	Acetone Vinyl acetate 2-Butanone 2-Chloroethylvinyl ether	J (all detects) P (all non detects)	A	Continuing calibration (RRF)

MCAS EI Toro
Volatiles - Laboratory Blank Data Qualification Summary - SDG 994185

No Sample Data Qualified in this SDG

LDC #: 3985H1

VALIDATION COMPLETENESS WORKSHEET

Date: 8/6/99

SDG #: 994185

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260)A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/14/99
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	CCC ≤ 30%. others ≤ 50% γ^2
IV.	Continuing calibration	SW	CCC ≤ 25%. others ≤ 50%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB=1 CR=2,*3 SB=4

Note: A = Acceptable ND = No compounds detected D = Duplicate *ND
 N = Not provided/applicable R = Rinsete TB = Trip blank EB = Equipment blank SB = Source Blank
 SW = See worksheet FB = Field blank

Validated Samples:

All H₂O >

1	20242-902	11		21		31	
2	20242-903	12		22		32	
3	20242-904	13		23		33	
4	20242-905	14		24		34	
5	20242-906	15		25		35	
6	20242-906MS	16		26		36	
7	20242-906MSD	17		27		37	
8	9943159-MB-01	18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 3985.H1
SDG #: 994185

TARGET COMPOUND WORKSHEET

Page: 1 of 1
Reviewer: g
2nd Reviewer: [Signature]

METHOD: VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LC. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	YYY. Trichlorofluoroethane
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes: _____

LDC #: 3985H1
SDG #: 994185

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field blanks identified in this SDG?
 Y N N/A Were target compounds detected in the field blanks?

Sample: 1 Field Blank Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units (<u>ug</u>)
<u>K</u>	<u>1</u>

Sample: 3 Field Blank / Trip Blank / Rinsate Other ER (circle one)

Compound	Concentration Units (<u>ug</u>)
<u>F</u>	<u>25</u>
<u>K</u>	<u>1</u>

Sample: 4 Field Blank / Trip Blank / Rinsate Other SB (circle one)

Compound	Concentration Units (<u>ug</u>)
<u>F</u>	<u>22</u>

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 15, 1999
LDC Report Date: August 9, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994194

COPY

Sample Identification

20242-908
20242-909
20242-910

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Sample 20242-908 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	Compound	Concentration (mg/L)
20242-908	TPH as diesel	0.08

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994194**

No Sample Data Qualified in this SDG

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994194**

No Sample Data Qualified in this SDG

LDC #: 398518

VALIDATION COMPLETENESS WORKSHEET

Date: 8-6-99

SDG #: 994194

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *SK*

2nd Reviewer: *A*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-15-99
IIa.	Initial calibration	A	% RSD
IIb.	Calibration verification	A	% D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N <i>NS</i>	chert spec / non-chert sample
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	SW	ER = 1

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples: *all H2O's*

1	20242-908	11		21		31	
2	20242-909	12		22		32	
3	20242-910	13		23		33	
4	20242-908MB <i>SK</i>	14		24		34	
5	20242-909MSD <i>SK</i>	15		25		35	
6	99G135-MB-01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

LDC #: 398558
SDG #: 994194

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1
Reviewer: SL
2nd reviewer: JK

METHOD: GC ___ TFH Volatiles (Gasoline) / TFH Extractables (Diesel) ___ CDOHS LUFT / EPA SW 846 Method 8015 Modified.

- N/A Were field blanks identified in this SDG?
 N/A Were target compounds detected in the field blanks?

Sample: _____ | _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units (mg/L)
TPH AS DIESEL	0.08

Sample: _____ | _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ | _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 15, 1999
LDC Report Date: August 13, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994194

COPY

Sample Identification

20242-908
20242-909
20242-910
20242-908MS
20242-908MSD

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 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Sample 20242-908 was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

**MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG
994194**

No Sample Data Qualified in this SDG

**MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification
Summary - SDG 994194**

No Sample Data Qualified in this SDG

LDC #: 398517

VALIDATION COMPLETENESS WORKSHEET

SDG #: 994194

EPA Level III NFESC Level C

Laboratory: Applied P & Ch Laboratory

Date: 8/11/99

Page: 1 of 1

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Gasoline

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/15/99
IIa.	Initial calibration	A	To RSD
IIb.	Calibration verification	A	To D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	ER = 1

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

All H₂O's

1	20242-908	11		21		31	
2	20242-909	12		22		32	
3	20242-910	13		23		33	
4	20242-908MS	14		24		34	
5	20242-908MSD	15		25		35	
6	9943186-MB-01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 15, 1999
LDC Report Date: August 11, 1999
Matrix: Water
Parameters: Volatiles
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994194

Sample Identification

20242-907
20242-908
20242-909
20242-910
20242-910MS
20242-910MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260A 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.

Raw data were not reviewed for this SDG. The review was 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 30.0% for all calibration check compounds and less than or equal to 50.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected calibration. The coefficient of determination (r^2) was greater than or equal to 0.990 with the following exceptions:

Date	Compound	r^2	Associated Samples	Flag	A or P
5/19/99	2-Chloroethylvinyl ether	0.960	All samples in SDG 994194	J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/19/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.016 (≥ 0.05) 0.033 (≥ 0.05) 0.013 (≥ 0.05)	All samples in SDG 994194	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% for all calibration check compounds and less than or equal to 50.0% for all other compounds. All of the continuing calibration RRF values were within validation criteria with the

following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/18/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.016 (≥ 0.05) 0.031 (≥ 0.05) 0.007 (≥ 0.05)	All samples in SDG 994194	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.

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. 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) and relative percent differences (RPD) 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

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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.

XVII. Field Blanks

Sample 20242-907 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample 20242-908 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
20242-908	Acetone	31

MCAS EI Toro
Volatiles - Data Qualification Summary - SDG 994194

SDG	Sample	Compound	Flag	A or P	Reason
994194	20242-907 20242-908 20242-909 20242-910	2-Chloroethylvinyl ether	J	A	Initial calibration (r ²)
994194	20242-907 20242-908 20242-909 20242-910	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
994194	20242-907 20242-908 20242-909 20242-910	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)

MCAS EI Toro
Volatiles - Laboratory Blank Data Qualification Summary - SDG 994194

No Sample Data Qualified in this SDG

LDC #: 398511

VALIDATION COMPLETENESS WORKSHEET

Date: 8/6/99

SDG #: 994194

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *GA*

2nd Reviewer: *GA*

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260) *A*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	<i>A</i>	Sampling dates: 6/15/99
II.	GC/MS Instrument performance check	<i>A</i>	
III.	Initial calibration	<i>SW</i>	<i>CCC ≤ 30% others ≤ 50% 2²</i>
IV.	Continuing calibration	<i>SW</i>	<i>CCC ≤ 25% others ≤ 50%</i>
V.	Blanks	<i>A</i>	
VI.	Surrogate spikes	<i>A</i>	
VII.	Matrix spike/Matrix spike duplicates	<i>A</i>	
VIII.	Laboratory control samples	<i>A</i>	<i>LCS/D</i>
IX.	Regional Quality Assurance and Quality Control	<i>N</i>	
X.	Internal standards	<i>A</i>	
XI.	Target compound identification	<i>N</i>	
XII.	Compound quantitation/CRQLs	<i>N</i>	
XIII.	Tentatively identified compounds (TICs)	<i>N</i>	
XIV.	System performance	<i>N</i>	
XV.	Overall assessment of data	<i>A</i>	
XVI.	Field duplicates	<i>N</i>	
XVII.	Field blanks	<i>SW NF</i>	<i>TB=1, ER=2</i>

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinse
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

XND

Validated Samples:

All H2Os

1	20242-907	- 11	21	31
2	20242-908	12	22	32
3	20242-909	13	23	33
4	20242-910	14	24	34
5	20242-910MS	15	25	35
6	20242-910MSD	16	26	36
7	<i>9943105-MB-1</i>	17	27	37
8		18	28	38
9		19	29	39
10		20	30	40

LDC #: 398511
 SDG #: 924194

TARGET COMPOUND WORKSHEET

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes: _____

LDC #: 398521
SDG #: 294194

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: OK
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

N N/A Were field blanks identified in this SDG?
 N N/A Were target compounds detected in the field blanks?

Sample: 2 Field Blank / Trip Blank / Rinsate / Other ER (circle one)

Compound	Concentration Units (<u>ug</u>)
<u>F</u>	<u>31</u>

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

COPY

Project/Site Name: MCAS El Toro
Collection Date: June 16, 1999
LDC Report Date: August 9, 1999
Matrix: Soil/Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C & D
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994234

Sample Identification

20242-912	20242-947
20242-913	20242-948
20242-914	20242-949
20242-915	20242-947MS
20242-930	20242-947MSD
20242-931	20242-915MS
20242-932	20242-915MSD
20242-933	
20242-934	
20242-935	
20242-936	
20242-938	
20242-939	
20242-940	
20242-941	
20242-942	
20242-943**	
20242-944	
20242-945	
20242-946	

**Indicates sample underwent NFESC Level D review



Introduction

This data review covers 19 soil samples and 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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.

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) 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 D review was performed. Raw data were not evaluated for the samples

reviewed by Level C criteria.

VI. Compound Quantitation and CRQLs

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

VII. System Performance

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

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples 20242-914 and 20242-915, samples 20242-935 and 20242-936, and samples 20242-942 and 20242-943** were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	20242-914	20242-915	
TPH as diesel	0.5U	0.04	200

X. Field Blanks

Samples 20242-912, 20242-913, 20242-938, and 20242-949 were identified as equipment rinsates. No total petroleum hydrocarbons as extractable contaminants were found in these blanks.

**MCAS El Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994234**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994234**

No Sample Data Qualified in this SDG

LDC #: 3985J8

VALIDATION COMPLETENESS WORKSHEET

Date: 8-6-99

SDG #: 994234

EPA Level III/IV X NFESC Level C/D

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: SC2nd Reviewer: A

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-16-99
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	A	Not reviewed for Level III/C validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III/C validation.
VII.	System Performance	A	Not reviewed for Level III/C validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	$D_1 = 3^* + 4$ $D_2 = 10 + 11$ $D_3 = 16 + 17$
X.	Field blanks	ND	ER = 1, 2, 12, 23

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinstate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

* = ND

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	20242-912	W	11	20242-936	S	21	20242-947	S	31
2	20242-913		12	20242-938	W	22	20242-948	↓	32
3	20242-914		13	20242-939	S	23	20242-949	W	33
4	20242-915	↓	14	20242-940		24	20242-947MS	S	34
5	20242-930	S	15	20242-941		25	20242-947MSD	↓	35
6	20242-931		16	20242-942		26	20242-915MS	W	36
7	20242-932		17	20242-943**		27	20242-915MSD	↓	37
8	20242-933		18	20242-944		28	99G329-MB-01		38
9	20242-934		19	20242-945		29	99G362-MB-01		39
10	20242-935	↓	20	20242-946	↓	30	99G3128-MB-01		40

Notes:

LDC #: 398518
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: sl
 2nd Reviewer: l

METHOD: GC ___ TFH Volatiles (Gasoline) ___ TFH Extractables (Diesel) ___ CDOHS LUFT ___ EPA SW 846 Method 8015 Modified.

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated for Gas / Diesel using the following calculations:

CF = $\frac{ma}{conc}$
 %RSD = $100 * (S/X)$

Where: S = Standard deviation of calibration factors
 X = Mean of calibration factors

Injection volume = ___ ul or ___ ml

Calibration Date	Column	Compound	Standard	Standard concentration (ppm)	Area	Recalculated		Reported	
						Calibration Factor (CF)	%RSD	Calibration Factor (CF)	%RSD
6-4-99	DB-1	diesel	Point 1	50	691644	13832.88		13832.88	
			Point 2	500	5755123	11510.25		11510.25	
			Point 3	1000	13995759	13995.76		13995.76	
			Point 4	2000	26603576	13301.79		13301.79	
			Point 5	4000	56005136	14001.28		14001.28	
			Mean calibration factor						
			Point 1	10000	131793296	13179.33		13179.33	
			Point 2						
			Point 3						
			Point 4						
			Point 5						
			Mean calibration factor						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3785J8
SDG #: 994234

VALIDATION FINDINGS WORKSHEET

Blanks

Page: 1 of 1
Reviewer: SS
2nd Reviewer: [Signature]

METHOD: GC TFH Volatiles (Gasoline) / TFH Extractables (Diesel) CDOHS LUFT / EPA SW 846 Method 8015 Modified.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A"

- N N/A Were all samples associated with a method blank?
- N N/A Was a method blank analyzed for each matrix?
- N N/A Was a method blank analyzed with each batch or extraction batch?
- N N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

- N N/A (Gasoline only) Was a method blank analyzed with each 24 hour batch?
- N N/A Was a method blank analyzed for each analytical/extraction batch of ≤ 20 samples?

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification									

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification									

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 398518
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd reviewer: [Signature]

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT ___ EPA SW 846 Method 8015 Modified /

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:
 Recovery: SF:SS * 100 Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: 17

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					
<i>Dibenz(a,h)anthracene</i>	50	34.457	69	69	0

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

LDC #: 398518
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: SL
 2nd reviewer: [Signature]

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT / ___ EPA SW 846 Method 8015 Modified.

N N/A
 N N/A

Were field duplicate pairs identified in this SDG?
 Were target compounds detected in the field duplicate pairs?

Compound	Concentration (<u>mg/L</u>)		RPD
	3	4	
TPH AS DIESEL	0.51	0.04	200

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 3985J8
SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: JS
2nd reviewer: AM

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT ___ EPA SW 846 Method 8015 Modified.

N N/A Were field blanks identified in this SDG?
 Y N/A Were target compounds detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

COPY

Project/Site Name: MCAS El Toro
Collection Date: June 16, 1999
LDC Report Date: August 13, 1999
Matrix: Soil/Water
Parameters: Total Petroleum Hydrocarbons as Gasoline
Validation Level: NFESC Level C & D
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994234

Sample Identification

20242-912	20242-947
20242-913	20242-948
20242-914	20242-949
20242-915	20242-912MS
20242-930	20242-912MSD
20242-931	20242-930MS
20242-932	20242-930MSD
20242-933	
20242-934	
20242-935	
20242-936	
20242-938	
20242-939	
20242-940	
20242-941	
20242-942	
20242-943**	
20242-944	
20242-945	
20242-946	

**Indicates sample underwent NFESC Level D review



Introduction

This data review covers 19 soil samples and 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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.
- UU 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.

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) 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 D review was performed. Raw data were not evaluated for the samples

reviewed by Level C criteria.

VI. Compound Quantitation and CRQLs

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

VII. System Performance

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

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples 20242-914 and 20242-915, samples 20242-935 and 20242-936, and samples 20242-942 and 20242-943** were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	20242-914	20242-915	
TPH as gasoline	1.04	1.09	5

X. Field Blanks

Samples 20242-912, 20242-913, 20242-938, and 20242-949 were identified as equipment rinsates. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG
994234**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification
Summary - SDG 994234**

No Sample Data Qualified in this SDG

LDC #: 3985J7

VALIDATION COMPLETENESS WORKSHEET

Date: 8/11/99

SDG #: 994234

EPA Level III/IV X NFESC Level C/D

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *gr*
2nd Reviewer: *gr*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Gasoline

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 6/16/99
IIa.	Initial calibration	A	70 RSD
IIb.	Calibration verification	A	70 D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	A	Not reviewed for Level III/C validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III/C validation.
VII.	System Performance	A	Not reviewed for Level III/C validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 3+4, 10+11*, 16+17*
X.	Field blanks	ND	EB = 1, 2, 12, 23

Note: A = Acceptable ND = No compounds detected D = Duplicate * ND
 N = Not provided/applicable R = Rinsete TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	20242-912	W	11	20242-936	S	21	20242-947	S	31
2	20242-913	↓	12	20242-938	W	22	20242-948	↓	32
3	20242-914	↓	13	20242-939	S	23	20242-949	W	33
4	20242-915	↓	14	20242-940		24	20242-912MS	↓	34
5	20242-930	S	15	20242-941		25	20242-912MSD	↓	35
6	20242-931		16	20242-942		26	20242-930MS	S	36
7	20242-932		17	20242-943**		27	20242-930MSD	↓	37
8	20242-933		18	20242-944		28	9943151-MB-01	W	38
9	20242-934		19	20242-945		29	9943136-MB-01	↓	39
10	20242-935	↓	20	20242-946	↓	30	9943193-MB-01	S	40

Notes: _____

LDC #: 3985NT
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified, ~~8015~~

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated for Gas / Diesel ~~Be~~ using the following calculations:

$$CF = \frac{\text{Area}}{\text{CONC}}$$

$$\%RSD = 100 * (S/X)$$

Where: S = Standard deviation of calibration factors
 X = Mean of calibration factors

Injection volume = ul or 5 ml

Calibration Date	Column	Compound	Standard	Standard concentration (mg/L)	Area	Recalculated		Reported	
						Calibration Factor (CF)	%RSD	Calibration Factor (CF)	%RSD
5/4/99	RTX-5	ARO	Point 1	50	169923	3398.46		3398.46	
			Point 2	200	885098	4425.49		4425.49	
			Point 3	500	2415228	4830.46		4830.46	
			Point 4	1000	5205799	5205.80		5205.80	
			Point 5	2000	10433393	5216.70		5216.70	
			Mean calibration factor						
			Point 6	3000	13651373	4550.46		4550.46	
			Point 2						
			Point 3						
			Point 4						
			Point 5						
Mean calibration factor					4604.56	14.655		4604.56	

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985 J7
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: ga
 2nd Reviewer: a

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

The continuing calibration percent difference (%D) values were recalculated for (Gas) Diesel using the following calculation:

Percent difference (%D) = $100 * (N - C) / N$ Where: N = Initial Calibration Factor () or Nominal Amount (ng)
 C = Calibration Factor from Continuing Calibration Standard () or Calculated Amount (ng)

Standard ID	Calibration Date/Time	Column	Compound	N	C	Recalculated	Reported
						%D	%D
31939.402	6/23/99 15:41	RTX-5	GRD	1000	967	3	3

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985JT
SDG #: 994234

VALIDATION FINDINGS WORKSHEET

Blanks

Page: 1 of 1
Reviewer: T
2nd Reviewer: A

METHOD: GC TFH Volatiles (Gasoline) ___ TFH Extractables (Diesel) ___ CDOHS LUFT EPA SW 846 Method 8015 Modified. ~~18000~~

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Were all samples associated with a method blank?
- N N/A Was a method blank analyzed for each matrix?
- N N/A Was a method blank analyzed with each batch or extraction batch?
- N N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

- N N/A (Gasoline only) Was a method blank analyzed with each 24 hour batch?
- N N/A Was a method blank analyzed for each analytical/extraction batch of <20 samples?

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 3985-1T
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: af
 2nd reviewer: lf

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:
 % Recovery: SF/SS * 100
 Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: 1T

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					
<u>4-Bromofluorobenzene</u>	<u>100</u>	<u>81.2</u>	<u>81</u>	<u>81</u>	<u>0</u>

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

LDC #: 39851T
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = $100 * (SSC - SC) / SA$

Where SSC = Spiked concentration
 SA = Spike added

SC = Sample concentration

RPD = $| MS - MSD | * 2 / (MS + MSD)$

MS = Matrix spike percent recovery

MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 26/27

Compound	Spike Added (MS/MS)		Sample Concentration (MS)	Spike Sample Concentration (MS/MS)		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD	-	MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
<u>PEO</u>	<u>1.17</u>	<u>1.17</u>	<u>0</u>	<u>0.977</u>	<u>1.00</u>	<u>84</u>	<u>84</u>	<u>85</u>	<u>85</u>	<u>1</u>	<u>1</u>

Comments: Refer to Matrix spike/Matrix spike duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985JT
SDG #: 994234

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

Y N N/A
 V N N/A

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

Compound	Concentration (mg/L)		RPD
	3	4	
GR0	1.04	1.09	5

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 398517
SDG #: 994234

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1
Reviewer: A
2nd reviewer: A

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

COPY

Project/Site Name: MCAS El Toro
Collection Date: June 16, 1999
LDC Report Date: August 11, 1999
Matrix: Soil/Water
Parameters: Volatiles
Validation Level: NFESC Level C & D
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 994234

Sample Identification

20242-911	20242-945
20242-912	20242-946
20242-913	20242-947
20242-914	20242-948
20242-915	20242-949
20242-930	20242-930MS
20242-931	20242-930MSD
20242-932	
20242-933	
20242-934	
20242-935	
20242-936	
20242-937	
20242-938	
20242-939	
20242-940	
20242-941	
20242-942	
20242-943**	
20242-944	

**Indicates sample underwent NFESC Level D review

Introduction

This data review covers 19 soil samples and 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260A 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 D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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 30.0% for all calibration check compounds and less than or equal to 50.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected calibration. The coefficient of determination (r^2) was greater than or equal to 0.990 .

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/26/99	2-Chloroethylvinyl ether	0.023 (≥ 0.05)	All soil samples in SDG 994234	J (all detects) R (all non-detects)	A
6/17/99	2-Chloroethylvinyl ether	0.033 (≥ 0.05)	All water samples in SDG 994234	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% for all calibration check compounds and less than or equal to 50.0% for all other compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/22/99 (G3167Q01)	Acetone	182.9	20242-930	J	A
	Vinyl acetate	81.3	20242-931	J	
	2-Butanone	55.7	20242-932	J	
	2-Chloroethylvinyl ether	677.3	20242-933	J	
	2-Hexanone	85.3	20242-935	J	
				20242-930MS 20242-930MSD 99G3167-MB-01	
6/22/99 (G3167Q02)	Acetone	64.8	20242-934	J	A
	Vinyl acetate	96.0	20242-936	J	
	2-Chloroethylvinyl ether	573.4	20242-939	J	
	2-Hexanone	71.6	20242-940	J	
			20242-941		
			20242-942		
			20242-943**		
			20242-944		
			20242-945		
			20242-946		
			20242-947		
		20242-948 99GB3167-MB-02			

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/24/99	2-Chloroethylvinyl ether	0.037 (≥ 0.05)	All water samples in SDG 994234	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.

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. 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 D review was performed. Raw data were not evaluated for the samples reviewed by Level C criteria.

XII. Compound Quantitation and CRQLs

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples 20242-914 and 20242-915 and samples 20242-935 and 20242-936 and samples 20242-942 and 20242-943** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD
	20242-914	20242-915	
Benzene	87	97	11
Xylene, total	110	100	10
1,2-Dichloropropane	5U	0.6	200

XVII. Field Blanks

Samples 20242-911 and 20242-937 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
20242-937	Chloroform	1

Samples 20242-912, 20242-913, 20242-938 and 20242-949 were identified as equipment rinsates. No volatile contaminants were found in these blanks.

MCAS EI Toro
 Volatiles - Data Qualification Summary - SDG 994234

SDG	Sample	Compound	Flag	A or P	Reason
994234	20242-911 20242-912 20242-913 20242-914 20242-915 20242-930 20242-931 20242-932 20242-933 20242-934 20242-935 20242-936 20242-937 20242-938 20242-939 20242-940 20242-941 20242-942 20242-943** 20242-944 20242-945 20242-946 20242-947 20242-948 20242-949	2-Chloroethylvinyl ether	J (all detects) R (all non detects)	A	Initial calibration (RRF)
994234	20242-930 20242-931 20242-932 20242-933 20242-935	Acetone Vinyl acetate 2-Butanone 2-Chloroethylvinyl ether 2-Hexanone	J J J J J	A	Continuing calibration (%D)
994234	20242-934 20242-936 20242-939 20242-940 20242-941 20242-942 20242-943** 20242-944 20242-945 20242-946 20242-947 20242-948	Acetone Vinyl acetate 2-Chloroethylvinyl ether 2-Hexanone	J J J J	A	Continuing calibration (%D)
994234	20242-911 20242-912 20242-913 20242-914 20242-915 20242-937 20242-938 20242-949	2-Chloroethylvinyl ether	J (all detects) R (all non detects)	A	Continuing calibration (RRF)

MCAS EI Toro

Volatiles - Laboratory Blank Data Qualification Summary - SDG 994234

No Sample Data Qualified in this SDG

LDC #: 3985J1

VALIDATION COMPLETENESS WORKSHEET

Date: 8/10/99

SDG #: 994234

EPA Level III/IV X NFESC Level C/D

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260) A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/16/99
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	CCC ≤ 30%, others ≤ 50% 2 ²
IV.	Continuing calibration	SW	CCC ≤ 25%, others ≤ 50%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III/C validation.
XII.	Compound quantitation/CRQLs	NA	Not reviewed for Level III/C validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III/C validation. Not reported.
XIV.	System performance	A	Not reviewed for Level III/C validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 4+5, 11+12, 18+19 *
XVII.	Field blanks	SW	TB = 13, 1* ERB = 2, 3, 14, 25

Note: A = Acceptable ND = No compounds detected D = Duplicate * NO
 N = Not provided/applicable R = Rinstate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	3	20242-911	W	11	1	20242-935	S	21	2	20242-945	S	31
2	3	20242-912		12	2	20242-936	↓	22	2	20242-946		32
3	3	20242-913		13	3	20242-937	W	23	2	20242-947		33
4	3	20242-914		14	3	20242-938	↓	24	2	20242-948	↓	34
5	3	20242-915	↓	15	3	20242-939	S	25	3	20242-949	W	35
6	1	20242-930	S	16	2	20242-940		26	1	20242-930MS	S	36
7	1	20242-931		17	2	20242-941		27	1	20242-930MSD	↓	37
8	1	20242-932		18	2	20242-942		28	1	99433.6T-MB-01	S	38
9	1	20242-933		19	2	20242-943**		29	2	99433.6T-MB-02	↓	39
10	2	20242-934	↓	20	2	20242-944	↓	30	3	99432.6-MB-01	W	40

LDC #: 39851
 SDG #: 994234

TARGET COMPOUND WORKSHEET

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes: _____

LDC #: 39851
 SDG #: 994284

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: *[Signature]*
 2nd Reviewer: *[Signature]*

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_c)(C_s)/(A_s)(C_c)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

A_c = Area of compound,

C_c = Concentration of compound,

S = Standard deviation of the RRFs

X = Mean of the RRFs

A_s = Area of associated internal standard

C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (50 std)	RRF (50 std)	Average RRF (Initial)	Average RRF (Initial)	%RSD	%RSD
1	022-102 010 050 080 100 200	5/26/99	Methylene chloride (1st internal standard)	0.329	0.329	0.322	0.322	6.41	6.44
			Toluene Trichlorethene (2nd internal standard)	2.610	2.610	2.643	2.643	16.64	16.64
			ethylbenzene Toluene (3rd internal standard)	5.999	5.999	6.003	6.003	16.54	16.54
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 398501
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$
 $\text{RRF} = (A_x)(C_s) / (A_s)(C_x)$

Where: ave. RRF = initial calibration average RRF
 RRF = continuing calibration RRF
 A_s = Area of compound, A_x = Area of associated internal standard
 C_x = Concentration of compound, C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	F316T002	6/22/99	Methylene chloride (1st internal standard)	0.322	0.254	0.254	21.1	21.2
			Toluene Trichlorethene (2nd internal standard)	2.643	2.287	2.287	13.5	13.5
			Ethylbenzene Toluene (3rd internal standard)	6.003	5.078	5.078	15.4	15.4
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985J1
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: GA
 2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: $SF/SS \cdot 100$

Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: 19

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	50	52.13	104	104	0
Bromofluorobenzene	↓	44.48	89	89	
1,2-Dichloroethane-d4	↓	59.02	89 118	118	✓
Dibromofluoromethane	↓	45.11	90	90	

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 3985J1
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 \cdot (SSC - SC) / SA$

Where: SSC - Spiked sample concentration
 SA - Spike added

SC - Sample concentration

RPD = $(MSC - MSDC) / 2 \cdot (MSC + MSDC)$

MSC - Matrix spike percent recovery

MSDC - Matrix spike duplicate percent recovery

MS/MSD sample: 26/27

Compound	Spike Added (MS)		Sample Concentration (MS)	Spiked Sample Concentration (MS)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	58.3	58.3	0	58.6	58.2	101	101	100	100	1	1
Trichloroethene				52.2	53.3	90	90	91	91	1	1
Benzene				57.7	58.0	99	99	99	99	0	0
Toluene				61.6	59.5	106	106	102	102	4	4
Chlorobenzene				58.8	58.1	101	101	100	100	1	1

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3021
 SDG #: 494234

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample Results Verification

Page 1 of 1
 Reviewer: _____
 2nd Reviewer: _____

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 \cdot SSC/SA$

Where: SSC = Spiked sample concentration
 SA = Spike added

RPD = $100 \cdot |LCS - LCSD| / (LCS + LCSD)$

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 4316TJ01

Compound	Spike Added (<u>75</u>)		Spiked Sample Concentration (<u>4</u>)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	<u>50</u>	<u>NA</u>	<u>46.8</u>	<u>NA</u>	<u>94</u>	<u>94</u>				
Trichloroethene	↓	↓	<u>37.8</u>	↓	<u>76</u>	<u>76</u>				
Benzene	↓	↓	<u>49.7</u>	↓	<u>99</u>	<u>99</u>				
Toluene	↓	↓	<u>45.0</u>	↓	<u>90</u>	<u>90</u>				
Chlorobenzene	↓	↓	<u>49.2</u>	↓	<u>98</u>	<u>98</u>				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37 J1
SDG #: 99 34

VALIDATION FINDINGS WORKSHEET

Target Compound Identification

Page 1 of 1
Reviewed: [Signature]
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?
- Y N N/A Did compound spectra meet specified EPA "Functional Guidelines" criteria?
- Y N N/A Were chromatogram peaks verified and accounted for?

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments: _____

LDC #: 3985J1
 SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: [Signature]
 2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A
Y N N/A

Were field duplicate pairs identified in this SDG?
 Were target compounds detected in the field duplicate pairs?

Compound	Concentration (<u>µg/L</u>)		RPD
	4	5	
✓	87	97	11
64	110	100	10
Q	54	0.6	200

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 3185J1
SDG #: 994234

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field blanks identified in this SDG?
 Y N N/A Were target compounds detected in the field blanks?

Sample: 13 Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units (<u>ug/L</u>)
<u>K</u>	<u>1</u>

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 17, 1999
LDC Report Date: August 9, 1999
Matrix: Soil
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994276

COPY

Sample Identification

20242-917
20242-918
20242-919



Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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 extractables contaminants were found in the method blanks.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Samples 20242-918 and 20242-919 were identified as equipment rinsates. No total petroleum hydrocarbons as extractable contaminants were found in these blanks.

**MCAS El Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994276**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994276**

No Sample Data Qualified in this SDG

LDC #: 3985K8

VALIDATION COMPLETENESS WORKSHEET

Date: 8-9-99

SDG #: 994276

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>6-17-99</u>
IIa.	Initial calibration	A	<u>%RSD</u>
IIb.	Calibration verification	A	<u>%D</u>
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	<u>N/A</u>	<u>client spec / non-client sample</u>
IVc.	Laboratory control samples	A	<u>LES/D</u>
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	<u>ND</u>	<u>ER = 2, 3</u>

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:
All HDS

1	20242-917	11		21		31	
2	20242-918	12		22		32	
3	20242-919	13		23		33	
4	<u>9963183-MB-01</u>	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 17, 1999
LDC Report Date: August 13, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994276

COPY

Sample Identification

20242-917
20242-918
20242-919
20242-919MS
20242-919MSD

✓

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 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Samples 20242-918 and 20242-919 were identified as equipment rinsates. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 994276

No Sample Data Qualified in this SDG

MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 994276

No Sample Data Qualified in this SDG

LDC #: 3985K7

VALIDATION COMPLETENESS WORKSHEET

Date: 8/11/99

SDG #: 994276

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Gasoline

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/17/99
IIa.	Initial calibration	A	70 RSD
IIb.	Calibration verification	A	70 D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	FR = 2 + 3

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:
 All H=0s

1	20242-917	11		21		31	
2	20242-918	12		22		32	
3	20242-919	13		23		33	
4	20242-919MS	14		24		34	
5	20242-919MSD	15		25		35	
6	9993156-1B-01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 17, 1999
LDC Report Date: August 11, 1999
Matrix: Water
Parameters: Volatiles
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994276

Sample Identification

20242-916
20242-917
20242-918
20242-919



Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260A 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.

Raw data were not reviewed for this SDG. The review was 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 30.0% for all calibration check compounds and less than or equal to 50.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 with the following exceptions:

Date	Compound	r^2	Associated Samples	Flag	A or P
5/19/99	2-Chloroethylvinyl ether	0.960	All samples in SDG 994276	J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/19/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.016 (≥ 0.05) 0.033 (≥ 0.05) 0.013 (≥ 0.05)	All samples in SDG 994276	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% for all calibration check compounds and less than or equal to 50.0% for all other compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/30/99	2-Chloroethylvinyl ether	66.49	All samples in SDG 994276	J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/30/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.017 (≥ 0.05) 0.033 (≥ 0.05) 0.003 (≥ 0.05)	All samples in SDG 994276	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.

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. 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

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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.

XVII. Field Blanks

Sample 20242-916 was identified as a trip blank. No volatile contaminants were found in this blank.

Samples 20242-918 and 20242-919 were identified as equipment rinsates. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
20242-918	Acetone	18
20242-919	Acetone	20

**MCAS El Toro
Volatiles - Data Qualification Summary - SDG 994276**

SDG	Sample	Compound	Flag	A or P	Reason
994276	20242-916 20242-917 20242-918 20242-919	2-Chloroethylvinyl ether	J	A	Initial calibration (r^2)
994276	20242-916 20242-917 20242-918 20242-919	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
994276	20242-916 20242-917 20242-918 20242-919	2-Chloroethylvinyl ether	J	A	Continuing calibration (%D)
994276	20242-916 20242-917 20242-918 20242-919	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)

**MCAS El Toro
Volatiles - Laboratory Blank Data Qualification Summary - SDG 994276**

No Sample Data Qualified in this SDG

LDC #: 3985K1

VALIDATION COMPLETENESS WORKSHEET

Date: 8/6/99

SDG #: 994276

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260) *A*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	<i>A</i>	Sampling dates: <i>6/17/99</i>
II.	GC/MS Instrument performance check	<i>A</i>	
III.	Initial calibration	<i>SW</i>	<i>CCC ≤ 30%. others ≤ 50% 7²</i>
IV.	Continuing calibration	<i>SW</i>	<i>CCC ≤ 25%. others ≤ 50%</i>
V.	Blanks	<i>A</i>	
VI.	Surrogate spikes	<i>A</i>	
VII.	Matrix spike/Matrix spike duplicates	<i>A</i>	<i>non-client's sample</i>
VIII.	Laboratory control samples	<i>A</i>	<i>LCS</i>
IX.	Regional Quality Assurance and Quality Control	<i>N</i>	
X.	Internal standards	<i>A</i>	
XI.	Target compound identification	<i>N</i>	
XII.	Compound quantitation/CRQLs	<i>N</i>	
XIII.	Tentatively identified compounds (TICs)	<i>N</i>	
XIV.	System performance	<i>N</i>	
XV.	Overall assessment of data	<i>A</i>	
XVI.	Field duplicates	<i>N</i>	
XVII.	Field blanks	<i>SW</i>	<i>TB = 1*, ER = 3, 4</i>

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinstate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank
 * ND

Validated Samples:

All H₂O

1	20242-916	-	11		21		31	
2	20242-917	-	12		22		32	
3	20242-918		13		23		33	
4	20242-919		14		24		34	
5	<i>QA 43311-MB-01</i>		15		25		35	
6			16		26		36	
7			17		27		37	
8			18		28		38	
9			19		29		39	
10			20		30		40	

LDC #: 3985K1
 SDG #: 9942T6

TARGET COMPOUND WORKSHEET

Page: 1 of 1
 Reviewer: CP
 2nd Reviewer: [Signature]

METHOD: VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes: _____

LDC #: 398541
SDG #: 994276

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: g
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: 3 Field Blank / Trip Blank / Rinsate Other ER (circle one)

Compound	Concentration Units (<u>NA</u>)
F	18

Sample: 4 Field Blank / Trip Blank / Rinsate Other ER (circle one)

Compound	Concentration Units (<u>NA</u>)
F	20

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro
Collection Date: June 18, 1999
LDC Report Date: August 10, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994282

COPY

Sample Identification

20242-921
20242-922

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

No field blanks were identified in this SDG.

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994282**

No Sample Data Qualified in this SDG

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994282**

No Sample Data Qualified in this SDG

LDC #: 3985M8

VALIDATION COMPLETENESS WORKSHEET

Date: 8-7-99

SDG #: 994282

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-15-99
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	AN	client spec / non-client sample
IVc.	Laboratory control samples	A	100% D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinstate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:

1	20242-921	✓	11		21		31	
2	20242-922	↓	12		22		32	
3	99G183-MB-01		13		23		33	
4			14		24		34	
5			15		25		35	
6			16		26		36	
7			17		27		37	
8			18		28		38	
9			19		29		39	
10			20		30		40	

Notes: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro
Collection Date: June 18, 1999
LDC Report Date: August 12, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994282

Sample Identification

20242-920
20242-921
20242-922

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Total Petroleum Hydrocarbons as Gasoline and EPA SW 846 Method 8020 for Aromatic Volatile Organics.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.
- UU 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 all 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 contaminant concentrations were found in the method blanks.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Sample 20242-920 was identified as a trip blank. No contaminant concentrations were found in this blank.

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics - Data
Qualification Summary - SDG 994282**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics -
Laboratory Blank Data Qualification Summary - SDG 994282**

No Sample Data Qualified in this SDG

LDC #: 3985M7

VALIDATION COMPLETENESS WORKSHEET

Date: 3/11/99

SDG #: 994282

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: TPH as Gasoline & Aromatic Volatile Organics (EPA SW 846 Method 8015 & 8020) + MTBE

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/18/99
IIa.	Initial calibration	A	To RSD
IIb.	Calibration verification	A	To D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	TB = 1 (BTEX+MTBE only)

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:

1	20242-920 (BTEX only) W	11		21		31	
2	20242-921	12		22		32	
3	20242-922	13		23		33	
4	9943151-MB-01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 21, 1999
LDC Report Date: August 9, 1999
Matrix: Soil/Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C & D
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): ~~994230~~

994326

Sample Identification

- 20242-924
- 20242-925
- 20242-926
- 20242-927
- 20242-956
- 20242-957A
- 20242-958A
- 20242-959A**
- 20242-960A
- 20242-961A
- 20242-962A
- 20242-963A
- 20242-924MS
- 20242-924MSD

**Indicates sample underwent NFESC Level D review

Introduction

This data review covers 7 soil samples and 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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.

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) 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 D review was performed. Raw data were not evaluated for the samples

reviewed by Level C criteria.

VI. Compound Quantitation and CRQLs

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

VII. System Performance

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

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples 20242-958A and 20242-959A** and samples 20242-926 and 20242-927 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	20242-926	20242-927	
TPH as diesel	0.38	0.38	0

X. Field Blanks

Samples 20242-961A and 20242-963A were identified as equipment rinsates. No total petroleum hydrocarbons as extractable contaminants were found in these blanks.

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG
994236**

No Sample Data Qualified in this SDG

**MCAS EI Toro
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification
Summary - SDG 994236**

No Sample Data Qualified in this SDG

LDC #: 3985N8
 SDG #: 994326
 Laboratory: Applied P & Ch Laboratory

VALIDATION COMPLETENESS WORKSHEET

EPA Level III/IV X NFESC Level C/D

Date: 8-9-99

Page: 1 of 1

Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>6-21-99</u>
IIa.	Initial calibration	A	<u>%RSD</u>
IIb.	Calibration verification	A	<u>%D</u>
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	<u>LCS/D</u>
V.	Target compound identification	A	Not reviewed for Level III/C validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III/C validation.
VII.	System Performance	A	Not reviewed for Level III/C validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	<u>SW</u>	<u>D₁ = 7 + 8</u> ✓ <u>D₂ = 3 + 4</u> ✓
X.	Field blanks	<u>ND</u>	<u>ER = 10, 1, 2</u>

Note: A = Acceptable ND = No compounds detected D = Duplicate * = ND
 N = Not provided/applicable R = Rinstate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	20242-924	W	11	20242-962A	S	21		31
2	20242-925		12	20242-963A	↓	22		32
3	20242-926		13	20242-924MS	W	23		33
4	20242-927	↓	14	20242-924MSD	↓	24		34
5	20242-956	S	15	9963203-MB-01		25		35
6	20242-957A		16	9963211-MB-01		26		36
7	20242-958A		17			27		37
8	20242-959A**		18			28		38
9	20242-960A	↓	19			29		39
10	20242-961A	W	20			30		40

Notes: _____

LDC #: 398518
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: SS
 2nd Reviewer: A

METHOD: GC ___ TFH Volatiles (Gasoline) TFH Extractables (Diesel) ___ CDOHS LUFT EPA SW 846 Method 8015 Modified.

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated for Gas / Diesel using the following calculations:

CF = area / conc
 %RSD = 100 * (S/X)

Where: S - Standard deviation of calibration factors
 X - Mean of calibration factors

Injection volume - ___ ul or ___ ml

Calibration Date	Column	Compound	Standard	Standard concentration (ppm)	Area	Recalculated		Reported	
						Calibration Factor (CF)	%RSD	Calibration Factor (CF)	%RSD
5-18-99	DB-1	Diesel	Point 1	50	735640	14712.80		14712.80	
			Point 2	500	8006857	16013.71		16013.71	
			Point 3	1000	16081644	16081.64		16081.64	
			Point 4	2000	3484780	15742.39		15742.39	
			Point 5	4000	68418608	17104.65		17104.65	
			Mean calibration factor						
			Point 1	10000	158883536	15888.35		15888.35	
			Point 2						
			Point 3						
			Point 4						
			Point 5						
			Mean calibration factor						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3785NB
SDG #: 994326

VALIDATION FINDINGS WORKSHEET

Blanks

Page: 1 of 1
Reviewer: SS
2nd Reviewer: A

METHOD: GC TFH Volatiles (Gasoline) / TFH Extractables (Diesel) CDOHS LUFT / EPA SW 846 Method 8015 Modified.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Were all samples associated with a method blank?
- N N/A Was a method blank analyzed for each matrix?
- N N/A Was a method blank analyzed with each batch or extraction batch?
- N N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

- N N/A (Gasoline only) Was a method blank analyzed with each 24 hour batch?
- N N/A Was a method blank analyzed for each analytical/extraction batch of ≤ 20 samples?

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____

Conc. units: _____

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 398518
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1

Reviewer: SJ

2nd reviewer: GA

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT / ___ EPA SW 846 Method 8015 Modified.

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found

SS = Surrogate Spiked

Sample ID: 8

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					
<i>Dechlorane</i>	50	44.574	90	40	0

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

LDC #: 392518
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET

Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: SS
 2nd Reviewer: μ

METHOD: GC__TFH Volatiles (Gasoline) / TFH Extractables (Diesel) __CDOHS LUFT / EPA SW 846 Method 8015 Modified.

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = $100 * (SSC - SC) / SA$

Where SSC = Spiked concentration
 SA = Spike added

SC = Sample concentration

RPD = $| MS - MSD | * 2 / (MS + MSD)$

MS = Matrix spike percent recovery

MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 18609-2251

Compound	Spike Added (mg/kg)		Sample Concentration (mg/kg)	Spike Sample Concentration (mg/kg)		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Diesel	54.3	54.3	ND	44.6	46.4	82	82	85	85	4	4

Comments: Refer to Matrix spike/Matrix spike duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 398548
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: SL
 2nd reviewer: J

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT / ___ EPA SW 846 Method 8015 Modified.

- ① N/A Were field duplicate pairs identified in this SDG?
- ② N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (<u>mg/L</u>)		RPD
	3	4	
TPH AS DIESEL	0.38	0.38	0

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 398518
SDG #: 994324

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: _____

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT ___ EPA SW 846 Method 8015 Modified.

N/A Were field blanks identified in this SDG?
 N/A Were target compounds detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 21, 1999
LDC Report Date: August 11, 1999
Matrix: Soil/Water
Parameters: Volatiles
Validation Level: NFESC Level C & D
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994326

Sample Identification

20242-956
20242-957A
20242-958A
20242-959A**
20242-960A
20242-961A
20242-962A
20242-963A
20242-957AMS
20242-957AMSD

**Indicates sample underwent NFESC Level D review

Introduction

This data review covers 9 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260A 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 D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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 30.0% for all calibration check compounds and less than or equal to 50.0% for selected compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
5/19/99	2-Chloroethylvinyl ether	0.960	All water samples in SDG 994326	J	A

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
5/19/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.016 (≥ 0.05) 0.033 (≥ 0.05) 0.013 (≥ 0.05)	All water samples in SDG 994326	J (all detects) R (all non-detects)	A
6/30/99	2-Chloroethylvinyl ether	0.022 (≥ 0.05)	All soil samples in SDG 994326	J (all detects) R (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% for all calibration check compounds and less than or equal to 50.0% for all other compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/29/99	2-Chloroethylvinyl ether Acetone	77.61 77.9	All water samples in SDG 994326	J J	A

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

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/29/99	Acetone 2-Butanone 2-Chloroethylvinyl ether	0.029 (≥ 0.01) 0.042 (≥ 0.01) 0.001 (≥ 0.01)	All water samples in SDG 994326	J (all detects) R (all non-detects)	A
7/1/99	2-Chloroethylvinyl ether	0.029 (≥ 0.05)	All soil samples in SDG 994326	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.

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. 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 D review was performed. Raw data were not evaluated for the samples reviewed by Level C criteria.

XII. Compound Quantitation and CRQLs

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples 20242-958A and 20242-959A** were identified as field duplicates. No volatiles were detected in any of the samples.

XVII. Field Blanks

Sample 20242-961A was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
20242-961A	Trichloroethene	1

MCAS EI Toro
Volatiles - Data Qualification Summary - SDG 994326

SDG	Sample	Compound	Flag	A or P	Reason
994326	20242-961A	2-Chloroethylvinyl ether	J	A	Initial calibration (%RSD)
994326	20242-961A	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
994326	20242-956 20242-957A 20242-958A 20242-959A** 20242-960A 20242-962A 20242-963A	2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Initial calibration (RRF)
994326	20242-961A	2-Chloroethylvinyl ether Acetone	J J	A	Continuing calibration (%D)
994326	20242-961A	Acetone 2-Butanone 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
994326	20242-956 20242-957A 20242-958A 20242-959A** 20242-960A 20242-962A 20242-963A	2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)

MCAS EI Toro
Volatiles - Laboratory Blank Data Qualification Summary - SDG 994326

No Sample Data Qualified in this SDG

LDC #: 3985N1
 SDG #: 994326
 Laboratory: Applied P & Ch Laboratory

VALIDATION COMPLETENESS WORKSHEET

EPA Level III/IV X NFESC Level C/D

Date: 8/10/99
 Page: 1 of 1
 Reviewer: *[Signature]*
 2nd Reviewer: *[Signature]*

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260) *A*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	<i>A</i>	Sampling dates: <i>6/21/99</i>
II.	GC/MS Instrument performance check	<i>A</i>	
III.	Initial calibration	<i>SW</i>	<i>CCC ≤ 30%, others ≤ 50%. σ^2</i>
IV.	Continuing calibration	<i>SW</i>	<i>CCC ≤ 25%, others ≤ 50%.</i>
V.	Blanks	<i>A</i>	
VI.	Surrogate spikes	<i>A</i>	
VII.	Matrix spike/Matrix spike duplicates	<i>A</i>	
VIII.	Laboratory control samples	<i>A</i>	<i>CCS</i>
IX.	Regional Quality Assurance and Quality Control	<i>N</i>	
X.	Internal standards	<i>A</i>	
XI.	Target compound identification	<i>A</i>	Not reviewed for Level III/C validation.
XII.	Compound quantitation/CRQLs	<i>A</i>	Not reviewed for Level III/C validation.
XIII.	Tentatively identified compounds (TICs)	<i>N</i>	Not reviewed for Level III/C validation. <i>Not reported</i>
XIV.	System performance	<i>A</i>	Not reviewed for Level III/C validation.
XV.	Overall assessment of data	<i>A</i>	
XVI.	Field duplicates	<i>ND</i>	<i>D = 3 + 4</i>
XVII.	Field blanks	<i>SW</i>	<i>EB = 6</i>

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinse TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	20242-956	<i>S</i>	11	<i>994329-MB-01 W</i>	21		31
2	20242-957A		12	<i>9943341-MB-01 S</i>	22		32
3	20242-958A		13		23		33
4	20242-959A**		14		24		34
5	20242-960A	<i>✓</i>	15		25		35
6	20242-961A	<i>W</i>	16		26		36
7	20242-962A	<i>S</i>	17		27		37
8	20242-963A		18		28		38
9	20242-957AMS		19		29		39
10	20242-957AMSD	<i>✓</i>	20		30		40

LDC #: 3985N1
 SDG #: 994326

TARGET COMPOUND WORKSHEET

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes: _____

LDC #: 3985N1
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_s)/(A_s)(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

A_x = Area of compound,

C_x = Concentration of compound,

S = Standard deviation of the RRFs

X = Mean of the RRFs

A_s = Area of associated internal standard

C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (50 std)	RRF (50 std)	Average RRF (Initial)	Average RRF (Initial)	%RSD	%RSD
1	036-002 010 050 080 100 220	6/30/99	Methylene chloride (1st internal standard)	0.218	0.218	0.253	0.253	19.38	19.40
			Toluene Trichlorethene (2nd internal standard)	1.328	1.328	1.378	1.378	4.88	4.89
			Methylene chloride Toluene (3rd internal standard)	2.831	2.831	3.140	3.140	6.08	6.08
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985 N1
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$
 $\text{RRF} = (A_x)(C_s) / (A_s)(C_x)$

Where: ave. RRF = initial calibration average RRF
 RRF = continuing calibration RRF
 A_x = Area of compound, A_s = Area of associated internal standard
 C_x = Concentration of compound, C_s = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	3341001	7/1/99	Methylene chloride (1st internal standard)	0.253	0.217	0.217	14.3	14.4
			Toluene Trichlorethene (2nd internal standard)	1.378	1.296	1.296	6.0	5.9
			ethylbenzene Toluene (3rd internal standard)	3.140	3.259	3.259	3.8	3.8
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 5 N1
 SDG #: 994326

VALIDATION FIN GS WORKSHEET
Blanks

Page 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a method blank associated with every sample in this SDG?
- N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
- N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: _____

Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification							
Methylene chloride									
Acetone									
CRQL									
TICs:									
Hexamethyl-cyclotrisiloxane									
Octamethyl-cyclotetrasiloxane									

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 3985 N1
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: [Signature]
 2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: $SF/SS \cdot 100$

Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: 4

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	50	49.02	98	98	0
Bromofluorobenzene	↓	49.75	100	100	↓
1,2-Dichloroethane-d4	↓	40.63	81	81	↓
Dibromofluoromethane	↓	48.37	97	97	↓

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 3985N1
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
 Reviewer: J
 2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 * (SSC - SC) / SA$

Where: SSC = Spiked sample concentration
 SA = Spike added

SC = Sample concentration

RPD = $|MSC - MSDC| * 2 / (MSC + MSDC)$

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 9/10

Compound	Spike Added (<u>µg/L</u>)		Sample Concentration (<u>µg/L</u>)	Spiked Sample Concentration (<u>µg/L</u>)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	57.1	57.1	0	43.4	47.3	76	76	83	83	9	9
Trichloroethene	↓	↓	↓	61.6	67.5	108	108	118	118	9	9
Benzene	↓	↓	↓	58.7	59.9	103	103	105	105	2	2
Toluene	↓	↓	↓	53.1	54.6	93	93	96	96	3	3
Chlorobenzene	↓	↓	↓	59.8	60.6	105	105	106	106	1	1

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3 (2N1)
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: _____
 2nd Reviewer: _____

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration
 SA = Spike added

RPD = |LCS - LCSD| * 2 / (LCS + LCSD)

LCS - Laboratory control sample percent recovery

LCSD - Laboratory control sample duplicate percent recovery

LCS ID: 9341201

Compound	Spike Added (<u>148</u>)		Spiked Sample Concentration (<u>148</u>)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	<u>50</u>	<u>NA</u>	<u>42.1</u>	<u>NA</u>	<u>84</u>	<u>84</u>				
Trichloroethene	↓	↓	<u>55.2</u>	↓	<u>110</u>	<u>110</u>				
Benzene	↓	↓	<u>50.2</u>	↓	<u>100</u>	<u>100</u>				
Toluene	↓	↓	<u>46.5</u>	↓	<u>93</u>	<u>93</u>				
Chlorobenzene	↓	↓	<u>50.0</u>	↓	<u>104</u>	<u>104</u>				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985N1
SDG #: 994326

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

N N/A
 Y (N) N/A

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 3785 N1
SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

N/A Were field blanks identified in this SDG?
 N/A Were target compounds detected in the field blanks?

Sample: 6 Field Blank / Trip Blank / Rinsate / Other ER (circle one)

Compound	Concentration Units ()
<u>S</u>	<u>1</u>

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 22, 1999
LDC Report Date: August 10, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory

COPY

Sample Delivery Group (SDG): 994360

Sample Identification

20242-929
20242-964A
20242-965A

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Samples 20242-964A and 20242-965A were identified as equipment rinsates. No total petroleum hydrocarbons as extractable contaminants were found in these blanks with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (mg/L)
20242-964A	TPH as diesel	0.1
20242-965A	TPH as diesel	0.1

MCAS EI Toro

Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 994360

No Sample Data Qualified in this SDG

MCAS EI Toro

Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 994360

No Sample Data Qualified in this SDG

LDC #: 398508

VALIDATION COMPLETENESS WORKSHEET

Date: 8-9-99

SDG #: 994360

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *SL*

2nd Reviewer: *JK*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-22-99
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	client spec / non-client sample
IVc.	Laboratory control samples	A	LIS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	SW	ER - 2, 3

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinstate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:
 All H₂O's

1	20242-929	11		21		31	
2	20242-964A	12		22		32	
3	20242-965A	13		23		33	
4	99C3247-MB-01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

LDC #: 398508
SDG #: 994360

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1
Reviewer: SL
2nd reviewer: KA

METHOD: GC ___ TFH Volatiles (Gasoline) / ___ TFH Extractables (Diesel) ___ CDOHS LUFT ___ EPA SW 846 Method 8015 Modified.

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Sample: 2 Field Blank / Trip Blank / EW Rinsate (circle one)

Compound	Concentration Units (mg/L)
TPH AS DIESEL	0.1

Sample: 3 Field Blank / Trip Blank / EW Rinsate (circle one)

Compound	Concentration Units (mg/L)
TPH AS DIESEL	0.1

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 22, 1999
LDC Report Date: August 12, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994360

COPY

Sample Identification

20242-928
20242-929
20242-964A
20242-965A
20242-964AMS
20242-964AMSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Total Petroleum Hydrocarbons as Gasoline and EPA SW 846 Method 8020 for Aromatic Volatile Organics.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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 all 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 contaminant concentrations were found in the method blanks.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

Sample 20242-928 was identified as a trip blank. No contaminant concentrations were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (mg/L)
20242-928	TPH as gasoline	0.04

Samples 20242-964A and 20242-965A were identified as equipment rinsates. No contaminant concentrations were found in these blanks with the following exceptions:

Equipment Rinsate ID	Compound	Concentration
20242-965A	TPH as gasoline Methyl-tert-butyl ether	0.05 mg/L 47 ug/L

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics - Data
Qualification Summary - SDG 994360**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics -
Laboratory Blank Data Qualification Summary - SDG 994360**

No Sample Data Qualified in this SDG

LDC #: 398507

VALIDATION COMPLETENESS WORKSHEET

Date: 8/11/99

SDG #: 994360

EPA Level III X NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: TPH as Gasoline & Aromatic Volatile Organics (EPA SW 846 Method 8015 & 8020) + MTBE

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/22/99
IIa.	Initial calibration	A	To RSD
IIb.	Calibration verification	A	To D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	SW	TB = 1 (2) * NR = 3 + 4

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

* ND

Validated Samples:

all H2O's

1	20242-928	11		21		31	
2	20242-929	12		22		32	
3	20242-964A	13		23		33	
4	20242-965A	14		24		34	
5	20242-964AMS	15		25		35	
6	20242-964AMSD	16		26		36	
7	<i>9943224 MB-01</i>	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

LDC #: 39850T
SDG #: 994360

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: [Signature]

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015/
Modified.

N N/A Were field blanks identified in this SDG?
 N N/A Were target compounds detected in the field blanks?

Sample: 1 Field Blank Trip Blank Rinsate (circle one)

Compound	Concentration Units (mg/L)
GR0	0.04

Sample: 4 Field Blank / Trip Blank Rinsate (circle one)

Compound	Concentration Units (mg/L) <u>or</u> <u>µg/L</u>
GR0	0.05
MTBE	47

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro
Collection Date: June 23, 1999
LDC Report Date: August 10, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Extractables
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994424

Sample Identification

20242-966

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 modified 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 (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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

No field blanks were identified in this SDG.

MCAS El Toro

Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 994424

No Sample Data Qualified in this SDG

MCAS El Toro

Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 994424

No Sample Data Qualified in this SDG

LDC #: 3985P8

VALIDATION COMPLETENESS WORKSHEET

Date: 8-9-99

SDG #: 994424

EPA Level III NFESC Level C

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: GC CDOHS LUFT/EPA SW 846 Method 8015 Modified-TPH as Extractables

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6-23-99
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	client spec
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

Validated Samples:

1	20242-966	W	11		21		31	
2	9903313-MB-02		12		22		32	
3			13		23		33	
4			14		24		34	
5			15		25		35	
6			16		26		36	
7			17		27		37	
8			18		28		38	
9			19		29		39	
10			20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

COPY

Project/Site Name: MCAS El Toro
Collection Date: June 23, 1999
LDC Report Date: August 12, 1999
Matrix: Water
Parameters: Total Petroleum Hydrocarbons as Gasoline & Aromatic
Volatile Organics
Validation Level: NFESC Level C
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 994424

Sample Identification

20242-966
20242-966MS
20242-966MSD

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Total Petroleum Hydrocarbons as Gasoline and EPA SW 846 Method 8020 for Aromatic Volatile Organics.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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.
- UU 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 all 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 contaminant concentrations were found in the method blanks.

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) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

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.

X. Field Blanks

No field blanks were identified in this SDG.

MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics - Data
Qualification Summary - SDG 994424

No Sample Data Qualified in this SDG

MCAS EI Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics -
Laboratory Blank Data Qualification Summary - SDG 994424

No Sample Data Qualified in this SDG

LDC #: 3985P7

VALIDATION COMPLETENESS WORKSHEET

Date: 5/11/99

SDG #: 994424

EPA Level III X NFESC Level C

Page: 10/1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: TPH as Gasoline & Aromatic Volatile Organics (EPA SW 846 Method 8015 & 8020) + MTBE

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/23/99
IIa.	Initial calibration	A	To RSD
IIb.	Calibration verification	A	To D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinstate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	20242-966	N	11	21	31
2	20242-966MS	↓	12	22	32
3	20242-966MSD	↓	13	23	33
4	9943280-MB-01		14	24	34
5			15	25	35
6			16	26	36
7			17	27	37
8			18	28	38
9			19	29	39
10			20	30	40

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: MCAS El Toro

Collection Date: June 21, 1999

LDC Report Date: August 12, 1999

Matrix: Soil/Water

Parameters: Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics

Validation Level: NFESC Level C & D

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 994326

COPY

Sample Identification

20242-923
20242-924
20242-925
20242-926
20242-927
20242-956
20242-957A
20242-958A
20242-959A**
20242-960A
20242-961A
20242-962A
20242-963A
20242-923MS
20242-923MSD

**Indicates sample underwent NFESC Level D review



Introduction

This data review covers 7 soil samples and 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Total Petroleum Hydrocarbons as Gasoline and EPA SW 846 Method 8020 for Aromatic Volatile Organics.

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 III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level D review. A NFESC Level C review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level C 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.
- UU 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 all compounds were less than or equal to 20.0% .

Retention time windows were established according to the method and were within validation criteria for samples on which a NFESC Level D review was performed. Raw data were not evaluated for the samples reviewed by Level C criteria.

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.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which a NFESC Level D review was performed. Raw data were not evaluated for the samples reviewed by Level C criteria.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

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) 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 D review was performed. Raw data were not evaluated for the samples reviewed by Level C criteria.

VI. Compound Quantitation and CRQLs

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

VII. System Performance

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

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples 20242-958A and 20242-959A** and samples 20242-926 and 20242-927 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Compound	Concentration		RPD
	20242-926	20242-927	
Benzene	24.8 ug/L	24.3 ug/L	2
Ethylbenzene	14.0 ug/L	14.8 ug/L	6
Xylene, total	2.8 ug/L	2.2 ug/L	24
TPH as gasoline	0.85 mg/L	0.92 mg/L	8

X. Field Blanks

Sample 20242-923 was identified as a trip blank. No contaminant concentrations were found in this blank.

Samples 20242-924, 20242-925, and 20242-961A were identified as equipment rinsates. No contaminant concentrations were found in these blanks.

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics - Data
Qualification Summary - SDG 994326**

No Sample Data Qualified in this SDG

**MCAS El Toro
Total Petroleum Hydrocarbons as Gasoline & Aromatic Volatile Organics -
Laboratory Blank Data Qualification Summary - SDG 994326**

No Sample Data Qualified in this SDG

LDC #: 3985N7

VALIDATION COMPLETENESS WORKSHEET

Date: 8/11/99

SDG #: 994326

EPA Level III/IV X NFESC Level C/D

Page: 1 of 1

Laboratory: Applied P & Ch Laboratory

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: TPH as Gasoline & Aromatic Volatile Organics (EPA SW 846 Method 8015 & 8020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 6/21/99
IIa.	Initial calibration	A	70 RSD
IIb.	Calibration verification	A	70 D
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCSD
V.	Target compound identification	A	Not reviewed for Level III/C validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III/C validation.
VII.	System Performance	A	Not reviewed for Level III/C validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 8 + 9*, 4 + 5
X.	Field blanks	ND	TB = 1 (BTEx only), ER = 2, 3, 11

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate * ND
 TB = Trip blank
 EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV/D validation

1	20242-923 (BTEx only) W	11	20242-961A (Gas only) W	21		31
2	20242-924 (N-HEB) W	12	20242-962A	S		32
3	20242-925	13	20242-963A	↓		33
4	20242-926	14	20242-923MS	W		34
5	20242-927	15	20242-923MSD	↓		35
6	20242-956 (Gas only) S	16	9963208-MB-01 W			36
7	20242-957A	17	996324R-MB-01 S			37
8	20242-958A	18				38
9	20242-959A**	19				39
10	20242-960A	20				40

Notes: _____

LDC #: 3985 NT
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
 Reviewer: Q
 2nd Reviewer: Q

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated for Gas Diesel using the following calculations:

CF = $\frac{\text{Area}}{\text{Conc}}$
 %RSD = 100 * (S/X)

Where: S = Standard deviation of calibration factors
 X = Mean of calibration factors

Injection volume = ul or 5 ml

Calibration Date	Column	Compound	Standard	Standard concentration (µg/L)	Area	Recalculated		Reported	
						Calibration Factor (CF)	%RSD	Calibration Factor (CF)	%RSD
6/24/99	DB-1	PFO	Point 1	50	1372597	27451.94		27451.94	
			Point 2	200	3408456	17042.28		17042.28	
			Point 3	500	4449495	28898.99		28898.99	
			Point 4	1000	25506556	25506.56		25506.56	
			Point 5	2000	48723472	24361.74		24361.74	
			Mean calibration factor						
			Point 1	3000	71458432	23819.48		23819.48	
			Point 2						
			Point 3						
			Point 4						
			Point 5						
			Mean calibration factor			24513.5	16.83	24513.5	16.83

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3985NT
SDG #: 994326

VALIDATION FINDINGS WORKSHEET

Blanks

Page: 1 of 1
Reviewer: A
2nd Reviewer: A

METHOD: GC TFH Volatiles (Gasoline) ___ TFH Extractables (Diesel) ___ CDOHS LUFT EPA SW 846 Method 8015 Modified.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N/A Were all samples associated with a method blank?
 N/A Was a method blank analyzed for each matrix?
 N/A Was a method blank analyzed with each batch or extraction batch?
 N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

- N/A (Gasoline only) Was a method blank analyzed with each 24 hour batch?
 N/A Was a method blank analyzed for each analytical/extraction batch of ≤ 20 samples?

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____
Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____
Conc. units: _____

Compound	Blank ID	Sample Identification							

Blank extraction date: _____ Blank analysis date: _____ Associated samples: _____
Conc. units: _____

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 3985 NT
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
 Reviewer: g
 2nd reviewer: A

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:
 % Recovery: SF/SS * 100
 Where: SF = Surrogate Found
 SS = Surrogate Spiked

Sample ID: 9

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					
<u>4-Bromofluorobenzol</u>	<u>100</u>	<u>94.6</u>	<u>95</u>	<u>95</u>	<u>0</u>

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

Sample ID: _____

Surrogate	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Benzo(a)pyrene					
a.a.a-Trifluorotoluene					

LDC #: 3985NT
 SDG #: 994326

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
 Reviewer: +
 2nd reviewer: g

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015a Modified.

N N/A Were field duplicate pairs identified in this SDG?
 N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (<u>µg/L</u>)		RPD
	4	5	
Benzene	24.8 µg/L	24.3 µg/L	2
Ethylbenzene	14.0	14.8	6
Xylene (total)	2.8	2.2	24
GRO	0.85 mg/L	0.92 mg/L	8

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

Compound	Concentration ()		RPD

LDC #: 3985NT
SDG #: 994326

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1
Reviewer: g
2nd reviewer: h

METHOD: GC TFH Volatiles (Gasoline) TFH Extractables (Diesel) CDOHS LUFT EPA SW 846 Method 8015 Modified.

(Y) (N) (N/A) Were field blanks identified in this SDG?
(Y) (N) (N/A) Were target compounds detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ()