DataVal, Inc.

TO: Debbie Leibensberger, Mactec E & C, Inc. July 14, 2003

FROM: Donna Breaux, DataVal, Inc. DB 7/14/03 Mactec Project No. 55596 00124

QUALITY CONTROL SUMMARY REPORT FOR THE OUC TP AREA OF FORMER FORT ORD, CA

LABORATORY: Severn Trent Laboratories, Los Angeles, CA

SAMPLING DATES: May 21 through 23, 2003, and June 9 and 10, 2003

Data validation of Level III and Level IV laboratory data packages was performed according to the project-specific guidelines. These guidelines were outlined in the *Draft Final Basewide Chemical Data Quality Management Plan* (CDQMP), *Former Fort Ord, California* dated July 22, 1997 (HLA, 1997); and the U. S. Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999.

The data were reviewed for holding times, blanks, GC/MS tunes, initial calibrations, continuing calibration verification (CCV) standards, surrogate recoveries, internal standards, laboratory control samples (LCS), matrix spikes (MS), matrix spike duplicates (MSD), compound identification and quantitation, and field duplicate samples.

The attached Table 1 summarizes the site samples, laboratory sample IDs, sampling dates, analysis methods and sample types. This table also designates which samples/analyses received full (Level IV) data validation.

The following paragraphs highlight the essential findings of the data validation effort:

I. **Volatile Organic Compounds by GC/MS (TO-15)**

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Section F.

A. Holding Times

Technical holding time criteria were met for all project samples.

B. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples. Trip blank 0324BOBW091A was non-detect for all target VOCs.

C. GC/MS Tunes

All QC criteria were met for the GC/MS tunes associated with the project samples.

D. Initial Calibration
Initial calibration criteria were met for all calibration standards associated with the project samples.

E. Continuing Calibration
Continuing calibration criteria were met for all continuing calibration verification standards associated with the project samples.

F. Internal Standards
Internal standard areas and retention times met method acceptance criteria for all project samples, with the following exceptions:

1. The internal standard area counts were greater than the +40% method acceptance criteria for 1,4-difluorobenzene and chlorobenzene-d5 in project sample CTP-SG-36-50 (E3E280151-003) at +46% and +70%, respectively. The compounds associated with internal standard 1,4-difluorobenzene were non-detect, and qualification was not required. Tetrachloroethene in the sample was qualified as estimated with a high bias (J+) due to failing internal standard chlorobenzene-d5.
2. The internal standard area counts were greater than the +40% method acceptance criteria for chlorobenzene-d5 in project sample CTP-SG-39-06 (E3E280151-009) at +49%. Tetrachloroethene in the sample was qualified as estimated with a high bias (J+) due to this failing internal standard.

The laboratory took appropriate corrective action and re-analyzed both samples to verify the original results. The re-analyses showed similar results to the original, indicating sample matrix was the cause for the high recoveries. See Table 2 of this report for a summary of qualifications due to internal standard area count failure.

G. Surrogate Recoveries
Project samples received in summa canisters were not spiked with surrogates prior to analysis. This was appropriate procedure for the sampling method.

H. Laboratory Control Samples
All QC criteria were met for the laboratory control samples associated with the project samples.

I. Matrix Spike/Matrix Spike Duplicate
Analysis of matrix spikes and matrix spike duplicates is not appropriate for gas matrix samples. Accuracy and precision of the analytical method were demonstrated by the analysis of laboratory control samples and field duplicate samples.

J. Compound Identification and Quantitation

No problems were observed with compound identification and quantitation. The results for all VOCs in the Level IV validated samples were re-calculated and verified to be correctly reported by the laboratory.

K. Field Duplicate Samples

Sample CTP-SG-42-51 (E3E230214-017) was a field duplicate of sample CTP-SG-42-50 (E3E230214-016); sample CTP-SG-33-07 (E3E230214-024) was a field duplicate of sample CTP-SG-33-06 (E3E230214-023); sample CTP-SG-36-51 (E3E280151-004) was a field duplicate of sample CTP-SG-36-50 (E3E280151-003); and sample 0324BOBW088D (E3F120166-007) was a field duplicate of sample 0324BOBW087F (E3F120166-006). The detected results met the 50% relative percent difference project acceptance limit for all field duplicate pairs.

SUMMARY

The attached Table 1 summarizes the site samples, laboratory sample IDs, sampling dates, analysis methods and sample types. The samples that received full (Level IV) data validation are designated in **bold** typeface in this table. The attached Table 2 summarizes the data qualifications required for all project samples included in the data packages.

USABILITY

The quality control criteria were reviewed, and other than those discussed above, all criteria were met and the data are considered acceptable. Estimated sample results (J/UJ) are usable only for limited purposes. Based upon the full and cursory validation, all other results are considered valid and usable for all purposes. In general, the absence of rejected data and the small number of qualifiers added to the data indicate high usability.

VALIDATION QUALIFIERS IDENTIFICATION

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October, 1999.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 1
Sample Summary
OUC TP Area
Former Fort Ord, CA
May-June 2003 Sampling Event

Project Sample ID	Laboratory ID	Sampling Date	Analysis/Method	Laboratory	Sample Type
CTP-SG-41-30	E3E230214-001	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-41-55	E3E230214-002	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-41-70	E3E230214-003	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-41-00	E3E230214-004	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-43-06	E3E230214-005	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-43-30	E3E230214-006	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-43-50	E3E230214-007	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-43-75	E3E230214-008	21-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-34-06	E3E230214-009	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-34-30	E3E230214-010	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-34-50	E3E230214-011	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-34-70	E3E230214-012	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-34-00	E3E230214-013	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-42-06	E3E230214-014	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-42-30	E3E230214-015	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-42-50	E3E230214-016	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas (1)
CTP-SG-42-51	E3E230214-017	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	FD (1)
CTP-SG-42-70	E3E230214-018	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-40-06	E3E230214-019	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-40-30	E3E230214-020	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-40-50	E3E230214-021	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-40-65	E3E230214-022	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
CTP-SG-33-06	E3E230214-023	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas (2)
CTP-SG-33-07	E3E230214-024	22-May-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	FD (2)
CTP-SG-36-06	**E3E280151-001**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-36-30	**E3E280151-002**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-36-50	**E3E280151-003**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas (3)**
CTP-SG-36-51	**E3E280151-004**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**FD (3)**
CTP-SG-36-75	**E3E280151-005**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**

Table 1
Sample Summary
OUC TP Area
Former Fort Ord, CA
May-June 2003 Sampling Event

Project Sample ID	Laboratory ID	Sampling Date	Analysis/Method	Laboratory	Sample Type
CTP-SG-46-00	**E3E280151-006**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-46-06	**E3E280151-007**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-47-06	**E3E280151-008**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-39-06	**E3E280151-009**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
CTP-SG-38-06	**E3E280151-010**	**23-May-03**	**Volatile Organic Compounds (TO-15)**	**Severn Trent - Los Angeles**	**Soil Gas**
0324BOBW082F	E3F120166-001	9-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW083F	E3F120166-002	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW084F	E3F120166-003	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW085F	E3F120166-004	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW086F	E3F120166-005	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW087F	E3F120166-006	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas (4)
0324BOBW088D	E3F120166-007	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	FD (4)
0324BOBW089F	E3F120166-008	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW090F	E3F120166-009	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	Soil Gas
0324BOBW091A	E3F120166-010	10-Jun-03	Volatile Organic Compounds (TO-15)	Severn Trent - Los Angeles	TB

BOLD: Bold typeface indicates samples/analyses that received full (Level IV) data validation
FD: Field duplicate of previous numbered sample, (1), (2), etc.
TB: Trip blank

Table 2
Summary of Qualified Data
OUC TP Area
Former Fort Ord, CA
May-June 2003 Sampling Event

Sample ID	Lab ID	Analysis Method	Compound	CAS No.	Detected Qualifier	Non-detected Qualifier	Reason
CTP-SG-36-50	E3E280151-003	TO-15	Tetrachloroethene	127-18-4	J+		Internal standard area count > UCL
CTP-SG-39-06	E3E280151-009	TO-15	Tetrachloroethene	127-18-4	J+		Internal standard area count > UCL

DataVal, Inc.
Data Validation Worksheet
Gas Chromatography/Mass Spectrometry

Project Name: Fort Ord OU CTP
Project Number: 55596 00124
Report Number: See Below
Validation Level: See Below
Analysis: Volatile Organic Compounds
Method Number: TO-15
Laboratory Name: Severn Trent Laboratories, Inc.
Number and Type of Samples: See Below

Performed by/Date: EJN 7/1/03

Reviewed by/Date: DJB 7/14/03

SDG No.	Date Sampled	#Samples/Matrix	Validation Level
E3E230214	21-, 22-May-03	24/Air (SUMA)	III
E3E280151	23-May-03	10/Air (SUMA)	IV
E3F120166	09-, 10-Jun-03	10/Air (SUMA)	III

ITEMS CHECKED - LEVEL III
Sample Receiving
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Blank Analysis
Surrogates
Laboratory Control Sample
Matrix Spike/Matrix Spike Duplicate
Field Duplicate
Reporting Limits

ITEMS CHECKED - LEVEL IV
Sample Receiving
Case Narrative
Holding Times
Instrument Run Logs
Initial Instrument Calibration
Continuing Instrument Calibration
Blank Analysis
Surrogates
Laboratory Control Sample
Matrix Spike/Matrix Spike Duplicate
Field Duplicate
Reporting Limits
Internal Standards
Raw Data
Calculations
Extraction Log

Qualified Data? NO____ YES__X__, see page__18____

DataVal, Inc.
77 Dominican Drive
San Rafael, CA 94901
(415)459-3124

SAMPLE RECEIVING

	YES	NO	N/A
All COC forms relinquished and received with signature/date?	X		
Reported sample IDs match those listed on COC?	X		
Reported analyses/methods match those listed COC?	X		
Cooler Receipt form present?		X	
Cooler Receipt form filled in completely and signed?			X
Temperature recorded from:			X
Recorded temperature between 2C and 6C?			X
Bubbles present in VOAs?			X

List of Anomalies

AIR SAMPLES WERE RECEIVED IN SUMA CANNISTERS.

ELECTRONIC DATA DELIVERABLES

	YES	NO	N/A
Are EDDs included with the data package?	X		
Does client require EDD check against hardcopy?	X		
Were all EDDs verified against hardcopy results?	X		
Did all EDD results match reported results?	X		
Were anomalies noted?			X
Was the project office/lab notified?			X

Comments

CASE NARRATIVE

	YES	NO	N/A
Case Narrative present in data package?	X		
Are anomalies noted?	X		

List of Anomalies

SDG E3E280151: Internal standards 1,4-difluorobenzene and chlorobenzene-d5 in sample CTP-SG-36-50 (E3E280151-003) and chlorobenzene-d5 in sample CTP-SG-39-06 (E3E280151-009) were above the acceptance limits. The samples were re-analyzed and it was confirmed that the nonconformance was caused by sample matrix interference.

SDG E3E230214: No anomalies noted.
SDG E3F120166: No anomalies noted.

HOLDING TIMES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received	Preservation & Temp	Extraction Date	Analysis Date	DBE	DBA	Batch
SDG E3E230214										
CTP-SG-41-30	E3E230214-001	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-41-55	E3E230214-002	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-41-70	E3E230214-003	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-41-00	E3E230214-004	Air	21-May-03	23-May-03	N/A	N/A	28-May-03	N/A	7	3150345
CTP-SG-43-06	E3E230214-005	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-43-30	E3E230214-006	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-43-50	E3E230214-007	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-43-75	E3E230214-008	Air	21-May-03	23-May-03	N/A	N/A	30-May-03	N/A	9	3150346
CTP-SG-34-06	E3E230214-009	Air	22-May-03	23-May-03	N/A	N/A	28-May-03	N/A	6	3150345
CTP-SG-34-30	E3E230214-010	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-34-50	E3E230214-011	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150510
CTP-SG-34-70	E3E230214-012	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150510
CTP-SG-34-00	E3E230214-013	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150345
CTP-SG-42-06	E3E230214-014	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150346
CTP-SG-42-30	E3E230214-015	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150346
CTP-SG-42-50 (FD1)	E3E230214-016	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150346
CTP-SG-42-51 (FD1)	E3E230214-017	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150346
CTP-SG-42-70	E3E230214-018	Air	22-May-03	23-May-03	N/A	N/A	29-May-03	N/A	7	3150346
CTP-SG-40-06	E3E230214-019	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-40-30	E3E230214-020	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-40-50	E3E230214-021	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-40-65	E3E230214-022	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-33-06 (FD2)	E3E230214-023	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
CTP-SG-33-07 (FD2)	E3E230214-024	Air	22-May-03	23-May-03	N/A	N/A	30-May-03	N/A	8	3150346
SDG E3E280151										
CTP-SG-36-06	E3E280151-001	Air	23-May-03	27-May-03	N/A	N/A	3-Jun-03	N/A	11	3155335
CTP-SG-36-30	E3E280151-002	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155335
CTP-SG-36-50 (FD3)	E3E280151-003	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155449
CTP-SG-36-51 (FD3)	E3E280151-004	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155449
CTP-SG-36-75	E3E280151-005	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155449
CTP-SG-46-00	E3E280151-006	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155335
CTP-SG-46-06	E3E280151-007	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155335
CTP-SG-47-06	E3E280151-008	Air	23-May-03	27-May-03	N/A	N/A	4-Jun-03	N/A	12	3155449
CTP-SG-39-06	E3E280151-009	Air	23-May-03	27-May-03	N/A	N/A	5-Jun-03	N/A	13	3155449
CTP-SG-38-06	E3E280151-010	Air	23-May-03	27-May-03	N/A	N/A	9-Jun-03	N/A	17	3161380
SDG E3F120166										
0324BOBW082F	E3F120166-001	Air	9-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	4	3167513
0324BOBW083F	E3F120166-002	Air	10-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	3	3167513
0324BOBW084F	E3F120166-003	Air	10-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	3	3167513
0324BOBW085F	E3F120166-004	Air	10-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	3	3167513
0324BOBW086F	E3F120166-005	Air	10-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	3	3167513
0324BOBW087F (FD4)	E3F120166-006	Air	10-Jun-03	11-Jun-03	N/A	N/A	14-Jun-03	N/A	4	3167513
0324BOBW088D (FD4)	E3F120166-007	Air	10-Jun-03	11-Jun-03	N/A	N/A	14-Jun-03	N/A	4	3167513
0324BOBW089F	E3F120166-008	Air	10-Jun-03	11-Jun-03	N/A	N/A	14-Jun-03	N/A	4	3167513
0324BOBW090F	E3F120166-009	Air	10-Jun-03	11-Jun-03	N/A	N/A	14-Jun-03	N/A	4	3167513
0324BOBW091A (TB)	E3F120166-010	Air	10-Jun-03	11-Jun-03	N/A	N/A	13-Jun-03	N/A	3	3167513

DBE = Days before extraction (extraction date - collection date)
DBA = Days before analysis (analysis date - extraction date)

ACCEPTANCE CRITERIA:

DBE - AIR	N/A
DBA - AIR	*

Recommended Actions

No action required

AIR SAMPLES WERE RECEIVED IN SUMA CANNISTERS.
WHERE ANALYSES WERE PERFORMED ON VARIOUS DAYS, THE LAST DATE OF ANALYSIS IS ENTERED ABOVE.
* METHOD TO-15 STATES THAT VOCs CAN BE RECOVERED FROM CANISTERS NEAR THEIR ORIGINAL CONCENTRATIONS AFTER STORAGE TIMES OF UP TO THIRTY DAYS.

SURROGATE RECOVERIES

	YES	NO	N/A
Form Present?			X
All samples listed?			X
Results agree with raw data?			X
Did laboratory spike project required surrogate(s)?			X

ACCEPTANCE CRITERIA:	PROJECT LIMITS
LIST SURROGATES SPIKED:	

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

Sample ID	Surrogate	Original % Recovery	Re-run/Re-ext'd % Recovery	Sample DF	Comments

Recommended Actions

No action required
***If sample DF > or = 5X, no qualification is required.**
SURROGATE ANALYSIS IS NOT REQUIRED BY METHOD TO-15.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			

DataVal, Inc.
77 Dominican Drive
San Rafael, CA 94901
(415)459-3124

METHOD BLANK ANALYSES

	YES	NO	N/A
Performed for each matrix?	X		
Performed for each GCMS system?	X		
Performed for each extraction/**analysis** batch?	X		
Form Present?	X		

LIST CONTAMINANTS DETECTED IN METHOD BLANKS

Blank ID	GCMS ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments
							None

Recommended Actions

No action required
Methylene chloride, acetone, and 2-butanone are considered common volatile laboratory contaminants.
Phthalates are considered common semi-volatile laboratory contaminants.
Describe project corrective action:

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

LIST ALL METHOD BLANKS AND THEIR ASSOCIATED SAMPLES

Blank ID	Matrix	ASSOCIATED SAMPLES
M3E300000-345	Air	E3E230214-004, -009, -013
M3E300000-346	Air	E3E230214-001 thru -003, -005 thru -008, -010, -014 thru -024
M3E300000-510	Air	E3E230214-011, -012
M3F040000-335	Air	E3E280151-001, -002, -006, -007
M3F040000-449	Air	E3E280151-003 thru -005, -008, -009
M3F100000-380	Air	E3E280151-010
M3F160000-513	Air	E3F120166-001 thru -010

TRIP BLANK ANALYSES

	YES	NO	N/A
Trip Blank analyzed?	X		
Form Present?	X		

FIELD BLANK ANALYSES

	YES	NO	N/A
Field Blank analyzed?		X	
Form Present?			X

EQUIPMENT BLANK ANALYSES

	YES	NO	N/A
Equipment/Rinse Blank analyzed?		X	
Form Present?			X

LIST CONTAMINANTS DETECTED IN TRIP, FIELD, AND EQUIPMENT BLANKS

Blank ID	GCMS ID	Matrix	Compound	Concen-tration	Units	5X (or 10X)	Comments
0324BOBW091A (TB)							**None**

Recommended Actions

No action required

LABORATORY CONTROL SAMPLES (LCS/LCSD)

	YES	NO
Form Present?	X	
%R and RPD within limits?	X	
Spike list match project required list?		X

% RECOVERY AND RPD CALCULATION CHECK

Analysis Date	Spike Compound	Spike Conc	LCS Result	LCSD Results	LCS %R	LCSD %R	RPD	Agree?	Batch
28-May-03	TCE	10	10.8	11.2	108.00%	112.00%	3.64%	YES	M3E300000-345
29-May-03	TCE	10	9.54	9.23	95.40%	92.30%	3.30%	YES	M3E300000-346
30-May-03	TCE	10	8.5	9.44	85.00%	94.40%	10.48%	YES	M3E300000-510
3-Jun-03	TCE	11.9	14.2	13.8	119.33%	115.97%	2.86%	YES	M3F040000-335
4-Jun-03	TCE	10	11.6	10.9	116.00%	109.00%	6.22%	YES	M3F040000-449
9-Jun-03	TCE	10	11.5	11.8	115.00%	118.00%	2.58%	YES	M3F100000-380
13-Jun-03	TCE	11.9	13	13.7	109.24%	115.13%	5.24%	YES	M3F160000-513

ACCEPTANCE CRITERIA:

PROJECT LIMITS - %R	75-130%
PROJECT LIMITS - RPD	20%

LIST ALL RECOVERIES OUTSIDE PROJECT LIMITS

LCS ID	Spike Compound	% Recovery	RPD	Comments
				None

MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

	YES	NO
Form Present?	N/A	
%R and RPD within limits?	N/A	
Spike list match project required list?	N/A	

Recommended Actions

No action required
LCS ACTION: NONE.
LABORATORY SPIKED WITH TCE AND 4 OTHER NON-PROJECT COMPOUNDS.
LABORATORY CONTROL LIMITS WERE USED FOR EVALUATION HEREIN.
MS/MSD NOT PERFORMED FOR THE SAMPLES EVALUATED HEREIN.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

FIELD DUPLICATES

	YES	NO
Are original/field duplicate pairs identifiable?	X	
%RPD within project acceptance limits?	X	

RPD CALCULATION CHECK

IF sample result is ND, enter "0". RPD is automatically calculated

Original Sample #	Matrix	Compound	Orig. Results	Duplicate Sample #	Dup. Results	RPD	< CRDL?
CTP-SG-42-50	Air	Chloroform	ND< 0.38	CTP-SG-42-51	0.35	**NC**	**YES/NO**
CTP-SG-42-50	Air	Trichloroethene	ND< 0.38	CTP-SG-42-51	ND< 0.20	NC	YES
CTP-SG-42-50	Air	Tetrachlorethene	ND< 0.38	CTP-SG-42-51	0.41	**NC**	**YES/NO**
CTP-SG-42-50	Air	Carbon tetrachloride	0.58	CTP-SG-42-51	0.76	-26.87%	NO
CTP-SG-33-06	Air	Chloroform	11	CTP-SG-33-07	13	-16.67%	NO
CTP-SG-33-06	Air	Trichloroethene	ND< 1.9	CTP-SG-33-07	ND< 1.8	NC	YES
CTP-SG-33-06	Air	Tetrachlorethene	ND< 1.9	CTP-SG-33-07	ND< 1.8	NC	YES
CTP-SG-33-06	Air	Carbon tetrachloride	5.2	CTP-SG-33-07	6.1	-15.93%	NO
CTP-SG-36-50	Air	Chloroform	2.9	CTP-SG-36-51	2.9	0.00%	NO
CTP-SG-36-50	Air	Trichloroethene	ND< 0.40	CTP-SG-36-51	ND< 0.80	NC	YES
CTP-SG-36-50	Air	Tetrachlorethene	5.5	CTP-SG-36-51	7.5	-30.77%	NO
CTP-SG-36-50	Air	Carbon tetrachloride	21	CTP-SG-36-51	22	-4.65%	NO
0324BOBW087F	Air	Chloroform	0.64	0324BOBW088D	0.52	20.69%	NO
0324BOBW087F	Air	Trichloroethene	ND< 0.20	0324BOBW088D	ND< 0.20	NC	YES
0324BOBW087F	Air	Tetrachlorethene	ND< 0.20	0324BOBW088D	ND< 0.20	NC	YES
0324BOBW087F	Air	Carbon tetrachloride	ND< 0.20	0324BOBW088D	ND< 0.20	NC	YES

ACCEPTANCE CRITERIA: PROJECT LIMITS 50%

LIST ALL RPD OUTSIDE PROJECT LIMITS (DO NOT INCLUDE VALUES < CRDL)

Sample ID	Compound	RPD	Comments
CTP-SG-42-50	Chloroform	NC	**+/- CRDL; no qual**
CTP-SG-42-50	Tetrachlorethene	NC	**+/- CRDL; no qual**

Recommended Actions

No action required.

FIELD DUPLICATE PAIRS FD1, FD2, AND FD3 WERE NOT LISTED AS SUCH ON THE COC; HOWEVER, THE SAMPLE TIMES INDICATE THEY MAY BE FIELD DUPLICATE PAIRS.

REPORTING LIMITS

Are the project-specified reporting limits (RL) met for all project samples?	YES	NO
	*	

If NO, then list:

Compound	Samples Affected	Lab RL	Project RL	Comments
All	E3E280151-002, -003, E3E230214-001, -007, -008			**~2X Dilution**
All	E3E280151-004, -005			**~4X Dilution**
All except Carbon tetrach	E3E230214-008			**~2X Dilution**
Carbon tetrachloride	E3E230214-008			**~9X Dilution**
All	E3E230214-016, -018, -020, -021, -022			**~2X Dilution****
All	E3E230214-023, -024			**~10X Dilution****
*** METHOD TO-15 NOT LISTED IN CDQMP**				

**** RL elevated due to matrix interference**

ANALYTE LIST

Does the reported target analyte list match the project required list?	YES	NO
	*	

If NO, then list extra or missing compounds:

Compound	Missing?	Extra?	Comments
*** METHOD TO-15 NOT LISTED IN CDQMP**			

MDL STUDY

	YES	NO	N/A
MDL study present in the package?		X	
Performed within 1 year of sample analysis?			X
MDLs support laboratory reporting limits?			X

Comments

TENTATIVELY IDENTIFIED COMPOUNDS

	YES	NO
All appropriate peaks searched and reported?	N/A	
Any TICs found in both samples and blanks?	N/A	
Reasonable identifications reported?	N/A	
Any TCL compounds reported as TICs?	N/A	

Recommended Actions

No action required
Artifacts, unknowns, and siloxanes are not included in above.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			

SYSTEM PERFORMANCE

	YES	NO
Were standard and sample chromatograms provided for all positive results?	X	
Chromatograms free of abrupt baseline shift?	X	
Chromatograms free of high background?	X	
Chromatograms free of baseline rise?	X	
Chromatograms free of extraneous peaks?	X	
Peak resolution good?	X	
Peaks free of tailing?	X	

Recommended Actions

No action required

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

GC/MS INSTRUMENT TUNE

	YES	NO
Performed for all initial calibrations?	X	
Performed for all continuing calibrations and samples?	X	
* **Performed every 24 hours?**	X	
BFB/DFTPP criteria within method limits?	X	
Concentration of **BFB**/DFTPP injected:	Not noted	

LIST ALL **BFB**/DFTPP INJECTIONS

Date	GC/MS ID	Injection time	Ratio Check (Level IV only)	Transcript Errors (L IV)	Comments
15-Apr-03	GCMS-C	0725			ICAL
28-May-03	GCMS-C	0816			E3E230214-004, -009, -013
29-May-03	GCMS-C	1214			E3E230214-001 thru -003, -005 thru -008, -010, -014 thru -024
28-May-03	GCMS-E	1532			ICAL
30-May-03	GCMS-E	1236			E3E230214-011, -012
3-Jun-03	GCMS-C	0724			**E3E280151-001, -002, -006, -007**
4-Jun-03	GCMS-C	0908			**E3E280151-003 thru -005, -008, -009**
9-Jun-03	GCMS-C	1005			**E3E280151-010**
13-Jun-03	GCMS-C	0915			E3F120166-001 thru -010

LIST ALL **BFB**/DFTPP OUTSIDE CRITERIA (LEVEL IV ONLY)

Date	GC/MS ID	Injection time	Ion Abund Outside Criteria	Comments
				None

Recommended Actions

No action required

*** TUNE FREQUENCY REQUIRED BY METHOD TO-15 IS EVERY 24 HOURS.**

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

GC/MS INSTRUMENT TUNE - BFB

ICAL TUNE:

Date:	**15-Apr-03**
Injection Time:	**725**
Instrument ID:	**GCMS-C**

	Enter raw Abund here	Calc Automatic
50=	71352	17.8%
75=	184320	46.1%
95=	399872	
96=	26640	6.7%
173=	0	0.0%
174=	298368	74.6%
175=	21536	7.2%
176=	284992	95.5%
177=	19048	6.7%

SAMPLE TUNE:

Date:	**3-Jun-03**
Injection Time:	**0724**
Instrument ID:	**GCMS-C**

	Enter raw Abund here	Calc Automatic
50=	96392	18.8%
75=	243648	47.6%
95=	511872	
96=	33872	6.6%
173=	0	0.0%
174=	419328	81.9%
175=	30440	7.3%
176=	406976	97.1%
177=	27328	6.7%

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

INITIAL CALIBRATION

	YES	NO
Performed before sample analysis?	X	
Calibration for each matrix?	X	
Calibration for each instrument?	X	
Raw data agree with forms?	X	
Any mean RRFs below project limits?		X
Do the SPCCs meet the method requirement for minimum mean RRF?	X	
Is the lowest ICAL standard at or below the DL for each analyte?	X	
Do the CCCs meet the method requirement for maximum RSD?	X	

ACCEPTANCE CRITERIA: Mean RRF 0.05

LIST ALL MEAN RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Date	GC/MS ID	Compound	Mean RRF	Comments
				None

Recommended Actions

No action required.
VOC method compliance: the minimum mean response factors for the **volatile SPCCs** are 0.10 for Chloromethane, 1,1-Dichloroethane, and Bromoform; and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane.

Did laboratory perform appropriate corrective action?	YES	NO	N/A
			X

ACCEPTANCE CRITERIA:

%RSD	30
CORR COEF (r)	0.995

LIST ALL %RSD AND CORRELATION COEFFICIENTS THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	GCMS ID	Matrix	Compound	Corr Coefficient or % RSD	Comments
					None

Recommended Actions

No action required
VOC method compliance: the lowest ICAL standard must be at or below the detection limit for each analyte. The **volatile CCCs** must meet a maximum RSD of 30%. The volatile CCC compounds are: 1,1-Dichloroethene, Chloroform, 1,2-Dichloropropane, Toluene, Ethylbenzene, and Vinyl chloride. Method 8260: a curve must be constructed for all analytes with RSD > 15%.

Did laboratory perform appropriate corrective action?	YES	NO	N/A
			X

LIST ALL ICAL AND ASSOCIATED SAMPLES

Calibration Date	GCMS ID	Matrix	ASSOCIATED SAMPLES
15-Apr-03	GCMS-C	Air	E3E230214-001 thru -010, -013 thru -024, **E3E280151-001 thru -010**, E3F120166-001 thru -010
28-May-03	GCMS-E	Air	E3E230214-011, -012

INITIAL CALIBRATION

RRF $(A_x * I_s / A_{is} * STD)$

Ax = Area of compound
Is = Amount (in ppbv) of internal standard
Ais= Area of associated internal standard
STD = Amount (in ppbv) of compound

Date: 14-Jan-03
Instrument ID: GCMS-C
Compound: Carbon tetrachloride

RF1

A_x=	4140	RRF
I_s=	4	0.92389061
A_{is}=	89621	
STD=	0.2	

RF2

A_x=	7967	RRF
I_s=	4	0.94459528
A_{is}=	84343	
STD=	0.4	

RF3

A_x=	24552	RRF
I_s=	4	0.97123855
A_{is}=	80893	
STD=	1.25	

RF4

A_x=	102375	RRF
I_s=	4	1.0342868
A_{is}=	79185	
STD=	5	

RF5

A_x=	202960	RRF
I_s=	4	1.06206175
A_{is}=	76440	
STD=	10	

RF6

A_x=	1159960	RRF
I_s=	4	1.20030526
A_{is}=	77311	
STD=	50	

AVG. CF	**1.02272971**
SD	**0.10172428**
%RSD=	**9.94635061**

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	*	

*** THE VOLUME PURGED DIFFERED FROM ONE STANDARD TO THE NEXT, BUT THE CAL VOLUMES AND STANDARD VOLUMES WERE THE SAME WITHIN A RUN, AND CANCEL EACH OTHER OUT.**
FOR THE ICAL CALCULATION THE INTERNAL STANDARD AMOUNT AND STANDARD AMOUNTS ARE ENTERED IN PPBV UNITS, AND IT IS NOT NECESSARY TO ENTER THE AMOUNT PURGED.

CONTINUING CALIBRATION

	YES	NO
Performed before sample analysis?	X	
Performed for each day of analysis?	X	
Performed for each instrument?	X	
Raw data agree with forms? (Level IV only)	X	
Any Daily RRFs below project limits?		X
Do the SPCCs meet the method requirement for minimum RRF?	X	
Is the CCV standard at the midpoint of the ICAL for each analyte?	X	
Do the CCCs meet the method requirement for maximum %D?	X	

ACCEPTANCE CRITERIA: RRF 0.05

LIST ALL DAILY RRF THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Time	GCMS ID	Compound	RRF	Comments
					None

Recommended Actions

No action required.
VOC method compliance: the minimum mean response factors for the **volatile SPCCs** are 0.10 for Chloromethane, 1,1-Dichloroethane, and Bromoform; and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

ACCEPTANCE CRITERIA: %D 25

LIST ALL %D THAT DO NOT MEET ACCEPTANCE CRITERIA:

Calibration Date	Time	GCMS ID	Matrix	Compound	%D	CCV Out Low	CCV Out High	Comments
								None

Recommended Actions

VOC method compliance: the CCV concentration for each analyte must be at the midpoint of the ICAL. The **volatile CCCs** must meet a maximum %D of 20. The volatile CCC compounds are: 1,1-Dichloroethene, Chloroform, 1,2-Dichloropropane, Toluene, Ethylbenzene, and Vinyl chloride.
THE CCV FOR SAMPLES E3E230214-011 AND -012 IS MISSING FROM THE DATA PACKAGE.

SAMPLE E3E230214-009 IS LISTED AS CTP-SG-34-03 ON THE RUN LOG AND INTERNAL STANDARD AREA SUMMARY SHEET. THE CORRECT CLIENT ID FOR THAT SAMPLE IS CTP-SG-34-06.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

LIST ALL PRECEEDING CCS AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	ASSOCIATED SAMPLES
28-May-03	0923	GCMS-C	Air	E3E230214-004, -009, -013
29-May-03	1424	GCMS-C	Air	E3E230214-001 thru -003, -005 thru -008, -010, -014 thru -024
30-May-03	1332	GCMS-E	Air	E3E230214-011, -012
3-Jun-03	**1133**	**GCMS-C**	**Air**	**E3E280151-001, -002, -006, -007**
4-Jun-03	**1056**	**GCMS-C**	**Air**	**E3E280151-003 thru -005, -008, -009**
9-Jun-03	**1155**	**GCMS-C**	**Air**	**E3E280151-010**
13-Jun-03	1022	GCMS-C	Air	E3F120166-001 thru -010

CONTINUING CALIBRATION - AVERAGE RESPONSE FACTOR

RRF **(A_x*I_s/A_{is}*STD)**

A_x = Area of compound
Is = Amount (in ppbv) of internal standard
Ais= Area of associated internal standard
STD = Amount (in ppbv) of compound

Date:			**3-Jun-03**
Time:			**1133**
Instrument ID:			**GCMS-C**
Compound:			**Chloroform**
RF-CCC			
A_x=	189062		
I_s=	4	1.436232077	
A_{is}=	52655		
STD=	10		
	avg RRF		**1.37301**
	%D		**4.60%**

Date:			**4-Jun-03**
Time:			**1056**
Instrument ID:			**GCMS-C**
Compound:			**Trichloroethene**
RF-CCC			
A_x=	106502		
I_s=	4	0.400315736	
A_{is}=	106418		
STD=	10		
	avg RRF		**0.35083**
	%D		**14.11%**

Date:			**9-Jun-03**
Time:			**1155**
Instrument ID:			**GCMS-C**
Compound:			**Tetrachloroethene**
RF-CCC			
A_x=	106700		
I_s=	4	0.555259221	
A_{is}=	76865		
STD=	10		
	avg RRF		**0.46708**
	%D		**18.88%**

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
AMOUNTS INJECTED CONSISTENT THROUGHOUT ANALYTICAL SEQUENCE?	X	

INTERNAL STANDARDS

	YES	NO	N/A
Form Present?	X		
All samples listed?	X		
Results agree with raw data? (Level IV only)	X		
Did laboratory spike project required internal standards?	X		
Are sample IS retention times within 30 seconds of daily ccal?	X		

ACCEPTANCE CRITERIA:

				Area CCAL	-40%	+40%
LIST INTERNAL STANDARDS SPIKED:					0	0
Calibration Date	Time	GCMS ID	Bromochloromethane	52655	31593	73717
			1,4-Difluorobenzene	109209	65525.4	152892.6
3-Jun-03	1133	GCMS-C	Chlorobenzene-d5	88400	53040	123760

ACCEPTANCE CRITERIA:

				Area CCAL	-40%	+40%
LIST INTERNAL STANDARDS SPIKED:					0	0
Calibration Date	Time	GCMS ID	Bromochloromethane	50072	30043.2	70100.8
			1,4-Difluorobenzene	106418	63850.8	148985.2
4-Jun-03	1056	GCMS-C	Chlorobenzene-d5	84468	50680.8	118255.2

ACCEPTANCE CRITERIA:

				Area CCAL	-40%	+40%
LIST INTERNAL STANDARDS SPIKED:					0	0
Calibration Date	Time	GCMS ID	Bromochloromethane	48681	29208.6	68153.4
			1,4-Difluorobenzene	101656	60993.6	142318.4
9-Jun-03	1155	GCMS-C	Chlorobenzene-d5	76865	46119	107611

LIST ALL AREAS OUTSIDE PROJECT LIMITS

Sample ID	Internal Standard	Internal Standard Area	IS Out Low	IS Out High	Comments
E3E280151-003	1,4-Difluorobenzene	157955		X	**Assoc. cmpd ND; no qual**
	Chlorobenzene-d5	153777		X	**J+ 011**
E3E280151-009	Chlorobenzene-d5	129399		X	**J+ 011**

Recommended Actions

QUALIFY TETRACHLOROETHENE J+ 011 FOR SAMPLES E3E280151-003, -009.

	YES	NO	N/A
Did laboratory perform appropriate corrective action?			X

LIST ALL PRECEEDING INTERNAL STANDARDS AND ASSOCIATED SAMPLES

Calibration Date	Time	GCMS ID	Matrix	ASSOCIATED SAMPLES
28-May-03	0923	GCMS-C	Air	E3E230214-004, -009, -013
29-May-03	1424	GCMS-C	Air	E3E230214-001 thru -003, -005 thru -008, -010, -014 thru -024
30-May-03	1332	GCMS-E	Air	E3E230214-011, -012
3-Jun-03	1133	GCMS-C	Air	**E3E280151-001, -002, -006, -007**
4-Jun-03	1056	GCMS-C	Air	**E3E280151-003 thru -005, -008, -009**
9-Jun-03	1155	GCMS-C	Air	**E3E280151-010**
13-Jun-03	1022	GCMS-C	Air	E3F120166-001 thru -010

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-36-06**
Lab ID: **E3E280151-001**

Compound: Chloroform

Ax=	7570	**0.40818738**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	53930		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	12		Initial pressure
Vs=	503		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	15448	**1.1182751**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	53930		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	12		Initial pressure
Vs=	503		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	13267	**0.94931115**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	119465		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	12		Initial pressure
Vs=	503		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-36-30**
Lab ID: **E3E280151-002**

Compound: Chloroform

Ax=	27045	**3.031943**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.6		Final pressure
Ais=	51933		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	13.8		Initial pressure
Vs=	223		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	48021	**7.22733109**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.6		Final pressure
Ais=	51933		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	13.8		Initial pressure
Vs=	223		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	22977	**3.35574227**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.6		Final pressure
Ais=	117183		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	13.8		Initial pressure
Vs=	223		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-36-50 (FD3)**
Lab ID: **E3E280151-003**

Compound: Chloroform

Ax=	32876	**2.89610338**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24		Final pressure
Ais=	66147		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	10.6		Initial pressure
Vs=	283		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	180549	**21.3522124**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24		Final pressure
Ais=	66147		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	10.6		Initial pressure
Vs=	283		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	49748	**5.54130316**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24		Final pressure
Ais=	153777		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	10.6		Initial pressure
Vs=	283		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-36-51 (FD3)**
Lab ID: **E3E280151-004**

Compound: Chloroform

Ax=	12693	**2.93547285**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	50197		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	11.2		Initial pressure
Vs=	135		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	69783	**21.6658698**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	50197		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	11.2		Initial pressure
Vs=	135		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	24506	**7.51960033**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.1		Final pressure
Ais=	111212		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	11.2		Initial pressure
Vs=	135		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: CTP-SG-36-75 (E3E280151-005)

Compound: Chloroform

Ax=	14199	**2.7339838**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.2		Final pressure
Ais=	60302		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	13.2		Initial pressure
Vs=	115		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	213326	**55.1435438**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.2		Final pressure
Ais=	60302		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	13.2		Initial pressure
Vs=	115		Volume of sample, in mL

Compound: Trichloroethene

Ax=	4998	**1.6332997**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vt=	250		Cal volume (mL)
Df=	1		Dilution factor
GPC=	24.2		Final pressure
Ais=	139052		Area of internal standard
RRF=	0.35083		RRF (average from curve)
Vi=	13.2		Initial pressure
Ws=	115		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	21649	**6.92938135**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.2		Final pressure
Ais=	106634		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	13.2		Initial pressure
Vs=	115		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-46-06**
Lab ID: **E3E280151-007**

Compound: Tetrachloroethene

Ax=	3467	**0.24918089**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.7		Final pressure
Ais=	118945		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	11.8		Initial pressure
Vs=	503		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-47-06**
Lab ID: **E3E280151-008**
Compound: **Chloroform**

Ax=	7119	**0.40026311**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	24.6		Final pressure
Ais=	51765		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	10.8		Initial pressure
Vs=	570		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-39-06**
Lab ID: **E3E280151-009**

Compound: Chloroform

Ax=	14541	**0.78971253**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.6		Final pressure
Ais=	53621		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	11.9		Initial pressure
Vs=	496		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	15744	**1.147896**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.6		Final pressure
Ais=	53621		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	11.9		Initial pressure
Vs=	496		Volume of sample, in mL

Compound: Tetrachloroethene

Ax=	3651	**0.24153107**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.6		Final pressure
Ais=	129399		Area of internal standard
RRF=	0.46708		RRF (average from curve)
Pi=	11.9		Initial pressure
Vs=	496		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

SAMPLE CALCULATION WORKSHEET

ppbv=Ax*Is*Vc*DF*Pf/Ais*RRF*Pi*Vs

Sample ID: **CTP-SG-38-06**
Lab ID: **E3E280151-010**
Compound: Chloroform

Ax=	4841	**0.31325558**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.6		Final pressure
Ais=	44957		Area of internal standard
RRF=	1.37301		RRF (average from curve)
Pi=	11.7		Initial pressure
Vs=	505		Volume of sample, in mL

Compound: Carbon tetrachloride

Ax=	31748	**2.75799082**	Area cmpd in sample
Is=	4		Amt internal standard, in ppbv
Vc=	250		Cal volume (mL)
Df=	1		Dilution factor
Pf	23.6		Final pressure
Ais=	44957		Area of internal standard
RRF=	1.02273		RRF (average from curve)
Pi=	11.7		Initial pressure
Vs=	505		Volume of sample, in mL

	YES	NO
CALCULATED VALUES MATCH REPORTED VALUES?	X	

	YES	NO
SPECTRAL MATCH OKAY?	X	

DILUTION FACTORS ARE TAKEN INTO ACCOUNT WITH SAMPLE SIZE.

IDENTIFICATION AND QUANTITATION

For Level IV calculate the results of all detects for project samples, and check RT.
To check results, use the worksheet labeled "calculation"

List all samples requiring qualification here:

Sample ID	Lab ID	Compound	Result	Lab Qualifier	Calc Check	Spectra Match?	RT meets Method Criteria	Qualifier	Reason Code
SDG E3E280151									
CTP-SG-36-50 (FD1)	E3E280151-003	Tetrachloroethene	5.5					J+	011
CTP-SG-39-06	E3E280151-009	Tetrachloroethene	0.24					J+	011
SDG E3E230214									
							NO QUALIFICATION		
SDG E3F120166									
							NO QUALIFICATION		

LEVEL IV SAMPLES: All reported results were re-calculated and verified to be correct as reported.
Spectra and analyte retention times were verified for all level IV samples.

DataVal Reason Codes

001 Exceeded holding time.
002 Blank contamination.
003 Associated initial calibration showed elevated %RSD for compound.
004 Correlation coefficient < 0.995.
005 Average relative response factor < 0.05.
006 Associated continuing calibration showed elevated %D for compound.
007 Relative response factor < 0.05.
008 Surrogate recovery was outside limits.
009 Laboratory control sample recovery exceeded acceptance criteria.
010 Matrix spike recovery exceeded acceptance criteria.
011 The area of the internal standard exceeded acceptance criteria.
012 Retention time exceeded criteria for this compound.
013 Mass spectrum did not match the reference spectrum.
014 Tentatively identified compound (TIC).
015 Value exceeded the linear range of the instrument and was not re-analyzed.
016 Compounds/components co-elute.
017 Results reported below the quantitation limit.
018 Laboratory duplicate relative percent differences (RPD) outside acceptance criteria.
019 Field duplicate RPD outside acceptance criteria.
020 Percent difference between columns exceeded 25%.
021 Laboratory control sample RPD outside acceptance criteria.
022 Matrix spike sample RPD outside acceptance criteria.
023 Serial dilution percent difference outside acceptance criteria.
024 Retention time exceeded established window.
025 ICP Interference Check Sample had percent recoveries outside the 80%-120% criteria.
100 Other.

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Pentaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

December 4, 2003

SUBJECT: Fort Ord OU CT Bio Pilot Study, Data Validation

Dear Ms. Leibensberger

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on November 25, 2003. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 11183:

SDG #	Fraction
168620, P311018	Volatiles, Carbon Tetrachloride, Bromide

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994

Please feel free to contact us if you have any questions.

Sincerely,

Stacey A. Swenson
Operations Manager/Senior Chemist

Auth#MEC07030377 **LDC #11183 (MACTEC Engineering & Consulting Services-Novato / Fort Ord OU CT Bio Pilot Study)** Project#55596 00131

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		CCL_4 (8260B)		Bromide (300.0)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	168620	11-25-03	12-11-03	-	-	4	0	-	-																														
B	P311018	11-25-03	12-11-03	29	0	-	-	5	0																														
Total	TH			29	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU CT Bio Pilot Study
Data Validation Reports
LDC# 11183

Carbon Tetrachloride

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Pilot Study

Collection Date: November 4, 2003

LDC Report Date: December 2, 2003

Matrix: Water

Parameters: Carbon Tetrachloride

Validation Level: EPA Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 168620

Sample Identification

A
B
C
D
E

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 8260B for Carbon Tetrachloride.

The review follows a the USACE Environmental Data Quality Management Program Specifications, USACE Sacramento District (Version 1.08) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods 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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 carbon tetrachloride.

Average relative response factors (RRF) for carbon tetrachloride were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 25.0% for carbon tetrachloride.

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No carbon tetrachloride was 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

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.

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)

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

No field blanks were identified in this SDG.

Fort Ord OU CT Bio Pilot Study
Carbon Tetrachloride - Data Qualification Summary - SDG 168620

No Sample Data Qualified in this SDG

Fort Ord OU CT Bio Pilot Study
Carbon Tetrachloride - Laboratory Blank Data Qualification Summary - SDG 168620

No Sample Data Qualified in this SDG

LDC #: 11183A1

SDG #: 168620

Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 12/3/03

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Carbon Tetrachloride (EPA SW 846 Method 8260B)

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: 11/4/03
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified.
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	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:

MW H2O's

1	A	11		21		31	
2	B	12		22		32	
3	C	13		23		33	
4	D	14		24		34	
5	E	15		25		35	
6	85926MB	16		26		36	
7	85964MB	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Fort Ord OU CT Bio Pilot Study
Data Validation Reports
LDC# 11183

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Pilot Study

Collection Date: October 31, 2003

LDC Report Date: December 2, 2003

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P311018

Sample Identification

0344MOCT240F
0344MOCT241F
0344MOCT242F
0344MOCT243F
0344MOCT244F
0344MOCT245F
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0344MOCT250F
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0344MOCT255F
0344MOCT256F
0344MOCT257F
0344MOCT258F
0344MOCT260F
0344MOCT261F
0344MOCT262F
0344MOCT264F
0344MOCT265F
0344MOCT266F
0344MOCT267F
0344MOCT268F
0344MOCT269F
0344MOCT272F
0344MOCT273F

Introduction

This data review covers 29 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows a the USACE Environmental Data Quality Management Program Specifications, USACE Sacramento District (Version 1.08) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods 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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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

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

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

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

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

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

The initial calibration verification (ICV) percent differences (%D) were less within the QC limits.

All of the continuing calibration RRF values were within method and validation criteria.

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

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.

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)

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

No field blanks were identified in this SDG.

Fort Ord OU CT Bio Pilot Study
Volatiles - Data Qualification Summary - SDG P311018

No Sample Data Qualified in this SDG

Fort Ord OU CT Bio Pilot Study
Volatiles - Laboratory Blank Data Qualification Summary - SDG P311018

No Sample Data Qualified in this SDG

LDC #: 11183B1
SDG #: P311018
Laboratory: Sequoia Analytical

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 12/3/03
Page: 1 of 1
Reviewer: 1
2nd Reviewer:

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

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: 10/31/03
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	%RSD. r^2
IV.	Continuing calibration	A	%D & ICV
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
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	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: All H2Os

1 1	0344MOCT240F	11 2	0344MOCT250F	21 2	0344MOCT262F	31 1	351037 - Bk 1
2 1	0344MOCT241F	12 2	0344MOCT251F	22 2	0344MOCT264F	32 2	351029D - Bk 1
3 1	0344MOCT242F	13 2	0344MOCT253F	23 2	0344MOCT265F	33	
4 1	0344MOCT243F	14 2	0344MOCT254F	24 2	0344MOCT266F	34	
5 1	0344MOCT244F	15 2	0344MOCT255F	25 2	0344MOCT267F	35	
6 1	0344MOCT245F	16 2	0344MOCT256F	26 2	0344MOCT268F	36	
7 1	0344MOCT246F	17 2	0344MOCT257F	27 2	0344MOCT269F	37	
8 1	0344MOCT247F	18 2	0344MOCT258F	28 2	0344MOCT272F	38	
9 1	0344MOCT248F	19 2	0344MOCT260F	29 2	0344MOCT273F	39	
10 2	0344MOCT249F	20 2	0344MOCT261F	30		40	

Fort Ord OU CT Bio Pilot Study
Data Validation Reports
LDC# 11183

Bromide

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Pilot Study

Collection Date: October 31, 2003

LDC Report Date: December 2, 2003

Matrix: Water

Parameters: Bromide

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P311018

Sample Identification

0344MOCT252F
0344MOCT259F
0344MOCT263F
0344MOCT270F
0344MOCT271F
0344MOCT271FMS
0344MOCT271FMSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide.

The review follows a the USACE Environmental Data Quality Management Program Specifications, USACE Sacramento District (Version 1.08) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods 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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are 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.

Fort Ord OU CT Bio Pilot Study
Bromide - Data Qualification Summary - SDG P311018

No Sample Data Qualified in this SDG

Fort Ord OU CT Bio Pilot Study
Bromide - Laboratory Blank Data Qualification Summary - SDG P311018

No Sample Data Qualified in this SDG

LDC #: 11183B6
SDG #: P311018
Laboratory: Sequoia Analytical

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 11/30/03
Page: 1 of 1
Reviewer: MM
2nd Reviewer: AA

METHOD: Bromide (EPA Method 300.0)

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: 10/31/03
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	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: All

1	0344MOCT252F	11		21		31	
2	0344MOCT259F	12		22		32	
3	0344MOCT263F	13		23		33	
4	0344MOCT270F	14		24		34	
5	0344MOCT271F	15		25		35	
6	0344MOCT271FMS	16		26		36	
7	0344MOCT271FMSD	17		27		37	
8	MB	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Pentaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

March 24, 2004

SUBJECT: Fort Ord OUC Bio Pilot Study, Data Validation

Dear Ms. Leibensberger

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on March 19, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 11696:

SDG #	Fraction
170384, 169446	Volatiles

The data validation was performed under EPA Level III and Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999

Please feel free to contact us if you have any questions.

Sincerely,

Stacey A. Swenson
Operations Manager/Senior Chemist

Attachment 1

Auth#MEC07030377 **LDC #11696 (MACTEC Engineering & Consulting Services-Novato / Fort Ord OU-C Bio Pilot Study)** Project#55596 00131

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																																	
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	170384	3-19-04	4-2-04	5	0																																
B	169446	3-19-04	4-2-04	5	0																																
Total	TH			10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU-C Bio Pilot Study
Data Validation Reports
LDC# 11696

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU-C Bio Pilot Study

Collection Date: February 3, 2004

LDC Report Date: March 24, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 170384

Sample Identification

A
B
C
D
E

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 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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.

All samples were received in good condition with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 170384	All TCL compounds	A headspace of >2 ml was apparent in the sample containers.	There should be no headspace in the sample containers.	J (all detects) UJ (all non-detects)	A

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 compounds.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were within the QC limits for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

The continuing calibration RRF values of the initial calibration verification (ICV) were within method and validation criteria.

V. Blanks

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

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 170384	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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)

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.

Fort Ord OU-C Bio Pilot Study
Volatiles - Data Qualification Summary - SDG 170384

SDG	Sample	Compound	Flag	A or P	Reason
170384	A B C D E	All TCL compounds	J (all detects) UJ (all non-detects)	A	Sample condition
170384	A B C D E	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

Fort Ord OU-C Bio Pilot Study
Volatiles - Laboratory Blank Data Qualification Summary - SDG 170384

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Field Blank Data Qualification Summary - SDG 170384

No Sample Data Qualified in this SDG

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	170384	Location:	CC14 Microcosm Ft. Ord
Client:	Cyto Culture International	Prep:	EPA 5030B
Project#:	03-165	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	02/03/04
Units:	ug/L	Received:	02/03/04

Field ID: A
Type: SAMPLE
Lab ID: 170384-001

Analyte	Result		RL	Diln Fac	Batch#	Analyzed
Chloroform	880	J	50	10.00	88222	02/05/04
Carbon Tetrachloride	2,400	J	130	25.00	88273	02/06/04

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	102	80-121	10.00	88222	02/05/04
1,2-Dichloroethane-d4	99	77-129	10.00	88222	02/05/04
Toluene-d8	107	80-120	10.00	88222	02/05/04
Bromofluorobenzene	103	80-123	10.00	88222	02/05/04

Field ID: B
Type: SAMPLE
Lab ID: 170384-002

Analyte	Result		RL	Diln Fac	Batch#	Analyzed
Chloroform	510	J	130	25.00	88222	02/05/04
Carbon Tetrachloride	5,500	J	200	40.00	88273	02/06/04

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	110	80-121	25.00	88222	02/05/04
1,2-Dichloroethane-d4	96	77-129	25.00	88222	02/05/04
Toluene-d8	100	80-120	25.00	88222	02/05/04
Bromofluorobenzene	95	80-123	25.00	88222	02/05/04

Field ID: C
Type: SAMPLE
Lab ID: 170384-003
Diln Fac: 40.00
Batch#: 88222
Analyzed: 02/05/04

Analyte	Result		RL
Chloroform	240	J	200
Carbon Tetrachloride	7,800	J	200

Surrogate	%REC	Limits
Dibromofluoromethane	106	80-121
1,2-Dichloroethane-d4	96	77-129
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-123

~33401

ND= Not Detected
RL= Reporting Limit
Page 1 of 3

1.0

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	170384	Location:	CC14 Microcosm Ft. Ord
Client:	Cyto Culture International	Prep:	EPA 5030B
Project#:	03-165	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	02/03/04
Units:	ug/L	Received:	02/03/04

Field ID:	D	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	88222
Lab ID:	170384-004	Analyzed:	02/05/04

Analyte	Result	RL
Chloroform	ND UJ	200
Carbon Tetrachloride	5,800 J	200

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-121
1,2-Dichloroethane-d4	99	77-129
Toluene-d8	105	80-120
Bromofluorobenzene	98	80-123

Field ID:	E	Batch#:	88273
Type:	SAMPLE	Analyzed:	02/06/04
Lab ID:	170384-005		

Analyte	Result	RL	Diln Fac
Chloroform	ND UJ	100	20.00
Carbon Tetrachloride	3,400 J	200	40.00

Surrogate	%REC	Limits	Diln Fac
Dibromofluoromethane	105	80-121	20.00
1,2-Dichloroethane-d4	105	77-129	20.00
Toluene-d8	96	80-120	20.00
Bromofluorobenzene	97	80-123	20.00

Type:	BLANK	Batch#:	88222
Lab ID:	QC240028	Analyzed:	02/05/04
Diln Fac:	1.000		

Analyte	Result	RL
Chloroform	ND UJ	5.0
Carbon Tetrachloride	ND UJ	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-121
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	96	80-120
Bromofluorobenzene	100	80-123

ND= Not Detected
RL= Reporting Limit

LDC #: 11696A1
SDG #: 170384
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 3/23/04
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

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

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	SW	Sampling dates: 2/3/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	70D & 1CV
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	None/P
VIII.	Laboratory control samples	A	LCS/D
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	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: MH2O's

1 1/2	A	11		21		31	
2 1/2	B	12		22		32	
3 1	C	13		23		33	
4 1	D	14		24		34	
5 2	E	15		25		35	
6 1	88222MB	16		26		36	
7 2	88273MB	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 11696A1
SDG #: 170387

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

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

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
All	headspace						Y/N/A

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Both within 14 days of sample collection.
Soil:	Both within 14 days of sample collection.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU-C Bio Pilot Study

Collection Date: December 15, 2003

LDC Report Date: March 23, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 169446

Sample Identification

A
B
C
D
E-NEG

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 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 compounds.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were within the QC limits for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

The continuing calibration RRF values of the initial calibration verification (ICV) were within method and validation criteria.

V. Blanks

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

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 169446	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

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.

Fort Ord OU-C Bio Pilot Study
Volatiles - Data Qualification Summary - SDG 169446

SDG	Sample	Compound	Flag	A or P	Reason
169446	A B C D E-NEG	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

Fort Ord OU-C Bio Pilot Study
Volatiles - Laboratory Blank Data Qualification Summary - SDG 169446

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Field Blank Data Qualification Summary - SDG 169446

No Sample Data Qualified in this SDG

11696 B

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	169446	Location:	CC14 Microcosm Ft. Ord
Client:	Cyto Culture International	Prep:	EPA 5030B
Project#:	03-165	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	12/15/03
Units:	ug/L	Received:	12/15/03

Field ID:	A	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	87142
Lab ID:	169446-001	Analyzed:	12/23/03

Analyte	Result	RL
Carbon Tetrachloride	3,200	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-129
Toluene-d8	102	80-120
Bromofluorobenzene	99	80-123

Field ID:	B	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	87042
Lab ID:	169446-002	Analyzed:	12/18/03

Analyte	Result	RL
Carbon Tetrachloride	5,100	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	107	80-120
Bromofluorobenzene	104	80-123

Field ID:	C	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	87042
Lab ID:	169446-003	Analyzed:	12/18/03

Analyte	Result	RL
Carbon Tetrachloride	7,500	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	101	80-120
Bromofluorobenzene	110	80-123

Field ID:	D	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	87042
Lab ID:	169446-004	Analyzed:	12/18/03

Analyte	Result	RL
Carbon Tetrachloride	5,200	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	107	80-120
Bromofluorobenzene	97	80-123

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

+32402

1.0

Curtis & Tompkins, Ltd.

Purgeable Halocarbons by GC/MS

Lab #:	169446	Location:	CC14 Microcosm Ft. Ord
Client:	Cyto Culture International	Prep:	EPA 5030B
Project#:	03-165	Analysis:	EPA 8260B
Matrix:	Water	Sampled:	12/15/03
Units:	ug/L	Received:	12/15/03

Field ID:	E-NEG	Diln Fac:	40.00
Type:	SAMPLE	Batch#:	87142
Lab ID:	169446-005	Analyzed:	12/23/03

Analyte	Result	RL
Carbon Tetrachloride	4,600	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	101	77-129
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-123

Type:	BLANK	Batch#:	87042
Lab ID:	QC235588	Analyzed:	12/18/03
Diln Fac:	1.000		

Analyte	Result	RL
Carbon Tetrachloride	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-129
Toluene-d8	98	80-120
Bromofluorobenzene	102	80-123

Type:	BLANK	Batch#:	87042
Lab ID:	QC235589	Analyzed:	12/18/03
Diln Fac:	1.000		

Analyte	Result	RL
Carbon Tetrachloride	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	77-129
Toluene-d8	107	80-120
Bromofluorobenzene	105	80-123

Type:	BLANK	Batch#:	87142
Lab ID:	QC235973	Analyzed:	12/22/03
Diln Fac:	1.000		

Analyte	Result	RL
Carbon Tetrachloride	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	77-129
Toluene-d8	101	80-120
Bromofluorobenzene	100	80-123

NA= Not Analyzed
ND= Not Detected
RL= Reporting Limit

1.0

LDC #: 11696B1
SDG #: 169446
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level IV

Date: 3/22/04
Page: 1 of 1
Reviewer: 9
2nd Reviewer: ~

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

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: 12/15/03
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	7DD & ICV
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	None/P
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	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 1	A W	11 1	8T142MB	21		31	
2 2	B	12 2	8T042MB	22		32	
3 2	C	13		23		33	
4 2	D	14		24		34	
5 1	E-NEG	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 11696B1
SDG #: 169446

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 2

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 11696B1
SDG #: 16944b

VALIDATION FINDINGS CHECKLIST

Reviewer: AT
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	

LDC #: 116963I
SDG #: 16944

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 9

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

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

LDC #: 11696B1
SDG #: 169446

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: K

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

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 = $(A_x)(C_{is})/(A_{is})(C_x)$
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_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (50 std)	Recalculated RRF (50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	1CALC	12/11/03	~~Methylene chloride~~ K (1st internal standard)	0.6304	0.6304	0.6304	0.6304	3	3
			~~Trichlorethene~~ O (2nd internal standard)	0.3021	0.3021	0.2921	0.2921	3	3
			Toluene (3rd internal standard)						
2	1CALC	12/15/03	~~Methylene chloride~~ K (1st internal standard)	0.4479	0.4479	0.4365	0.4365	4	4
			~~Trichlorethene~~ O (2nd internal standard)	0.1641	0.1641	0.1587	0.1587	8	8
			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 #: 11696B1
SDG #: 16946

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 4
2nd Reviewer: 2

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

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 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	e113	12/18/03	~~Methylene chloride~~ Dichloromethane (1st internal standard)	0.6304	0.6212	0.6212	1	1
			~~Trichlorethene~~ Trichloroethene (2nd internal standard)	0.2921	0.2606	0.2606	11	11
			Toluene (3rd internal standard)					
2	k|m10	12/22/03	~~Methylene chloride~~ Dichloromethane (1st internal standard)	0.4365	0.4633	0.4633	6	6
			~~Trichlorethene~~ Trichloroethene (2nd internal standard)	0.1587	0.1699	0.1699	7	7
			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 #: 11696B1
SDG #: 169446

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

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

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: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	50	50.7674	102	102	0
Bromofluorobenzene	↓	49.4233	99	99	↓
1,2-Dichloroethane-d4	↓	51.6890	103	103	↓
Dibromofluoromethane					

Sample ID: ______

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

Sample ID: ______

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

Sample ID: ______

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

Sample ID: ______

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

LDC #: 11696B1
SDG #: 16944b

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Page: 1 of 1
Reviewer: +
2nd Reviewer:

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

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy 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 = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 8T042 BS/BSD

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
~~1,1-Dichloroethene~~ ~~K~~										
Trichloroethene 0	50	50	51.28	51.79	103	103	104	104	1	1
Benzene										
Toluene										
~~Chlorobenzene~~										

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 #: 11696B1
SDG #: 169446

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer:

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

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 2, K:

Conc. = $\frac{(18058)(50)(40)}{(109404)(0.6304)(\ )(\ )} = 524.9$ ug/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC E&C
5341 Old Redwood Highway, Suite 300
Peteluma, CA 94954
ATTN: Ms. Debbie Leibensberger

June 10, 2004

SUBJECT: Fort Ord ~~2nd Quarter 2004 Basewide Data Validation~~ QC CAP Pilot Study, Project #5559600131, WO/PO #MEC07030377.

Dear Ms. Leibensberger,

Enclosed are the final validation reports and Excel qualification sheets for the fractions listed below. These SDGs were received on May 28, 2004.

LDC Project # 12022:

SDG#	**Fraction**
P404353, P404394	Volatiles (EPA Test Method 8260B) Ferric Iron (EPA Test Method 6010B) Methane (EPA Test Method RSK-175) TOC (EPA Test Method 415.1) Nitrate/Nitrite as Nitrogen (EPA Test Method 353.2) Bromide & Sulfate (EPA Test Method 300.0) Ferrous Iron (EPA Test Method 8146)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — MACTEC Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers

The data validation was performed in accordance to the MACTEC "Basewide Chemical Data Quality Managment Plan (CDQMP) Former Fort Ord Complex, California, Draft Final, September 2002". Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration
- Continuing Calibration
- Blanks
- Surrogates

- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples
- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

Stacey A. Swenson
Operations Manager/ Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP100F	P404353-01	N	5030B	8260B	III
12-Apr-2004	0415KCTP101F	P404353-02	N	5030B	8260B	III
12-Apr-2004	0415KCTP102FMS	4040665-MS1	MS	Gen Prep	415.1	III
12-Apr-2004	0415KCTP102FMSD	4040665-MSD1	MSD	Gen Prep	415.1	III
12-Apr-2004	0415KCTP102F	P404353-23	N	3010A	6010B	III
12-Apr-2004	0415KCTP102F	P404353-23	N	3010A	CALC	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP102F	P404353-23	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP104F	P404353-03	N	5030B	8260B	III
12-Apr-2004	0415KCTP105F	P404353-04	N	5030B	8260B	III
12-Apr-2004	0415KCTP106FMS	4040536-MS1	MS	3010A	6010B	III
12-Apr-2004	0415KCTP106FMSD	4040536-MSD1	MSD	3010A	6010B	III
12-Apr-2004	0415KCTP106F	P404353-24	N	3010A	6010B	III
12-Apr-2004	0415KCTP106F	P404353-24	N	3010A	CALC	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP106F	P404353-24	N	Gen Prep	RSK 175	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP108F	P404353-05	N	5030B	8260B	III
12-Apr-2004	0415KCTP109F	P404353-06	N	5030B	8260B	III
12-Apr-2004	0415KCTP110FMS	4040496-MS1	MS	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP110FMSD	4040496-MSD1	MSD	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP110F	P404353-25	N	3010A	6010B	III
12-Apr-2004	0415KCTP110F	P404353-25	N	3010A	CALC	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP110F	P404353-25	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP111F	P404353-07	N	5030B	8260B	III
12-Apr-2004	0415KCTP112F	P404353-08	N	5030B	8260B	III
12-Apr-2004	0415KCTP113F	P404353-26	N	3010A	6010B	III
12-Apr-2004	0415KCTP113F	P404353-26	N	3010A	CALC	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP113F	P404353-26	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP115F	P404353-09	N	5030B	8260B	III
12-Apr-2004	0415KCTP116F	P404353-10	N	5030B	8260B	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP117FMS	4D21018-MS1	MS	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP117FMSD	4D21018-MSD1	MSD	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP117FMS	4D21019-MS1	MS	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP117FMSD	4D21019-MSD1	MSD	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP117F	P404353-27	N	3010A	6010B	III
12-Apr-2004	0415KCTP117F	P404353-27	N	3010A	CALC	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP117F	P404353-27	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP118F	P404353-11	N	5030B	8260B	III
12-Apr-2004	0415KCTP119FMS	4D19027-MS1	MS	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP119FMSD	4D19027-MSD1	MSD	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP119FMS	4D21017-MS1	MS	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP119FMSD	4D21017-MSD1	MSD	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP119FMS	4D23024-MS1	MS	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP119FMSD	4D23024-MSD1	MSD	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP119F	P404353-28	N	3010A	6010B	III
12-Apr-2004	0415KCTP119F	P404353-28	N	3010A	CALC	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	300.0 SO4	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP119F	P404353-28	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP121F	P404353-12	N	5030B	8260B	III
12-Apr-2004	0415KCTP122F	P404353-13	N	5030B	8260B	III
12-Apr-2004	0415KCTP123D	P404353-14	FD	5030B	8260B	III
12-Apr-2004	0415KCTP125DMS	4040451-MS1	MS	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP125DMSD	4040451-MSD1	MSD	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP124F	P404353-29	N	3010A	6010B	III
12-Apr-2004	0415KCTP124F	P404353-29	N	3010A	CALC	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP124F	P404353-29	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	3010A	6010B	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	3010A	CALC	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	415.1	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP125D	P404353-30	FD	Gen Prep	RSK 175	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP126F	P404353-15	N	5030B	8260B	III
12-Apr-2004	0415KCTP127F	P404353-16	N	5030B	8260B	III
12-Apr-2004	0415KCTP128F	P404353-31	N	3010A	6010B	III
12-Apr-2004	0415KCTP128F	P404353-31	N	3010A	CALC	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP128F	P404353-31	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP130F	P404353-17	N	5030B	8260B	III
12-Apr-2004	0415KCTP131F	P404353-18	N	5030B	8260B	III
12-Apr-2004	0415KCTP132F	P404353-32	N	3010A	6010B	III
12-Apr-2004	0415KCTP132F	P404353-32	N	3010A	CALC	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP132F	P404353-32	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP134F	P404353-19	N	5030B	8260B	III
12-Apr-2004	0415KCTP135D	P404353-20	FD	5030B	8260B	III
12-Apr-2004	0415KCTP136F	P404353-21	N	5030B	8260B	III
12-Apr-2004	0415KCTP137FMS	4040220-MS1	MS	Gen Prep	RSK 175	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Apr-2004	0415KCTP137FMSD	4040220-MSD1	MSD	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP137FMS	4040457-MS1	MS	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP137FMSD	4040457-MSD1	MSD	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP137FMS	4040497-MS1	MS	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP137FMSD	4040497-MSD1	MSD	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP137F	P404353-33	N	3010A	6010B	III
12-Apr-2004	0415KCTP137F	P404353-33	N	3010A	CALC	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	300.0 Br	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	300.0 NO2	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	300.0 NO3	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	300.0 SO4	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	415.1	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	Hach Co. 8146	III
12-Apr-2004	0415KCTP137F	P404353-33	N	Gen Prep	RSK 175	III
12-Apr-2004	0415KCTP138A	P404353-22	TB	5030B	8260B	III
13-Apr-2004	0415KCTP139F	P404394-01	N	5030B	8260B	IV
13-Apr-2004	0415KCTP140F	P404394-02	N	5030B	8260B	IV
13-Apr-2004	0415KCTP141F	P404394-03	N	5030B	8260B	IV

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: P404353										
300.0 Br	0415KCTP102F	AQ	N	Bromide	1.0	1.0U		UJ	mg/l	
300.0 Br	0415KCTP106F	AQ	N	Bromide	1.0	1.0U		UJ	mg/l	
300.0 Br	0415KCTP110F	AQ	N	Bromide	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP102F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP106F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP110F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP113F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP117F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP119F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP124F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP125D	AQ	FD	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP128F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP132F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	
300.0 NO2	0415KCTP137F	AQ	N	Nitrite as N	1.0	1.0U		UJ	mg/l	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: P404353										
300.0 NO3	0415KCTP102F	AQ	N	Nitrate as N	1.0	1.9		UJ	mg/l	
300.0 NO3	0415KCTP106F	AQ	N	Nitrate as N	1.0	2.0		UJ	mg/l	
300.0 NO3	0415KCTP110F	AQ	N	Nitrate as N	1.0	2.4		UJ	mg/l	
300.0 NO3	0415KCTP113F	AQ	N	Nitrate as N	1.0	2.8		UJ	mg/l	
300.0 NO3	0415KCTP117F	AQ	N	Nitrate as N	1.0	2.7		UJ	mg/l	
300.0 NO3	0415KCTP119F	AQ	N	Nitrate as N	1.0	2.8		UJ	mg/l	
300.0 NO3	0415KCTP124F	AQ	N	Nitrate as N	1.0	2.5		UJ	mg/l	
300.0 NO3	0415KCTP125D	AQ	FD	Nitrate as N	1.0	2.7		UJ	mg/l	
300.0 NO3	0415KCTP128F	AQ	N	Nitrate as N	1.0	2.9		UJ	mg/l	
300.0 NO3	0415KCTP132F	AQ	N	Nitrate as N	1.0	3.2		UJ	mg/l	
300.0 NO3	0415KCTP137F	AQ	N	Nitrate as N	1.0	2.1		UJ	mg/l	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

MACTEC Database Qualification Summary

Harding ESE

Project No # : 12022

Reason for Qualified Results

SDG Nos. : P404353,P404394

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
P404353	0415KCTP102F	300.0 Br	24959679		J	Bromide	Matrix spike RPD
P404353	0415KCTP102F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP102F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP102F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP106F	300.0 Br	24959679		J	Bromide	Matrix spike RPD
P404353	0415KCTP106F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP106F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP106F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP110F	300.0 Br	24959679		J	Bromide	Matrix spike RPD
P404353	0415KCTP110F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP110F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP110F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP113F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP113F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP113F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP117F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP117F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP117F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP119F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP119F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP119F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP124F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP124F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP124F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP125D	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP125D	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP125D	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery

Harding ESE

Reason for Qualified Results

SDG Nos. : P404353,P404394

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
P404353	0415KCTP128F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP128F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP128F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP132F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP132F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP132F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery
P404353	0415KCTP137F	300.0 NO2	14797650		J	Nitrite as N	Holding time exceeded from collection to analysis
P404353	0415KCTP137F	300.0 NO2	14797650		J	Nitrite as N	Matrix spike recovery
P404353	0415KCTP137F	300.0 NO3	35900	J-		Nitrate as N	Matrix spike recovery

Enclosure I

EPA Level III ADR Outliers

Quality Control
Outlier Reports

SDG P404394

(No Qualifications)

Quality Control
Outlier Reports

SDG P404353

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : 4040496 **Analysis Method :** 300.0 Br **Analysis Date :** 04/21/2004

Preparation Batch : 4040496 **Preparation Type :** Gen Prep **Preparation Date :** 04/20/2004

Lab Reporting Batch : P404353 **Lab ID:** SAL-PET

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
0415KCTP110FMSD	4040496-MSD1	AQ	Bromide		24	30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
0415KCTP102F	P404353-23
0415KCTP106F	P404353-24
0415KCTP110F	P404353-25

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Project Number and Name: ***4087030007.010204 - Fort Ord - OU CTP Pilot Study-1***

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : 4D19027 **Analysis Method :** 300.0 NO3 **Analysis Date :** 04/13/2004

Preparation Batch : 4D19027 **Preparation Type :** Gen Prep **Preparation Date :** 04/13/2004

Lab Reporting Batch : P404353 **Lab ID:** SAL-MOR

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
0415KCTP119FMS	4D19027-MS1	AQ	Nitrate as N	48.9		30.00	75.00	125.00	20.00
0415KCTP119FMSD	4D19027-MSD1		Nitrate as N	48.7		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
0415KCTP102F	P404353-23
0415KCTP106F	P404353-24
0415KCTP110F	P404353-25
0415KCTP113F	P404353-26
0415KCTP119F	P404353-28
0415KCTP124F	P404353-29
0415KCTP125D	P404353-30
0415KCTP128F	P404353-31
0415KCTP132F	P404353-32
0415KCTP137F	P404353-33

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : 4D21017 **Analysis Method :** 300.0 NO2 **Analysis Date :** 04/15/2004

Preparation Batch : 4D21017 **Preparation Type :** Gen Prep **Preparation Date :** 04/15/2004

Lab Reporting Batch : P404353 **Lab ID:** SAL-MOR

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
0415KCTP119FMS	4D21017-MS1	AQ	Nitrite as N	55.5		30.00	75.00	125.00	20.00
0415KCTP119FMSD	4D21017-MSD1		Nitrite as N	55.7		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
0415KCTP102F	P404353-23
0415KCTP106F	P404353-24
0415KCTP110F	P404353-25
0415KCTP113F	P404353-26
0415KCTP119F	P404353-28
0415KCTP124F	P404353-29
0415KCTP125D	P404353-30
0415KCTP128F	P404353-31
0415KCTP132F	P404353-32
0415KCTP137F	P404353-33

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : 4D21018 **Analysis Method :** 300.0 NO2 **Analysis Date :** 04/15/2004

Preparation Batch : 4D21018 **Preparation Type :** Gen Prep **Preparation Date :** 04/15/2004

Lab Reporting Batch : P404353 **Lab ID:** SAL-MOR

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
0415KCTP117FMS	4D21018-MS1	AQ	Nitrite as N	60.3		30.00	75.00	125.00	20.00
0415KCTP117FMSD	4D21018-MSD1		Nitrite as N	61		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
0415KCTP117F	P404353-27

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

Matrix Spike / Matrix Spike Duplicate Recovery and RPD Outlier Report

Method Batch : 4D21019 **Analysis Method :** 300.0 NO3 **Analysis Date :** 04/13/2004

Preparation Batch : 4D21019 **Preparation Type :** Gen Prep **Preparation Date :** 04/13/2004

Lab Reporting Batch : P404353 **Lab ID:** SAL-MOR

Client Sample ID	Lab Sample ID	Matrix	Analyte Name	Reported *		Project Limits (Percent)			
				Percent Recovery	RPD	Rejection Point**	Lower Limit	Upper Limit	RPD
0415KCTP117FMS	4D21019-MS1	AQ	Nitrate as N	47.4		30.00	75.00	125.00	20.00
0415KCTP117FMSD	4D21019-MSD1		Nitrate as N	47.2		30.00	75.00	125.00	20.00

Associated Samples: All samples in Method Batch

Client Sample ID	Lab Sample ID
0415KCTP117F	P404353-27

* Only those Percent Recovery and/or RPD values outside project limits are listed in this report.
** Metal are also assessed against an upper rejection point of 150 percent for waters and 200 percent for soils and sediments

QC Outlier Report: Holding Times

Lab Report Batch: P404353

Lab ID: SAL-MOR

					Actual Holding Time			Criteria				Reported Dates (and Times)		
Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Prep Method	Coll To Prep	Prep To Ana	Coll To Ana	Coll To Prep	Prep To Ana	Coll To Ana	Unit of Meas	Collection Date	Preparation Date	Analysis Date
0415KCTP102F	P404353-23	300.0 NO2	AQ	Gen Prep			83.5			48	Hours	04/12/2004 09:35	04/15/2004 16:36	04/15/2004 21:05
0415KCTP106F	P404353-24	300.0 NO2	AQ	Gen Prep			83.9			48	Hours	04/12/2004 10:10	04/15/2004 16:36	04/15/2004 22:01
0415KCTP110F	P404353-25	300.0 NO2	AQ	Gen Prep			81.0			48	Hours	04/12/2004 10:50	04/15/2004 16:36	04/15/2004 19:49
0415KCTP113F	P404353-26	300.0 NO2	AQ	Gen Prep			81.8			48	Hours	04/12/2004 11:34	04/15/2004 16:36	04/15/2004 21:23
0415KCTP117F	P404353-27	300.0 NO2	AQ	Gen Prep			83.1			48	Hours	04/12/2004 12:10	04/15/2004 16:48	04/15/2004 23:16
0415KCTP117FMS	4D21018-MS1	300.0 NO2	AQ	Gen Prep			83.4			48	Hours	04/12/2004 12:10	04/15/2004 16:48	04/15/2004 23:35
0415KCTP117FMSD	4D21018-MSD1	300.0 NO2	AQ	Gen Prep			83.6			48	Hours	04/12/2004 12:10	04/15/2004 16:48	04/15/2004 23:44
0415KCTP119F	P404353-28	300.0 NO2	AQ	Gen Prep			78.6			48	Hours	04/12/2004 12:35	04/15/2004 16:36	04/15/2004 19:12
0415KCTP119FMS	4D21017-MS1	300.0 NO2	AQ	Gen Prep			78.9			48	Hours	04/12/2004 12:35	04/15/2004 16:36	04/15/2004 19:30
0415KCTP119FMSD	4D21017-MSD1	300.0 NO2	AQ	Gen Prep			79.1			48	Hours	04/12/2004 12:35	04/15/2004 16:36	04/15/2004 19:40
0415KCTP124F	P404353-29	300.0 NO2	AQ	Gen Prep			80.5			48	Hours	04/12/2004 13:10	04/15/2004 16:36	04/15/2004 21:42
0415KCTP125D	P404353-30	300.0 NO2	AQ	Gen Prep			81.2			48	Hours	04/12/2004 13:10	04/15/2004 16:36	04/15/2004 22:20
0415KCTP128F	P404353-31	300.0 NO2	AQ	Gen Prep			78.3			48	Hours	04/12/2004 13:48	04/15/2004 16:36	04/15/2004 20:08
0415KCTP132F	P404353-32	300.0 NO2	AQ	Gen Prep			80.6			48	Hours	04/12/2004 14:20	04/15/2004 16:36	04/15/2004 22:57
0415KCTP137F	P404353-33	300.0 NO2	AQ	Gen Prep			77.5			48	Hours	04/12/2004 14:57	04/15/2004 16:36	04/15/2004 20:27

QC Outlier Report: Field Duplicates (Non-qualified Outliers)

Lab Report Batch: P404353 **Lab ID:** SAL-PET

			Field Sample				Field Sample Duplicate						
Analysis Method	Matrix	Analyte Name	Client Sample ID	Ana Type	Result	Lab Qualifier	Client Sample Duplicate ID	Ana Type	Result	Lab Qualifier	RPD Dup* (%)	RPD Criteria (%)	Result Units
6010B	AQ	Iron	0415KCTP124F	RES	86000		0415KCTP125D	RES	16000		137.3	50	ug/l
CALC	AQ	Ferric Iron		RES	86000			RES	16000		137.3	50	ug/l

Note: Outlier report also includes analytes detected in one sample but not in the related sample, i.e., analyte was detected in the field sample but not in the field duplicate sample, or vice versa. In this case, RPD value assigned to the field duplicate sample is 200.

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

June 10, 2004

OV CTP Pilot Study

SUBJECT: ~~Fort Ord Basewide, 2Q 2004,~~ Data Validation

Dear Ms. Leibensberger

Enclosed is the final validation report for the fraction listed below. This SDG was received on May 28, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12023:

SDG #	**Fraction**
P404394	Volatiles

The data validation was performed under EPA Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999

Please feel free to contact us if you have any questions.

Sincerely,

Stacey A. Swenson
Operations Manager/Senior Chemist

Attachment 1

RTC

LDC #12023 (MACTEC-Petaluma, CA / Fort Ord Basewide, 1Q 2004)

Project#:MEC07030377, P.O.#55596 00131

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P404394	5-28-04	6-9-04	3	0																														
Total	TH			3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord Basewide, 2Q 2004
Data Validation Reports
LDC# 12023

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord Basewide, 2Q 2004

Collection Date: April 13, 2004

LDC Report Date: June 10, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P404394

Sample Identification

0415KCTP139F
0415KCTP140F
0415KCTP141F

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 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 compounds.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

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

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG P404394	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

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.

Fort Ord Basewide, 2Q 2004
Volatiles - Data Qualification Summary - SDG P404394

SDG	Sample	Compound	Flag	A or P	Reason
P404394	0415KCTP139F 0415KCTP140F 0415KCTP141F	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

Fort Ord Basewide, 2Q 2004
Volatiles - Laboratory Blank Data Qualification Summary - SDG P404394

No Sample Data Qualified in this SDG

Fort Ord Basewide, 2Q 2004
Volatiles - Field Blank Data Qualification Summary - SDG P404394

No Sample Data Qualified in this SDG

LDC #: 12023A1
SDG #: P404394
Laboratory: Sequoia Analytical

VALIDATION COMPLETENESS WORKSHEET
Level IV

Date: 6/1/04
Page: 1 of 1
Reviewer:
2nd Reviewer:

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

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: 4/13/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	None/P
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	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	0415KCTP139F W	11	4040438-BK1	21		31	
2	0415KCTP140F	12		22		32	
3	0415KCTP141F	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	

LDC #: 12023A1
SDG #: 0404394

VALIDATION FINDINGS CHECKLIST

Reviewer: QA
2nd Reviewer:

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

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

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

LDC #: 12023A1
SDG #: 440394

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer:

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

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 = $(A_x)(C_{is})/(A_{is})(C_x)$
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_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	10AL	3/4 23/5/04	Methylene chloride (1st internal standard)	0.38752	0.38752	0.38369	0.38369	3.87783	3.8778
			~~Trichlorethene~~ (2nd internal standard)	0.30288	0.30288	0.29436	0.29436	2.78283	2.7826
			Toluene (3rd internal standard)						
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 #: 12023A1
SDG #: p404394

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

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

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 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	3V1384	4/19/04	Methylene chloride (1st internal standard)	0.38369	0.42660	0.42660	11.2	11.2
			~~Trichlorethene~~ O (2nd internal standard)	0.29436	0.29896	0.29896	1.6	1.6
			Toluene (3rd internal standard)					
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 #: 12023A1
SDG #: P404394

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

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

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: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	6	6.27497	104	104	0
Bromofluorobenzene	↓	6.23926	104	104	↓
1,2-Dichloroethane-d4	↓	5.73124	96	96	↓
Dibromofluoromethane	↓	6.44824	108	108	↓

Sample ID:

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

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: B023A1
SDG #: 404394

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: 9
2nd Reviewer:

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

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy 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 = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 4040438 - BS1/BSD1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
~~1,1-Dichloroethene~~ 0	5	5	5.21	5.12	104	104	102	102	2	2
Trichloroethene K	1	1	5.87	5.45	117	117	109	109	*7	7
Benzene										
Toluene										
~~Chlorobenzene~~										

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 #: 12023A1
SDG #: P4043 94

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: V

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

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?

(Y) N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
RRF	=	Relative response factor of the calibration standard.
V_o	=	Volume or weight of sample pruged in milliliters (ml) or grams (g).
Df	=	Dilution factor.
%S	=	Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 1 , 0 :

Conc. = $\frac{(8363)(5)(1)}{(31459)(0.2943)(\quad)(\quad)}$

= 4.46 ug/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

July 26, 2004

SUBJECT: Fort Ord OU CTP Pilot Study, Data Validation

Dear Ms. Leibensberger

Enclosed is the final validation report for the fraction listed below. This SDG was received on July 15, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12206:

SDG #	Fraction
P404612	Bromide

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng

Pei Geng
Project Manager/Senior Chemist

Attachment 1

LDC #12206 (MACTEC-Petaluma, CA / Fort Ord OU CTP Pilot Study)

Job# 408703007-010204

LDC	SDG#	DATE REC'D	DATE DUE	Br (300.0)																															
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P404612	7-15-04	7-29-04	2	0																														
Total	LS			2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU CTP Pilot Study
Data Validation Reports
LDC# 12206

Bromide

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Pilot Study

Collection Date: April 24, 2004

LDC Report Date: July 21, 2004

Matrix: Water

Parameters: Bromide

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P404612

Sample Identification

0416GCTP002F
0416GCTP003F
0416GCTP003FMS
0416GCTP003FMSD

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide.

The review follows a the USACE Environmental Data Quality Management Program Specifications, USACE Sacramento District (Version 1.08) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods 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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are 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.

Fort Ord OU CT Bio Pilot Study
Bromide - Data Qualification Summary - SDG P404612

No Sample Data Qualified in this SDG

Fort Ord OU CT Bio Pilot Study
Bromide - Laboratory Blank Data Qualification Summary - SDG P404612

No Sample Data Qualified in this SDG

LDC #: 12206A6

SDG #: P404612

Laboratory: Sequoia Analytical

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 7/20/04

Page: 1 of 1

Reviewer: MH

2nd Reviewer:

METHOD: (Analyte) Bromide (EPA Method 300.0)

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: 4/21-4
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
V	Duplicates	N	
VI.	Laboratory control samples	A	LCS
VII.	Sample result verification	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: 02

1	0416GCTP002F	11		21		31	
2	0416GCTP003F	12		22		32	
3	0416GCTP003FMS	13		23		33	
4	0416GCTP003FMSD	14		24		34	
5	MB	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

Sequoia Analytical

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www.sequoialabs.com

MACTEC E&C - Petaluma	Project: Fort Ord - OU CTP Pilot Study-1	P404612
5341 Old Redwood Highway, Suite 300	Project Number: 4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager: Mike Taraszki	05/13/04 13:57

Anions by EPA Method 300.0

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0416GCTP002F (P404612-01) Water	**Sampled: 04/24/04 14:45 Received: 04/28/04 08:50**								
Bromide	**9.5**	1.0	mg/l	1	4050086	05/04/04	05/04/04	EPA 300.0	
0416GCTP003F (P404612-02) Water	**Sampled: 04/24/04 15:25 Received: 04/28/04 08:50**								
Bromide	**10**	1.0	mg/l	1	4050086	05/04/04	05/04/04	EPA 300.0	

7/02/04

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

August 4, 2004

SUBJECT: Fort Ord OU CT Bio Study 2004, Data Validation

Dear Ms. Leibensberger

Enclosed is the final validation report for the fraction listed below. This SDG was received on August 2, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12287:

SDG #	Fraction
P406097	Volatiles

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng

Pei Geng
Project Manager/Senior Chemist

Attachment 1

RTC

LDC #12287 (MACTEC-Petaluma, CA / Fort Ord OU CT Bio Study 2004)

Project#: 4087030006 01030

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																																	
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P406097	08/02/04	08/16/04	36	0																																
Total	B			36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU-C Bio Pilot Study
Data Validation Reports
LDC# 12287

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU-C Bio Pilot Study

Collection Date: June 2, 2004

LDC Report Date: August 3, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P406097

Sample Identification

0422KCTP146F	0422KCTP166F
0422KCTP147F	0422KCTP167F
0422KCTP148F	0422KCTP168F
0422KCTP149F	0422KCTP169F
0422KCTP150D	0422KCTP170F
0422KCTP151F	0422KCTP171F
0422KCTP152F	0422KCTP172F
0422KCTP153F	0422KCTP173F
0422KCTP154F	0422KCTP173FRE
0422KCTP155F	0422KCTP174F
0422KCTP156F	0422KCTP174FRE
0422KCTP157F	0422KCTP175F
0422KCTP158F	0422KCTP175FRE
0422KCTP159F	0422KCTP176D
0422KCTP160F	0422KCTP177A
0422KCTP161F	0422KCTP177ARE
0422KCTP162F	
0422KCTP163F	
0422KCTP164F	
0422KCTP165F	

Introduction

This data review covers 36 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 check was not reviewed for Level III.

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 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 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were within the QC limits for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

The continuing calibration RRF values of the initial calibration verification (ICV) were within method and validation criteria.

V. Blanks

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

Samples 0422KCTP177A and 0422KCTP177ARE were identified as trip blanks. No volatile contaminants were found in these 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

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

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

Internal standards were not reviewed for Level III.

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

Samples 0422KCTP149F and 0422KCTP150D and samples 0422KCTP175F and 0422KCTP176D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	0422KCTP149F	0422KCTP150D	
Carbon tetrachloride	3.7	3.8	3 (≤50)
Chloroform	0.39	0.37	5 (≤50)

Compound	Concentration (ug/L)		RPD (Limits)
	0422KCTP175F	0422KCTP176D	
Carbon tetrachloride	5.7	5.8	2 (≤50)
Chloroform	0.67	0.67	0 (≤50)

Fort Ord OU-C Bio Pilot Study
Volatiles - Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Laboratory Blank Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Field Blank Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Sequoia Analytical

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP146F (P406097-01) Water	**Sampled: 06/02/04 07:53 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*118 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP147F (P406097-02) Water	**Sampled: 06/02/04 07:58 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*118 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP148F (P406097-03) Water	**Sampled: 06/02/04 08:08 Received: 06/03/04 14:00**									
Carbon tetrachloride	**4.3**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.40**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*115 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

Sequoia Analytical

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
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www.sequoialabs.com

MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP149F (P406097-04) Water	**Sampled: 06/02/04 08:11 Received: 06/03/04 14:00**									
Carbon tetrachloride	**3.7**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.39**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP150D (P406097-05) Water	**Sampled: 06/02/04 08:11 Received: 06/03/04 14:00**									
Carbon tetrachloride	**3.8**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.37**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP151F (P406097-06) Water	**Sampled: 06/02/04 08:15 Received: 06/03/04 14:00**									
Carbon tetrachloride	**2.0**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*110 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP152F (P406097-07) Water	**Sampled: 06/02/04 08:44 Received: 06/03/04 14:00**									
Carbon tetrachloride	**5.3**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.88**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP153F (P406097-08) Water	**Sampled: 06/02/04 08:47 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.3**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP154F (P406097-09) Water	**Sampled: 06/02/04 08:50 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*114 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Fort Ord - OU CTP Pilot Study-1 Project Number:4087030007.010204 Project Manager:Mike Taraszki	P406097 **Reported:** 06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP155F (P406097-10) Water	**Sampled: 06/02/04 09:03 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP156F (P406097-11) Water	**Sampled: 06/02/04 09:06 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.6**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP157F (P406097-12) Water	**Sampled: 06/02/04 09:09 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.6**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP158F (P406097-13) Water	**Sampled: 06/02/04 09:18 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.78**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP159F (P406097-14) Water	**Sampled: 06/02/04 09:21 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.82**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP160F (P406097-15) Water	**Sampled: 06/02/04 09:24 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.81**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP161F (P406097-16) Water	**Sampled: 06/02/04 09:34 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.92**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP162F (P406097-17) Water	**Sampled: 06/02/04 09:37 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.92**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP163F (P406097-18) Water	**Sampled: 06/02/04 09:40 Received: 06/03/04 14:00**									
Carbon tetrachloride	**6.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.74**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP164F (P406097-19) Water	**Sampled: 06/02/04 09:48 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.5**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP165F (P406097-20) Water	**Sampled: 06/02/04 09:51 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP166F (P406097-21) Water	**Sampled: 06/02/04 09:54 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP167F (P406097-22) Water	**Sampled: 06/02/04 10:04 Received: 06/03/04 14:00**									
Carbon tetrachloride	**9.4**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP168F (P406097-23) Water	**Sampled: 06/02/04 10:08 Received: 06/03/04 14:00**									
Carbon tetrachloride	**9.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP169F (P406097-24) Water	**Sampled: 06/02/04 10:12 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.3**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP170F (P406097-25) Water	**Sampled: 06/02/04 10:24 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP171F (P406097-26) Water	**Sampled: 06/02/04 10:27 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.3**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP172F (P406097-27) Water	**Sampled: 06/02/04 10:30 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

Sequoia Analytical

1455 McDowell Blvd, North Ste D
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www.sequoialabs.com

MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP173F (P406097-28) Water	**Sampled: 06/02/04 10:38**	**Received: 06/03/04 14:00**								
Carbon tetrachloride	**3.2**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.25**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP173F (P406097-28RE1) Water	**Sampled: 06/02/04 10:38**	**Received: 06/03/04 14:00**								
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*97 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*65-135*			"	"	"	"	
0422KCTP174F (P406097-29) Water	**Sampled: 06/02/04 10:41**	**Received: 06/03/04 14:00**								
Carbon tetrachloride	**5.7**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.54**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-I	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP174F (P406097-29RE1) Water Sampled: 06/02/04 10:41 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*103 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*93 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*65-135*			"	"	"	"	
0422KCTP175F (P406097-30) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon tetrachloride	**5.7**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.67**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*115 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP175F (P406097-30RE1) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*103 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*93 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*65-135*			"	"	"	"	
0422KCTP176D (P406097-31) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon tetrachloride	**5.8**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.67**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP177A (P406097-32) Water Sampled: 06/02/04 11:00 Received: 06/03/04 14:00										
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP177A (P406097-32RE1) Water Sampled: 06/02/04 11:00 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*102 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*119 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*65-135*			"	"	"	"	

LDC #: 12287A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 8/3/04
SDG #: P406097 Level III Page: 1 of 1
Laboratory: Sequoia Analytical Reviewer: JC
2nd Reviewer:

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

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: 6/2/04
II.	GC/MS Instrument performance check	N	Not req'd by level III
III.	Initial calibration	A	%RSD ≤ 20
IV.	Continuing calibration / ICV	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not req'd by level III
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	SW	D = 4+5, 32+34, ~~33+34~~
XVII.	Field blanks	ND	TB = 35, 36

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 HSO's

1 3	0422KCTP146F	11 2	0422KCTP156F	21 2	0422KCTP166F	31 4	0422KCTP174FRE
2 3	0422KCTP147F	12 2	0422KCTP157F	22 2	0422KCTP167F	32 3	0422KCTP175F
3 1	0422KCTP148F	13 2	0422KCTP158F	23 2	0422KCTP168F	33 4	0422KCTP175FRE
4 1	0422KCTP149F	14 2	0422KCTP159F	24 2	0422KCTP169F	34 3	0422KCTP176D
5 1	0422KCTP150D	15 2	0422KCTP160F	25 2	0422KCTP170F	35 3	0422KCTP177A
6 1	0422KCTP151F	16 2	0422KCTP161F	26 2	0422KCTP171F	36 4	0422KCTP177ARE
7 2	0422KCTP152F	17 2	0422KCTP162F	27 3	0422KCTP172F	37 1	4060164BLK
8 2	0422KCTP153F	18 2	0422KCTP163F	28 3	0422KCTP173F	38 2	4060225BLK
9 2	0422KCTP154F	19 2	0422KCTP164F	29 4	0422KCTP173FRE	39 3	4060285BLK
10 2	0422KCTP155F	20 2	0422KCTP165F	30 3	0422KCTP174F	40 4	4060347BLK

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

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

LDC #: 12257A1
SDG #: P406097

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: SK
2nd reviewer:

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

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD ≤50
	4	5	
O	3.7	3.8	3
K	0.39	0.37	5

Compound	Concentration (ug/L)		RPD ≤50
	32	34	
O	5.7	5.8	2
K	0.67	0.67	0

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

September 7, 2004

SUBJECT: Fort Ord OU CT Bio Study 2004, Data Validation

Dear Ms. Leibensberger

Enclosed are the final validation reports for the fractions listed below. This SDG was received on August 20, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12384:

SDG #	Fraction
P407297	Volatiles, Iron, Wet Chemistry, Methane-Ethane-Ethene, Carbon Dioxide

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

Attachment 1

RTC Level IIIz

LDC #12384 (MACTEC-Petaluma, CA / Fort Ord OU CT Bio Study 2004)

Project#: 4087030006 010301

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Fe (6010B)		Methane Ethane Ethene		CO_2 (175)		Br (300.0)		SO_4 (300.0)		NO_3-N NO_2-N (300.0)		TOC (415.1)		Fe II (HATCH)		Fe III (3500)															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P407297	08/20/04	09/03/04	35	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0														
Total	B			35	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU CT Bio Study
Data Validation Reports
LDC# 12384

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Study 2004

Collection Date: July 14, 2004

LDC Report Date: August 24, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P407297

Sample Identification

0428KCTP193F	0428KCTP211F
0428KCTP194F	0428KCTP212F
0428KCTP195F	0428KCTP213F
0428KCTP196F	0428KCTP214F
0428KCTP197F	0428KCTP215F
0428KCTP198F	0428KCTP216F
0428KCTP199F	0428KCTP217F
0428KCTP199D	0428KCTP218F
0428KCTP200F	0428KCTP219F
0428KCTP201F	0428KCTP220F
0428KCTP202F	0428KCTP221F
0428KCTP203F	0428KCTP222F
0428KCTP204F	0428KCTP223F
0428KCTP205F	0428KCTP224F
0428KCTP206F	0428KCTP225A
0428KCTP207F	
0428KCTP208F	
0428KCTP208D	
0428KCTP209F	
0428KCTP210F	

Introduction

This data review covers 35 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 check was not reviewed for Level III.

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 compounds.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were within the QC limits for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

The continuing calibration RRF values of the initial calibration verification (ICV) were within method and validation criteria.

V. Blanks

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

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
4070471BLK	7/24/04	Acetone	5.36 ug/L	0428KCTP193F 0428KCTP194F 0428KCTP195F 0428KCTP196F 0428KCTP197F 0428KCTP198F 0428KCTP199F 0428KCTP199D 0428KCTP200F 0428KCTP201F 0428KCTP202F 0428KCTP203F 0428KCTP204F 0428KCTP205F 0428KCTP206F 0428KCTP207F 0428KCTP208F

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

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
0428KCTP203F	Acetone	51 ug/L	51U ug/L

Sample 0428KCTP225A was identified as a trip blank. No volatile contaminants were found in this blank.

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

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

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

Internal standards were not reviewed for Level III.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
0428KCTP193F 0428KCTP195F 0428KCTP199F 0428KCTP199D 0428KCTP202F 0428KCTP205F 0428KCTP208F 0428KCTP209F 0428KCTP212F 0428KCTP213F 0428KCTP214F 0428KCTP219F 0428KCTP220F 0428KCTP223F	Acetone	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	P

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

Samples 0428KCTP199F and 0428KCTP199D and samples 0428KCTP208F and 0428KCTP208D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	0428KCTP199F	0428KCTP199D	
Acetone	110	120	9 (≤50)

Compound	Concentration (ug/L)		RPD (Limits)
	0428KCTP208F	0428KCTP208D	
Acetone	140	89	44 (≤50)
Carbon tetrachloride	9.5	6.2	42 (≤50)
Chloroform	1.7	1.2	34 (≤50)

Fort Ord OU CT Bio Study 2004
Volatiles - Data Qualification Summary - SDG P407297

SDG	Sample	Analyte	Flag	A or P	Reason
P407297	0428KCTP193F 0428KCTP195F 0428KCTP199F 0428KCTP199D 0428KCTP202F 0428KCTP205F 0428KCTP208F 0428KCTP209F 0428KCTP212F 0428KCTP213F 0428KCTP214F 0428KCTP219F 0428KCTP220F 0428KCTP223F	Acetone	J (all detects)	P	Compound quantitation and CRQLs

Fort Ord OU CT Bio Study 2004
Volatiles - Laboratory Blank Data Qualification Summary - SDG P407297

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
P407297	0428KCTP203F	Acetone	51U ug/L	A

Fort Ord OU CT Bio Study 2004
Volatiles - Field Blank Data Qualification Summary - SDG P407297

No Sample Data Qualified in this SDG

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP193F (P407297-01) Water	**Sampled: 07/13/04 08:00**		**Received: 07/15/04 08:55**							
Acetone	**110** J	1.9	10	ug/l	1	4070471	07/24/04	07/24/04	EPA 8260B	E
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*103 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*96 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*	*65-135*			"	"	"	"	
0428KCTP194F (P407297-02) Water	**Sampled: 07/13/04 08:04**		**Received: 07/15/04 08:55**							
Acetone	**96**	1.9	10	ug/l	1	4070471	07/24/04	07/24/04	EPA 8260B	
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*96 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94 %*	*65-135*			"	"	"	"	
0428KCTP195F (P407297-03) Water	**Sampled: 07/13/04 08:13**		**Received: 07/15/04 08:55**							
Acetone	**150** J	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	**4.5**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.40**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*104 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*109 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*94 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92 %*	*65-135*			"	"	"	"	

SW 8260B

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MACTEC E&C - Petaluma 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Fort Ord - OU CTP Pilot Study-1 Project Number:4087030007.010204 Project Manager:Mike Taraszki	P407297 **Reported:** 07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP196F (P407297-04) Water	**Sampled: 07/13/04 08:15 Received: 07/15/04 08:55**									
Acetone	**77**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**4.2**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.42**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*91 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92 %*	*65-135*			"	"	"	"	
0428KCTP197F (P407297-05) Water	**Sampled: 07/13/04 08:17 Received: 07/15/04 08:55**									
Acetone	**68**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**2.0**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.25**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*107 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*92 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93 %*	*65-135*			"	"	"	"	
0428KCTP198F (P407297-06) Water	**Sampled: 07/13/04 08:28 Received: 07/15/04 08:55**									
Acetone	**97**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**4.8**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.87**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*107 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*87 %*	*65-135*			"	"	"	"	

Acceptable

8260B

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP199F (P407297-07) Water	**Sampled: 07/13/04 08:30 Received: 07/15/04 08:55**									
Acetone	**110** J	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*94 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90 %*	*65-135*			"	"	"	"	
0428KCTP199D (P407297-08) Water	**Sampled: 07/13/04 08:33 Received: 07/15/04 08:55**									
Acetone	**120** J	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*96 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*65-135*			"	"	"	"	
0428KCTP200F (P407297-09) Water	**Sampled: 07/13/04 08:36 Received: 07/15/04 08:55**									
Acetone	**68**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*115 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*96 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP201F (P407297-10) Water	**Sampled: 07/13/04 08:50**		**Received: 07/15/04 08:55**							
Acetone	**82**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**11**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.3**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*123 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*93 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*65-135*			"	"	"	"	
0428KCTP202F (P407297-11) Water	**Sampled: 07/13/04 08:53**		**Received: 07/15/04 08:55**							
Acetone	**190** J	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	**10**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.4**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*116 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*124 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*96 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90 %*	*65-135*			"	"	"	"	
0428KCTP203F (P407297-12) Water	**Sampled: 07/13/04 08:56**		**Received: 07/15/04 08:55**							
Acetone	**51** U	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**11**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.4**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*97 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88 %*	*65-135*			"	"	"	"	

Acceptable

Acceptable

8/30/04

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MACTEC E&C - Petaluma 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Fort Ord - OU CTP Pilot Study-1 Project Number:4087030007.010204 Project Manager:Mike Taraszki	P407297 **Reported:** 07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP204F (P407297-13) Water	**Sampled: 07/13/04 09:08**		**Received: 07/15/04 08:55**							
Acetone	**83**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**9.2**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.6**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*116 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*98 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*65-135*			"	"	"	"	
0428KCTP205F (P407297-14) Water	**Sampled: 07/13/04 09:11**		**Received: 07/15/04 08:55**							
Acetone	**120**	J 1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	**10**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.9**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*118 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*128 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*	*65-135*			"	"	"	"	
0428KCTP206F (P407297-15) Water	**Sampled: 07/13/04 09:14**		**Received: 07/15/04 08:55**							
Acetone	**99**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**0.91**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**3.6**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*120 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*129 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*91 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*	*65-135*			"	"	"	"	

Acceptable

Acceptable

SR 8260/

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP207F (P407297-16) Water	**Sampled: 07/13/04 09:25**		**Received: 07/15/04 08:55**							
Acetone	**90**	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	
Carbon tetrachloride	**8.8**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.6**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*120 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*132 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*87 %*	*65-135*			"	"	"	"	
0428KCTP208F (P407297-17) Water	**Sampled: 07/13/04 09:28**		**Received: 07/15/04 08:55**							
Acetone	**140** J	1.9	10	ug/l	1	4070471	07/24/04	07/25/04	EPA 8260B	E
Carbon tetrachloride	**9.5**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.7**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*122 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*134 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*97 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88 %*	*65-135*			"	"	"	"	
0428KCTP208D (P407297-18) Water	**Sampled: 07/13/04 09:28**		**Received: 07/15/04 08:55**							
Acetone	**89**	1.9	10	ug/l	1	4070539	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**6.2**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*105 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	

SC 82604

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP209F (P407297-19) Water	**Sampled: 07/13/04 09:31 Received: 07/15/04 08:55**									
Acetone	**210** J	1.9	10	ug/l	1	4070539	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**0.27**	0.25	0.50	"	"	"	"	"	"	J
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	
0428KCTP210F (P407297-20) Water	**Sampled: 07/13/04 09:55 Received: 07/15/04 08:55**									
Acetone	**53**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**7.2**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.95**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*98 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*	*65-135*			"	"	"	"	
0428KCTP211F (P407297-21) Water	**Sampled: 07/13/04 09:58 Received: 07/15/04 08:55**									
Acetone	**93**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**7.8**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*101 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	

SW 8260A

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP212F (P407297-22) Water	**Sampled: 07/13/04 10:00**	**Received: 07/15/04 08:55**								
Acetone	**130** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**8.0**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*99 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP213F (P407297-23) Water	**Sampled: 07/13/04 10:15**	**Received: 07/15/04 08:55**								
Acetone	**130** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**8.3**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*99 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	
0428KCTP214F (P407297-24) Water	**Sampled: 07/13/04 10:18**	**Received: 07/15/04 08:55**								
Acetone	**110** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**8.1**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	

* 8260C

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP215F (P407297-25) Water	**Sampled: 07/13/04 10:21**		**Received: 07/15/04 08:55**							
Acetone	**66**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**7.7**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.93**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	
0428KCTP216F (P407297-26) Water	**Sampled: 07/13/04 10:26**		**Received: 07/15/04 08:55**							
Acetone	**72**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**9.9**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*101 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP217F (P407297-27) Water	**Sampled: 07/13/04 10:28**		**Received: 07/15/04 08:55**							
Acetone	**54**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**9.4**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	

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8/30/04

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MACTEC E&C - Petaluma 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project:Fort Ord - OU CTP Pilot Study-I Project Number:4087030007.010204 Project Manager:Mike Taraszki	P407297 **Reported:** 07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP218F (P407297-28) Water	**Sampled: 07/13/04 10:31**		**Received: 07/15/04 08:55**							
Acetone	**63**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**9.6**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*102 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP219F (P407297-29) Water	**Sampled: 07/13/04 10:41**		**Received: 07/15/04 08:55**							
Acetone	**220** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**2.5**	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*101 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*65-135*			"	"	"	"	
0428KCTP220F (P407297-30) Water	**Sampled: 07/13/04 10:44**		**Received: 07/15/04 08:55**							
Acetone	**120** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**3.7**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.28**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*101 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	

Acceptable

SL 8260

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP221F (P407297-31) Water	**Sampled: 07/13/04 10:47**		**Received: 07/15/04 08:55**							
Acetone	**80**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**2.9**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.36**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP222F (P407297-32) Water	**Sampled: 07/13/04 10:58**		**Received: 07/15/04 08:55**							
Acetone	**74**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**4.0**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.37**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	Acceptable
Surrogate: Dibromofluoromethane		*99 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP223F (P407297-33) Water	**Sampled: 07/13/04 11:03**		**Received: 07/15/04 08:55**							
Acetone	**350** J	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	E
Carbon tetrachloride	**4.8**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.48**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*65-135*			"	"	"	"	

sp 8/6/04

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P407297
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	07/30/04 10:39

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0428KCTP224F (P407297-34) Water	**Sampled: 07/13/04 11:05 Received: 07/15/04 08:55**									
Acetone	**12**	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	**3.4**	0.25	0.50	"	"	"	"	"	"	
Chloroform	**0.37**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*101 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*104 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	
0428KCTP225A (P407297-35) Water	**Sampled: 07/13/04 11:12 Received: 07/15/04 08:55**									
Acetone	ND	1.9	10	ug/l	1	4070517	07/27/04	07/27/04	EPA 8260B	
Carbon tetrachloride	ND	0.25	0.50	"	"	"	"	"	"	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*	*65-135*			"	"	"	"	

Acceptable

8/26/04

LDC #: 12384A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 8/23/04

SDG #: P407297 Level III Page: 1 of 2

Laboratory: Sequoia Analytical Reviewer: JE

2nd Reviewer: CT

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

(F, O, K, A, E)

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: 7/14/04
II.	GC/MS Instrument performance check	N	not reviewed for Level III
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	SW A~~SW~~	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	not reviewed for Level III
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	SW	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D= 7+8, 17+18
XVII.	Field blanks	ND	TB= 35

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 #'s

1 1	0428KCTP193F	11 1	0428KCTP202F	21 2	0428KCTP211F	31 2	0428KCTP221F
2 1	0428KCTP194F	12 1	0428KCTP203F	22 2	0428KCTP212F	32 2	0428KCTP222F
3 1	0428KCTP195F	13 1	0428KCTP204F	23 2	0428KCTP213F	33 2	0428KCTP223F
4 1	0428KCTP196F	14 1	0428KCTP205F	24 2	0428KCTP214F	34 2	0428KCTP224F
5 1	0428KCTP197F	15 1	0428KCTP206F	25 2	0428KCTP215F	35 2	0428KCTP225A
6 1	0428KCTP198F	16 1	0428KCTP207F	26 2	0428KCTP216F	36 1	4070471BLK
7 1	0428KCTP199F	17 1	0428KCTP208F	27 2	0428KCTP217F	37 2	4070517BLK
8 1	0428KCTP199D	18 3	0428KCTP208D	28 2	0428KCTP218F	38 3	4070539BLK
9 1	0428KCTP200F	19 3	0428KCTP209F	29 2	0428KCTP219F	39	
10 1	0428KCTP201F	20 2	0428KCTP210F	30 2	0428KCTP220F	40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

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

LDC #: 12384A1
SDG #: P407297

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: SK
2nd Reviewer: d

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

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

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

Blank analysis date: 7/24/04
Conc. units: ug/L
Associated Samples: 1-17

Compound	Blank ID	Sample Identification								
	4070471BLK	12		1-11, 13-17						
Methylene chloride										
Acetone	5.36	51/U		>10x						
CRQL										

Blank analysis date:
Conc. units:
Associated Samples:

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
CRQL										

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 #: 12384A1
SDG #: P407297

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and CRQLs

Reviewer: SK
2nd Reviewer: Q

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

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

Y N N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y N N/A Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	Sample ID	Finding	Associated Samples	Qualifications
		1, 3, 7, 8, 11, 14, 17	F > calib range		Jdet/P
		19, 22-24, 29, 30			
		33			

Comments: See sample calculation verification worksheet for recalculations

LDC #: 12384A1
SDG #: P407297

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: VL
2nd reviewer: [illegible]

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

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

Compound	Concentration (ug/L)		RPD ≤50
	7	8	
Acetone	110	120	9

Compound	Concentration (ug/L)		RPD ≤50
	17	18	
Acetone	140	89	44
O	9.5	6.2	42
K	1.7	1.2	34

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Fort Ord OU CT Bio Study
Data Validation Reports
LDC# 12384

Iron

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU CT Bio Study 2004

Collection Date: July 14, 2004

LDC Report Date: August 24, 2004

Matrix: Water

Parameters: Iron

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P407297

Sample Identification

0428KCTP226F
0428KCTP227F
0428KCTP228F
0428KCTP229F
0428KCTP230F
0428KCTP231F
0428KCTP232F
0428KCTP233F
0428KCTP234F
0428KCTP235F
0428KCTP235D
0428KCTP236F
0428KCTP226FMS
0428KCTP226FMSD

Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Iron.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

A table summarizing all data qualification flags 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 specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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.

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

MACTEC
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954
ATTN: Ms. Debbie Leibensberger

August 4, 2004

SUBJECT: Fort Ord OU CT Bio Study 2004, Data Validation

Dear Ms. Leibensberger

Enclosed is the final validation report for the fraction listed below. This SDG was received on August 2, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12287:

SDG #	Fraction
P406097	Volatiles

The data validation was performed under EPA Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- USACE Environmental Data Quality Management Program Specifications, USACE District, Version 1.08
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng

Pei Geng
Project Manager/Senior Chemist

Attachment 1

RTC

LDC #12287 (MACTEC-Petaluma, CA / Fort Ord OU CT Bio Study 2004)

Project#: 4087030006 01030

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P406097	08/02/04	08/16/04	36	0																														
Total	B			36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Fort Ord OU-C Bio Pilot Study
Data Validation Reports
LDC# 12287

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Fort Ord OU-C Bio Pilot Study

Collection Date: June 2, 2004

LDC Report Date: August 3, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Sequoia Analytical

Sample Delivery Group (SDG): P406097

Sample Identification

0422KCTP146F
0422KCTP147F
0422KCTP148F
0422KCTP149F
0422KCTP150D
0422KCTP151F
0422KCTP152F
0422KCTP153F
0422KCTP154F
0422KCTP155F
0422KCTP156F
0422KCTP157F
0422KCTP158F
0422KCTP159F
0422KCTP160F
0422KCTP161F
0422KCTP162F
0422KCTP163F
0422KCTP164F
0422KCTP165F
0422KCTP166F
0422KCTP167F
0422KCTP168F
0422KCTP169F
0422KCTP170F
0422KCTP171F
0422KCTP172F
0422KCTP173F
0422KCTP173FRE
0422KCTP174F
0422KCTP174FRE
0422KCTP175F
0422KCTP175FRE
0422KCTP176D
0422KCTP177A
0422KCTP177ARE

Introduction

This data review covers 36 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the HLA Chemical Data Quality Management Plan (CDQMP), Former Fort Ord Complex, Monterey County, California, July 22, 1997.

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:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

U Data are qualified as non-detected, because the analyte was observed in an associated laboratory or field blank.

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 check was not reviewed for Level III.

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 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 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

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% .

Initial calibration verification (ICV) percent differences (%D) were within the QC limits for all compounds.

All of the continuing calibration RRF values were within method and validation criteria.

The continuing calibration RRF values of the initial calibration verification (ICV) were within method and validation criteria.

V. Blanks

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

Samples 0422KCTP177A and 0422KCTP177ARE were identified as trip blanks. No volatile contaminants were found in these 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

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

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

Internal standards were not reviewed for Level III.

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

Samples 0422KCTP149F and 0422KCTP150D and samples 0422KCTP175F and 0422KCTP176D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)
	0422KCTP149F	0422KCTP150D	
Carbon tetrachloride	3.7	3.8	3 (≤50)
Chloroform	0.39	0.37	5 (≤50)

Compound	Concentration (ug/L)		RPD (Limits)
	0422KCTP175F	0422KCTP176D	
Carbon tetrachloride	5.7	5.8	2 (≤50)
Chloroform	0.67	0.67	0 (≤50)

Fort Ord OU-C Bio Pilot Study
Volatiles - Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Laboratory Blank Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Fort Ord OU-C Bio Pilot Study
Volatiles - Field Blank Data Qualification Summary - SDG P406097

No Sample Data Qualified in this SDG

Sequoia Analytical

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP146F (P406097-01) Water	**Sampled: 06/02/04 07:53 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*118 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP147F (P406097-02) Water	**Sampled: 06/02/04 07:58 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*118 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP148F (P406097-03) Water	**Sampled: 06/02/04 08:08 Received: 06/03/04 14:00**									
Carbon tetrachloride	**4.3**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.40**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*115 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP149F (P406097-04) Water	**Sampled: 06/02/04 08:11 Received: 06/03/04 14:00**									
Carbon tetrachloride	**3.7**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.39**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP150D (P406097-05) Water	**Sampled: 06/02/04 08:11 Received: 06/03/04 14:00**									
Carbon tetrachloride	**3.8**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	**0.37**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP151F (P406097-06) Water	**Sampled: 06/02/04 08:15 Received: 06/03/04 14:00**									
Carbon tetrachloride	**2.0**	0.25	0.50	ug/l	1	4060164	06/07/04	06/08/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*110 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	

Sequoia Analytical

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP152F (P406097-07) Water	**Sampled: 06/02/04 08:44 Received: 06/03/04 14:00**									
Carbon tetrachloride	**5.3**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.88**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP153F (P406097-08) Water	**Sampled: 06/02/04 08:47 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.3**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP154F (P406097-09) Water	**Sampled: 06/02/04 08:50 Received: 06/03/04 14:00**									
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*114 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP155F (P406097-10) Water	**Sampled: 06/02/04 09:03 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP156F (P406097-11) Water	**Sampled: 06/02/04 09:06 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.6**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP157F (P406097-12) Water	**Sampled: 06/02/04 09:09 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.6**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP158F (P406097-13) Water	**Sampled: 06/02/04 09:18 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.78**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP159F (P406097-14) Water	**Sampled: 06/02/04 09:21 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.82**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP160F (P406097-15) Water	**Sampled: 06/02/04 09:24 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.81**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP161F (P406097-16) Water	**Sampled: 06/02/04 09:34 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.92**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP162F (P406097-17) Water	**Sampled: 06/02/04 09:37 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.2**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.92**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP163F (P406097-18) Water	**Sampled: 06/02/04 09:40 Received: 06/03/04 14:00**									
Carbon tetrachloride	**6.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**0.74**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP164F (P406097-19) Water	**Sampled: 06/02/04 09:48 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.5**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP165F (P406097-20) Water	**Sampled: 06/02/04 09:51 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP166F (P406097-21) Water	**Sampled: 06/02/04 09:54 Received: 06/03/04 14:00**									
Carbon tetrachloride	**7.9**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP167F (P406097-22) Water	**Sampled: 06/02/04 10:04 Received: 06/03/04 14:00**									
Carbon tetrachloride	**9.4**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.1**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*111 %*	*65-135*			"	"	"	"	
0422KCTP168F (P406097-23) Water	**Sampled: 06/02/04 10:08 Received: 06/03/04 14:00**									
Carbon tetrachloride	**9.1**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP169F (P406097-24) Water	**Sampled: 06/02/04 10:12 Received: 06/03/04 14:00**									
Carbon tetrachloride	**8.3**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.0**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*108 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP170F (P406097-25) Water	**Sampled: 06/02/04 10:24 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*65-135*			"	"	"	"	
0422KCTP171F (P406097-26) Water	**Sampled: 06/02/04 10:27 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060225	06/09/04	06/10/04	EPA 8260B	
Chloroform	**1.3**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP172F (P406097-27) Water	**Sampled: 06/02/04 10:30 Received: 06/03/04 14:00**									
Carbon tetrachloride	**11**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**1.2**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*114 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP173F (P406097-28) Water	**Sampled: 06/02/04 10:38 Received: 06/03/04 14:00**									
Carbon tetrachloride	**3.2**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.25**	0.25	0.50	"	"	"	"	"	"	J
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP173F (P406097-28RE1) Water	**Sampled: 06/02/04 10:38 Received: 06/03/04 14:00**									
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*97 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*100 %*	*65-135*			"	"	"	"	
0422KCTP174F (P406097-29) Water	**Sampled: 06/02/04 10:41 Received: 06/03/04 14:00**									
Carbon tetrachloride	**5.7**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.54**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP174F (P406097-29RE1) Water Sampled: 06/02/04 10:41 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*103 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*93 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*103 %*	*65-135*			"	"	"	"	
0422KCTP175F (P406097-30) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon tetrachloride	**5.7**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.67**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*115 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*	*65-135*			"	"	"	"	
0422KCTP175F (P406097-30RE1) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*103 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*93 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*65-135*			"	"	"	"	
0422KCTP176D (P406097-31) Water Sampled: 06/02/04 10:44 Received: 06/03/04 14:00										
Carbon tetrachloride	**5.8**	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	**0.67**	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*111 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*111 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	

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MACTEC E&C - Petaluma	Project:Fort Ord - OU CTP Pilot Study-1	P406097
5341 Old Redwood Highway, Suite 300	Project Number:4087030007.010204	**Reported:**
Petaluma CA, 94954	Project Manager:Mike Taraszki	06/17/04 18:02

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0422KCTP177A (P406097-32) Water Sampled: 06/02/04 11:00 Received: 06/03/04 14:00										
Carbon tetrachloride	ND	0.25	0.50	ug/l	1	4060285	06/11/04	06/11/04	EPA 8260B	
Chloroform	ND	0.25	0.50	"	"	"	"	"	"	
Chloromethane	ND	0.25	0.50	"	"	"	"	"	"	
Methylene chloride	ND	2.5	5.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*112 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*112 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*109 %*	*65-135*			"	"	"	"	
0422KCTP177A (P406097-32RE1) Water Sampled: 06/02/04 11:00 Received: 06/03/04 14:00										
Carbon disulfide	ND	1.4	10	ug/l	1	4060347	06/15/04	06/15/04	EPA 8260B	
Surrogate: Dibromofluoromethane		*102 %*	*65-135*			"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*119 %*	*65-135*			"	"	"	"	
Surrogate: Toluene-d8		*95 %*	*65-135*			"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*	*65-135*			"	"	"	"	

LDC #: 12287A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 8/3/04
SDG #: P406097 Level III Page: 1 of 1
Laboratory: Sequoia Analytical Reviewer: JC
2nd Reviewer:

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

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: 6/2/04
II.	GC/MS Instrument performance check	N	Not req'd by level III
III.	Initial calibration	A	%RSD ≤ 20
IV.	Continuing calibration ICV	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not req'd by level III
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	SW	D = 4+5, 32+34, 33+34R
XVII.	Field blanks	ND	TB = 35, 36

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 Hso's

1 3	0422KCTP146F	11 2	0422KCTP156F	21 2	0422KCTP166F	31 4	0422KCTP174FRE
2 3	0422KCTP147F	12 2	0422KCTP157F	22 2	0422KCTP167F	32 3	0422KCTP175F
3 1	0422KCTP148F	13 2	0422KCTP158F	23 2	0422KCTP168F	33 4	0422KCTP175FRE
4 1	0422KCTP149F	14 2	0422KCTP159F	24 2	0422KCTP169F	34 3	0422KCTP176D
5 1	0422KCTP150D	15 2	0422KCTP160F	25 2	0422KCTP170F	35 3	0422KCTP177A
6 1	0422KCTP151F	16 2	0422KCTP161F	26 2	0422KCTP171F	36 4	0422KCTP177ARE
7 2	0422KCTP152F	17 2	0422KCTP162F	27 3	0422KCTP172F	37 1	4060164BLK
8 2	0422KCTP153F	18 2	0422KCTP163F	28 3	0422KCTP173F	38 2	4060225BLK
9 2	0422KCTP154F	19 2	0422KCTP164F	29 4	0422KCTP173FRE	39 3	4060285BLK
10 2	0422KCTP155F	20 2	0422KCTP165F	30 3	0422KCTP174F	40 4	4060347BLK

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chorlde**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

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

LDC #: 12257A1
SDG #: P406097

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

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

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD ≤50
	4	5	
O	3.7	3.8	3
K	0.39	0.37	5

Compound	Concentration (ug/L)		RPD ≤50
	32	34	
O	5.7	5.8	2
K	0.67	0.67	0

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD