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FINAL
Data Summary Report Area D Soil Gas Sampling and Analysis



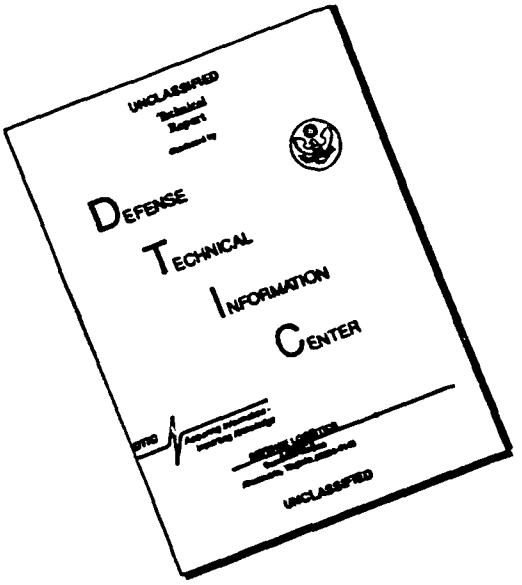
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Volume II Data

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FINAL
SOIL VAPOR DATA SUMMARY REPORT
VOLUME II: DATA

LINE ITEM 0004 OF
DELIVERY ORDER 5003
UNDER CONTRACT/ORDER NO. F0469990D00355003

Prepared for
McClellan Air Force Base

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SECTION I
SUBCONSULTANT QA/QC REVIEW--CSL

ANALYTICAL REPORT
Section 1
McClellan AFB
Close Support Laboratory
March 20 - April 12, 1991

Prepared for:

CH_2M Hill

Prepared by:

Steven D. Hoyt, Ph.D.

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1.0 PROJECT DESCRIPTION

1.1 Sample Description

A Close Support Laboratory for the analysis of landfill gas samples by EPA Method TO-14 using full scan GC/MS was established at the McClellan Air Force Base for use by CH2M Hill. The laboratory was designed to analyze approximately 180 landfill samples collected over a one month period. The samples were collected in 800 ml SUMMA canisters provided by the Oregon Graduate Institute (OGI). Section 1 describes the quality assurance program and the analytical methods for the CSL laboratory, and Section 2 contains all of the analytical report sheets by day analyzed.

The laboratory used a HP 5809 GC with a HP 5971 MSD leased for the project from US Analytical Instruments. The GC/MS system was connected to the HP Vectra MS/DOS Chemstation, and the reports were generated by the computer and automatically printed in the form of Excell Spreadsheets. The daily QA/QC reports were generated on a second IBC Compatiable computer using LOTUS 123 software.

The laboratory was manned with experienced GC/MS operators who were in charge of the daily QA/QC operations. An addtional GC operator supplied by CH2M Hill assisted in the sample analysis. All data was reviewed by a GC/MS operator. The methodology used for analysis and the standard operating procedures are given in Section 1, 2.0.

1.2 Quality Assurance

A. Project Specific Quality Assurance

Method Blank - A laboratory generated "zero" air sample stored in a SUMMA canister which is analyzed in the morning just after the standards and before any samples are analyzed.

Spikes - Spikes are actual samples that have analyte compounds added in a known amount. For SUMMA canisters a known volume of 5 ppmv gas standard is added to each canister. The recovery of the analytes is then reported as a percent recovery.

$$\% \text{ recovery} = \frac{(\text{measured concentration}) \times 100}{(\text{spiked concentration})}$$

Duplicates - For duplicates, a mid or high level sample is analyzed twice to determine the Relative Percent Difference (RPD).

$$\%\text{RPD} = \frac{(\text{Conc. 1} - \text{Conc. 2}) \times 100}{\text{Average Concentration}}$$

Standards - NBS traceable standards are analyzed with each sample batch. A 100% standard is analyzed in the morning to verify instrument response, target calibration windows, and initial calibration validity. A 50% calibration standard is analyzed at the end of the day to verify linerity and daily calibration.

1.3 Sample Log Sheets

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
3000	3/20/91	11:03	P-10	30 "Hg	MW-AC-C-019 MW #1 B	
3001	3/20/91		P-1	0 "Hg	MW-AC-C-001	
3002	3/20/91		P-2	0 "Hg	MW-AC-C-002	
3003	3/20/91		P-3	0 "Hg	MW-AC-C-003	
3004	3/20/91	12:21	P-4	-0.5" Hg	MW-AC-C-008	
3005	3/20/91	12:10	P-5	0" Hg	MW-AC-C-007	
3006	3/20/91	12:15	P-6	0" Hg	MW-AC-C-009	
3007	3/20/91	12:30	P-7	0 Hg	MW-AC-C-013	
3008	3/20/91	12:35	P-8	0" Hg	MW-AC-C-014	
3009	3/20/91	12:40	P-9	1" Hg	MW-AC-C-015	
3010	3/22/91	11:14	P-24	0" Hg	MW-DR-C-1-1	
3011	3/22/91	3:07	P-23	0" Hg	MW-DR-C-1-2	
3012	3/22/91	4:48	P-25	0" Hg	MW-DR-C-1-3	
3013	3/24/91	10:37	P-14	0" Hg	MW-DR-C-2-1	
3014	3/23/91	1:47	P-19	0" Hg	MW-DR-C-2-2	
3015	3/23/91	4:54	P-12	0" Hg	MW-DR-C-2-3	
3016	3/25/91	10:16	P-20	0" Hg	MW-DR-C-3-1	
3017	3/25/91	12:55	R-15	0 Hg	MW-DR-C-3-2	
3018	3/25/91	4:57	P-13	0" Hg	MW-DR-C-3-3	
3019	3/27/91	11:28	P-22	0" Hg	MW-PC-C-2-B	
3020	3/27/91	12:29	P-21	0" Hg	MW-PC-C-2-1	
3021	3/27/91			25psi		
[illegible]	3/27/91		P-17	30 psi	MW [illegible]	
[illegible]	3/27/91		P11	5psi	[illegible]-3	

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
3024	3/29/91		P50	0	MW-AC-3-1	
3025	3/29/91		P35	0	MW-AC-3-2	
3026	3/29/91		P40	0	MW-AC-3-3	
3027	3/29/91		P45	0	MW-AC-3-B	
3028	3/29/91		P34	0	MW-HDR-C-1-1	
3029	3/30/91		P39	0	MW-DR-C-7-1	
3030	3/30/91		P30	0	MW-DR-C-7-2	
3031	3/30/91		P44	0	MW-DR-C-7-3	
3032	3/31/91		P48	0	MW-DR-C-8-1	
3033	3/31/91		P49	0	MW-DR-C-8-2	
3034	3/31/91		P43	0	MW-DR-C-8-3	
3035	4/1/91	1120	P28	0	MW-DR-C-9-1	
3036	4/1/91	1323	P38	0	MW-DR-C-9-2	
3037	4/1/91	1530	P33	0	MW-DR-C-9-3	
3038	4/2/91	1155	P42	C	MW-AC-C-7-1	
3039	4/2/91	1120	P27	C	MW-AC-C-7-2	
3040	4/2/91	1415	P32	C	MW-AC-C-7-3	
3041	4/2/91	1622	P37	C	MW-AC-C-7-B	
3042	4/2	1250	P47		MW-DR-C-6-1	
3043	4/2	1450	P46	0	MW-DR-C-6-2	
3044	4/2	1610	P43	0	MW-DR-C-6-3	
3045	4/2	1701	P41	0	MW-DR-C-6-4	
3046	4/3	1132	P36	-1/2	MW-AC-C-8-1	
3047	4/3	1210	P31	-1½	MW-AC-C-8-2	

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
3048	4/3	1256	P-31	-1½	MW-AC-C-8-3	
3049	4/3	1047	P-51	C	MW-AC-C-8-B	
3050	4/3	0953	P-82	C	MW DR-C-5-1	
3051	4/3	1356	P-85	-1.5	MW DR-C-5-2	
3052	4/3	1351	P-42	-1.0	MW-DR-C-5-3	
3053	4/4	1145	P-18	-1.7	MW-AC-C-9-1	
3054	4/4	1218	P-17	-1.7	MW-AC-C-9-2	
3055	4/4	1309	P-41	-2.0	MW AC-C-9-3	
3056	4/4	1145	P-13	-2.0	MW-AC-C-9-4	
3057	4/4	1024	P-65	C	MW-AC-C-9-B	
3058	4/4	0955	P-66	-2.0	MW-DR-C-4-1	
3059	4/4	1157	P-56	-1.5	MW-DR-C-4-2	
3060	4/4	1357	P-57	-2.0	MW-DR-C-4-3	
3061	4/5	1135	P-72	-1.0	VR-AC-C-31-1	
3062	4/5	1159	P-69	0	VR-AC-C-31-2	
3063	4/6	1522	P-62	0	VR-AC-C-31-3	
3064	4/6	1340	P-71	0	VR-AC-C-31-B	
3065	4/6	1317	P-61	0	MW-AC-C-6-1	
3066	4/6	1348	P-62	0	MW-AC-C-6-2	
3067	4/6	1425	P-66	0	MW-AC-C-6-3	
3068	4/6	1230	P-67	+4.0	MW-AC-C-6-B	
3069	4/8	1003	P-81	+15 psi	MW-AC-C-5-B	
3070	4/8	1056	P-73	0	MW-AC-C-5-1	
3071	4/8	1126	P-76	0	MW-AC-C-5-2	

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
3072	4/8	1200	P-70	0	MW-AC-C-5-3	
3073	4/8	1402	P-82	-2 SCD	MW-AC-C-4-1	
3074	4/8	1433	P-77	-2 SCD	MW-AC-C-4-2	
3075	4/8	1504	P-91	-2	MW-AC-C-4-3	
3076	4/8	1320	P-86	4	MW-AC-C-4-B	
3077	4/8	0900	P-74	4	MW-HDR-C-1-12	
3078	4/8		P-96	2	MW HDR C 1-3	
3079	4/8		P-75	2	MW HDR-C-1-4	
[illegible]	4/9	1148	P-87	0	VR-AC-C-43-1	
[illegible]	4/9	1228	P-93	0	VR-AC-C-43-2	
[illegible]	4/9	1255	P-88	0	VR-AC-C-43-3	
[illegible]	4/9	1148	P-98	0	VR-AC-C-43-4	
[illegible]	4/9	1340	P-78	0 SCD 2	VR-AC-C-44-B	
[illegible]	4/9	1419	P-80	0	VR-AC-C-44-1	
[illegible]	4/9	1442	P-84	0	VR-AC-C-44-2	
[illegible]	4/9	1112	P-83	0 SCD 4	VR-AC-C-43-B	
SCD 3088	4/9	1504	P-85	0	VR-AC-C-44-3	
3089	4/9	10:10	P-92	30	MW-HDR-C-1-5	
3090	4/9	11:35	P 97	20	MW-HDR-C-1-6	
3091	4/10	[illegible]	[illegible]	+2 PSI	MW-HDR-C-7-1	
3092	4/10	1258	P116	0	VR-AC-C-61-2	
3093	4/10	1040	P100	0	VR-AC-C-42-2	
3094	4/10	1110	P95	0	VR-AC-C-42-3	
3095	4/10	1236	P99	0	VR-AC-C-61-4	

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
3096	4/10	925	P79	0	VR-AC-C-42-B	
3097	4/10	1002	P90	0	VR-AC-C-42-1	
3098	4/10	1210	P106	0	VR-AC-C-61-B	
3099	4/10	1236	P111	0	VR-AC-C-61-1	
3100	4/10	1320	P101	0	VR-AC-C-61-3	
3101	4/10	1414	P122	0	VR-AC-C-34-B	
3102	4/10	1440	P124	0	VR-AC-C-34-1	
3103	4/10	1503	P88	2	VR-AC-C-34-2	
3104	4/10	1529	P123	0	VR-AC-C-34-3	
3105	4/10	1224	P121	2.5	MW-~~AC~~ HDR-C-7-2	
3106	4/10	1247	P94	2.5	MW-~~AC~~ HDR-C-9-1	
3107	4/10	17:07	P117	3.2 PSI	MW-HDR-C-9-2	
3108	4/10	1050	P103	~~0~~ 1.5 psig	VR-AC-C-35-B	
3109	4/11	1122	P112	26	VR-PC-C-35-4	
3110	4/11	1122	P109	0	VR-AC-C-35-1	
3111	4/11	1145	P113	26	VR-PC-C-35-5	
3112	4/11	1146	P104	0	VR-AC-C-35-2	
3113	4/11	1212	P108	0	VR-AC-C-35-3	
3114	4/11	1119	P107	15	MW-HDR-~~B~~ C-7-3	
3115	4/11	1233	P102	15	MW-HDR-~~B~~ C-7-4	
3116	4/11	1247	P127	15	MW-HDR-C-9-3	
3117	4/11	1418	P128	0	VR-AC-C-39-1	
3118	4/11	1452	P126	0	VR-AC-C-39-2	
3119	4/11	1515	P114	0	VR-AC-C-39-3	

SAMPLE LOGBOOK

Lab ID:	Date	Time	Can No.	Pressure	Description	Rec'd by
312[illegible]	4/11	1357	P105	2	VR-AC-C-39-B	
312[illegible]	4/11	1534	P146	2	[illegible]-AC-C-36-B	
312[illegible] 2	4/11	1600	P110	0	[illegible]	
312[illegible]	4/11	[illegible]	P120	-2	VR-AC-C-36 2	
312[illegible]	4/11	1634	P[illegible]145	-2	VR-AC-C-36-3	
3125	[illegible]	1600	P119	+30	VR-PC-C-36-4	
3126	4/11	1634	P125	+25	VR PC-C-36-5	
3127	4/11	[illegible]	P115	+10	MW-AC-C-9-4	
3128	4/12	11:36	[illegible]	0	VR-AC-C-13-B	
3129	4/12	12:19	P150	0	VR-AC-C-13-1	
3130	4/12	12:30	P135	-2	VR-AC-C-13-2	
3131	4/12	12:40	[illegible]	-1	VR-AC-C-13-3	
3132	4/12				VR-AC-C-13-3	
3133	4/12	16:40	P143	-2	AA-AC-C-1	
3134	4/12	16:40	P144	-2	AA-AC-C-2	
3135	4/12	15:58	P129	-1	MW-LFAC-C-7-1	
3136	4/12	15:59	P132	-1	MW-LFAC-C-7-2	
3137	4/12	14:15	P139	-1	MW-LFAC-C-2-1	
3138	4/12	14:20	P133	-1	MW-LFAC-C-2-2	
3139	4/12	12:30	P137	-1	VR-AC-C-13-5	
3140	4/12	12:19	P118	-1	VR-AC-C-13-4	
3141	4/12	14:37	P130	-2	MW-LFAC-C-2-3	
3142	4/12	14:42	P138	-1	MW-LFAC-C-2-4	

2.0 ANALYTICAL METHODS

2.1 Introduction to Analytical Methodology

The samples were analyzed using EPA Method TO-14 for ambient air with full scan GC/MS as described in the initial proposal.

2.2 Description of Analytical Methods

Volatile Organic Compounds by GC/MS

The samples were analyzed by EPA proposed Method TO-14 for ambient air sampling and analysis. The method uses cryotrapping to preconcentrate the air and gas samples which are separated on a fused silica capillary column and analyzed by full scan gas chromatography/mass spectrometry (GC/MS). A 500 to 1000 ml ambient air sample or a 1.0 to 20.0 ml landfill gas sample is transferred from the air sampling container to the freezout loop is immersed in liquid oxygen and concentrates the sample. The sample is desorbed from the cryotrap at 85C and is cryofocussed onto the beginning of a narrow bore 30 meter fused silica capillary column with a 1.0 micron phase loading. The column is temperature programmed to 200 C. the mass spectrometer is scanned from 33 AMU. The GC/MS is tuned and operated according to the specifications in EPA SW-846 Method 8240. Target compounds are identified and quantitated from extracted ion chromatograms using two characteristic ions and retention times. Additional tentatively identified compounds (TIC'S) are identified using a PBM computer search of the NIST 49,000 compound library. The method detection limit (MDL) is listed on the analytical report, and the reproducibility of the method is about 10-15% for most compounds at 1 ppbv.

2.2 Standard Operating Procedures

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 25, 2991

DAILY START-UP PROCEDURE:

1) Turn on power strip for pump and hot pot.

2) Turn on Valydyne pressure gauge.

3) Cap canister intake connector.

4) Turn on Zero air cylinder, open the three toggle valves to flush system. Turn Three Way Valve to Canister 10 psi

5) Check Helium Cylinder, change is below 500 lbs.

6) Autotune GC/MS.

7) Set-up daily file folder.

8) Start Daily Sample Log for GC/MS.

9) Turn on CO2 cylinder, and collect liquid oxygen for traps using stainless steel thermous.

10) Turn on secondary computer and load daily QA report.

11) Load Method in GC/MS system.

12) Do intial daily QA check.

File Names:

B - Blank
S - Standard
Q - QA Sample

Standard, Blank, QA

Year

S 0 3 2 9 1 A 1 . D

Date Method Run Number (1st STD is 1, 2nd STD that day is 2)

Method

A - TO14L
B - TO14

Sample

Method

3 0 0 2 A 1 . D

Lab ID Run number

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 29, 2991

DAILY ANALYSIS PROCEDURE:

1) Start Machine using Daily Start-Up Procedure.

2) Check Auto Tune. EM about 1500 - 1800 emv

3) Run Daily 100% Standard.
   - Use Method TO14
   - Use 20 ml Volume of 100 ppbv Standard
   - Check Printout of Standard against Previous Standard
   - Use this Standard to Update Calibration Table on Method TO14 and TO14L.
   - Get Tabulated Spectrum of BFB and enter into Daily QA Report in LOTUS 123 (QATP)

4) Run Daily Blank
   - Analyze a 200 ml Zero Air Blank
   - Use Method TO14
   - Process using Methods TO14 and TO14L
   - The Field Blank can be used for this if it is Clean
   - If the Field Blank has components above the MDL Run a Zero Air Blank.
   - Enter Blank Values into Daily QA Report.

5) Analyze Samples
   - Analyze ALL samples using TO14L with 200 ml Volume to get Lowest MDL. On TO14L the MS turns off from 8.5 to 10 min to avoid large F-113 peak.
   - Do not pressurize the canister unless canister pressure is less then 10" Vacuum, or a duplicate is to be run on zero pressure canister. (See Pressurization SOP)
   - Follow Data Analysis Protocal for each sample run.
   - Analyze the first sample in duplicate and enter results in Daily QA Report.
   - Analyze additional samples once.
   - Analyze Selected Canisters (by CH2M) by Method TO14 using 20 ml (canister has to have positive pressure).

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 25, 2991

DAILY STANDARDIZATION PROCEDURE:

1) Load Method in GC/MS System.

2) Uncap Standard and Internal Standard Cylinders.

3) Place loop valve in position to load desired loop. Normally the 10.0 ml top loop will be used.

4) Connect standard line to 100 ppbv standard cylinder.

5) Flush loop and line with standard. Flush with enough volume to flush regulator.

6) Close exit toggle valve (Valve 2).

7) Verify trap is in the load position.

8) Close Vacuum toggle valve (valve 3).

8) Place dewar of liquid oxygen on cryo trap, and let cool.

9) Open valve and flush loop.

10) Open Exit toggle Valve (Valve 2).

11) Switch loop valve to alternate loop position.

12) Connect internal standard to sample line.

13) Flush loop with internal standard.

14) At a pressure of 250 switch loop valve to alternate loop position.

15) Connect sample line to Standard to load additional 10 ml (for 20 ml standard size).

16) At a pressure of 300 switch loop valve to alternate loop position.

17) Continue loading with zero air to a pressure of 400.

18) At pressure of 400 close the Zero Air toggle valve (Valve 1) and then close the Exit Toggle valve (Valve 2).

19) Place a loop of capillary column into dewar of liquid oxygen for cryofocus.

19) Pour hot water, switch cryotrap Valve to inject, take liquid oxygen off cryo trap and replace with hot water.

20) Time for 2.5 minutes. After 1 min has passed, turn on GC oven cryo to cool oven.

21) After 2.5 minutes switch Cryotrap Valve to load.

22) Open the three toggle valves to flush with zero air.

23) When oven is at temperature, press start run, and pull out capillary column.

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 29, 2991

DAILY ANALYTICAL PROTOCOL:

1) Analyze 20.0 ml of a 100 ppbv Standard for the 100% Standard using Method TO14.

a) Tabulate BFB in Standard
b) Print Extracted Ion Report
c) Compare with previous days standard.
c) Print Chromatogram and Visually Compare.
d) Update Calibration Table
e) Enter BFB, and Standard Areas in Daily QA Report Spreadsheet and check RRF.
f) If BFB or RRF does not meet criteria for more then 2 compounds then rerun Standard.

2) Analyze 200 ml of Blank using Method TO14.

a) Enter Blank areas into spreadsheet to verify levels are below MDL for method.
b) If level above MDL run another blank. Exception would be for F-113 when TO14L Method to be used.

3) Load Method TO14L for all samples. Note: Some samples are to be analyzed at 20.0 ml for higher compounds as desired by CH2M personnel.

a) Analyze 200 ml of Samples.
b) Analyze one Sample in Duplicate (This sample should be pressurized before analysis to have enough sample). Duplicates should be +/- 50% for compounds above 2 ppbv. If not reanalyze sample to determine problem.
c) Check Excell Report
d) Modify Report for volume or pressure
e) Print out TIC chromatogram
f) Verify peak shape
g) Proceed with next sample analysis

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 29, 2991

DATA ANALYSIS/POST RUN FILE MANAGEMENT PROCEDURE:
For Each Sample Run Do The Following.

NOTE: Be careful not to save an individual modified file over the defalt processing file: TO14.XLS or TO14L.XLS. If this happens reload method from floppy disc.

UPDATE DAILY CALIBRATION:

1) After Standard is Run and and automatically processed against the previous days standard (Method TO14), review the results to verify that all compounds are found and are near 100 ppbv +/- 50%.

2) Obtain a BFB Tabulated Spectra to enter Daily QA Report.
   a) Open DATAANALYSIS.
   b) Click on FILE and LOAD DATA FILE
   c) Zoom in on peak as described in Section 4a above.
   d) Drag cursor to peak desired and double click on RIGHT mouse button.
   h) To get a Tabulation of Spectrum (BFB) click SPECTRA and TABULATE SPECTRA.

3) Get a Printout of the Standard Chromatogram.
   a) Use the Mouse to zoom in on TIC. Put mouse in left corner of chromatogram and press the left button and hold. Drag box up to 1e+07 and to 16 min. Release button.
   b) Click on GRAPHICS and PRINT SELECTED WINDOW.
   c) Select window 2 and click OK.
   d) Wait for Chromatogram to print.

4) For Calibration Update, Open DATA ANALYSIS

4) Open FILE and click on LOAD FILE, then select file name (should be defalt), and click OK.

5) Open QUANT REPORT and click on ADD/UPDATE CALIBRATION LEVEL.

6) Select your standard file for File for Update Calibration (should be the defalt file).

7) RECALIBRATE (X ALL THREE BOXES) USE REPLACE (NOT AVERAGE) DO UPDATE, SAVE TO METHOD
8) LOAD METHOD TO14L AND REPEAT STEPS 4-7, SAVE TO METH

POST RUN FILE MANAGEMENT

1) After the Computer has printed out the preliminary Excell Spreadsheet, is the best time to save and modify it.

2) If no volume or pressure corrections are to be made. Then just save the file and print duplicate copy.

3) For post run data processing click on DATAANALYSIS. Click on FILE and make sure the desired file is the defalt. If not click on LOAD DATA FILE.

a) Open CUSTREPORT and click on RUN EXCEL
b) Click on FILE and OPEN
c) Select TO14 or TO14L and click OK
d) Click on FILE and PRINT
d) Click on FILE and SAVE AS
e) Save on A Drive as A:3xxx where 3xxx is the Lab Number.
f) Click on FILE and EXIT.
g) Do not save changes as TO14.XLS if it asks for it.

3) If a volume or pressure correction is to be made.

a) Open CUSTREPORT and click on CREATE/MODIFY TEMPLATE.
b) Select TO14L or TO14
c) Enter Modifications by typing numbers in appropriate boxes in spreadsheet.
d) Click on FILE and EXCELL MAIN MENUE.
e) Print File by Clicking again on FILE and PRINT, select 2 copies and click OK.
f) Verify report results.
g) Save report to floppy, by clicking on FILE and SAVE. Where it asks for file name type A:3xxx where 3xxx is the Lab Number.
h) Click on FILE and EXIT.

4) Print out Chromatogram.

a) Use the Mouse to zoom in on TIC. Put mouse in left corner of chromatogram and press the left button and hold. Drag box up to 1e+07 and to 16 min. Release button.
b) Click on GRAPHICS and PRINT SELECTED WINDOW.
c) Select window 2 and click OK.
d) Wait for Chromatogram to print.

5) Verify that the report matches chromatogram. Sometimes peaks that are large and have a poor shape will not appear on report. If this is the case manually integrate peak, calculate result and enter in Excell spreadsheet and reprint.

OPTIONAL DATA ANALYSIS.

1) To print a mass spectrum of a peak.

a) Open DATAANALYSIS.

b) Click on FILE and LOAD DATA FILE
c) Zoom in on peak as described in Section 4a above.
d) Drag cursor to peak desired and double click on RIGHT mouse button.
e) Click on GRAPHICS and PRINT SELECTED WINDOW.
f) Select window 1 and click OK.
h) To get a Tabulation of Spectrum (BFB) click SPECTRA and TABULATE SPECTRA.

2)

STANDARD OPERATING PROCEDURE
Close Support Laboratory
March 25, 2991

DAILY SHUT-DOWN PROCEDURE:

1) Turn off the three toggle valves, and the 3 way valve to pressure gauge.

2) Turn off Valydyne pressure gauge.

3) Turn off power strip for pump and hot pot.

4) Turn off the Zero air cylinder.

5) Leave Helium Cylinder on, but change if it is below 500 lbs.

6) Turn off CO2 cylinder.

10) Turn off secondary computer.

11) Verify Cryo option on GC is off.

12) Check that caps are on standard and internal standard cylinders.

13) Turn off lights and lock doors.

FOR DATAFILE BACKUPS

1) Open Program Manager.

2) Open File Manager.

3) Click on  to get Drive C Contents.

4) Click on CHEMPC (C:\CHEMPC\DATA\).

5) Click on DATA.

6) Click on FILE NAME (Actually a Directory).

7) Click on FILE, COPY TO: A: then click on COPY.

8) Each file takes one HD Floppy.

9) Click on FILE, DELETE Make sure correct file is to be deleted, click on DELETE, YES, YES, YES, YES at prompts.

10) Do next file.

100ml/min

Pressurize Canister

1) Shut off all toggles.

2) Put canister on measurement valve.

3) 3-way valve to sample position.

4) Turn on 3-way canister valve.

5) Open canister valve and measure pressure.

6) Close canister 3-way valve.

7) Close canister valve.

8) Open zero air toggle.

9) Open canister valve to pressurize (approx. 3 seconds).

10) Close zero air toggle.

11) Open canister 3-way valve to measure pressure on canister.

12) Close canister valve.

13) Close 3-way valve.

14) Return canister to sampling mount.

15) 3-way pressure valve to zero air.

Analyzing the Canister

Load chemstation method and include:

- Canister Number
- Sample description

Run Method

1) Put 3-way valve to zero air position.

2) Turn all toggles off.

3) Put water in heater.

4) Make sure 2ml loop is in the load position.

5) Make sure V2 is in the load position.

5) Check source vacuum 6-8 x 10^{-5}

6) Put canister on sample mount.

7) Open canister.

8) Open front toggle to flush system with sample. Flush until vacuum is at 200 torr and shut toggle off.

9) Add cryo to the trap and cool until bubbling stops.

10) Open front toggle to start loading the trap.

11) Load the ISTD.

12) At 300 torr, add capillary loop to cryogenic.

13) At 350 torr inject ISTD.

14) At 400 torr turn off front toggle.

15) Record sample volume.

16) Shut off canister valve.

POUR HOT WATER

Inject V2
Put trap in hot water
Start Timer
At 1.0 minutes turn on cryo
At 2.5 minutes V2 to load (if oven at set point)
- Start RUN
- Take capillary loop out of cryogenic

Open all toggles to flush system. Keep trap in Hot H_2O.
After 10ml loop has flushed, rotate valve to 2ml loop load.
Turn cryo off.
Monitor source vacuum to possibly over ride solvent delay.

Follow Post Run File Management Instructions.

1) -Modify Excell Spreadsheet if needed.

2) -Print Extra Excell Spreadsheet

3) -Save Excell Spreadsheet on A: floppy (even if no changes were made)

4) -Print the chromatogram for each RUN.

5) -Verify report matches chromatogram.

2.3 Analytical Methods

The following are printouts of the two methods used for analysis of the landfill gas samples by the CSL.

TO14 - Method for full scan analysis of low level landfill gas samples. This method reports all 17 target compounds. The method could not be used for samples with high concentrations of Freon 113 since the source pressure of the mass spectrometer would rise to a level that the analyzer would shut-off and abort the run.

TO14L - Method for full scan of high level landfill gas samples. This method would automatically turn off the mass spectrometer electronics during the time the Freon 113 peak eluted to avoid a shut down of the analyzer. The method picked up all target compounds except Freon 113 and those compounds that elute close to it (1,1-Dichloroethene and Dichloromethane). With this method large volumes of sample could be loaded to get low detection limits (less then 1ppbv) without instrument shut-down.

METHOD TO14

20ML Samples

TOPLEVEL PARAMETERS

Method Information For: C:\CHEMPC\METHODS\TO14.M

Method Sections To Run:

( ) Save Copy of Method With Data
( ) Pre-Run Cmd/Macro =
( ) Data Acquisition
(X) Data Analysis
( ) Post-Run Cmd/Macro =

Method Comments:
Close Support Laboratory Analytical Method for Analysis of
Air and Landfill Gas Samples by EPA Method TO-14.

END OF TOPLEVEL PARAMETERS

ACQUISITION PARAMETERS

General Information

Inlet : GC
Tune File : ATUNE.U
Acquisition Mode : Scan

Injector Information

Injection Source : Manual

[Purge Information]

Purge A/B	Init. Value	On Time	Off Time
A	Off	0.75	0.00
B	On	0.00	0.00

Temperature Information

[Zone Temperatures]

Det. A : 50 C Off
Det. B : 280 C
Inj. A : 250 C Off
Inj. B : 250 C Off

[Oven Parameters]

Oven Equib Time : 0.10 min
Oven Max   : 275 C
Cryo   : Off
Oven   : On

[Oven Program]

Initial Temp. : -10 C
Initial Time : 2.00 min

Level	Rate (C/min)	Final Temp. (C)	Final Time (min)
1	15.00	175	3.70
2	0.00		

Next Run Time : 18.03 min

MS Information
-- -----------

Solvent Delay : 4.00 min

EM Absolute : False
EMV Offset : 0.0
Resulting Voltage : 1635.2

[Scan Parameters]

Low Mass : 48
High Mass : 200
Sampling # : 3 A/D Samples 8
Threshold : 500

[Real Time Plot Parameters]

Plotting Active : True
Time Window : 10 min
Total Ion Max : 2000000

END OF ACQUISITION PARAMETERS

DATA ANALYSIS PARAMETERS

Method Name: C:\CHEMPC\METHODS\TO14.M

Percent Report Settings

Sort By: Retention Time

Output Destination
Screen: No
Printer: Yes
File: No

Integration Events: events.e

Generate Report During Run Method: Yes

Signal Correlation Window: 0.020

Qualitative Report Settings

Peak Location of Unknown: Apex

Library to Search	Minimum Quality
	0

Integration Events: AutoIntegrate

Report Type: Summary

Output Destination
Screen: No
Printer: Yes
File: No

Generate Report During Run Method: No

Quantitative Report Settings

Report Type: Area Percent by Retention Time

Output Destination
Screen: No
Printer: Yes
File: detail.xls

Generate Report During Run Method: Yes

CH2M HILL
Calibration Last Updated: Thu Mar 28 11:11:34 1991
Internal Standard

Reference Window: 5.00 Percent
Non-Reference Window: 5.00 Percent
Correlation Window: 0.03 minutes
Default Multiplier: 1.00
Default Sample Amount: 0.00

Compound Information

---

1) Freon-12 (001)

Ret. Time 4.43 min., Extract & Integrate from 3.98 to 5.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	85.00			*** AUTO ***
Q1	87.00	32.30	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		101.000	13595098

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

2) Vinyl Chloride (001)

Ret. Time 5.75 min., Extract & Integrate from 5.50 to 6.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	62.00			*** AUTO ***
Q1	64.00	32.00	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		100.000	2457273

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

3) Freon-11 (001)

Ret. Time 8.27 min., Extract & Integrate from 8.00 to 9.00 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	101.00			*** AUTO ***
Q1	103.00	63.90	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		101.000	20820387

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

4) 1,1-Dichloroethene (001)

Ret. Time 9.16 min., Extract & Integrate from 8.91 to 9.41 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	96.00			*** AUTO ***
Q1	61.00	116.60	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		108.000	8147575

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

5) Freon-113 (001)

Ret. Time 9.41 min., Extract & Integrate from 8.50 to 9.90 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	151.00			*** AUTO ***
Q1	101.00	140.80	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		105.000	11964189

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

6) Dichloromethane (001)

Ret. Time 9.53 min., Extract & Integrate from 9.00 to 9.90 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	84.00			*** AUTO ***
Q1	49.00	94.30	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		107.000	5284088

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

7) 1,1-Dichloroethane (001)

Ret. Time 10.58 min., Extract & Integrate from 10.33 to 10.99 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	63.00			*** AUTO ***
Q1	65.00	31.90	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		109.000	11254168

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv

Curve Fit: Avg. RF

8) 1,2-Dichloroethene (002)

Ret. Time 11.27 min., Extract & Integrate from 10.10 to 11.75 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 96.00			*** AUTO ***
Q1 61.00	97.00	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		101.000	4292151

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

9) Bromochloromethane (*ISTD001)

Ret. Time 11.48 min., Extract & Integrate from 11.02 to 12.02 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 128.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		10.000	8053774

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

10) Chloroform (001)

Ret. Time 11.49 min., Extract & Integrate from 11.24 to 11.90 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 83.00			*** AUTO ***
Q1 85.00	65.80	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		103.000	14584849

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

11) 1,1,1-Trichloroethane (002)

Ret. Time 12.15 min., Extract & Integrate from 11.90 to 12.55 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 97.00			*** AUTO ***
Q1 99.00	64.20	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		103.000	14086301

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

2) 1,2-Dichloroethane (002)

Ret. Time 12.18 min., Extract & Integrate from 11.93 to 12.43 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 62.00			*** AUTO ***
Q1 64.00	32.00	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		105.000	10792517

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

13) Benzene (002)

Ret. Time 12.51 min., Extract & Integrate from 12.26 to 12.95 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 78.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		108.000	15947214

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

14) Carbon Tetrachloride (002)

Ret. Time 12.54 min., Extract & Integrate from 12.29 to 12.90 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 117.00			*** AUTO ***
Q1 119.00	95.90	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		100.000	17118746

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

15) 1,4-Difluorobenzene (*ISTD002)

Ret. Time 12.75 min., Extract & Integrate from 12.54 to 13.60 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 114.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
		10.000	97113510

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

16) Trichloroethene (002)

Ret. Time 13.24 min., Extract & Integrate from 12.99 to 14.00 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	130.00			*** AUTO ***
Q1	132.00	96.00	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		96.000	10250028

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

17) Toluene (002)

Ret. Time 14.57 min., Extract & Integrate from 14.32 to 15.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	92.00			*** AUTO ***
Q1	91.00	166.60	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		98.000	15491979

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

18) Tetrachloroethene (002)

Ret. Time 15.45 min., Extract & Integrate from 15.20 to 16.00 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	164.00			*** AUTO ***
Q1	166.00	129.70	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		106.000	12874108

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

END OF DATA ANALYSIS PARAMETERS

METHOD TO14L
200ML Samples

TOPLEVEL PARAMETERS

"ethod Information For: C:\CHEMPC\METHODS\TO14L.M

.ethod Sections To Run:

( ) Save Copy of Method With Data
( ) Pre-Run Cmd/Macro =
(X) Data Acquisition
(X) Data Analysis
( ) Post-Run Cmd/Macro =

Method Comments:
Close Support Laboratory Analytical Method for Analysis of
Air and Landfill Gas Samples by EPA Method TO-14.

END OF TOPLEVEL PARAMETERS

ACQUISITION PARAMETERS

neral Information

Inlet : GC
Tune File : ATUNE.U
Acquisition Mode : Scan

Injector Information

Injection Source : Manual

[Purge Information]

Purge A/B	Init. Value	On Time	Off Time
A	Off	0.75	0.00
B	On	0.00	0.00

Temperature Information

[Zone Temperatures]

Det. A : 50 C Off
Det. B : 280 C
Inj. A : 250 C Off
Inj. B : 250 C Off

[Oven Parameters]

Oven Equib Time : 0.10 min
Oven Max   : 275 C
Cryo   : Off
Oven   : On

[Oven Program]

Initial Temp. : -10 C
Initial Time : 2.00 min

Level	Rate (C/min)	Final Temp. (C)	Final Time (min)
1	15.00	175	3.70
2	0.00		

Next Run Time : 18.03 min

MS Information
-- -----------

Solvent Delay : 4.00 min

EM Absolute   : False
EMV Offset   : 0.0
Resulting Voltage : 1588.1

[Scan Parameters]

Low Mass   : 48
High Mass : 200
Sampling # : 3   A/D Samples 8
Threshold : 500

[Real Time Plot Parameters]

Plotting Active : True
Time Window   : 10 min
Total Ion Max   : 2000000

Run Table Entries
--- ----- -------

State (MS on/off)	time (min)
Off	8.50
On	10.00

END OF ACQUISITION PARAMETERS

DATA ANALYSIS PARAMETERS

Method Name: C:\CHEMPC\METHODS\TO14L.M

Percent Report Settings

Sort By: Retention Time

Output Destination
    Screen: No
    Printer: Yes
    File: No

Integration Events: events.e

Generate Report During Run Method: Yes

Signal Correlation Window: 0.020

Qualitative Report Settings

Peak Location of Unknown: Apex

Library to Search	Minimum Quality
	0

Integration Events: AutoIntegrate

Report Type: Summary

Output Destination
    Screen: No
    Printer: Yes
    File: No

Generate Report During Run Method: No

Quantitative Report Settings

Report Type: Area Percent by Retention Time

Output Destination
    Screen: No
    Printer: Yes
    File: detail.xls

Generate Report During Run Method: Yes

CH2M HILL
Calibration Last Updated: Wed Mar 27 10:19:29 1991
Internal Standard

Reference Window: 5.00 Percent
Non-Reference Window: 5.00 Percent
Correlation Window: 0.03 minutes
Default Multiplier: 1.00
Default Sample Amount: 0.00

Compound Information

---

1) Freon-12 (001)

Ret. Time 4.42 min., Extract & Integrate from 3.90 to 5.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	85.00			*** AUTO ***
Q1	87.00	30.00	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		101.000	13595098

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

2) Vinyl Chloride (001)

Ret. Time 5.75 min., Extract & Integrate from 5.50 to 6.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	62.00			*** AUTO ***
Q1	64.00	28.50	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		100.000	2457273

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

3) Freon-11 (001)

Ret. Time 8.26 min., Extract & Integrate from 7.99 to 8.99 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 101.00			*** AUTO ***
Q1 103.00	63.60	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
		101.000	2082038

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

4) 1,1-Dichloroethane (001)

Ret. Time 10.58 min., Extract & Integrate from 10.33 to 10.99 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 63.00			*** AUTO ***
Q1 65.00	30.30	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		109.000	11254168

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

5) 1,2-Dichloroethene (002)

Ret. Time 11.26 min., Extract & Integrate from 10.10 to 11.75 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 96.00			*** AUTO ***
Q1 61.00	106.70	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		101.000	4292151

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

6) Bromochloromethane (*ISTD001)

Ret. Time 11.48 min., Extract & Integrate from 11.02 to 12.02 min.

Signal	Rel Resp.	Pct. Unc.(rel)	Integration
Tgt 128.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		10.000	8053774

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

7) Chloroform (001)

Ret. Time 11.48 min., Extract & Integrate from 11.23 to 11.90 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	83.00			*** AUTO ***
Q1	85.00	64.70	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		103.000	14584849

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

8) 1,1,1-Trichloroethane (002)

Ret. Time 12.14 min., Extract & Integrate from 11.89 to 12.55 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	97.00			*** AUTO ***
Q1	99.00	64.20	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		103.000	14086301

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

9) 1,2-Dichloroethane (002)

Ret. Time 12.17 min., Extract & Integrate from 11.92 to 12.50 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	62.00			*** AUTO ***
Q1	64.00	29.50	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		105.000	10792517

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

10) Benzene (002)

Ret. Time 12.50 min., Extract & Integrate from 12.25 to 12.95 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	78.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		108.000	15947214

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

11) Carbon Tetrachloride (002)

Ret. Time 12.53 min., Extract & Integrate from 12.28 to 12.90 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	117.00			*** AUTO ***
Q1	119.00	99.40	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		100.000	17118746

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

12) 1,4-Difluorobenzene (*ISTD002)

Ret. Time 12.74 min., Extract & Integrate from 12.53 to 13.60 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	114.00			*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		10.000	97113510

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

13) Trichloroethene (002)

Ret. Time 13.23 min., Extract & Integrate from 12.98 to 14.00 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	130.00			*** AUTO ***
Q1	132.00	97.50	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		96.000	10250028

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

14) Toluene (002)

Ret. Time 14.57 min., Extract & Integrate from 14.32 to 15.25 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	92.00			*** AUTO ***
Q1	91.00	177.20	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		98.000	15491979

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

---

15) Tetrachloroethene (002)

Ret. Time 15.44 min., Extract & Integrate from 15.19 to 16.00 min.

Signal		Rel Resp.	Pct. Unc.(rel)	Integration
Tgt	164.00			*** AUTO ***
Q1	166.00	132.30	20.0	*** AUTO ***

Lvl	ID	Amt (ppbv)	Response
1		106.000	12874108

Qualifier Peak Analysis ON ISTD amount: 10.000 ppbv
Curve Fit: Avg. RF

END OF DATA ANALYSIS PARAMETERS

3.0 QUALITY ASSURANCE

3.1 Description of CSL QA/QC Program

The QA/QC reports for the analytical data reported in the previous section are presented here by method and by day the individual samples were analyzed. The standard QC checks used by the CSL are described below. In addition to the standard QC checks performed daily on sample batches, the project had included initial performance evaluation criteria, including an initial calibration curve, and seven replicate samples analyzed at 10 to 50 ppbv. The results of the initial performance evaluation are given in Part 3.3.

GC/MS TUNE (GC/MS ONLY)

The GC/MS tune is checked each day with BFB according to the procedures described for Volatile Organic Compounds in EPA Method TO-14 and Method 8240. On the days samples were analyzed the tune criteria was met for all compounds.

INTERNAL STANDARD AREAS

The internal standard areas of the samples are compared against the 100% standard run that day. The accepatble criteria is the response is 75% to 125%.

STANDARDIZATION

For ambient air and landfill gas samples, standardization is done using commercial NBS traceable gas standards obtained from Scott-Marrin or Scott Specialty Gases. The standard cylinder for the CSL contained all target compounds at 100 ppbv. The standards were diluted using a static dilution system on the concentrator.

CONTINUING CALIBRATION

A daily two point calibration is done on CH2M Hill 100 ppbv standard cylinder to check the initial calibration curve used to establish the method performance. The standard area of the 100% standard and 50% standard are divided by their internal standard areas to determine the RRF relative to the internal standard.

INITIAL CALIBRATION

The initial calibration data for the CSL sample analysis is included in Part 2.3. The report gives the relative response factor (RRF) which is calculated as shown below.

GC/MS by EPA Method TO-14

Calculation of RRF for benzene RRF50

$$RRF = \frac{\text{Sample Area 50\% Standard}}{(0.50) * \text{Internal Standard Area (50\% Std)}}$$

QC Criteria for Project

The QA criteria for the CSL for this project was defined in Section 7.10.1 of the Quality Assurance Project Plan (QAPP) for McClellan AFB prepared by CH2M Hill. The Criteria is listed below:

Description	Criteria
Canister Blank	<0.2 ppbv
Instrument Blank, Daliy	<0.2 ppbv
Initial Calibration Curve RRF for three points	<30%
Duplicate Samples, Daily Compounds over 1 ppbv	<50%
Performance Evaluation Sample	<50%

If the above criteria is not met corrective action will be taken as outlined on the following page.

3.2 Project QA/QC Summary

The overall quality of the analytical data generated by the Close Support Laboratory was excellent. All of the initial performance evaluation guidelines specified in the project plan were met before the start of sample analysis. The results for these tests are given in Section 3.3 where they are discussed more fully.

The daily CSL project QA objectives listed in Section 3.1 were checked each day and a QA summary sheet generated. On examining the data there was a Dichloromethane instrument blank level of about 2 ppbv that appeared on April 1. The MDL values on the final report should be set to 2.0 ppbv for this compound for the project. The MDL values for other compounds should be set at 0.2 ppbv unless they appeared in the daily blank. The RPD for F-11 exceeded the objectives of 50% on a couple of days. This appears to be an integration window problem.

The sampler blanks were suppose to be analyzed at the beginning of the day after the instrument blank to avoid carryover from high level samples. On many of the days the sampler blanks were analyzed after high level samples and showed some contamination from the larger concentration compounds. Carry-over of about 0.01 to o.1% could be expected.

A evaluation of the QC checks for each day are given below (See Section 3.5 for actual sheets):

3/27/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv, and the relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv.

4/1/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except of Dichloromethane which appears to be at a constant level of about 2 ppbv throughout the project, even when the system was thoroughly flushed. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv except for F-11 which was 200%.

4/2/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except for Methylene Chloride which was 2.7 ppbv, 1,1-DCE which was 0.3 ppbv and F-113 which was 0.4 ppbv. These compounds were present in high concentrations in the landfill gas samples and were significantly above the levels found in the blank, so the data was not effected by the presence of these compounds which were the result of carry-over and were difficult to clean out. The relative percent deviation of the duplicates was geater then 50% for all compounds measured. A reason for the large deviation for

this day is under investigation. This was not a porblem on other days.

4/3/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except for Methylene Chloride which was 3.89 ppbv, 1,1-DCE which was 1.4 ppbv, F-113 which was 0.8 ppbv, and TCE was 0.4 ppbv. These compounds were present in high concentrations in the landfill gas samples and were significantly above the levels found in the blank, so the data was not effected by the presence of these compounds which were the result of carry-over and were difficult to clean out. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv.

4/4/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except for Methylene Chloride which was 1.9 ppbv, 1,1-DCE which was 0.4 ppbv. These compounds were present in high concentrations in the landfill gas samples and were significantly above the levels found in the blank, so the data was not effected by the presence of these compounds which were the result of carry-over and were difficult to clean out. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv except for F-11 shich was 67%.

4/5/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except for Methylene Chloride which was 1.9 ppbv, 1,1-DCE which was 0.4 ppbv. These compounds were present in high concentrations in the landfill gas samples and were significantly above the levels found in the blank, so the data was not effected by the presence of these compounds which were the result of carry-over and were difficult to clean out. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv.

4/8/91: The BFB tune passed and in the instrument zero air blank all target compounds were below 0.2 ppbv except for Methylene Chloride which was 1.9 ppbv. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv.

4/9/91: The BFB tune passed except for ion 176 which was 102% instead of 101%. In the instrument zero air blank all target compounds were below 0.2 ppbv except for F-11 which was 0.8 ppbv and t-1,2-DCE which was 0.3 ppbv. These levels were not high enough to present a problem with the data. The MDL for these compounds should be set at the blank level for that day. The relative percent deviation of the duplicates were less then 50% for all compounds over 1 ppbv except for F-11 which was 88%.

4/12/91: The EPA BFB tune criteria was slightly off on ions 173, 175, and 176 for this day. No actual criteria was specified for the project and the tune criteria only effects

mass spectral library matches, which were not done on this project. Since all target compounds were calibrated against a standard for that compound, there would be no effect on the quantitative results. The bank was less then 0.2 ppbv except for 1,1-DCE which was 0.6 ppbv, F-113 which was 1.8 ppbv, t-1,2-DCE which was 0.3 and TCE was 0.4 ppbv. These levels were not significant except for F-113 which is present in high concentrations in the landfill gas samples and is significantly above the levels found in the blank, so the data was not effected by the presence of these compounds. The RPS was less then 50% for all compounds.

3.3 Initial Performance Evaluation

For the initial performance evaluation of the Close Support Laboratory (CSL) the following measurments were made:

1) Instrument Blank and BFB Tune

2) Three Point Initial Calibration

3) Seven Replicate Measurments at 10-50 ppbv

The results for these measurments are given in the following Sections.

3.3.1 Blank Canister

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	ZERO AIR
Operator	HOYT	Lab #:	B03281B1.D
Volume	200 ml	Date Ana	03/28/91

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
1,1-Dichloroethane	0.75	0.0
1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.0
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

Environmental Analytical Service
170 Granada, Suite C
San Luis Obispo, CA 93401

3.3.2 Initial Calibration Curve

INITIAL CALIBRATION DATA
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC/MSD Full Scan Date: 3-27-91

Lab File: RRF50 = S03271A2
RRF100 = S03271A1
RRF200 = S03271A3

	RRF50 10	RRF100 20	RRF200 50	AVERAGE RRF	%RSD	QC Limits
Freon 12	1.47	1.41	1.56	1.48	4.2	30
Vinyl Chloride	0.49	0.42	0.48	0.46	6.3	30
Freon 11	0.00	0.00	0.00	0.00	ERR	30
1,1-Dichloroethene	0.00	0.00	0.00	0.00	ERR	30
Dichloromethane	0.00	0.00	0.00	0.00	ERR	30
Trichlorotriflouroethane	0.00	0.00	0.00	0.00	ERR	30
1,1-Dichloroethane	1.32	1.45	1.40	1.39	4.1	30
Total 1,2-Dichloroethene	0.57	0.56	0.70	0.61	10.1	30
Chloroform	1.53	1.51	1.72	1.59	5.8	30
1,1,1-Trichloroethane	1.39	1.36	1.59	1.45	7.3	30
1,2-Dichloroethane (ion 62)	1.36	1.33	1.54	1.41	6.7	30
Benzene	1.96	1.92	2.19	2.03	5.9	30
Carbon Tetrachloride	1.67	1.58	1.91	1.72	8.1	30
Trichloroethene	1.01	0.98	1.19	1.06	8.7	30
Toluene	3.06	2.95	3.37	3.13	5.6	30
Tetrachloroethene	1.28	1.24	1.42	1.31	6.0	30

RRF = Relative Response Factor = Std Area/IS area

3.3.3 Seven Spike Samples

Spiked Canister / Performed at on-site Mobile Laboratory
Volatile Organic Spike Recovery Summary Sheet Date: 3-28-91

Compound	Concentrations: Run 1 ppbv	Run 2 ppbv	Run 3 ppbv	Run 4 ppbv	Run 5 ppbv	Run 6 ppbv	Run 7 ppbv	% RSD
Freon 12	15.4	16.9	15.2	15.0	14.6	17.2	11.5	11.4
Vinyl Chloride	15.8	18.2	15.7	14.9	14.9	18.4	12.2	12.5
Freon 11	13.8	15.7	13.7	13.6	13.6	15.6	10.5	11.6
1,1-Dichloroethene	14.2	15.8	14.0	14.3	14.5	16.2	10.4	12.3
F-113	14.1	15.8	13.7	13.4	12.2	15.9	9.4	15.4
Dichloromethane	14.7	16.2	14.9	14.5	14.3	16.5	11.2	11.0
1,1-Dichloroethane	14.1	15.4	12.5	13.4	13.5	15.6	10.4	12.1
1,2-Dichloroethene	15.2	16.6	14.9	15.7	15.2	16.7	14.0	5.6
Chloroform	14.8	16.4	15.2	14.6	14.2	17.0	11.1	11.9
1,1,1-Trichloroethane	15.5	16.9	15.2	15.5	15.8	16.9	14.2	
1,2-Dichloroethene	14.5	15.9	13.7	13.8	13.8	14.9	12.0	
Benzene	16.0	17.4	15.3	15.7	15.5	16.8	14.0	6.3
Carbon Tetrachloride	16.6	17.9	16.0	16.1	16.3	17.5	14.7	5.9
Trichloroethene	15.0	16.2	14.4	14.7	14.8	16.1	13.7	5.5
Toluene	10.5	11.8	10.6	10.6	10.7	11.3	9.6	5.7
Tetrachloroethane	16.3	17.7	15.7	16.1	16.2	17.6	14.7	6.0

· WITH 10 ML STD

1 PPBV TEST SAMPLE

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: 1.0 ppbv Test Sample
Can #:

Lab #:
Date Sampled:
Date Analyzed: 3-27-91

Compound	MDL ppbv	Concentration ppbv		Concentration ug/m3		Flag
Freon 12	0.75	0.53	nd	2.63	nd	
Vinyl Chloride	0.75	0.72	nd	1.84	nd	
Freon 11	0.75	ERR	nd	ERR	nd	
1,1-Dichloroethene	0.75	ERR	NM	ERR	NM	NM
Dichloromethane	0.75	ERR	NM	ERR	NM	NM
Trichlorotrifluoroethane	0.75	ERR	NM	ERR	NM	NM
,1-Dichloroethane	0.75	0.72	nd	2.91	nd	
c-1,2-Dichloroethene	0.75	0.60	nd	2.38	nd	
t-1,2-Dichloroethene	0.75	0.74	nd	2.95	nd	
Chloroform	0.75	0.60	nd	2.94	nd	
1,1,1-Trichloroethane	0.75	0.58	nd	3.18	nd	
1,2-Dichloroethane	0.75	1.29	nd	5.23	nd	
Benzene	0.75	0.89	nd	2.84	nd	
Carbon Tetrachloride	0.75	0.47	nd	2.99	nd	
Trichloroethene	0.75	0.68	nd	3.66	nd	
Toluene	0.75	1.99	nd	7.52	nd	
Tetrachloroethene	0.75	0.67	nd	4.53	nd	

Data Flags: B - Compound Present in Daily Blank
NM - Not Measured on this Analysis

3.4 GC/MS Instrument Log Sheets

GC/MSD SAMPLE LOG

Analyst (s) V Conger / Steve Hyt Date 3/15/91

Instrument HP GC/MSD Method TO14.M

Comments IS loaded at 2.0 ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
50315A5.D		STD.EAS 08	2.0ml				

GC/MSD SAMPLE LOG

Analyst (s) V Longacre Date 3/18/91

Instrument HP GC/MSD Method TO14.M

Comments IS loaded at 2.0ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
S031B1A1.D		STD EAS-08	2.0ml	✓			
S031B1A2.D		STD EAS-08	2.0ml	✓			
B031B1A1.D		Zero Air Blank	200ml	✓			
B031B1A2.D		Zero Air Blank	200ml	✓			
B031B1A3.D		Blank Zero Air	200ml	✓			
Q031B1A1.D		⊗ Audit Smpl	20ml				

GC/MSD SAMPLE LOG

Analyst (s) V Lonzo Date 3/19/91

Instrument HP GC/MSD Method TO14.M

Comments D3 loaded at 2.0 ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
S03191A1.D		STD EAS 08	2.0ml	✓			
S03191A2.D		STD EAS-09	1.0ml	✓			
S03191A3.D		STD EAS-09	4.0ml	✓			
S03191A4.D		STD EAS-08	1.0ml	✓			
S03191A5.D		STD EAS-08	2.0ml	✓			
S03191A6.D		STD EAS-08	1.0ml	✓			
S03191A7.D		STD EAS-09	4.0ml	✓			
S03191A8.D		STD EAS-08	2.0ml	✓			
S03191A9.D		STD EAS-09	1.0ml	✓			
B03191A0.D		Blank Zero Air	200ml	✓			
S03191A0.D		STD EAS-09	1.0ml	✓			
Q03191H1.D		STD EAS-09	1.0ml	✓			
Q03191A2.D		STD EAS-09	1.0ml	✓			
Q03191A3.D		STD EAS-09	2.0ml	✓			
Q03191A4.D		STD EAS-08	4.0ml	✓			
Q03191A5.D		STD EAS-09	4.0ml	✓			
Q03191A6.D		STD EAS-09	10ml				

GC/MSD SAMPLE LOG

Analyst (s) V Longacre Date 3/20/91

Instrument HP GC/MSD Method TO14.M

Comments IS loaded at 2.0 ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
B03201A1.D		Blank w IS 2.0ml (?)	200 ml	✓			
B03201A2.D		Blank w/ IS 10.ml (?)	200 ml	✓			
S03201A1.D		STD EAS - 0B	1.0ml	✓			
S03201A2.D		STD EAS - 0B	2.0ml	✓			
S03201A3.D		STD EAS - 0B	4.0ml	✓			
S03201A4.D		STD EAS - 0B	1.0ml	✓			
S03201A5.D		STD EAS - 0B	1.0ml	✓			
S03201A6.D		STD EAS - 0B	4.0ml	✓			
S03201A7.D		STD EAS - 0B	2.0ml	✓			
S03201A8.D		STD EAS - 0B	10.0ml	✓			
S03201A9.D		STD EAS - 0B	10. ml	✓			
S03201AA.D		STD EAS - 0B	2.0ml	✓			
Q03201AB.D		STD EAS - 0B	10.0ml	✓			
Q03201AC.D		STD EAS - 0B	2.0ml	✓			
Q03201AD.D		STD EAS - 0B	6.0 ml	✓			
Q03201A4.D		Hill Sld	20ml	✓			
B03201A1.D		Blank	200ml	✓			
B03201A2.D		Blank $	200ml	✓			
B03201A3.D	AV114	Blank smpl inlet	200 ml	✓			
B03201A4.D		Blank No Drying	200 ml	✓			
B03201A5.D		Blank smpl inlet	250ml	✓			
3000A1.D	P-10	MW-AC-C-019	200ml				

Cont. →

GC/MSD SAMPLE LOG

Analyst (s) Vanguard Date 3/20/91 (cont)

Instrument HP GC/MSD Method 7014.M

Comments IS loaded at 2.0 ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
3001A1.D	P-1	mw-AC-C-001	20.0ml	✓			
~~3001A2.D~~	~~P-1~~	~~mw-AC-C-001~~	~~20~~ 100 ml				A Bore
~~3002A1.D~~ 3002A21.D VL	P-2	mw-AC-C-002	20.0ml	✓			
3005A1.D	P-5	mw-AC-C-007	20.0ml	✓			
3002A2.D	P-2	mw-AC-C-002	20.0ml	✓			
3007A2.D	P-7	mw-AC-C-013	20.0ml				

GC/MSD SAMPLE LOG

Analyst (s) Vlangsuan Date 3/21/91

Instrument HP GC/MSD Method TO14.M

Comments IS loaded at 2.0ml/sample

File Name	Can No.	Description	Sample Size	QP	S	P	D
S03211B1.D		STD EAS-08	2.0ml				
S03211A20		STD EAS-08	2.0ml				

GC/MSD SAMPLE LOG

Analyst (s) Steve HOYT Date 3/25/91

Instrument HP GC/MSD Method TO14

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S03251A1.D		STANDARD 100ppbv + IS	2ML IS 20ml STD				
S03251A2.D		Standard 100ppbv + IS	2ML IS 20ML STD				
Q03251A1.D		Air Sample, Spiked	NO IS 200ML				
B03251B1.D		Zero Air Blank NO	2ML IS 200ML				
Changed	Tune File	Changed Scan Range 45-200 amu.		Changed 10ml Lea			
B03251K2.D		Zero Air Blank	2ML IS 200ML				
Q03251A2.D		LANDFILL GAS - TEST	2ML IS 200ML				
B03251A3.D		Zero Air Blank	2 ML 200 ML	Actual		6.6-12.1	
S03251A3.D		100 ppb STD	2 ML 20 ML				
3007A2.D		MW-AC-C-3007	2 ML 200ML				

GC/MSD SAMPLE LOG

Analyst (s) Steve Hoyt / Tim Maloney Date March 26, 1991 page 1 of 2

Instrument HP GC/MSD Method TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S032661A1.D		100 PPBV STD (20mL)	2.0 mL LS 200mL				
S032661A2.D		100 PPBV STD	2.0 mL LS 200mL				
Change Scan rate to 2/sec & start Amu to 41.0 min							
S032661A3.D		100 ppbv STD	2.0 mL LS 200mL				
3007A1.D		Room Air - Blank	2.0 mL LS 200mL				
Sample line not connected to valve - reconnected at 11:15 am							
3007A2.D		MW-AC-C-013	2.0mL 200mL				1'
3003A2.D		MW-AC-C-003	200mL LS 200mL				
3004A1.D		MW-AC-C-008	2.0mL LS 200mL				
3017A1.D	15	MW-DR-C-3-2	2.0mL LS 200mL	700 921			
3016A1.D	P-20	MW-DR-C-3-1	2.0mL 200mL	698 975			
3016A2.D		Duplicate	2.0 ml 200 ml	698 975			
3006A1.D		MW-AC-C-009	2.0mL 200mL				
3009A1.D		MW-AC-C-015	2.0mL 200mL				H lots
3008A1.D		MW-AC-C-014	2.0 ml 200 ml				H lots
3012A1.D		MW-DR-1-3	2.0 ml 200 ml	705 986			
3013A1.D		MW-DR-C-2-1	2.0 ml 200 ml	718 905			
3010A1.D		MW-DR-C-1-1	2.0 ml 200 ml	694 986			
3014A1.D		MW-DR-C-2-2	2.0 ml 200 ml	716 953			
B03261A1.D		Zero Air Blank	2.0 ml 200 ml				
3018A1.D		MW-DR-C-3-3	2.0 ml 200 ml	690 963			L
3015A1.D		MW-DR-C-2-3	2.0 ml 200 ml	716 971			

GC/MSD SAMPLE LOG

Analyst (s) Steve Hoyt / Tim Maloney Date March 26, 1991 page 2 of 2

Instrument HP GC/MSD Method TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
3011A1.D	P-23	MW-DR-1-2	2.0 ml 200 ml	698 957			

GC/MSD SAMPLE LOG

Analyst (s) Steve Hoyt Date 3/27/91

Instrument HP GC/MSD Method TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S032711A1.D		100 ppbv Standard	2.0ml IS 20.0 mL				
S032711A2.D		100 ppbv STD	2.0mL IS 10.0 mL				
S032711A3.D		100 ppbv STD	2.0ml IS 50 mL				
S032711A4.D		100 ppbv STD	2.0ml IS 2.0mL				
S032711A5.D		100 ppbv STD	2.0mL IS 20.0mL				*
B032711A1.D		Zero Air	2.0mL IS 20.0 mL				
3019A1.D		MW-PC-C-2-B	2.0ml IS 200mL	X X			
3020A1.D	P-21	MW-PC-C-2-1	2.0ml IS 200mL	X X			
3020A2.D	P-21	MW-PC-C-2-1 Dup	2.0ml IS 215 mL				
3020A3.D	P-21	MW-PC-C-2-1 Dup	2.0mL IS 200mL				
3023A1.D	P-11	MW-PC-C-2-3	2.0 ml IS 200 ml				
3021A1.D	P-18	MW-PC-C-2-2	2.0 ml IS 200 ml S				
3022A1.D	P-17	MW-PC-C-2-2 Dup.	2.0 ml IS 200 ml S				
3022A2.D	P-17	MW PC-C-2-2 Dup	2.0 ml IS 200 ml S				

GC/MSD SAMPLE LOG

Analyst (s) Steve Hoyt Date 3/28/91

Instrument HP GC/MSD Method TO14L

Comments

File Name	~~Can No.~~ METHOD	Description	Sample Size	QP	S	P	D
S3281A1.D	TO14L	100ppbv STD	2.0mL IS 20mL				
BD3281B1.D	TO14						
QD3281B1.D	TO14	Spike Canister, 15ppbv	2.0mL IS 200mL				
QD3281B2.D	TO14						
QD3281B3.D	TO14						
QD3281B4.D	TO14						
QD3281B5.D	TO14						
QD3281B6.D	TO14						
SD3281B1.D	TO14	100ppbv STD	2.0mL IS 20mL				

GC/MSD SAMPLE LOG

Analyst (s) Steve Hoyt Date 3/29/91

Instrument HP GC/MSD Method TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S03291B1.D		Standard 100ppbv	2.0 ml IS 200 ml				
B03291B1.D		~~Zero~~ Air	2.0mL IS 200 mL				
~~S027~~ (TM)							
S3027A.D		MW-AC-C-3-B	2.0 IS 200 ml S				
S3024A.D		MW-AC-C-3-1	2.0 ml 200 ml				
S3025A.D	P35	MW-AC-C-3-2	2.0 ml IS 200 ml smp				
S3026A.D	P40	MW-AC-C-3-3	2.0 ml IS 200 ml Smp	705 980			
S3028A.D	P34	MW-HDR-C-1-1	2.0 ml IS 200 ml Smp				

GC/MSD SAMPLE LOG

Analyst (s) Ed Ritz / D. Miller Date 01 APRIL 1991

Instrument HP GC/MSD Method TO14L & TO14

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
Q0401B1.D		STANDARD 100PPBV	2.0ml IS 20.0ml				
Q0401B2.D		STANDARD 100 PPBV	2.0ml IS 20.0ml				
B0401B1.D	-	ZERO AIR BLANK	2.0 IS 200ml				
B0401A1.D	-	ZERO AIR BLANK	2.0 IS 200ml				
3037A1.D	P-33	MW-DR-C-9-3	2.0ml IS 2.0ml				
3030A1.D	P-30	MW-DR-C-7-2	2.0ml IS 1.0ml	681 982			*
3030A2.D	P-30	MW-DR-C-7-2	2.0ml IS 1.0ml	SAMPLE METHOD	LOST	TO14	
3031B1.D	P-30	MW-DR-C-7-2	2.0ml IS 1.0ml	METHOD		TO14	USE FOR CALC
3030B2.D	P-30	MW-DR-C-7-2 (DUP)	2.0ml IS 1.0ml	METHOD		TO14	USE FOR CALC
		- USED FOR SAMPLE CALC AFTER CUSTOM REPORT CHANGES.					

STNI - AGAIN UNABLE TO INJ. 7 MIN.

GC/MSD SAMPLE LOG

Analyst (s) [illegible] Date [illegible]

Instrument HP GC/MSD Method [illegible]

Comments [illegible]

File Name	Can No.	Description	Sample Size	QP	S	P	D
SC4C21B1.D		STANDARD 100 PPBV	2.0ml IS 200 ml				
B04621		ZERO AIR	2.0ml IS 200 ml				
* B04C21B2.		ZERO AIR	2.0ml IS 200 ml				
B04021B3		ZERO AIR	[illegible]				
7014L 3035B1.D	P-28	MW-DR-C-9-1	2.0-1 IS 200-1				
3036B1.D	P-2	MW-DR-C-9-2	[illegible]	Flow & Temp: @ 35° 140 ml sample size			
3029A1.D	P-39	MW-DR-C-7-1	2.0-1 IS 195-1	Flow stopped @ 39° T			
3031A1.D	P-44	MW-DR-C-7-3	2.0-1 IS 95-1	Flow stopped (F			
3034A1.D	P-43	MW-DR-C-8-3	2.0-1 IS 180-1	FS	@380		
3033A1.D	P-49	MW-DR-C-8-2	2.0-1 IS 137-1	FS	@340		
3032A1.D	[illegible]	MW-DR-C-8-1	2.0-1 IS 200-1				
3032A9.L IS 3039A1.D	P-27	MW-AC-C-7-2 reanalysis MW-DRC-7-2	2.0-1 IS 180-1	FSQ	380		
3038A1.D	P-42	MW-AC-C-7-1.	2.0-1 IS 200-1	663/1010			
3039A2.L	P-42	[illegible]	2.0-1 IS 200-1				
3040A1.L	P-32	MW-DR-C-7-3	2.0-1 IS 158.5				
3041A1.D	[illegible]	MW-DR-C-7-2	2.0-1 IS 134-1				

GC/MSD SAMPLE LOG

Analyst (s) ED RUTH / DAVE [illegible] Date 03 APRIL 1991

Instrument HP GC/MSD Method TO14 / TO14A

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S040?1B1.D		[illegible] 100 PPBV	2.0ml IS 20.0 ml				
S04031B2.D		[illegible] 100 PPBV	2.0ml IS 20.0 ml				
B04031B1.D		[illegible]	2.0 ml IS 200 ml				
B04031B[illegible]		[illegible]	2.0ml IS 200 ml	AFTER HEATING SS TUBING			
3042A1.D	P 47	[illegible]	2.0ml IS 200ml				
3043A1.D	P-46	[illegible]	2.0 ml IS 200 ml				
3048A1.D	P-51	MW-AC-C-8-3	2.0 ml IS 200 ml	UNABLE TO OPEN FILE			
3048A2.D	P-51	MW-AC-C-8-3	2.0ml IS 95 ml	REPEAT			
3044A1.D	P-43	MW-[illegible]-C-6-3	2.0-1 IS 200-1				
3045A1.D	P-41	[illegible]-C-6-4	2.0-1 IS 200-1				
3047A1.D	P-36	[illegible]	2.0-1 IS 200-1				
3046A1.D	P-26	[illegible]	2.0-1 IS 160-1				
3047A1.D	P-51	MW-AC-C-8-2	2.0-1 IS 200-1				
3051A1.D	P-55	[illegible]-LR-C-5-2	2.0-1 IS 200-1	643 / 1032			
3051A2.D	P-55	[illegible] Dup	2.0-1 IS 200-1				
3052A1.D	P-52	MW-DR-C-5-3	2.0-1 IS 200-1				
3050A1.D	P-54	[illegible] DR-C-5-1	2.0-1 IS 200-1				
3006R1.D	P-6	[illegible]-AC-C-007	2.0-1 IS 21.6-1				
[illegible]	P	MW-AC-C-008	[illegible] 21.6				
3011B1.D	P-23	[illegible]-DR-1-2	2.0-1 IS 21.6-1	698 / 957	MS	MeOH	[illegible]
		FILAMENT 2(B) OPEN					

GC/MSD SAMPLE LOG

Analyst (s) RUTH / [illegible] Date 04 APRIL 1991

Instrument HP GC/MSD Method TO14/TO14A

Comments REFLECT [illegible] REFILL RUNNING STD/SHUTTLES

File Name	Can No.	Description	Sample Size	QP	S	P	D
S04041B1.D		STANDARD 100 PPBV	2.0 ml IS 20.0 ml				
S04041B2.D		STANDARD 100 PPBV	2.0 ml IS 20.0 ml				
B04041B1.D		ZERO AIR BLANK	2.0 ml IS 200 ml				
3011B1.D	P-23	MW-DR-1-2	2.0-1 IS 21.6-1	698/957			
3014B1.D	P-19	MW-DR-C-2-2	2.0-1 IS 21.6-1	716/953			
3053A1.D	P-58	MW-AC-C-9-1	2.0-1 IS 200-1	653/1054			
3053A2.D	P-58	MW-AC-C-9-1 Dup	2.0-1 IS 200-1				
3053B1.D	P-58	MW-AC-C-9-1	2.0-1 IS 21.6-1				
3054A1.D	P-57	MW-AC-C-9-2	2.0-1 IS 158.5-1				
3056A1.D	P-63	MW-AC-C-9-4	2.0-1 IS 200-1				
3055A1.D	P-64	MW-AC-C-9-3	2.0-1 IS 137				
3057A1.D	P-65	MW-AC-C-9-5	2.0-1 IS 200-1				
3021B1.D	P-13	MW-AC-C-2-2	20-1 IS 21.6-1				
3025B1.D	P-35	MW-AC-C-3-2	2.0-1 IS 21.6	also used out of file space			
3026A1.D	P 35	MW-AC-C-3-2	20-1 IS 216				
3039B1.D	P-27	MW-AC-C-7-2	2.0-1 IS 21.6				
3030B1.D	P-30	MW-AC-C-7-2	2.0-1 IS 21.6	Xcel 3030	stored B3		as

GC/MSD SAMPLE LOG

Analyst (s) RUTH [illegible] Date 05 APRIL 1991

Instrument HP GC/MSD Method TO14 / TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S040518I.D		[illegible]	2.0ml IS 20.0 ml				
S040518Z.D		STANDARD 100 PPBV	2.0ml IS 20.0ml				
B040518I.D		ZERO AIR BLANK	2.0ml IS 200 ml				
3059A1.D	P-56	MW-DR-C-4-2	2.0ml IS 200 ml				
3058A1.D	P-55	MW-DR-C-4-1	2.0ml IS 200 ml	RUN ABORTED			
3058A2.D	P-55	MW-DR-C-4-1	2.0ml IS 106 ml				
3060A1.D	P-57	MW-DR-C-4-3	2.0ml IS 200 ml				
3064A1.D	P 71	VR-AC-C-31-B	2.0ml IS 200ml				
3061A1.D	P-59	VR-AC-C-31-1	2.0ml IS 200ml				
3062A1.D	P-69	VR-AC-C-31-2	2.00ml IS 200ml				
3063A1.D	P-62	VR-AC-C-31-3	2.00ml IS 95ml	544 1050			
3063A2.D	P-63	VR-AC-C-31-4	2.00ml IS 200ml				

GC/MSD SAMPLE LOG

Analyst (s) RUTH / MILLER Date 08 APRIL 1991

Instrument HP GC/MSD Method TO14 / TO14L

Comments 4 CO2 tanks FILAMENT OPEN (13.7 min in 3072B1.D)

File Name	Can No.	Description	Sample Size	QP	S	P	D
S040B1B1.D		DAILY STANDARD 100PPBV	2.0ml IS 20.0 ml				
B040B1B1.D		ZERO AIR BLANK	2.0ml IS 200 ml				
3065A1.D	P-61	MW-AC-C-6-1	2.0ml IS 200 ml				
3068A1.D	P-67	MW-AC-C-6-B	2.0ml IS 200ml				
3066A1.D	P-62	MW-AC-C-6-2	2.0 ml IS 200 ml				
3070A1.D	P-73	MW-AC-C-5-1	2.0 ml IS 200 ml	486 633/1044			
3070A2.D		D-P	2.0 ml IS 200 ml				
3071A1.D	P-76	MW-AC-C-5-2	2.0 ml IS 200 ml				
3072A1.D	P-70	MW-AC-C-5-3	2.0 ml IS 200 ml				
3072B1.D	P-70	MW-AC-C-5-3	2.0 ml IS 20 ml				
		FILAMENT OPEN					

GC/MSD SAMPLE LOG

Analyst (s) RUTH / MILLER Date 11 APRIL 1991

Instrument HP GC/MSD Method TO14 / TO14A

Comments FILAMENTS (1) & (2) REPLACED

File Name	Can No.	Description	Sample Size	QP	S	P	D
S04111B1.D		DAILY STANDARD 100PPBV	2.0ml IS 30 ml				
S04111B2.D		DAILY STANDARD 100 PPBV	2.0ml IS 20.0ml				
B04111B1.D		ZERO AIR BLANK	2.0ml IS 200 ml				
3067A1.D	P-66	MW-AC-C-6-3	2.0ml IS 104 ml		✓		
3069A1.D	P-81	MW-AC-C-5-B	2.0ml IS 200 ml	CANISTER @ 15 PSI			
3075A1.D	P-91	MW-AC-C-4-3	2.0ml IS 200 ml				
3077A1.D	P-74	MW-HDR-C-1-2	2.0ml IS 200 ml				
3078A1.D	P-96	MW-HDR-C-1-3	2.0ml IS 200—1				
3079A1.D	P-75	MW-HDR-C-1-4	2.0—1 IS 200—1	881 1064			
3079A2.D	P-75	MW-HDR-C-1-4 Dup	2.0—1 IS 200—1				
3079B1.D	P-75	MW-HDR-C-1-4	2.0—1 IS 21.6—1				
3074A1.D	P-77	MW-AC-C-4-2	2.0—1 IS 200—1		✓		•
3073A1.D	P-82	MW-AC-C-4-1	116 ~~159~~ 2.0—1 IS ~~200—1~~		✓		•
3088A1.D	P-85	VR-AC-C-44-3	2.0—1 IS 200—1		✓		•
3083A1.D	P-98	VR-AC-43-4	2.0—1 159		✓		•
3082A1.D	P-88	VR-AC 43-3	2.0—1 IS 200—1		✓		•
3081B1.D	P 93	VR-AC-43-2	2.0—1 IS 200—1		•		
3080B1.D	P-87	VR-AC-43-1	2.0—1 IS 159—1				
3076A1.D	P-86	MW-AC-C-4-B	2.0—1 IS 200—1				
3091A1.D	P-89	MW-HDR-C-7-1	2.0—1 IS 128—1		✓		•
3090A1D	P-97	MW-HDR-C-1-6	2.0—1 IS 200—1		✓		•
3090B1.D	P-97	MW-HDR-C-1-6	2.0—1 IS 21.6		✓		•

GC/MSD SAMPLE LOG

Analyst (s) Ruth/miller Date 4/12-12/91

Instrument HP GC/MSD Method

Comments 4 out of CO_2

File Name	Can No.	Description	Sample Size	QP	S	P	D
3085A1.D	P-80	VR-AC-C-44-1	2-1 IS 190-1		✓		•
3089 A1.D	P-92	mw-HDR-C-1-5	2-1 IS 200-1		✓		•
3084B1.D	P-78	VR-AC-C-44-B	2-1 IS 200-1				
3086A1.D	P-84	VR-AC-C-44-2	2-1 IS 200-1		✓		•
3087B1.D	P-83	VR-AC-C-43-B	2-1 IS 200-1		✓		•
3103 A1.D	P-118	VR-AC-C-34-2	2-1 IS 180		✓		•
3102 A1.D	P-124	VR-AC-C-34-1	2-1 IS 200-1		✓		•
3101AB1.D	P-122	VR-AC-C-34-B	2-1 IS 200		✓		•
3104 B1 D	P-123	VR-AC-C-34-3	2-1 IS 137-1				
3119B1 D	P-114	VR-AC-C-39-3	2-1 IS 200-1				
3110A1 D	P-109	VR-AC-C-35-1	2-1 IS 190-1		✓		
3111 A1.D	P-113	VR-PC-C-35-5	2-1 IS 200				
3109B1.D	P-112	VR-PC-C-35-4	2-1 IS 200-1				
3112A1 D	P-104	VR-AC-C-35-2	2-1 IS 159				
3113 A1.D	P-108	VR-AC-C-35-3	2-1 IS 200-1				
3108C1.D	P-103	VR-AC-C-35-B	2-1 IS 200-1				
3106 A1.D	P-94	mw-HDR-C-9-1	2-1 IS 200-1		✓		
3115 A1.D	P-102	mw-HDR-C-7-4	2-1 IS 100-1		✓		
3105A1.D	P-121	mw-HDR-C-7-2	2-1 IS 116		✓		

GC/MSD SAMPLE LOG (VL)

Analyst (s) Longcore / miller Date 5/12/91

Instrument HP GC/MSD Method TO14 / TO14A

Comments IS loaded at 2.0ml/sample

BFB Tune

File Name	Can No.	Description	Sample Size	QP	S	P	D
50412IA1.D		100 ppbv Std	20 ml	✓			
50412IA2.D		100 ppbv Std	20 ml	✓			
50412IA3.D		100 ppbv Std	20ml	✓			
		Re: Auto Tune					
50412IB1.D		100 ppbv Std	20 ml	✓			
50412IB2.D		100 ppbv Std	20 ml	✓			
* 50412IB3.D		100 ppbv Std	20 ml	✓			
B0412IB1.D		Blank	200 ml	✓			
3098B1.D	P106	VR-AC-C-61-B	200 ml	✓			
3120B1.D	P105	VR-AC-C-39-B	200 ml				
3105A1.D	P121	MW-HDR-7-2	2ml IS / 159ml				
3123A1.D	P120	VR-AC-C-36-2	2ml IS / .149-l				
3127A1.D	P-115	MW-HDR-C-9-4	200-1				
3116A1.D	P-127	MW-HDR-C-9-3	190-1				
3114A1.D	P107	MW-HDR-C-7-3	103-1				
3122A1.D	P110	VR-AC-C-36-1	20-1	(1)			
3107B1.D	P-117	MW-HDR-C-9-2	200-1				
3124A1.D	P-145	VR-AC-C-36-3	220	640 / 1095			
3124A2.D	P-145	D-P	200				
3099A1.D	P-111	VR-AC-C-61-1	200				
3126A1.D	P-125	VR-PC-C-36-5	200				
3117A1.D	P-128	VR-AC-C-39-1	200				

insufficient # of data pts - cannot integrate?

GC/MSD SAMPLE LOG

Analyst (s) Miller Date

Instrument HP GC/MSD Method

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
3118A1.D	P-126	VR-AC-C-39-2	200 ul				
~~3096~~	~~P-79~~	~~VR-AC-C-4~~					
3092	P-116	VR-AC-C-61-2	200-1				
3095	P-99	VR-AC-C-61-4	out of disk space				

GC/MSD SAMPLE LOG

Analyst (s) S. Hoyt Date 4/15/91

Instrument HP GC/MSD Method TO14L

Comments

File Name	Can No.	Description	Sample Size	QP	S	P	D
S04151A1.D		100ppbv STD	20mL 20 mL				
B04151A1.D		250 Zero Air	20 mL 250mL				

3.5 Daily QA/QC Reports

McClellan AFB
Close Support Laboratory

EPA Method TO-14 GC/MS Date: 3-27-91

This QA/QC Report Applies to the Following Samples

CSL Number
3019

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 3-27-91

Check	Typical Value	3-27-91 Value	Units
Helium Tank Pressure	40	40	psig
Column Pressure	20	20	psig
Vacuum	175	175	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.2 x 10-5	
Sample Line Leak Check (2min)	5	2	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 3-27-91 Instrument: GC/MS 01 File: S03271A1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	551552	23
75	30.0 to 60.0 % of mass 95	1308160	53
95	Base Peak, 100% relative abundance	2445824	100
96	5.0 to 9.0 % of mass 95	144704	6
173	Less than 2.0% of mass 174	18496	1
174	Greater than 50.% of mass 95	2242560	92
175	5.0 to 9.0% of mass 174	164800	7
176	95.0 to 101.0 % of mass 174	2194432	98
177	5.0 to 9.0 % of mass 176	141568	6

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S07270A5 | Blank B07270A4 | Sample | Duplicate

Compound	Standard Area	Sample Area	Dup Area	Blank	Std Conc ppbv	
Freon 12	5340359	0	0	0	101	2.79
Vinyl Chloride	1907363	0	0	35823	100	3.24
Freon 11	8164559	0	0	42253	101	1.32
1,1-Dichloroethene	1	0	0	0	108	2.10
Dichloromethane	1	0	0	0	107	3.50
Trichlorotrifluoroethane	1	0	0	0	105	2.07
1,1-Dichloroethane	5828055	0	0	0	109	2.30
c-1,2-Dichloroethene	2518086	0	0	34372	110	3.02
t-1,2-Dichloroethene	2997306	0	0	0	101	3.02
Chloroform	6956547	0	0	27708	103	3.12
1,1,1-Trichloroethane	6140963	0	0	0	103	4.48
1,2-Dichloroethane (62)	5930743	0	0	33879	105	4.31
Benzene	8570456	0	0	0	108	1.37
Carbon Tetrachloride	7076752	0	0	0	100	3.30
Trichloroethene	4631552	0	0	0	96	3.65
Toluene	12565345	0	0	43974	98	1.49
Tetrachloroethene	5513490	0	0	0	106	4.10
Volume (ml)	20.0	200	200	200		
BROMOCHLOROMETHANE(STD 1)	3485799	192730	245549	3592765		
DIFLUOROBENZENE (STD 1)	34536590	1904519	1893017	37231277		

DAILY CONTINUING CALIBRATION CHECK

Cal Date3-27-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.82	1.48	23
Vinyl Chloride	0.18	0.55	0.46	19
Freon 11	0.05	2.34	0.00	ERR
1,1-Dichloroethene	0.00	0.00	0.00	0
Dichloromethane	0.00	0.00	0.00	0
Trichlorotrifluoroethane	0.00	0.00	0.00	0
1,1-Dichloroethane	0.00	1.67	1.39	20
c-1,2-Dichloroethene	0.15	0.72	0.61	18
t-1,2-Dichloroethene	0.00	0.86	0.61	41
Chloroform	0.04	2.00	1.59	26
1,1,1-Trichloroethane	0.00	1.76	1.45	21
1,2-Dichloroethane (62)	0.06	1.70	1.41	21
Benzene	0.00	2.46	2.03	21
Carbon Tetrachloride	0.00	2.03	1.72	18
Trichloroethene	0.00	1.33	1.06	25
Toluene	0.03	3.60	3.13	15
Tetrachloroethene	0.00	1.58	1.31	21

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 4-1-91

This QA/QC Report Applies to the Following Samples

CSL Number
3030
3037

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 4-1-91

Check	Typical Value	4-1-91 Value	Units
Helium Tank Pressure	40	40	psig
Column Pressure	20	20	psig
Vacuum	175	186	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.6 x 10-5	
Sample Line Leak Check (2min)	5	4	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 4-1-91 Instrument: GC/MS 01 File: S03271A1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	484352	19
75	30.0 to 60.0 % of mass 95	1222656	49
95	Base Peak, 100% relative abundance	2492416	100
96	5.0 to 9.0 % of mass 95	165248	7
173	Less than 2.0% of mass 174	17952	1
174	Greater than 50.% of mass 95	2567680	103
175	5.0 to 9.0% of mass 174	185152	7
176	95.0 to 101.0 % of mass 174	2492416	97
177	5.0 to 9.0 % of mass 176	161664	6

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) Q04011B2

Blank B04011A1
Sample
Duplicate

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	7424581	85	4.78	0	101	2.79
Vinyl Chloride	2379770	62	5.80	0	100	3.24
Freon 11	11126395	101	8.30	32274	101	1.32
1,1-Dichloroethene	5254762	96	9.19	0	108	2.10
Dichloromethane	3795725	84	9.55	835248	107	3.50
Trichlorotrifluoroethane	7980601	151	9.43	66039	105	2.07
1,1-Dichloroethane	9983996	63	10.61	0	109	2.30
c-1,2-Dichloroethene	4427244	96	10.29	0	110	3.02
t-1,2-Dichloroethene	4647340	96	11.29	0	101	3.02
Chloroform	7800059	83	11.51	0	103	3.12
1,1,1-Trichloroethane	6939183	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	6123604	62	12.19	0	105	4.31
Benzene	10109678	78	12.53	0	108	1.37
Carbon Tetrachloride	8727258	117	12.56	0	100	3.30
Trichloroethene	5632408	130	13.26	0	96	3.65
Toluene	14320031	92	14.60	0	98	1.49
Tetrachloroethene	7381911	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	5051821	128	11.51	6438434		
DIFLUOROBENZENE (STD 1)	44002899	114	12.77	49010884		

DAILY CONTINUING CALIBRATION CHECK

Cal Date4-1-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.47	1.48	1
Vinyl Chloride	0.00	0.47	0.46	2
Freon 11	0.02	2.20	2.15	2
1,1-Dichloroethene	0.00	1.04	1.04	0
Dichloromethane	1.85	0.75	0.75	0
Trichlorotrifluoroethane	0.07	1.58	1.58	0
1,1-Dichloroethane	0.00	1.98	1.39	42
c-1,2-Dichloroethene	0.00	0.88	0.61	44
t-1,2-Dichloroethene	0.00	0.92	0.61	51
Chloroform	0.00	1.54	1.59	3
1,1,1-Trichloroethane	0.00	1.37	1.45	5
1,2-Dichloroethane (62)	0.00	1.21	1.41	14
Benzene	0.00	2.00	2.03	1
Carbon Tetrachloride	0.00	1.73	1.72	0
Trichloroethene	0.00	1.11	1.06	5
Toluene	0.00	2.83	3.13	9
Tetrachloroethene	0.00	1.46	1.31	12

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0.6	200	50
Vinyl Chloride	0	0	ERR	50
Freon 11	0	385	200	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	5160	4330	17	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	5570	5160	8	50
Chloroform	64.4	53.4	19	50
1,1,1-Trichloroethane	337	334	1	50
1,2-Dichloroethane (62)	827	731	12	50
Benzene	314	277	13	50
Carbon Tetrachloride	2.1	1.5	33	50
Trichloroethene	3050	2170	34	50
Toluene	8.5	6.8	22	50
Tetrachloroethene	272	233	15	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 4-02-91

This QA/QC Report Applies to the Following Samples

CSL Number
3029
3031
3032
3033
3034
3035
3036
3038
3039
3040
3041

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 4-02-91

Check	Typical Value	4-02-91 Value	Units
Helium Tank Pressure	40	41	psig
Column Pressure	20	20	psig
Vacuum	175	156	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.6 x 10-5	
Sample Line Leak Check (2min)	5	6	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 4-02-91 Instrument: GC/MS 01 File: S03271A1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	1108992	18
75	30.0 to 60.0 % of mass 95	3180544	53
95	Base Peak, 100% relative abundance	6009344	100
96	5.0 to 9.0 % of mass 95	410560	7
173	Less than 2.0% of mass 174	1000	0
174	Greater than 50.% of mass 95	6042112	101
175	5.0 to 9.0% of mass 174	451392	7
176	95.0 to 101.0 % of mass 174	5944832	98
177	5.0 to 9.0 % of mass 176	400704	7

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S0329A1

Blank B07270A4
Sample
Duplicate

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	11553366	85	4.78	0	101	2.79
Vinyl Chloride	3505083	62	5.79	0	100	3.24
Freon 11	14842433	101	8.30	0	101	1.32
1,1-Dichloroethene	9261225	96	9.19	204535	108	2.10
Dichloromethane	5390698	84	9.55	990300	107	3.50
Trichlorotrifluoroethane	7614431	151	9.43	233124	105	2.07
1,1-Dichloroethane	12790131	63	10.61	0	109	2.30
c-1,2-Dichloroethene	7281782	96	10.29	0	110	3.02
t-1,2-Dichloroethene	7477838	96	11.29	0	101	3.02
Chloroform	11688035	83	11.51	30465	103	3.12
1,1,1-Trichloroethane	10600910	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	9413620	62	12.19	0	105	4.31
Benzene	15832878	78	12.53	0	108	1.37
Carbon Tetrachloride	12579211	117	12.56	14756	100	3.30
Trichloroethene	10481617	130	13.26	162698	96	3.65
Toluene	23512553	92	14.60	8510	98	1.49
Tetrachloroethene	10525511	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	9164748	128	11.51	6630313		
DIFLUOROBENZENE (STD 1)	72488980	114	12.77	53798718		

DAILY CONTINUING CALIBRATION CHECK

Cal Date4-02-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.26	1.48	15
Vinyl Chloride	0.00	0.38	0.46	17
Freon 11	0.00	1.62	2.15	25
1,1-Dichloroethene	0.33	1.01	1.01	0
Dichloromethane	2.72	0.59	0.59	0
Trichlorotrifluoroethane	0.44	0.83	0.83	0
1,1-Dichloroethane	0.00	1.40	1.39	0
c-1,2-Dichloroethene	0.00	0.79	0.61	30
t-1,2-Dichloroethene	0.00	0.82	0.61	34
Chloroform	0.04	1.28	1.59	20
1,1,1-Trichloroethane	0.00	1.16	1.45	20
1,2-Dichloroethane (62)	0.00	1.03	1.41	27
Benzene	0.00	1.73	2.03	15
Carbon Tetrachloride	0.02	1.37	1.72	20
Trichloroethene	0.21	1.14	1.06	8
Toluene	0.00	2.57	3.13	18
Tetrachloroethene	0.00	1.15	1.31	12

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	9.8	200	50
Vinyl Chloride	0	0	ERR	50
Freon 11	656	0	200	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	11700	0	200	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	6460	22100	110	50
Chloroform	78	133	52	50
1,1,1-Trichloroethane	451	1230	93	50
1,2-Dichloroethane (62)	931	2740	99	50
Benzene	384	1070	94	50
Carbon Tetrachloride	2.8	0	200	50
Trichloroethene	4250	33400	155	50
Toluene	8.1	41	134	50
Tetrachloroethene	201	422	71	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 4-03-91

This QA/QC Report Applies to the Following Samples

CSL Number
3004
3006
3042
3043
3044
3045
3046
3047
3048
3049
3050
3051
3052

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 4-03-91

Check	Typical Value	4-03-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	19	psig
Vacuum	175	160	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.7 x 10-5	
Sample Line Leak Check (2min)	5	6	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 4-03-91 Instrument: GC/MS 01 File: S03271A1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	248768	22
75	30.0 to 60.0 % of mass 95	547136	49
95	Base Peak, 100% relative abundance	1124352	100
96	5.0 to 9.0 % of mass 95	70368	6
173	Less than 2.0% of mass 174	6405	1
174	Greater than 50.% of mass 95	1045120	93
175	5.0 to 9.0% of mass 174	74696	7
176	95.0 to 101.0 % of mass 174	998080	95
177	5.0 to 9.0 % of mass 176	65576	7

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1

Blank Sample Duplicate B04031B1

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	6707985	85	4.78	0	101	2.79
Vinyl Chloride	2417300	62	5.79	0	100	3.24
Freon 11	9435600	101	8.30	0	101	1.32
1,1-Dichloroethene	4686335	96	9.19	301057	108	2.10
Dichloromethane	3984530	84	9.55	739293	107	3.50
Trichlorotrifluoroethane	7027682	151	9.43	259440	105	2.07
1,1-Dichloroethane	7624160	63	10.61	0	109	2.30
c-1,2-Dichloroethene	4735270	96	10.29	0	110	3.02
t-1,2-Dichloroethene	4982301	96	11.29	0	101	3.02
Chloroform	7883106	83	11.51	39350	103	3.12
1,1,1-Trichloroethane	6786688	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	6159045	62	12.19	0	105	4.31
Benzene	10635648	78	12.53	32234	108	1.37
Carbon Tetrachloride	8448891	117	12.56	0	100	3.30
Trichloroethene	6244071	130	13.26	117628	96	3.65
Toluene	14003450	92	14.60	0	98	1.49
Tetrachloroethene	7288984	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	7043320	128	11.51	3592765		
DIFLUOROBENZENE (STD 1)	58539493	114	12.77	37231277		

DAILY CONTINUING CALIBRATION CHECK

Cal Date4-03-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	0.95	1.48	36
Vinyl Chloride	0.00	0.34	0.46	25
Freon 11	0.00	1.34	2.15	38
1,1-Dichloroethene	1.36	0.67	0.67	0
Dichloromethane	3.89	0.57	0.57	0
Trichlorotrifluoroethane	0.76	1.00	1.00	0
1,1-Dichloroethane	0.00	1.08	1.39	22
c-1,2-Dichloroethene	0.00	0.67	0.61	10
t-1,2-Dichloroethene	0.00	0.71	0.61	16
Chloroform	0.10	1.12	1.59	30
1,1,1-Trichloroethane	0.00	0.96	1.45	34
1,2-Dichloroethane (62)	0.00	0.87	1.41	38
Benzene	0.06	1.51	2.03	26
Carbon Tetrachloride	0.00	1.20	1.72	30
Trichloroethene	0.35	0.89	1.06	16
Toluene	0.00	1.99	3.13	36
Tetrachloroethene	0.00	1.03	1.31	21

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0	ERR	50
Freon 11	0.8	3.3	122	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	0.9	1.1	20	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	48.5	41.4	16	50
Chloroform	0.5	0.6	18	50
1,1,1-Trichloroethane	0.3	0.4	29	50
1,2-Dichloroethane (62)	0	0.1	200	50
Benzene	0.5	0.4	22	50
Carbon Tetrachloride	0.1	0	200	50
Trichloroethene	117	118	1	50
Toluene	0.4	0.5	22	50
Tetrachloroethene	0.4	0.4	0	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 4-04-91

This QA/QC Report Applies to the Following Samples

CSL Number
3011
3014
3021
3025
3030
3039
3053
3054
3055
3056
3057

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 4-04-91

Check	Typical Value	4-04-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	20	psig
Vacuum	175	168	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	5.6 x 10-5	
Sample Line Leak Check (2min)	5	4	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 4-04-91 Instrument: GC/MS 01 File: S03271A1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	300672	17
75	30.0 to 60.0 % of mass 95	814656	46
95	Base Peak, 100% relative abundance	1752576	100
96	5.0 to 9.0 % of mass 95	107408	6
173	Less than 2.0% of mass 174	18344	1
174	Greater than 50.% of mass 95	1607168	92
175	5.0 to 9.0% of mass 174	118736	7
176	95.0 to 101.0 % of mass 174	1594368	99
177	5.0 to 9.0 % of mass 176	103408	6

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1

Blank Sample B04031B1
Duplicate

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	13545812	85	4.78	0	101	2.79
Vinyl Chloride	4235811	62	5.79	59532	100	3.24
Freon 11	18305439	101	8.30	0	101	1.32
1,1-Dichloroethene	7790257	96	9.19	280576	108	2.10
Dichloromethane	8173962	84	9.55	1623935	107	3.50
Trichlorotrifluoroethane	15319035	151	9.43	325759	105	2.07
1,1-Dichloroethane	12710760	63	10.61	39451	109	2.30
c-1,2-Dichloroethene	7478263	96	10.29	43230	110	3.02
t-1,2-Dichloroethene	10017791	96	11.29	36165	101	3.02
Chloroform	17250274	83	11.51	0	103	3.12
1,1,1-Trichloroethane	15397111	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	12565148	62	12.19	0	105	4.31
Benzene	22610434	78	12.53	49205	108	1.37
Carbon Tetrachloride	19081758	117	12.56	0	100	3.30
Trichloroethene	13789332	130	13.26	38486	96	3.65
Toluene	19914283	92	14.60	9877	98	1.49
Tetrachloroethene	17614234	164	15.47	49379	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	11200233	128	11.51	12098317		
DIFLUOROBENZENE (STD 1)	95796915	114	12.77	*********		

DAILY CONTINUING CALIBRATION CHECK

Cal Date4-04-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.21	1.48	18
Vinyl Chloride	0.13	0.38	0.46	18
Freon 11	0.00	1.63	2.15	24
1,1-Dichloroethene	0.36	0.70	0.70	0
Dichloromethane	1.97	0.73	0.73	0
Trichlorotrifluoroethane	0.21	1.37	1.37	0
1,1-Dichloroethane	0.03	1.13	1.39	18
c-1,2-Dichloroethene	0.06	0.67	0.61	9
t-1,2-Dichloroethene	0.03	0.89	0.61	47
Chloroform	0.00	1.54	1.59	3
1,1,1-Trichloroethane	0.00	1.37	1.45	5
1,2-Dichloroethane (62)	0.00	1.12	1.41	20
Benzene	0.02	2.02	2.03	1
Carbon Tetrachloride	0.00	1.70	1.72	1
Trichloroethene	0.02	1.23	1.06	16
Toluene	0.00	1.78	3.13	43
Tetrachloroethene	0.03	1.57	1.31	20

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0	ERR	50
Freon 11	65.3	32.6	67	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	1.3	1.2	8	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	0.1	0	200	50
Chloroform	0.5	0.5	0	50
1,1,1-Trichloroethane	19.4	19	2	50
1,2-Dichloroethane (62)	1	0.9	11	50
Benzene	0.3	0.3	0	50
Carbon Tetrachloride	0.6	0.6	0	50
Trichloroethene	34.5	35.6	3	50
Toluene	0.1	0.1	0	50
Tetrachloroethene	1.2	1.6	29	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 04-05-91

This QA/QC Report Applies to the Following Samples

CSL Number
3058
3059
3060
3061
3062
3063
3064

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 04-05-91

Check	Typical Value	04-05-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	19	psig
Vacuum	175	155	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.1 x 10-5	
Sample Line Leak Check (2min)	5	5	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 04-05-91 Instrument: GC/MS 01 File: S04051b1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	206672	16
75	30.0 to 60.0 % of mass 95	522496	41
95	Base Peak, 100% relative abundance	1263104	100
96	5.0 to 9.0 % of mass 95	86472	7
173	Less than 2.0% of mass 174	7208	1
174	Greater than 50.% of mass 95	1202688	95
175	5.0 to 9.0% of mass 174	80808	7
176	95.0 to 101.0 % of mass 174	1206272	100
177	5.0 to 9.0 % of mass 176	86008	7

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1 | Blank Sample Duplicate B04031B1

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	7268509	85	4.78	0	101	2.79
Vinyl Chloride	3139302	62	5.79	0	100	3.24
Freon 11	8728213	101	8.30	0	101	1.32
1,1-Dichloroethene	5500027	96	9.19	225811	108	2.10
Dichloromethane	5431812	84	9.55	1007537	107	3.50
Trichlorotrifluoroethane	10175015	151	9.43	270275	105	2.07
1,1-Dichloroethane	7248449	63	10.61	0	109	2.30
c-1,2-Dichloroethene	4307800	96	10.29	0	110	3.02
t-1,2-Dichloroethene	5089202	96	11.29	38072	101	3.02
Chloroform	9144259	83	11.51	0	103	3.12
1,1,1-Trichloroethane	7109950	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	6855779	62	12.19	28685	105	4.31
Benzene	13527397	78	12.53	0	108	1.37
Carbon Tetrachloride	8767558	117	12.56	0	100	3.30
Trichloroethene	8420060	130	13.26	118224	96	3.65
Toluene	11501367	92	14.60	0	98	1.49
Tetrachloroethene	10151654	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	7076664	128	11.51	7424677		
DIFLUOROBENZENE (STD 1)	55035072	114	12.77	57745846		

DAILY CONTINUING CALIBRATION CHECK

Cal Date04-05-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.03	1.48	31
Vinyl Chloride	0.00	0.44	0.46	4
Freon 11	0.00	1.23	2.15	43
1,1-Dichloroethene	0.42	0.78	0.78	0
Dichloromethane	1.89	0.77	0.77	0
Trichlorotrifluoroethane	0.27	1.44	1.44	0
1,1-Dichloroethane	0.00	1.02	1.39	26
c-1,2-Dichloroethene	0.00	0.61	0.61	0
t-1,2-Dichloroethene	0.07	0.72	0.61	18
Chloroform	0.00	1.29	1.59	19
1,1,1-Trichloroethane	0.00	1.00	1.45	31
1,2-Dichloroethane (62)	0.04	0.97	1.41	31
Benzene	0.00	1.91	2.03	6
Carbon Tetrachloride	0.00	1.24	1.72	28
Trichloroethene	0.13	1.19	1.06	12
Toluene	0.00	1.63	3.13	48
Tetrachloroethene	0.00	1.43	1.31	10

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0	ERR	50
Freon 11	0	0	ERR	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	3.6	5.2	36	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	0.3	0.5	50	50
Chloroform	0.4	0.7	55	50
1,1,1-Trichloroethane	175	178	2	50
1,2-Dichloroethane (62)	9	9.3	3	50
Benzene	0.7	0.9	25	50
Carbon Tetrachloride	0	0.2	200	50
Trichloroethene	42.8	52.7	21	50
Toluene	0.3	0.3	0	50
Tetrachloroethene	1.3	1.8	32	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 04-08-91

This QA/QC Report Applies to the Following Samples

CSL Number
3065
3066
3068
3070
3071
3072

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 04-08-91

Check	Typical Value	04-08-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	20	psig
Vacuum	175	159	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	7.7 x 10-5	
Sample Line Leak Check (2min)	5	4	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 04-08-91 Instrument: GC/MS 01 File: S04051b1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	212608	15
75	30.0 to 60.0 % of mass 95	569792	39
95	Base Peak, 100% relative abundance	1454080	100
96	5.0 to 9.0 % of mass 95	96896	7
173	Less than 2.0% of mass 174	9429	1
174	Greater than 50.% of mass 95	1415168	97
175	5.0 to 9.0% of mass 174	107992	8
176	95.0 to 101.0 % of mass 174	1370112	97
177	5.0 to 9.0 % of mass 176	85768	6

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1 | Blank Sample Duplicate B04031B1

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	13205590	85	4.78	0	101	2.79
Vinyl Chloride	4838887	62	5.79	0	100	3.24
Freon 11	17473831	101	8.30	0	101	1.32
1,1-Dichloroethene	10924127	96	9.19	80507	108	2.10
Dichloromethane	9898834	84	9.55	1560312	107	3.50
Trichlorotrifluoroethane	16237302	151	9.43	0	105	2.07
1,1-Dichloroethane	17270870	63	10.61	0	109	2.30
c-1,2-Dichloroethene	7854841	96	10.29	0	110	3.02
t-1,2-Dichloroethene	9153250	96	11.29	25004	101	3.02
Chloroform	15556018	83	11.51	0	103	3.12
1,1,1-Trichloroethane	12692975	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	9331966	62	12.19	21162	105	4.31
Benzene	22529623	78	12.53	0	108	1.37
Carbon Tetrachloride	15101683	117	12.56	0	100	3.30
Trichloroethene	14678527	130	13.26	0	96	3.65
Toluene	19653165	92	14.60	0	98	1.49
Tetrachloroethene	18454407	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	13467408	128	11.51	11985396		
DIFLUOROBENZENE (STD 1)	104491188	114	12.77	99214568		

DAILY CONTINUING CALIBRATION CHECK

Cal Date04-08-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	0.98	1.48	34
Vinyl Chloride	0.00	0.36	0.46	22
Freon 11	0.00	1.30	2.15	40
1,1-Dichloroethene	0.09	0.81	0.81	0
Dichloromethane	1.90	0.74	0.74	0
Trichlorotrifluoroethane	0.00	1.21	1.21	0
1,1-Dichloroethane	0.00	1.28	1.39	8
c-1,2-Dichloroethene	0.00	0.58	0.61	4
t-1,2-Dichloroethene	0.03	0.68	0.61	11
Chloroform	0.00	1.16	1.59	27
1,1,1-Trichloroethane	0.00	0.94	1.45	35
1,2-Dichloroethane (62)	0.03	0.69	1.41	51
Benzene	0.00	1.67	2.03	18
Carbon Tetrachloride	0.00	1.12	1.72	35
Trichloroethene	0.00	1.09	1.06	3
Toluene	0.00	1.46	3.13	53
Tetrachloroethene	0.00	1.37	1.31	5

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0.1	200	50
Freon 11	1	0.7	35	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	0.4	0.4	0	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	29.3	28.5	3	50
Chloroform	0.3	0.3	0	50
1,1,1-Trichloroethane	0.2	0.2	0	50
1,2-Dichloroethane (62)	0	0.1	200	50
Benzene	0.5	0.5	0	50
Carbon Tetrachloride	0.1	0.1	0	50
Trichloroethene	64.8	63.1	3	50
Toluene	0.4	0.4	0	50
Tetrachloroethene	0.2	0.1	67	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 04-11-91

This QA/QC Report Applies to the Following Samples

CSL Number		
3067	3084	3106
3069	3085	3108
3073	3086	3109
3074	3087	3110
3075	3088	3111
3076	3089	3112
3077	3090	3113
3078	3091	
3079	3101	
3080	3102	
3081	3103	
3082	3104	
3083	3105	

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 04-11-91

Check	Typical Value	04-11-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	20	psig
Vacuum	175	160	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	8.2 x 10-5	
Sample Line Leak Check (2min)	5	3	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 04-11-91 Instrument: GC/MS 01 File: S04051b1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	17328	18
75	30.0 to 60.0 % of mass 95	37808	40
95	Base Peak, 100% relative abundance	94056	100
96	5.0 to 9.0 % of mass 95	7720	8
173	Less than 2.0% of mass 174	1367	2
174	Greater than 50.% of mass 95	86704	92
175	5.0 to 9.0% of mass 174	6163	7
176	95.0 to 101.0 % of mass 174	88128	102
177	5.0 to 9.0 % of mass 176	6476	7

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1 | Blank Sample B04031B1 | Duplicate

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	8953766	85	4.78	0	101	2.79
Vinyl Chloride	3255275	62	5.79	0	100	3.24
Freon 11	12740103	101	8.30	1118471	101	1.32
1,1-Dichloroethene	5300837	96	9.19	0	108	2.10
Dichloromethane	5069700	84	9.55	0	107	3.50
Trichlorotrifluoroethane	9506266	151	9.43	0	105	2.07
1,1-Dichloroethane	8509018	63	10.61	0	109	2.30
c-1,2-Dichloroethene	4289771	96	10.29	0	110	3.02
t-1,2-Dichloroethene	4795446	96	11.29	145055	101	3.02
Chloroform	9456013	83	11.51	54939	103	3.12
1,1,1-Trichloroethane	8335444	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	5720143	62	12.19	98357	105	4.31
Benzene	12570653	78	12.53	0	108	1.37
Carbon Tetrachloride	10852872	117	12.56	88603	100	3.30
Trichloroethene	7919669	130	13.26	0	96	3.65
Toluene	10307597	92	14.60	64157	98	1.49
Tetrachloroethene	10460064	164	15.47	62743	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	6252216	128	11.51	6826638		
DIFLUOROBENZENE (STD 1)	52814429	114	12.77	56544735		

DAILY CONTINUING CALIBRATION CHECK

Cal Date04-11-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.00	1.43	1.48	3
Vinyl Chloride	0.00	0.52	0.46	13
Freon 11	0.81	2.04	2.15	5
1,1-Dichloroethene	0.00	0.85	0.85	0
Dichloromethane	0.00	0.81	0.81	0
Trichlorotrifluoroethane	0.00	1.52	1.52	0
1,1-Dichloroethane	0.00	1.36	1.39	2
c-1,2-Dichloroethene	0.00	0.69	0.61	12
t-1,2-Dichloroethene	0.28	0.77	0.61	26
Chloroform	0.05	1.51	1.59	5
1,1,1-Trichloroethane	0.00	1.33	1.45	8
1,2-Dichloroethane (62)	0.17	0.91	1.41	35
Benzene	0.00	2.01	2.03	1
Carbon Tetrachloride	0.07	1.74	1.72	1
Trichloroethene	0.00	1.27	1.06	19
Toluene	0.06	1.65	3.13	47
Tetrachloroethene	0.06	1.67	1.31	28

DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0.2	200	50
Freon 11	138.5	355.7	88	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	0.3	0.3	0	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	0.3	0.1	100	50
Chloroform	0.2	0.3	40	50
1,1,1-Trichloroethane	3.7	3.8	3	50
1,2-Dichloroethane (62)	0.3	0.2	40	50
Benzene	0.2	0.1	67	50
Carbon Tetrachloride	20.7	21.3	3	50
Trichloroethene	25.9	26.8	3	50
Toluene	0.1	0.1	0	50
Tetrachloroethene	0.4	0.5	22	50

McClellan AFB
Close Support Laboratory
DAILY QUALITY ASSURANCE REPORT

EPA Method TO-14 GC/MS Date: 04-12-91

This QA/QC Report Applies to the Following Samples

CSL Number	
3092	3120
3095	3122
3098	3123
3099	3124
3105	3126
3107	3127
3114	
3116	
3117	
3118	

DAILY QA CHECKSHEET

CLOSE SUPPORT LABORATORY
McClellan AFB

Date: 04-12-91

Check	Typical Value	04-12-91 Value	Units
Helium Tank Pressure	40	42	psig
Column Pressure	20	20	psig
Vacuum	175	160	in Hg
Zero Air Pressure	10	10	psig
MS Vacuum	7.2	8.2 x 10-5	
Sample Line Leak Check (2min)	5	3	in hg

McClellan AFB
Close Support Laboratory

VOLATILE ORGANIC GC/MS TUNE AND INTERNAL STANDARD AREA SUMMARY

Date: 04-12-91 Instrument: GC/MS 01 File: S04051b1.D
EPA Method TO-14 HP 5890/5971 DB-5 Capillary Column

m/e	Ion Abundance Criteria	Area	% Abundance
50	15.0 to 40.0 % of mass 95	12874	34
75	30.0 to 60.0 % of mass 95	17376	46
95	Base Peak, 100% relative abundance	37400	100
96	5.0 to 9.0 % of mass 95	3534	9
173	Less than 2.0% of mass 174	1000	3
174	Greater than 50.% of mass 95	37496	100
175	5.0 to 9.0% of mass 174	4257	11
176	95.0 to 101.0 % of mass 174	39912	106
177	5.0 to 9.0 % of mass 176	1930	5

VOLATILE ORGANIC GC/MS QUALITY ASSURANCE WORKSHEET
Standards, Blanks, Duplicates

Standard (100%) S04031B1 | Blank Sample Duplicate B04031B1

Compound	Standard Area	Quant Ion	RT	Blank	Std Conc ppbv	
Freon 12	7175976	85	4.78	50846	101	2.79
Vinyl Chloride	2646940	62	5.79	0	100	3.24
Freon 11	9558413	101	8.30	40283	101	1.32
1,1-Dichloroethene	5213034	96	9.19	304468	108	2.10
Dichloromethane	3918898	84	9.55	669824	107	3.50
Trichlorotrifluoroethane	7483616	151	9.43	313883	105	2.07
1,1-Dichloroethane	8270599	63	10.61	0	109	2.30
c-1,2-Dichloroethene	4055350	96	10.29	54050	110	3.02
t-1,2-Dichloroethene	411534	96	11.29	13100	101	3.02
Chloroform	7024059	83	11.51	0	103	3.12
1,1,1-Trichloroethane	6082891	97	12.17	0	103	4.48
1,2-Dichloroethane (62)	3964491	62	12.19	0	105	4.31
Benzene	9733330	78	12.53	0	108	1.37
Carbon Tetrachloride	7470209	117	12.56	0	100	3.30
Trichloroethene	5803267	130	13.26	253042	96	3.65
Toluene	12001647	92	14.60	0	98	1.49
Tetrachloroethene	7281155	164	15.47	0	106	4.10
Volume (ml)	20.0			200		
BROMOCHLOROMETHANE(STD 1)	3521754	128	11.51	3499516		
DIFLUOROBENZENE (STD 1)	31316723	114	12.77	35073734		

DAILY CONTINUING CALIBRATION CHECK

Cal Date04-12-91
Initial Cal Date:3-27-91

Compound	Blank (ppbv)	Standard RRF	Initial RRF	RPD %
Freon 12	0.07	2.04	1.48	38
Vinyl Chloride	0.00	0.75	0.46	63
Freon 11	0.04	2.71	2.15	26
1,1-Dichloroethene	0.63	1.48	1.48	0
Dichloromethane	1.84	1.11	1.11	0
Trichlorotrifluoroethane	0.44	2.12	2.12	0
1,1-Dichloroethane	0.00	2.35	1.39	69
c-1,2-Dichloroethene	0.15	1.15	0.61	89
t-1,2-Dichloroethene	0.32	0.12	0.61	81
Chloroform	0.00	1.99	1.59	25
1,1,1-Trichloroethane	0.00	1.73	1.45	19
1,2-Dichloroethane (62)	0.00	1.13	1.41	20
Benzene	0.00	2.76	2.03	36
Carbon Tetrachloride	0.00	2.12	1.72	23
Trichloroethene	0.42	1.65	1.06	55
Toluene	0.00	3.41	3.13	9
Tetrachloroethene	0.00	2.07	1.31	58

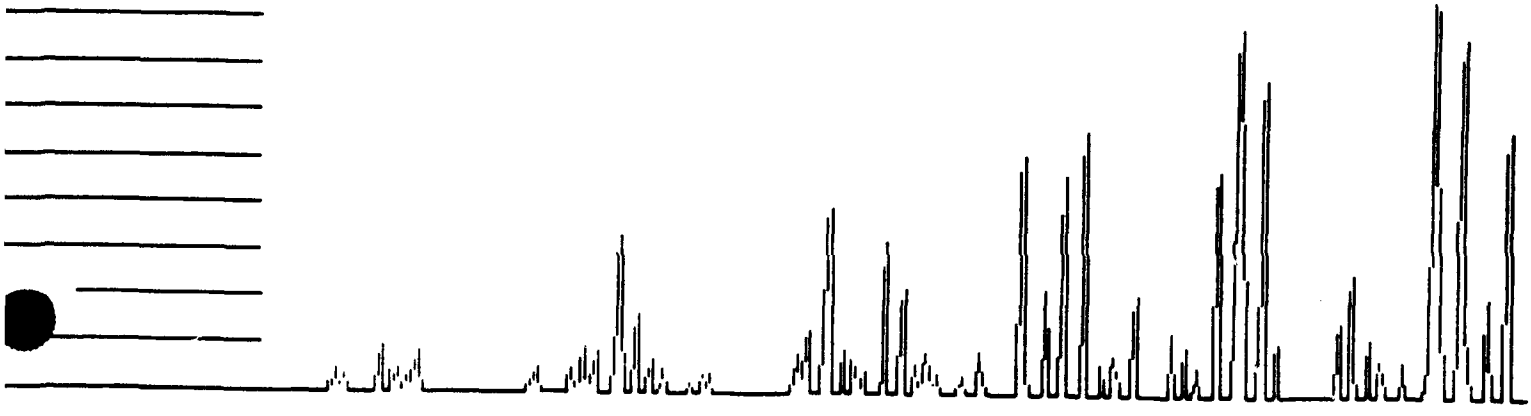
DUPLICATE SAMPLE/SPIKE RESULTS

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	0	0	ERR	50
Vinyl Chloride	0	0.1	200	50
Freon 11	0	0.4	200	50
1,1-Dichloroethene	0	0	ERR	50
Dichloromethane	0	0	ERR	50
Trichlorotrifluoroethane	0	0	ERR	50
1,1-Dichloroethane	2.5	2	22	50
c-1,2-Dichloroethene	0	0	ERR	50
t-1,2-Dichloroethene	0.6	0.3	67	50
Chloroform	0.5	0.3	50	50
1,1,1-Trichloroethane	156	187.1	18	50
1,2-Dichloroethane (62)	10.5	11.8	12	50
Benzene	0.3	0.3	0	50
Carbon Tetrachloride	0	0	ERR	50
Trichloroethene	62.1	61.3	1	50
Toluene	0.1	0.1	0	50
Tetrachloroethene	1.7	1.7	0	50

SECTION II
SUBCONSULTANT QA/QC REVIEW--OFFSITE LAB

Environmental Analytical Service

ANALYTICAL REPORT
Section 1
McClellan AFB
Off-Site Laboratory
March 20 - April 12, 1991



ANALYTICAL REPORT
Section 1
McClellan AFB
Off-Site Laboratory
March 20 - April 12, 1991

Prepared for:

CH_2M Hill

Prepared by:

Steven D. Hoyt, Ph.D.

ENVIRONMENTAL ANALYTICAL SERVICE, INC.
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Section 2

4.0 ANALYTICAL RESULTS AND DAILY QUALITY ASSURANCE REPORTS

CH2MHill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 146722.0102	PROJECT NAME: McClellan Soil Gas					# OF CONTAINERS	CLIENT ADDRESS AND PHONE NUMBER		LAB ID	FOR LAB USE ONLY	
CLIENT NAME: McClellan AFB							ANALYSES REQUESTED			LAB#	
PROJECT MANAGER: Robert Rocks			COPY TO				Pt. McClellan Soil Constituent			LAB#	
REQUESTED COMP DATE			SAMPLING REQUIREMENTS: SDWA ( ) NPDES ( ) RCRA ( ) OTHER ____							PROJECT NO.	
										ACK / VERIFIED	
										QUOTE# / BS	
										NO. OF SAMP / PG / OF	
STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)				REMARKS	
	4/5					MW AC [illegible] B				Constituent	
	4/8					MW AC [illegible]				10408	
	4/6					MW AC [illegible] 2				10409	
	4/6					MW AC [illegible] 3				10410	
	4/6					MW AC [illegible] B				10411	
	4/6					MW AC [illegible] 1				10412	
	4/6					MW AC [illegible] 2				10413	
	4/6					MW AC [illegible] 3				10414	
	4/6					MW TC [illegible] B				10415	
	4/6					MW SC [illegible] 1				10416	
	4/6					MW TC [illegible] 2				10417	
	4/6					MW SC [illegible] 3				10418	
	4/6					MW TC [illegible] B				10419	
	4/6					MW TC [illegible] 1				10420	10420
	4/6					MW TC [illegible] 2				10421	
	4/8					MW TC [illegible] 3				10422	
										Tube	

SAMPLED BY AND TITLE: Karla Burt Staff Engineer	DATE/TIME: 4/8/91	RELINQUISHED BY: Karla Burt Staff Engineer	DATE/TIME	HAZWRAP/NEESA Y N
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME	QC LEVEL 1 2 3
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME	COC / ICE
RECEIVED BY LAB: UPS	DATE/TIME: 4/9/91 0900	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ____	AIR BILL#	ANA REQ / TEMP
REMARKS				CUSI SEAL / Ph
				SAMPLE COND.
			ENTERED INTO LIMS ____	COC REVIEWED

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME	# OF CONTAINERS	CLIENT ADDRESS AND PHONE NUMBER	LAB ID	FOR LAB USE ONLY
5PX.287228.02	McClellan Soil Gas				LAB#
CLIENT NAME			ANALYSES REQUESTED		LAB#
			TPH, McClellan Soil Gas, Methanol and Diesel by Extraction		PROJECT NO.
PROJECT MANAGER	COPY TO				ACK / VERIFIED
Robert Lester					QUOTE# / BS
REQUESTED COMP DATE	SAMPLING REQUIREMENTS				NO. OF SAMP / PG / OF
	SDWA [] NPDES [] RCRA [] OTHER ____				

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)			REMARKS
	4/6					MW-BT-0.7-1 first		0903	Tubes
	4/6					MW-BT-0.7-1 second		0904	
	4/6					MW-BT-0.7-2 first		0905	
	4/6					MW-BT-0.7-2 second		0906	

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME	HAZWRAP/NEESA Y N
Robert Lester	4/6/91			QC LEVEL 1 2 3
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	COC / ICE
				ANA REQ / TEMP
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	CUST SEAL / PH
				SAMPLE COND
RECEIVED BY LAB	DATE/TIME	SAMPLE SHIPPED VIA	AIR BILL#	
[signature]	4/9/91 (NOON)	UPS BUS FED-EX HAND OTHER ____		
REMARKS			ENTERED INTO LIMS ____	COC REVIEWED ____

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-BT-0-7-1	10403	
MW-BT-0-7-1	10404	
MW-BT-0-7-2	10405	
MW-BT-0-7-2	10406	
MW-AC-0-5-B	10407	
MW-AC-0-5-1	10408	
MW-AC-0-5-2	10409	
MW-AC-0-5-3	10410	
MW-AC-0-4-B	10411	
MW-AC-0-4-1	10412	
MW-AC-0-4-2	10413	
MW-AC-0-4-3	10414	
MW-T-0-5-B	10415	
MW-S-0-5-1	10416	
MW-T-0-5-2	10417	
MW-S-0-5-3	10418	
MW-T-0-4-B	10419	
MW-T-0-4-1	10420	
MW-T-0-4-2	10421	
MW-T-0-4-3	10422	
MW-B-0-5-B	10423	
MW-B-0-5-1	10424	
MW-B-0-5-2	10425	
MW-B-0-5-3	10426	
MW-B-0-5-4	10427	
MW-B-0-4-B	10428	
MW-B-0-4-1	10429	
MW-B-0-4-2	10430	
MW-B-0-4-3	10431	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CHM Hill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC28722.0302	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER [ ]

NO. OF CONTAINERS

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

LAB ID

FOR LAB USE ONLY

LAB #

LAB #

PROJECT NO

ACK | VERIFIED

QUOTE # | BS

NO OF SAMP | PG | OF

REMARKS: Bag

Vial Not Analyzed

SIA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	ENS #
	4/10					VR-B-0-42-B	10550
						VA-B-0-42-1	10551
						VR B-0-42-2	10552
						VR-B-0-42-3	C553
						VR-B-0-42-4	10554
						VR-B-0-61-B	10555
						VR-B-0-61-1	10556
						VR-B-0-61-2	10557
						VR-B-0-61-3	10559
						VR-B-0-34-B	10559
						VR-B-0-34-1	10560
						VR-B-0-34-2	10561
						VR-B-0-34-3	10562
						VR-B-0-34-4	10563
						VR-V-0-42	10564
						VR-V-0-61	10565
						VR-V-0-34	10566

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Ebert, Suzanne Davis	4/10/91		
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB: Raquel	DATE/TIME 4/11/91 4pm	SAMPLE SHIPPED VIA: UPS BUS FEDEX HAND OTHER	AIR BILL #

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

REMARKS

ENTERED INTO LIMS

COC REVIEWED

Environmental Analytical Service, Inc.

CH2M HILL
SACRAMENTO

MAY 03 1991

RECEIVED

April 25, 1991
Lab ID: 10403-10431

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 9, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
VR-B-0-42-B	10550	
VR-B-0-42-1	10551	
VR-B-0-42-2	10552	
VR-B-0-42-3	10553	
VR-B-0-42-4	10554	
VR-B-0-61-B	10555	
VR-B-0-61-1	10556	
VR-B-0-61-2	10557	
VR-B-0-61-3	10558	
VR-B-0-34-B	10559	
VR-B-0-34-1	10560	
VR-B-0-34-2	10561	
VR-B-0-34-3	10562	
VR-B-0-34-4	10563	
VR-V-0-42	10564	
VR-V-0-61	10565	
VR-V-0-34	10566	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722.03.02	McClellan AFB

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

FOR LAB USE ONLY: LAB# ; LAB# ; PROJECT NO ; ACK ; VERIFIED ; QUOTE# ; BS ; NO OF SAMP ; PG ; OF

SIA NO	DATE	TIME	COMP	GRAB	SOIL	# OF CONTAINERS	SAMPLE DESCRIPTIONS (12 CHARACTERS)	LAB ID	REMARKS
	4/11						VR-B-0-35-B	10581	Bag
							VR-B-0-35-1	10582	↓
							VR-B-0-35-2	10583	
							VR-B-0-35-3	10584	
							VR-V-0-35	10585	Vial (Not analyzed)
							VR-B-0-39-B	10586	Bag
							VR-B-0-39-1	10587	↓
							VR-B-0-39-2	10588	
							VR-B-0-39-3	10589	
							VR-V-0-39	10590	Vial (Not Analyzed)
							MW-BT-0-7-3 (first in series)	10591	Tube
							MW-BT-0-7-3 (second in series)	10592	↓
							MW-BT-0-7-4 (first in series)	10593	
							MW-BT-0-7-4 (second in series)	10594	

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME	HAZWRAP/NEESA Y N
Suzanne Davis, Karla Ebert	4/11/91	Karla Ebert		QC LEVEL 1 2 3
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	COC / ICE
				ANA REQ / TEMP
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	CUST SEAL / PH
				SAMPLE COND
RECEIVED BY LAB: P. Gulyash	DATE/TIME 4-12-91 NOON	SAMPLE SHIPPED VIA UPS BUS FED EX HAND OTHER ____		AIR BILL#

REMARKS

ENTERED INTO LIMS ____ COC REVIEWED ____

Environmental Analytical Service, Inc.

April 25, 1991
Lab ID: 10550-10563

CH2M HILL
SACRAMENTO
MAY 03 1991
RECEIVED

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 11, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
VR-B-0-35-B	10581	
VR-B-0-35-1	10582	
VR-B-0-35-2	10583	
VR-B-0-35-3	10584	
VR-V-0-35	10585	NOT ANALYZED
VR-B-0-39-B	10586	
VR-B-0-39-1	10587	
VR-B-0-39-2	10588	
VR-B-0-39-3	10589	
VR-V-0-39	10590	NOT ANALYZED
MW-BT-0-7-3	10591	
MW-BT-0-7-4	10592	
MW-BT-0-7-4	10593	
MW-BT-0-7-4	10594	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CHEMTECH QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SWC 28722.302	McClellan Coal Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER:

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID (EMS #)
								10599
								10600
								10601
								10602
								10603
								10604
								10605
								10606
11/12						MW [illegible] (grab)		10607
						MW [illegible] (grab)		10608
						MW [illegible] (grab)		10609
						MW [illegible] (grab)		10610

REMARKS: [illegible] Tubes

LAB USE ONLY

LAB #:

PROJECT NO.:

ACK: VERIFIED:

QUOTE #: BS:

NO. OF SAMP.: PG: OF:

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Chuck Chalkley, Robert Koster	4/11 & 12/91	ROBERT KOSTER	4/12/91 4:30
RECEIVED BY: VIVIAN LONGACRE	DATE/TIME 4/11/91 4:30 PM	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: [signature]	DATE/TIME 4/15/91 2:00	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #

REMARKS:

MAZWRAP/NEESA Y N

QC LEVEL [illegible]

COC [illegible] ICE

ANA REQ [illegible] TEMP

CUST SEAL [illegible]

SAMPLE COND. [illegible]

[illegible] (ENTERED) INTO LIMS [illegible] REVIEW

Environmental Analytical Service, Inc.

April 25, 1991
Lab ID: 10581-10594

CH2M HILL
SACRAMENTO

MAY 03 1991

RECEIVED

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 12, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
VR-B-0-36-B	10599	
VR-B-0-36-1	10600	
VR-B-0-36-2	10601	
VR-B-0-36-3	10602	
VR-B-0-13-B	10603	
VR-B-0-13-1	10604	
VR-B-0-13-2	10605	
VR-B-0-13-3	10606	
MW-LF-0-7-1	10607	
MW-LF-0-7-1	10608	
MW-LF-0-2-1	10609	
VR-LF-0-2-2	10610	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CHM HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC28722.03.02	McClellan Soil Gas

CLIENT NAME: McClellan SOI AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: per McClellan Soil Gas Contract

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

# OF CONTAINERS	LAB ID	STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	REMARKS
	10357		4/4					MW-T-0-9-B	Tube
	10358		4/4					MW-T-0-9-1	" "
	10359		4/4					MW-T-0-9-2 1st in series	" "
	10360		4/4					MW-T-0-9-2 2nd in series	" "
	10361		4/4					MW-T-0-9-3 1st in series	" "
	10362		4/4					MW-T-0-9-3 2nd in series	" "
	10363		4/4					MW-AC-0-9-B	Canister
	10364		4/4					MW-AC-0-9-1	" "
	10365		4/4					MW-AC-0-9-2	" "
	10366		4/4					MW-AC-0-9-3	" "
	10367		4/4					MW-B-0-9-1	Bag
	10368		4/4					MW-B-0-9-2	" "
	10369		4/4					MW-B-0-9-3	" "
	10370		4/4					MW-B-0-9-4	" "
	10371		4/4					MW-B-0-9-B	" "

SAMPLED BY AND TITLE: Suzanne Davis, Karla Ebert	DATE/TIME: 4/4/91	RELINQUISHED BY: Karla Ebert	DATE/TIME: 4/4/91 3:00pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: Vlongueil	DATE/TIME: 4/5/91 noon	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | Ph

SAMPLE COND

REMARKS

ENTERED INTO LIMS ____ COC REVIEWED ____

Environmental Analytical Service, Inc.

April 25, 1991
Lab ID: 10599-10610

CH2M HILL
SACRAMENTO
MAY 03 1991
RECEIVED

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 15, 1991.

The report consists of the following sections:

I	Sample Description
II	Analysis Request
III	Quality Control Report
IV	Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-T-0-9-B	10357	
MW-T-0-9-1	10358	
MW-T-0-9-2	10359	
MW-T-0-9-3	10360	
MW-T-0-9-3	10361	
MW-T-0-9-B	10362	
MW-AC-0-9-B	10363	
MW-AC-0-9-1	10364	
MW-AC-0-9-2	10365	
MW-AC-0-9-3	10366	
MW-B-0-9-1	10367	
MW-B-0-9-2	10368	
MW-B-0-9-3	10369	
MW-B-0-9-4	10370	
MW-B-0-9-B	10371	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CHMHILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722 03.04	Soil Gas - Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: EPA 10 14 canisters Modified TO-02 Solid Sorbents ck. as per McClellan Soil Gas contract

STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID	REMARKS
	4/3					MW-T-0-8-1		10348	Tubes
	4/3					MW-S-0-8-2		10349	" "
	4/3					MW-T-0-8-3		10340	" "
	4/3					MW-S-0-8-B		10341	
	4/3					MW-B-0-8-1		10342	Bag
	4/3					MW-B-0-8-2		10343	" "
	4/3					MW-B-0-8-3		10344	" "
	4/3					MW-B-0-8-B		10345	" "
	4/3					MW-AC-0-8-B		10346	Canister
	4/3					MW-AC-0-8-1		10347	" "
	4/3					MW-AC-0-8-2		10348	" "
	4/3					MW-AC-0-8-3		10349	" "
	4/3					MW-PC-0-8-4		10350	Pressurized Canister
	4/3					MW-PC-0-8-5		10351	" "
	4/3					MW-PC-0-8-6		10352	

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE # | dS

NO OF SAMP | PG | OF

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Ebert, Suzanne Davis	4/3/91	Karla Ebert Suzanne Davis	4/3/91 2:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB:	DATE/TIME 4/4/91 1:00pm	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ____	AIR BILL #

REMARKS

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

ENTERED INTO LIMS

COC REVIEWED

Environmental Analytical Service, Inc.

CH2M HILL
SACRAMENTO

MAY 03 1991

RECEIVED

April 24, 1991
Lab ID: 10357-10371

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 5, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report, contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

CHROMALAB QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722.03.04	Soil Gas - Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___

NO OF CONTAINERS

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: EPA 10-14 canisters Modified TO-14 Solid sorbents ok as per McClellan Soil Gas contract

LAB ID

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)
	4/3					MW-T-0-8-1
	4/3					MW-S-0-8-2
	4/3					MW-T-0-8-3
	4/3					MW-S-0-8-B
	4/3					MW-B-0-8-1
	4/3					MW-B-0-8-2
	4/3					MW-B-0-8-3
	4/3					MW-B-0-8-B
	4/3					MW-AC-0-8-B
	4/3					MW-AC-0-8-1
	4/3					MW-AC-0-8-2
	4/3					MW-AC-0-8-3
	4/3					MW-PC-0-8-4
	4/3					MW-PC-0-8-5
	4/3					MW-PC-0-8-6

REMARKS

Tubes
" "
" "
" "

Bag
" "
" "
" "

Canister
" "
" "
" "

Pressurized Canister
" "
" "

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Ebert, Suzanne Dow	4/3/91	Karla Ebert Suzanne Chun	4/3/91 2 30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ___	AIR BILL#

HAZWRAP/NELSA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

REMARKS

ENTERED INTO LIMS

COC REVIEWED

CH2M Hill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722 03.04	Soil Gas - Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: EPA 10-14 canisters Modified TO-02 Solid Sorbents ck. as per McClellan Soil Gas contract

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

STA NO	DATE	TIME	COMP	GRAB	SOIL	# OF CONTAINERS	LAB ID	SAMPLE DESCRIPTIONS (12 CHARACTERS)	REMARKS
	4/3							MW-T-0-8-1	Tubes
	4/3							MW-S-0-8-2	" "
	4/3							MW-T-0-8-3	" "
	4/3							MW-S-0-8-B	
	4/3							MW-B-0-8-1	Bag
	4/3							MW-B-0-8-2	" "
	4/3							MW-B-0-8-3	" "
	4/3							MW-B-0-8-B	
	4/3							MW-AC-0-8-B	Canister
	4/3							MW-AC-0-8-1	" "
	4/3							MW-AC-0-8-2	" "
	4/3							MW-AC-0-8-3	" "
	4/3							MW-PC-0-8-1	Pressurized Canister
	4/3							MW-PC-0-8-5	" "
	4/3							MW-PC-0-8-6	

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Ebert, Suzanne Davis	4/3/91	Karla Ebert Suzanne Davis	4/3/91 2:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ___	AIR BILL #

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

REMARKS

ENTERED INTO LIMS

COC REVI

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-T-0-8-1	10338	
MW-S-0-8-2	10339	
MW-T-0-8-3	10340	
MW-T-S-0-8-B	10341	
MW-B-0-8-1	10342	
MW-B-0-8-2	10343	
MW-B-0-8-3	10344	
MW-B-0-8-B	10345	
MW-AC-0-8-B	10346	
MW-AC-0-8-1	10347	
MW-AC-0-8-2	10348	
MW-AC-0-8-3	10349	
MW-PC-0-8-4	10350	
MW-PC-0-8-5	10351	
MW-PC-0-8-6	10352	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

Environmental Analytical Service, Inc.

CH2M HILL
SACRAMENTO

MAY 03 1991

RECEIVED

April 24, 1991
Lab ID: 10338-010352

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 4, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

Environmental Analytical Service, Inc.

April 30, 1991
Lab ID: Final Samples

CH2M HILL
SACRAMENTO
MAY 03 1991
RECEIVED

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the final samples run at Environmental Analytical Service for the close support lab at McClellan AFB.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

CH2M Hill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC28722.03	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ( ) NPDES ( ) RCRA ( ) OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: EPA TO-14 / Canisters Modified TO-12 Soil Gas Contract ETC AS PER McClellan Soil Gas Contract

FOR LAB USE ONLY: LAB# ; LAB# ; PROJECT NO ; ACK ; VERIFIED ; QUOTE# ; BS ; NO. OF SAMP ; PG ; OF

STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID	REMARKS
	3/20/11					MW-AC-0-001	1		10251
	3/20/11					MW-B-0-005	1		10252
	3/20/11					MW-T-0-006	1		10253
	3/20/11					MW-AC-0-010	1		10254
	3/20/11					MW-B-0-011	1		10255
	3/20/11					MW-S-0-012	1		10256
	3/20/11					MW-AC-0-016	1		10257
	3/20/11					MW-B-0-017	1		10259
	3/20/11					MW-T-0-018	1		10259
	3/20/11					MW-AC-0-020	1		10260
	3/20/11					MW-B-0-021	1		10261
	3/20/11					MW-S-0-022	1		10262

SAMPLED BY AND TITLE: Kathy Peot / Suzanne Chavez	DATE/TIME 3/20/91	RELINQUISHED BY: Kathy Peot	DATE/TIME 3/20/91 5:45pm	HAZWRAP/NEESA Y N
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	QC LEVEL 1 2 3
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	COC / ICE; ANA REQ / TEMP; CUST SEAL / PH; SAMPLE COND
RECEIVED BY LAB: Suzanne	DATE/TIME 3/22/91 3:00pm	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER	AIR BILL#	

REMARKS()

ENTERED COC

ENVIRONMENTAL ANALYTICAL SERVICE

INVOICE

CH2M Hill
3840 Rosin Court, Suite 111
Sacramento, CA 95834
ATTN: Accounts Payable

Invoice Number: 1549
Invoice Date: 4/6/91
Invoice Period: April
Project Number: CH1010

Project Manager: Robert Kleiner

P.O. No: Verbal
PROJECT: McClellan Strip Gas

P.O. Date: N/A
Project Number: SAC29722.03

Quan	Date Rec	Sample Numbers	Matrix	Description	Unit	Amount
4		10261, 10262-EPA [illegible] - 624 MS Full Scan 10263, 10264			155.00	620.00
8		10261-10265, EPA TP [illegible] 624 MS Full Scan 10254-10258 10259-10263 10260-10264			155.00	1240.00
4				[illegible]	[illegible]	140.00
8				Printer Rental	35.00	280.00
8				Printer Cleaning	15.00	120.00

TERMS: NET 30 DAYS
Past due balances are subject to a 1.5% per month service charge, annual rate 18%

Sub Total: 2400.00
Shipping (Express):
TOTAL DUE: $2,400.00

Send Payment to:
ENVIRONMENTAL ANALYTICAL SERVICE
170 C Granada
San Luis Obispo, CA 93401

For Questions on Invoice:
Sheila Graham
(805) 541-3666

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-AC-0-004	10251	
MW-B-0-005	10252	
MW-T-0-006	10253	
MW-AC-0-010	10254	
MW-B-0-011	10255	
MW-S-0-012	10256	
MW-AC-0-016	10257	
MW-B-0-017	10258	
MW-T-0-018	10259	
MW-AC-0-020	10260	
MW-B-0-021	10261	
MW-S-0-022	10262	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-02

10253, 10256, 10259, 10262

GC/MS Full Scan, EPA Method TO-14

10251, 10252, 10254, 10255, 10257, 10258, 10260, 10261

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\text{ recovery test 1} - \%\text{ recovery test 2})}{(\%\text{ recovery test 1} + \%\text{ recovery test 2})/2} \times 100$$

CHMHILL *QUALITY ANALYTICS*

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
106282220312	Gail Gas Ward

CLIENT NAME

PROJECT MANAGER

COPY TO

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS

SDWA NPDES RCRA OTHER

SIA NO	DATE	TIME	GRAB	COMP	MATRIX	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED

LAB ID

FOR LAB USE ONLY		
LAB#		
LAB#		
PROJECT NO.		
ACK	VERIFIED	
QUOTE#	BS	
NO. OF SAMP	PG	OF

REMARKS

SAMPLED BY AND TIME	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB	DATE/TIME	SAMPLE SHIPPED VIA	AIR BILL #

UPS BUS FED EX HAND OTHER

REMARKS

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC	ICE
ANA REQ	TEMP
CUST SEAL	Ph
SAMPLE COND	

ENTERED INTO LIMS _____ COC REVIEWER

CHEMNET QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 287220302	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kuster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Tipn in ml/Canisters Modified TO-2 w/ full constituents etc as per McClellan military Contract

SIA NO	DATE	TIME	LOG CODE	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID	REMARKS
	3/2/11			MW B02B	1		Pressurized canister
	3/2/11			MW B02L	1		
	3/2/11			MW B02 2	1		
	3/2/11			MW B02 3	1		
	3/2/11			MW B02 3(dup)	1		
	3/2/11			MW [illegible] B	1		tube
	3/2/11			MW B02 1	1		tube
	3/2/11			MW B02 2	1		tube
	3/2/11			MW B02 3	1		tube
	3/2/11			MW B02B			Bag
	3/2/11			MW B02L			Bag
	3/2/11			MW B02 2			Bag
	3/2/11			MW B02 3			Bag

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK ☐ VERIFIED ☐

QUOTE# ☐ BS ☐

NO OF SAMP ☐ PG ☐ OF ☐

SAMPLED BY AND TITLE: Karla Ebert, Robert Kuster	DATE/TIME: 3/2/11	RELINQUISHED BY: Robert Kuster / Karla Ebert
RECEIVED BY	DATE/TIME	RELINQUISHED BY
RECEIVED BY	DATE/TIME	RELINQUISHED BY
RECEIVED BY LAB	DATE/TIME	SAMPLE SHIPPED VIA: UPS ☐ BUS ☐ FED EX ☐ HAND ☐ OTHER ☐

DATE/TIME: 3/2/11 4:00pm

DATE/TIME

DATE/TIME

AIR BILL #

HAZWRAP/NEESA Y ☐ N ☐

QC LEVEL 1 ☐ 2 ☐ 3 ☐

COC ☐ ICE ☐

ANA REQ ☐ TEMP ☐

CUST SEAL ☐ Ph ☐

SAMPLE COND

REMARKS

ENTERED ☐ COC REVIEWED ☐

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-PC-0-2-B	10272	
MW-PC-0-2-1	10273	
MW-PC-0-2-2	10274	
MW-PC-0-2-3	10275	
MW-PC-0-2-3D	10276	
MW-S-0-2-B	10277	
MW-T-0-2-1	10278	
MW-S-0-2-2	10279	
MW-T-0-2-3	10280	
MW-B-0-2-B	10281	
MW-B-0-2-1	10282	
MW-B-0-2-2	10283	
MW-B-0-2-3	10284	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-02

GC/MS Full Scan, EPA Method TO-14

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\text{ recovery test 1} - \%\text{ recovery test 2})}{(\%\text{ recovery test 1} + \%\text{ recovery test 2})/2} \times 100$$

CHMhill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME

CLIENT NAME

PROJECT MANAGER	COPY TO

REQUESTED COMP DATE	SAMPLING REQUIREMENTS
	SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED

FOR LAB USE ONLY		
LAB#		
LAB#		
PROJECT NO		
ACK	VERIFIED	
QUOTE #	BS	
NO OF SAMP	PG	OF

SIA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	ENDS LNB #	LAB ID	REMARKS
								10291		
								10292		
								10293		
								10294		
								10295		
								10296		
								10297		
								10298		
								10299		
								10300		
								10301		
								10302		
								10303		
								10304		

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB: Vfuzacie	DATE/TIME 3/27/91 1500	SAMPLE SHIPPED VIA UPS BUS FED EX HAND OTHER ____	AIR BILL #

REMARKS

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC	ICE
ANA REQ	TEMP
CUST SEAL	PH
SAMPLE COND	

ENTERED INTO LIMS

COC REVIEWED

CHM HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
146126.22.05.02	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kooker

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: VOA by GC/MS Capillary Method Soil Gas Analysis for Chlorinated Hydrocarbons McClellan Soil Gas Contract

SIA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID
	3/28					MW B 0-3 1	1	
	3/28					MW B 0-3 2	1	
	3/28					MW B 0-3 3	1	
	3/28					MW B 0-3 3(dup)	1	
	3/28					MW B 0-3 B	1	
	3/28					MW AC 0-3 1	1	
	3/28					MW AC 0-3 2	1	
	3/28					MW AC 0-3 3	1	
	3/28					MW AC 0-3 B	1	
	3/28					MW 5 0-3 1	1	
	3/28					MW 5 0-3 2	1	
	3/28					MW 1 0-3 3	1	
	3/28					MW 1 0-3 B	1	
	3/28					MW 5 0-3 3(dup)	1	

REMARKS: Poss. Poss. Poss. Poss. Poss. Comp. for Cond. purposes only

Tube

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
[illegible] Subcontractor	3/28/94	[illegible]	3/28/94 1700
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER	AIR BILL #

REMARKS

HAZWRAP NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

ENTERED INTO LIMS

COC REVIEW

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-B-0-3-1	10291	
MW-B-0-3-2	10292	
MW-B-0-3-3	10293	
MW-B-0-3-3D	10294	
MW-B-0-3-B	10295	
MW-AC-0-3-1	10296	
MW-AC-0-3-2	10297	
MW-AC-0-3-3	10298	
MW-AC-0-3-B	10299	
MW-S-0-3-1	10300	
MW-S-0-3-2	10301	
MW-T-0-3-3	10302	
MW-T-0-3-B	10303	
MW-S-0-3-1D	10304	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-02

GC/MS Full Scan, EPA Method TO-14

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\text{ recovery test 1} - \%\text{ recovery test 2})}{(\%\text{ recovery test 1} + \%\text{ recovery test 2})/2} \times 100$$

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CH2M Hill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 287220302	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kerr

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

OF CONTAINERS

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: 1,1,1-TCA in soil vapor by modified EPA 8010 at McClellan

LAB ID

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	EAS #	REMARKS
	4/2					MW 1 C 1 1	10322	1 hr
	4/2					MW 1 C 1 2	10323	
	4/2					MW 1 C 1 3	10324	
	4/2					MW 1 C 2 4	10325	
	4/2					MW 1 C 1 5	10326	
	4/2					MW 1A C 1 1	10327	
	4/2					MW 1A C 1 2	10328	
	4/2					MW 1C C 1 3	10329	
	4/2					MW 1C C 1 5	10330	
	4/2					MW 1B C 1 1	10331	Blank
	4/2					MW 1B C 1 2	10332	"
	4/2					MW 1B C 1 3	10333	"
	4/2					MW 1B C 1 4	10334	"
	4/2					MW 1B C 1 5	10335	"

SAMPLED BY AND TITLE: Robert Kerr, Suzanne Davis	DATE/TIME: 4/2/91	RELINQUISHED BY: Robert Kerr	DATE/TIME: 4/2/91 2:30pm
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB: [signature]	DATE/TIME: 4/3/91 1:00pm	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ____	AIR BILL#

REMARKS

HAZWRAP, NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

ENTERED INTO LIMS

COC REVIEW

1.3 Sample Description and Chain of Custody Sheets

Copies of the Chain of Custody Sheets submitted to the laboratory with the samples are contained in this section of the report.

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-T-0-7-1	10322	
MW-T-0-7-2	10323	
MW-S-0-7-3	10324	
MW-T-0-7-4	10325	
MW-T-0-7-B	10326	
MW-AC-0-7-1	10327	
MW-AC-0-7-2	10328	
MW-AC-0-7-3	10329	
MW-AC-0-7-B	10330	
MW-B-0-7-1	10331	
MW-B-0-7-2	10332	
MW-B-0-7-4	10333	
MW-B-0-7-4	10334	
MW-B-0-7-B	10335	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

1.0 PROJECT DESCRIPTION

1.1 Analysis Requested

For the off-site contract laboratory, the program called for the analysis of landfill gas samples and condensate samples using the analytical procedures described below.

Component 1: The analysis of about 97 landfill gas samples collected in Tedlar bags using CARB Method 422 with cryotrapping and full scan GC/MS.

Component 2: The analysis of about 51 charcoal sorbent cartridges using EPA Method TO-2 with cryotrapping and full scan GC/MS.

Component 3: The analysis of about 72 SUMMA canister samples using EPA Method TO-14 with cryotrapping and full scan GC/MS.

Component 4: The analysis of landfill condensate samples by EPA Method 8240 using purge and trap and full scan GC/MS.

The samples were shipped to EAS by CH2M Hill and analyzed with the holding times specified by the method. The samples were analyzed by the indicated methods (further described in the Methods Section) using the standard laboratory Quality Assurance procedures described in the EAS Quality Assurance Document (Section 3.3). In addition to the standard laboratory QA, project specific QC criteria were required. These are described in Section 1.2 and 3.2.

1.2 Quality Asssurance

Blanks - A Blank is analyzed with each sample batch and checked to see that the concentration is below 0.2 ppbv for canisters or Tedlar bags. Tedlar bags usually have some components above 0.2 so PQL for analysis is set accordingly.

Duplicates - For duplicates, a mid or high level sample is analyzed twice to determine the Relative Percent Difference (RPD).

$$\%RPD = \frac{(Conc.\ 1 - Conc.\ 2) \times 100}{\text{Average Concentration}}$$

Replicates - For replicated a canister or bag is spiked at a low concentration and analyzed several times. The Percent Relative Standard Deviation is calculated (RSD) as below.

$$\%RSD = \frac{\text{Standard Deviation of Measurments} \times 100}{\text{Average Concentration}}$$

Standards - NBS traceable standards are analyzed with each sample batch. A 100% standard is analyzed in the morning to verify instrument response, target calibration windows, and initial calibration validity. A 50% calibration standard is analyzed at the end of the day to verify linerity and daily calibration.

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC28722042	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Foster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA ( ) NPDES ( ) RCRA ( ) OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Pa. McClellan Soil Gas Contract

FOR LAB USE ONLY: LAB# ; LAB# ; PROJECT NO. ; ACK ; VERIFIED ; QUOTE# ; BS ; NO OF SAMP ; PG ; OF

SIA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAB ID	REMARKS
	4/8					MW B-C-5 B		104123	Bill
	4/8					MW B-C-5 1		104124	
	4/8					MW B-C-5 2		104125	
	4/8					MW B-C-5 3		104126	
	4/8					MW B-C-4 4		104127	
	4/8					MW B-C-4 B		104128	
	4/8					MW B-C-4-1		104289	
	4/8					MW B-C-4-2		104290	
	4/8					MW B-C-4-3		104303	

SAMPLED BY AND TITLE: Karla Ebert, Suzanne Davis	DATE/TIME: 4/8/91	RELINQUISHED BY: Karla Ebert, Suzanne Davis	DATE/TIME: 4/8/91 3:45 pm	HAZWRAP/NEESA Y N; QC LEVEL 1 2 3
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:	COC; ICE; ANA REQ; TEMP; CUST SEAL; Ph; SAMPLE COND
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:	
RECEIVED BY LAB: Wofford	DATE/TIME: 4/9/91 0907	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#	

REMARKS

ENTERED INTO LIMS ____ COC REVIEW ____

Environmental Analytical Service, Inc.

CH2M HILL
SACRAMENTO
MAY 03 1991
RECEIVED

April 23, 1991
Lab ID: 10372-10383

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 6, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX: (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
VR-B-0-31-B	10372	
VR-B-0-31-1	10373	
VR-B-0-31-2	10374	
VR-B-0-31-3	10375	
VR-B-0-31-4	10376	
VR-B-0-31-1V	10377	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-B-0-31-2V	10378	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-B-0-31-3V	10379	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-B-0-31 4V	10380	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-AC-C-31-1V	10381	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-AC-C-31-2V	10382	NOT ANALYZED, NOT ENOUGH SAMPLE
VR-AC-C-31-3V	10383	NOT ANALYZED, NOT ENOUGH SAMPLE

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME	# OF CONTAINERS	CLIENT ADDRESS AND PHONE NUMBER	LAB ID	FOR LAB USE ONLY
CLIENT NAME			ANALYSES REQUESTED		LAB#
PROJECT MANAGER	COPY TO:		per McClellan Soil Gas Contract		PROJECT NO.
REQUESTED COMP. DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___				ACK / VERIFIED
					QUOTE# / BS
					NO. OF SAMP / PG / OF

SIA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	LAB ID	REMARKS
	1/5					VR-B-0-31-B	10372	Bags
	1/5					VR-B-0-31-1	10373	" "
						VR-B-0-31-2	10374	" "
						VR-B-0-31-3	10375	" "
						VR-B-0-31-4	10376	" "
						VR-B-0-31-1V	10377	Condensate Vials
						VR-B-0-31-2V	10378	
						VR-B-0-31-3V	10379	
						VR-B-0-31-4V	10380	" "
						VR-AC-C-31-1V	10381	" "
						VR-AC-C-31-2V	10382	" "
						VR-AC-C-31-3V	10383	" "

not analyzed, hold from Sample (VL)

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME	HAZWRAP/NEESA Y N
Robert Koster, Barry Collom	4/5/91	[redacted]	4/6/91 4pm	QC LEVEL 1 2 3
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	COC / ICE
				ANA REQ / TEMP
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	CUST SEAL / PH
				SAMPLE COND.
RECEIVED BY LAB: P. Gulyash	DATE/TIME 4-6-91 NOON	SAMPLE SHIPPED VIA UPS BUS (FED-EX) HAND OTHER ___	AIR BILL#	

REMARKS

[redacted] ENTERED INTO LIMS [redacted] REVIEWED ___

Environmental Analytical Service, Inc.

April 23, 1991
Lab ID: 10389-10402

CH2M HILL
SACRAMENTO

MAY 03 1991

RECEIVED

Robert Koster
CH2M Hill
3840 Rosin Court, Suite 110
Sacramento, CA 95834

Dear Robert:

Enclosed is the analytical report for the samples which was received by Environmental Analytical Service on April 8, 1991.

The report consists of the following sections:

I Sample Description
II Analysis Request
III Quality Control Report
IV Analysis Results

If you have any questions on the analytical data or the report contact Dr. Hoyt at (805) 541-3666.

Sincerely,

Steven D. Hoyt, Ph.D.
President

SDH/sg
enclosures

170-C Granada San Luis Obispo, CA 93401 (805) 541-3666 FAX (805) 541-4550

I. Sample Description

The following samples were received for analysis by the methods described in Section 1.2.

Client Number	Lab Number	Comments
MW-B-0-6-B	10389	
MW-B-0-6-1	10390	
MW-B-0-6-2	10391	
MW-B-0-6-3	10392	
MW-AC-0-6-B	10393	
MW-AC-0-6-1	10394	
MW-AC-0-6-2	10395	
MW-AC-0-6-3	10396	
MW-AC-0-6-4	10397	
MW-T-0-6-B	10398	
MW-T-0-6-1	10399	
MW-S-0-6-2	10400	
MW-T-0-6-3	10401	
MW-S-0-6-4	10402	

II. Analysis Requested

GC/MS Full Scan, EPA Method TO-14

GC/MS Full Scan, EPA Method TO-02

III. Quality Control

A. Project Specific QC. No project specific QC (i.e., spikes and/or duplicates) was requested.

B. Method Blank Results. A method blank is a laboratory-generated sample which assesses the degree to which laboratory operations and procedures cause false-positive analytical results for your samples.

C. Laboratory Control Samples - The LCS Program

Duplicate Control Samples. A DCS is a well-characterized matrix (blank water, sand or celite) which is spiked with certain target parameters and analyzed at approximately 10% of the sample load in order to establish method-specific control limits. The DCS results associated with your samples are on the attached Duplicate Control Sample Report.

Precision is measured using duplicate tests by Relative Percent Difference (RPD) as in:

$$RPD = \frac{(\%\ \text{recovery test 1} - \%\ \text{recovery test 2})}{(\%\ \text{recovery test 1} + \%\ \text{recovery test 2})/2} \times 100$$

CHM HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC28722.03.02	McClellan - Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ___

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO

ACK | VERIFIED

QUOTE# | BS

NO OF SAMP | PG | OF

SIA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LAS #	LAB ID	REMARKS
	4/6					MW-B-0-6-B		10389		Bags
	4/6					MW-B-0-6-1		10390		" "
	4/6					MW-B-0-6-2		10391		" "
	4/6					MW-B-0-6-3		10392		
	4/6					MW-AC-0-6-B		10393		Canisters
	4/6					MW-AC-0-6-1		10394		" "
	4/6					MW-AC-0-6-2		10395		" "
	4/6					MW-AC-0-6-3		10396		" "
	4/6					MW-AC-0-6-4		10397		" "
	4/6					MW-T-0-6-B		10398		Tubes
	4/6					MW-T-0-6-1	2	10399 A+B		" "
	4/6					MW-S-0-6-2	2	10400 A+B		" "
	4/6					MW-T-0-6-3	2	10401 A+B		" "
	4/6					MW-S-0-6-4	2	10402 A+B		" "

SAMPLED BY AND TITLE: Suzanne Davis, Karla Ebert	DATE/TIME: 4/6/91	RELINQUISHED BY: Karla A. Ebert	DATE/TIME: 4/6/91 3:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: O Lopez	DATE/TIME: 4/8/91 10:30	SAMPLE SHIPPED VIA: UPS BUS FED EX HAND OTHER ___	AIR BILL#

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

REMARKS

ENTERED INTO LIMS ___ COC REVIEWED ___

CH2M Hill, Robert Kester 5/2/91

① CSL QC Review

② CSL Laboratory QC Review

Summarize

$15/sample Cost x #180 = $2,700

Due Date 5/17

Final Rpt June 21st

Provide:

1) Report on Dataset to include
   - Initial Validation
   - QC Report
   - Methods / Procedures
   - Results
   - Data on disk / Report on disc
2) Report on all data
   - QC Report Generally
   - QC Summary of batches
   - Methods / Comparison with CSL
   - Results
   - data on disk / Report on disc

CHM Hill QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME	# OF CONTAINERS	CLIENT ADDRESS AND PHONE NUMBER	LAB ID	FOR LAB USE ONLY
					LAB#
CLIENT NAME					LAB#
PROJECT MANAGER	COPY TO:		ANALYSES REQUESTED		PROJECT NO
REQUESTED COMP DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___				ACK / VERIFIED
					QUOTE# / BS
					NO OF SAMP / PG / OF

SIA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	LEAS #	REMARKS
							10438	
							10439	
							10440	
							10441	
							10442	
							10443	
							10444	
							10445	
							10446	
							10447	
							10448	
							10449	

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME	HAZWRAP/NEESA Y N
				QC LEVEL 1 2 3
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	COC / ICE
				ANA REQ / TEMP
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	CUST SEAL / Ph
				SAMPLE COND
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA	AIR BILL#	
	4/10/91 3pm	UPS BUS FED-EX HAND OTHER ___		

REMARKS

ENTERED INTO LIMS ___ COC REVIEWED

Environmental Analytical Service, Inc.

FACSIMILE TRANSMISSION COVER SHEET
(Panafax UF-250)

STATUS: URGENT ✓ CONFIDENTIAL _____ ROUTINE _____

Date: 4/10/91

ATTENTION. Robert Koster

COMPANY: CH2M Hill

FAX Number: (916) 920 8463

NUMBER OF PAGES TO FOLLOW: 4

SENT BY: Vivian Lonsdale

ENVIRONMENTAL ANALYTICAL SERVICE, INC.
170-C Granada
San Luis Obispo, CA 93401

Sender FAX Number: (805) 541-4550
Sender Verification Number: (805) 541-3666

MESSAGE: Robert - I think you will be happy with these results!

V.

If this box is checked, please sign and transmit this cover page back to us, to serve as confirmation receipt.

Received by: _____ Date _____

ENVIRONMENTAL ANALYTICAL SERVICE

INVOICE

CH2M Hill
3840 Rosin Court, Suite 111
Sacramento, CA 95834
ATTN: Accounts Payable

Invoice Number: 1544
Invoice Date: 4/3/91
Invoice Period: April
Project Number: CH1010

Project Manager: Robert Koster

P.O. No: N/A P.O.Date: N/A
PROJECT: McClellan AFB Soil Gas Project Number: N/A

Quant	Description	Unit	Amount
1	Set-up Close Support Laboratory, McClellan AFB Method Demonstrational Recovery	4580.00	4580.00
1	Recovery Studey, Tedlar Bag	1760.00	1760.00
1	Recovery Study, Solid Sorbent	1120.00	1120.00
1	Recovery Study, Canister Analysis	1120.00	1120.00

TERMS: NET 30 DAYS
Past due balances are subject to a 1.5% per month service charge, annual rate 18%

Sub Total 8580.00
Shipping (Express)

TOTAL DUE: $8,580.00

Send Payment to:
ENVIRONMENTAL ANALYTICAL SERVICE
170 C Granada
San Luis Obispo, CA 93401

For Questions on Invoice:
Sheila Graham
(805) 541-3666

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10405
Site:	MW-BT-0-7-2 (1st)	Date Sampled:	4-6-91
Tube #:	1009	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.10	1.2
Vinyl Chloride	0.10	5.0
Freon 11	0.10	0.59
1,1-Dichloroethene	0.10	32
Dichloromethane	0.10	not detected
Trichlorotriflouroethane	0.10	130
1,1-Dichloroethane	0.10	6.0
c-1,2-Dichloroethene	0.10	not detected
t-1,2-Dichloroethene	0.10	0.62
Chloroform	0.10	0.31
1,1,1-Trichloroethane	0.10	0.99
1,2-Dichloroethane	0.10	1.7
Benzene	0.10	0.15
Carbon Tetrachloride	0.10	not detected
Trichloroethene	0.10	7.8
Toluene	0.10	not detected
Tetrachloroethene	0.10	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10406
Site:	MW-BT-0-7-2 (2nd)	Date Sampled:	4-6-91
Tube #:	1000	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.10	not detected
Vinyl Chloride	0.10	not detected
Freon 11	0.10	not detected
1,1-Dichloroethene	0.10	not detected
Methylenechloride	0.10	not detected
Trichlorotriflouroethane	0.10	0.28
1,1-Dichloroethane	0.10	not detected
c-1,2-Dichloroethene	0.10	not detected
t-1,2-Dichloroethene	0.10	not detected
Chloroform	0.10	not detected
1,1,1-Trichloroethane	0.10	not detected
1,2-Dichloroethane	0.10	not detected
Benzene	0.10	not detected
Carbon Tetrachloride	0.10	not detected
Trichloroethene	0.10	not detected
Toluene	0.10	not detected
Tetrachloroethene	0.10	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10404
Site:	MW-BT-0-7-1 (2nd)	Date Sampled:	4-6-91
Tube #:	2029	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.10	not detected
Vinyl Chloride	0.10	not detected
Freon 11	0.10	not detected
1,1-Dichloroethene	0.10	not detected
Dichloromethane	0.10	not detected
Trichlorotriflouroethane	0.10	not detected
1,1-Dichloroethane	0.10	not detected
c-1,2-Dichloroethene	0.10	not detected
t-1,2-Dichloroethene	0.10	not detected
Chloroform	0.10	not detected
1,1,1-Trichloroethane	0.10	not detected
1,2-Dichloroethane	0.10	not detected
Benzene	0.10	not detected
Carbon Tetrachloride	0.10	not detected
Trichloroethene	0.10	not detected
Toluene	0.10	not detected
Tetrachloroethene	0.10	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-C2: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10403
Site:	MW-BT-C-7-1 (1st)	Date Sampled:	4-6-91
Tube #:	1009	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.10	not detected
Vinyl Chloride	0.10	2.6
Freon 11	0.10	0.32
1,1-Dichloroethene	0.10	27
Dichloromethane	0.10	13
Trichlorotriflouroethane	0.10	not detected
1,1-Dichloroethane	0.10	4.1
c-1,2-Dichloroethene	0.10	not detected
t-1,2-Dichloroethene	0.10	0.43
Chloroform	0.10	not detected
1,1,1-Trichloroethane	0.10	0.49
1,2-Dichloroethane	0.10	not detected
Benzene	0.10	not detected
Carbon Tetrachloride	0.10	not detected
Trichloroethene	0.10	6.1
Toluene	0.10	not detected
Tetrachloroethene	0.10	not detected

GLOBAL
GEOCHEMISTRY
CORPORATION

TELEX 4720127
FAX 818/992-8940

691 CHARLE[illegible] • [illegible] • [illegible] 818/992-4103
SACRAMENTO

MAY 03 '[illegible]

RECEIVED

GC/MS Analytical Summary

Date 04-18-91

Client EAS
Samples received:04-12-91
Volatile Organics - EPA 8240
GGC ID 6565
Client ID VR-V-O

Samples collected:
Samples analyzed: 04-17-91

Compounds	DL ug/l	M. Bl. Found ug/l	1 Found ug/l	2 Found ug/l
Dichlorodifluoromethane	250	nd	nd	nd
Trichlorofluoromethane	50	nd	nd	nd
Vinyl chloride	50	nd	nd	nd
1,1-Dichloroethene	50	nd	nd	nd
Dichloromethane	50	nd	nd	nd
1,2-Dichloroethene	50	nd	nd	nd
1,1-Dichloroethane	50	nd	nd	nd
Chloroform	50	nd	nd	nd
Trichlorotrifluoroethane	50	nd	nd	nd
1,1,1-Trichloroethane	50	nd	nd	nd
1,2-Dichloroethane	50	nd	nd	nd
Carbon Tetrachloride	50	nd	nd	nd
1,1,2-Trichloroethane	50	nd	nd	nd
Tetrachloroethene	50	nd	nd	nd
Trichloroethene	50	nd	nd	nd
Benzene	50	nd	nd	nd
Toluene	50	nd	nd	nd

Analyst Yahar Zupezin Supervisor Alan Jeffrey

GLOBAL
*GEO*CHEMISTRY
CORPORATION

TELEX 4720127
FAX 818-992-8940

6919 ETON AVENUE • CANOGA PARK • CALIFORNIA 91303-2194 818-992-4100

GC/MS Analytical Summary

Date 04-18-91

Client EAS
Samples received: 04-12-91
Volatile Organics - EPA 8240
GGC ID 6565
Client ID VR-V-O

Samples collected:
Samples analyzed: 04-17-91

Compounds	DL ug/l	Meth. Blank 3 Found ug/l	4 Found ug/l
Dichlorodifluoromethane	50	nd	nd
Trichlorofluoromethane	10	nd	nd
Vinyl chloride	10	nd	nd
1,1-Dichloroethene	10	nd	nd
Dichloromethane	10	nd	nd
1,2-Dichloroethene	10	nd	nd
1,1-Dichloroethane	10	nd	nd
Chloroform	10	nd	nd
Trichlorotrifluoroethane	10	nd	nd
1,1,1-Trichloroethane	10	nd	nd
1,2-Dichloroethane	10	nd	nd
Carbon Tetrachloride	10	nd	nd
1,1,2-Trichloroethane	10	nd	nd
Tetrachloroethene	10	nd	nd
Trichloroethene	10	nd	nd
Benzene	10	nd	nd
Toluene	10	nd	nd

Analyst Silvia Zapeda Supervisor Alan Jeffreys

VOLATILE MATRIX SPIKE RECOVERY

Client EAS Date 04-18-91
Sample ID #6565-3

Compound	Spike added ug/l	Recovery %
Trichlorofluoromethane	40	55
Chloroform	40	91
1,1,1-Trichloroethane	40	103
Carbon tetrachloride	40	102
Toluene	40	83

VOLATILE SURROGATE RECOVERY

Client EAS Date 04-18-91
GGC#6565-3

Sample	S1	S2	S3
1. VR-V-O-61	90	77	91
2. VR-V-O-34	98	85	98
3. VR-V-O-43	94	78	95
4. VR-V-O-44	98	80	101

	QC Limits, %
S1 = 1,2-Dichloroethane-d4	66 - 124
S2 = Toluene-d8	68 - 130
S3 = Bromofluorobenzene	66 - 125

Samples were analyzed by inserting two needles into the original sample vial. One needle, carrying the inlet purging gas, was inserted below the liquid level. The second needle, carrying the outlet purging gas, was near the top of the vial. The outlet purging gas was directed into the purge and trap device containing water to which was added surrogate and matrix spike compounds. Samples were purged at 40°C according to the conditions for EPA Method 8240.

office:hoyt.met

CHMHILL *QUALITY ANALYTICS*

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC287220302	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP DATE:

SAMPLING REQUIREMENTS: SDWA 11 | NPDES 11 | RCRA 11 | OTHER

SEA NO	DATE	TIME	COMP	GRAB	SOIL	# OF CONTAINERS	SAMPLE DESCRIPTIONS (12 CHARACTERS)
	4/10						VR-B-0-42-B
							VA-B-0-42-1
							VR-B-0-42-2
							VR-B-0-42-3
							VR-B-0-42-4
							VR-B-0-61-B
							VR-B-0-61-1
							VR-B-0-61-2
							VR-B-0-61-3
							VR-B-0-31-B
							VR-B-0-31-1
							VR-B-0-31-2
							VR-B-0-31-3
							VR-B-0-31-4
							VR-V-0-42
							VR-V-0-101
							VR-V-0-31

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

LAB ID:

FOR LAB USE ONLY

LAB #:

LAB #:

PROJECT NO:

ACK | VERIFIED

QUOTE # | BS

NO OF SAMP | PG | OF

REMARKS: Prelim

Vial * * Have chromatograms

↓ *

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Eberl, Suzanne Davis	4/10/91		
RECEIVED BY: * Only	DATE/TIME: 4-12-91 11AM	RELINQUISHED BY	DATE/TIME
RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
RECEIVED BY LAB	DATE/TIME: 4/12/91 @ 11:50	SAMPLE SHIPPED VIA: UPS BUS FED EX (AND) OTHER	AIR BILL #

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | PH

SAMPLE COND

REMARKS:

ENTERED COC

CHMHILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
MC28722.03.02	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kostlev

COPY TO:

REQUESTED COMP. DATE:

SAMPLING REQUIREMENTS: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

FOR LAB USE ONLY

STA NO	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	LENS #	REMARKS
	4/9					VR-B-043-B		10438	Bag
						VR-B-043-1		10439	
						VR-B-043-2		10440	
						VR-B-043-3		10441	
						VR-B-043-4		10442	
						VR-B-044-B		10443	
						VR-B-044-1		10444	
						VR-B-044-2		10445	
						VR-B-044-3		0446	
						VR-B-044-4		10447	
				X	3	VR-V-043		0448	Vial *
					4	VR-V-044		10449	Vial *
									* these were lost at G&C.

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Suzanne Davis, Karl Ebert	4/9/91	Karla Ebert/Suzanne Davis	
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
[illegible]	4/10/91 11 am		
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #
[illegible]	4/10/91 3pm		

REMARKS: Ice not iced when received by [illegible]

ENTERED INTO LIMS

COC REVIEW

HAZWRAP/NEESA Y N

COOLER [illegible] ICE

CUSTODY [illegible] TEMP

SAMPLE COND

DOE FORM 340

2.0 ANALYTICAL METHODS

2.1 Description of Analytical Methods

Volatile Organic Compounds by GC/MS

The samples were analyzed by EPA proposed Method TO-14 for ambient air sampling and analysis. The method uses cryotrapping to preconcentrate the air and gas samples which are separated on a fused silica capillary column and analyzed by full scan gas chromatography/mass spectrometry (GC/MS). A 500 to 1000 ml ambient air sample or a 1.0 to 20.0 ml landfill gas sample is transferred from the air sampling container to the freezout loop is immersed in liquid oxygen and concentrates the sample. The sample is desorbed from the cryotrap at 85C and is cryofocussed onto the beginning of a narrow bore 30 meter fused silica capillary column with a 1.0 micron phase loading. The column is temperature programmed to 200 C. the mass spectrometer is scanned from 33 AMU. The GC/MS is tuned and operated according to the specifications in EPA SW-846 Method 8240. Target compounds are identified and quantitated from extracted ion chromatograms using two characteristic ions and retention times. Additional tentatively identified compounds (TIC'S) are identified using a PBM computer search of the NIST 49,000 compound library. The method detection limit (MDL) is listed on the analytical report, and the reproducibility of the method is about 10-15% for most compounds at 1 ppbv.

Sorbent Cartridges

The sorbent cartridges will be analyzed using EPA Method TO-2 using the Nutech 8533 Thermal Desorber and Cryogenic Preconcentrator. For this project carbon molecular seive (CMS) cartridges will be used, and precleaned according to the procedures outlined in TO-2. All 51 of the sorbent cartridges will be supplied at the beginning to the project. After sampling, the cartridges are attached to the Nutech 8533 and thermally desorbed at 375 C to the cryogenic trap for concentration along with gaseous internal standards. The trap is cooled to -150 C with liquid nitrogen and the sample is concentrated. The sample is desorbed from the cryotrap at 100 C and is cryofocussed onto the beginning of a narrow bore 30 meter fused silica capillary column with a 1.0 micron phase loading. The column is temperature programmed to 200 C. The mass spectrometer is scanned from 33 amu to 250 amu. The GC/MS is tuned and operated according to the specifications in EPA SW-846 Method 8240. Target compounds are identified and quantitated from extracted ion chromatograms using two characteristic ions and retention times. Additional tentatively identified compounds (TIC's) are identified using a PBM computer search of the NIST 49,000 compound library. The method detection limit (MDL), is 0.2 ppbv for

most compounds and the reproducibility of the method is about 10-15% for compounds at 1 ppbv.

EPA 8240 Condensate Samples

The condensate samples will be analyzed using EPA 8240 using an HP 5970/5890 GC/MS and an OI Model 4460A Purge and Trap Concentrator. The Purge and Trap is directly interfoced to a narrow bore capillary column as described in EPA Method 524.2. The MDL for the system is better then 0.2 ppbv for the purgable compounds. The samples are purged according to Method 8240 and cryofocussed onto the beginning of a narrow bore 30 meter fused silica capillary column with a 1.0 micron phase loading. The column is temperature programmed to 200 C. The mass spectrometer is scanned from 33 amu to 250 amu. The GC/MS is tuned and operated according to the specifications in EPA SW-846 Method 8240. Target compounds are identified and quantitated from extracted ion chromatograms using two characteristic ions and retention times. Additional tentatively identified compounds (TIC's) are identified using a PBM computer search of the NIST 49,000 compound library. The method detection Limit (MDL), is 0.2 ppbv for most compounds and the reproducibility of the method is about 10-15% for compounds at 1 ppbv. The samples are calibrated against commercial purgable standards and internal standards.

2.2 Standard Operating Procedures

The standard operating Procedures used by the off-site laboratory, Environmental Analytical Service, Inc. of San Luis Obispo, CA are enclosed in this section.

Analysis of Volatile Organic Compounds in Air by GC/MS
EPA Method TO-14

1.0 Standardization

a. Make sure zero air is flowing thru at 50 ml/min on digital flow meter.

b. Place freezeout loop in liquid O2.

c. Connect standard line to standard cylinder. Bubble standard thru desired loop (2 ml) on 8-port valve.

d. Rotate standard valve. Allow Zero Air to flow thru for a minute or longer.

e. Bubble Internal Standard thru the 2.0 ml loop.

f. Rotate standard valve. Allow Zero Air to flow thru for a minute or longer.

g. Place capillary column in liquid O2.

h. Remove liquid O2 on frezeout loop, rotate valve and place freezeout loop in hot water dewar.

g. Set timer to 2.5 minutes

i. On GC/MS system enter the data aquisition program and set up data collection file for standard. Standard files are formatted as follows: S(todays date)(last digit of year)A(run number).D

j. When timer has about 20-30 seconds left turn on cryo. On GC panel hit CLEAR . ENTER.

i. At 2.5 minutes and when cryo has equilibrated, pull capillary column out of liquid O2 while simultaneously starting the GC/MS run by hitting the GO softkey.

j. Rotate freezeout loop to Load position and remove hot water dewar.

2.0 Loading of Zero Air Blanks.

a. Make sure zero air is flowing thru at 50 ml/min on digital flow meter.

b. Place freezeout loop in liquid O2.

c. Bubble Internal Standard thru the 2.0 ml loop.

d. Set Timer for 10 minutes (500ml) and let zero air load into freezeout loop.

e. Rotate standard valve.

f. After the 500 ml has been loaded, turn off zero air.

g. Place capillary column in liquid O2.

h. Remove liquid O2 on frezeout loop, rotate valve and place freezeout loop in hot water dewar.

i. Set timer to 2.5 minutes

j. On GC/MS system enter the data aquisition program and set up data collection file for blank. Blank files are formatted as follows: B(todays date)(last digit of year)A(run number).D

k. When timer has about 20-30 seconds left turn on cryo. On GC panel hit CLEAR . ENTER.

l. At 2.5 minutes and when cryo has equilibrated, pull capillary column out of liquid O2 while simultanecusly starting the GC/MS run by hitting the GO softkey.

m. Rotate freezeout loop back to Load position and remove hot water dewar.

3.0 Loading Ambient Air Samples.

a. Connect canister to sample intake line.

b. Place freezeout loop in liquid O2.

c. Bubble Internal Standard thru the 2.0 ml loop.

d. Set Timer for 15 minutes (750ml), open canister and load into freezeout loop.

e. Rotate standard valve.

f. After sample has loaded,(when the timer goes off), close valve on canister.

g. Place capillary column in liquid O2.

h. Remove liquid O2 on frezeout loop, rotate valve and place freezeout loop in hot water dewar.

i. Set timer to 2.5 minutes

j. On GC/MS system enter the data aquisition program and set up data collection file for sample. Sample files are formatted as follows: Lab Number A(run number).D

k. When timer has about 20-30 seconds left turn on cryo. On GC panel hit CLEAR . ENTER.

l. At 2.5 minutes and when cryo has equilibrated, pull capillary column out of liquid O2 while simultaneously starting the GC/MS run by hitting the GO softkey.

m. Rotate freezeout loop back to Load position and remove hot water dewar.

4.0 Loading of Landfill or Source Canisters.

a. Make sure zero air is flowing thru at 50 ml/min on digital flow meter.

b. Place freezeout loop in liquid O2.

c. Connect standard line to Internal Standard cylinder. Bubble standard thru 2ml loop on 8-port valve.

d. Rotate standard valve. Allow Zero Air to flow thru for a minute or longer.

e. Connect sample canister to standard line, bubble sample thru the 10 ml loop.

f. Rotate standard valve. Allow Zero Air to flow thru for a minute or longer.

g. Place capillary column in liquid O2.

h. Remove liquid O2 on frezeout loop, rotate valve and place freezeout loop in hot water dewar.

g. Set timer to 2.5 minutes

-Standard Operating Procedure- Sorbent Tube Analysis using Nutech Concentrator 8533 and GC/MS, EPA Method TO-2

1. Standardization

a. Attach a blank sorbent tube to tube inlet on Nutech.

b. Make sure V1 is in vent position. Bubble standards thru V1 and inject by switching V1 from vent to inject.

c. After loading standards and internal standards by repeating step (b), turn sorbent tube over so the top is now at the bottom and vice versa.

d. Make sure V6 is in sample position. Place cryotrap in LO2

e. Replace oven housing around sorbent tubes, set timer for 10 minutes and let load for 10 minutes.

f. When timer is up, place the capillary column in LO2.

g. Turn V6 to in column position and place cryotrap in hot water for 2.5 minutes.

h. Turn on cryo on GC/MS and cool oven down.

i. When oven has reached equilibrium, pull capillary column out of LO2 while simutaneosly starting the run on GC/MS.

j. Turn V6 back to in sample position

k. Remove oven housing around sorbent tubes, slide oven back and keep housing closed to retain heat. Let sorbent tubes cool to room temperature.

2.0 **Blanks Thru Sorbent Tube.**

a. Follow steps a thru k above, except load only internal standard onto sorbent tube.

3.0 **Sorbent Samples.**

a. Note that there is a I and an O on either side of the sorbent tube.

b. Attach to concentrator with the I side of tube on bottom.

c. Bubble internal standard thru V1 injecting onto tube.

d. Turn tube over so that the I is now at the top, (closest to concentrator) and the O is on bottom.

e. Proceed with Standard (1.0) loading steps d thru k above

3.0 QUALITY ASSURANCE

3.1 Project QC Summary

Each analytical batch (by day analyzed) has a QC report containing the blank and duplicate concentrations. These are given in Section 2 with the analytical reports. The table on the next page reviews the data by day and identifies days where criteria was only partially met or if there were any other analytical problems. Specific corrective actions are indicated if necessary. For a general description of corrective actions see the EAS QA/QC manual in Section 3.3.

The laboratory QC criteria were met on all of the analysis batch days except for the following:

3/28/91 - The RPD for t-1,2-DCE was 59% instead of 50%. This was not determined to be a serious problem since the %RPD was within limits the following days.

4/12/91 - The RPD for Dichloromethane was 55% instead of 50%.

On days when no QC report was listed, the samples in the batch were sorbent tubes, and the blank and duplicates are supplied by the field samplers, since multiple analysis of the sorbent tubes is not possible.

The daily instrument blanks had concentrations below 0.2 ppbv, but some of the blanks on Tedlar bags had concentrations of Dichloromethane and Toluene above the detection limit. This is common for Tedlar bags which generally contain these compounds as contaminants even if the bags are thoroughly flushed before use.

Date	Daily Blank CO_2 ppbv	Duplicate RPD <50%
3/22/91	Yes	Yes
3/27/91	No Report (tubes)	
3/28/91	Yes	t-1,2-DLE 59%
3/29/91	Yes	Yes
3/30/91	Yes	Yes
4/1/91	Yes	Yes
4/3/91	Yes	Yes
4/4/91	No Report (tubes)	
4/5/91	Yes	Yes
4/6/91	Yes	Yes
4/8/91	Yes	Yes
4/9/91	No Report (tubes)	
4/10/91	Yes	Yes
4/11/91	Yes	Yes
4/12/91	Yes	Dichloromethane 55%
4/13/91	Yes	Yes
4/14/91	Yes	Yes
4/15/91	Yes	Yes
4/16/91	Yes	Yes
4/17/91	No Report (tubes)	
4/18/91	Yes	Yes
4/19/91	No Report (tubes)	

3.2 Project QC Checks for Off-Site Laboratory

The standard daily QC checks used by EAS are described below. In addition to these routine QC checks the McClellan AFB project has addtional project specific QC checks. The data for these are in Sections 3.2.1 to 3.2.4.

GC/MS TUNE (GC/MS ONLY)

The GC/MS tune is checked each day with BFB according to the procedures described for Volatile Organic Compounds in EPA Method TO-14 and Method 8240.

INTERNAL STANDARD AREA SUMMARY (GC/MS ONLY)

The range of acceptable internal standard response is determined from one of the 100% standard runs for that day using the criteria described in EPA Method 8240. The acceptable range is from 75% to 125%.

STANDARDIZATION

For ambient air and landfill gas samples, standardization is done using commercial NBS traceable gas standards obtained from Scott-Marrin or Scott Specialty Gases. Each standard cylinder contains between 5 and 10 compounds at the 0.5 to 5 ppmv range. The standards are diluted using a static dilution system depending on the compounds requested to be analyzed. More than one standard cylinder is often used for calibration to obtain standard data for all compounds.

CONTINUING CALIBRATION

A daily two point calibration is done on one or more of the standard cylinders to check the initial calibration curve used to establish the method performance. The standard area of the 100% standard and 50% standard are divided by their internal standard areas to determine the RRF relative to the internal standard. The percent deviation is checked to see if it is under the AC limit of 25%.

INITIAL CALIBRATION

An initial five point calibration curve is gererated for each of the analytical methods. The relative response factors (RRF) from the daily continuing calibration are compared to the initial calibration curve data.

GC/MS by EPA Method TO-14

Calculation of RRF for benzene RRF50

$$RRF = \frac{\text{Sample Area 50\% Standard}}{(0.50) * \text{Internal Standard Area (50\% Std)}}$$

3.2.1 Seven Replicate Canister Spikes

Canister #49
Volatile Organic Spike Recovery Summary Sheet Date: 3-27-91

Compound	Concentrations: Run 1 ppbv	Run 2 ppbv	Run 3 ppbv	Run 4 ppbv	Run 5 ppbv	Run 6 ppbv	Run 7 ppbv	% RSD
Freon 12	24.0	26.6	16.0	22.0	19.7	21.1	14.1	19.8
Vinyl Chloride	46.1	46.1	22.3	37.4	35.2	30.8	35.0	21.5
Freon 11	22.6	22.4	16.8	19.0	17.9	18.2	18.0	11.0
1.1-Dichloroethene	25.0	25.2	20.6	21.2	19.1	19.0	20.3	11.2
Dichloromethane	37.0	36.8	29.0	31.1	30.2	29.9	33.5	9.5
Trichlorotriflouroethane	93.9	95.0	76.4	80.2	75.1	76.9	50.9	17.3
1.1-Dichloroethane	24.9	24.8	26.9	19.1	20.5	18.3	20.5	14.0
Chloroform	38.0	38.6	37.7	33.2	31.5	31.0	31.2	9.4
1.1.1-Trichloroethane	40.6	40.4	34.0	36.2	33.3	35.2	32.9	
1.2-Dichloroethene	37.3	38.2	33.1	33.9	30.7	32.6	30.7	8
Benzene	15.5	14.9	13.1	13.8	12.8	13.7	12.6	7.3
Carbon Tetrachloride	38.6	38.6	32.8	34.8	32.0	34.1	32.0	7.6
Trichloroethene	35.1	33.7	28.8	30.8	28.2	29.2	27.5	8.8
Toluene	14.8	14.9	12.8	13.7	12.6	13.4	11.8	8.0
Tetrachloroethane	35.2	34.8	30.4	32.2	28.9	30.7	26.6	9.2

3.2.2 Seven Replicate Bag Spikes

Tedlar Bag
Volatile Organic Spike Recovery Summary Sheet Date: 3-15-91

Compound	Concentrations: Bag 1 ppbv	Bag 2 ppbv	Bag 3 ppbv	Bag 4 ppbv	Bag 5 ppbv	Bag 6 ppbv	Bag 7 ppbv	% RSD
Freon 12	43.5	44.6	39.4	32.7	53.4	47.1	54.3	15.7
Vinyl Chloride	62.8	59.7	58.8	55.4	75.4	49.2	36.7	19.5
Freon 11	29.7	30.7	32.1	22.0	27.6	16.8	23.2	19.7
1.1-Dichloroethene	37.8	35.5	36.3	33.1	44.2	33.1	37.5	9.5
Dichloromethane	55.0	48.4	41.7	45.6	61.8	38.2	41.6	16.3
Trichlorotriflouroethane	415.0	371.0	397.0	371.6	391.8	351.0	310.0	8.6
1.1-Dichloroethane	39.4	35.9	37.3	34.9	45.4	33.5	37.7	9.6
Chloroform	45.4	41.5	44.0	40.3	62.2	38.7	44.8	16.1
1.1.1-Trichloroethane	48.2	40.6	47.0	40.2	47.6	38.3	47.2	8.8
1.2-Dichloroethene	48.9	40.8	47.2	41.5	49.1	38.7	47.7	8.9
Benzene	19.1	15.7	18.2	15.9	18.5	14.8	18.1	8.9
Carbon Tetrachloride	44.4	37.3	42.7	37.7	43.8	35.2	42.8	8.4
Trichloroethene	43.8	36.4	41.0	35.8	41.7	34.5	41.3	[illegible]
Toluene	28.7	22.3	27.8	22.1	26.3	21.4	27.5	[illegible]
Tetrachloroethane	39.8	33.3	37.6	32.8	25.6	31.0	36.9	[illegible]

3.2.3 Seven REplicate Sorbent Tube Spikes

rbent Tube #2001
latile Organic Spike Recovery Summary Sheet Date: 3-26-91

Compound	Concentrations: Run 1 ng	Run 2 ng	Run 3 ng	Run 4 ng	Run 5 ng	Run 6 ng	Run 7 ng	% RSD
reon 12	23.0	29.3	25.1	24.3	23.1	23.9	21.8	9.2
nyl Chloride	9.7	11.2	10.0	9.4	9.4	9.0	8.4	8.6
reon 11	24.0	31.6	27.5	26.0	24.9	24.3	22.4	10.7
1-Dichloroethene	19.3	24.4	21.4	20.6	19.0	18.6	17.4	10.6
chloromethane	16.8	19.5	19.6	16.8	17.8	14.5	16.3	9.7
1-Dichloroethane	16.1	20.3	16.9	20.4	18.0	18.5	17.8	8.1
loroform	24.0	27.6	24.1	24.7	25.5	23.1	25.0	5.4
1,1-Trichloroethane	34.3	32.5	36.3	32.6	36.3	36.4	38.9	6.1
2-Dichloroethene	20.5	20.3	22.8	20.5	22.9	20.2	23.1	6.0
nzene	7.1	6.4	7.3	6.6	7.8	6.8	7.8	7.0
rbon Tetrachloride	46.2	48.1	49.9	47.9	54.0	54.7	59.9	8.7
richloroethene	58.8	57.1	66.7	59.1	68.0	65.9	72.1	8.2
oluene	11.9	10.8	13.4	10.6	13.9	10.0	13.5	12.3
etrachloroethane	112.1	104.0	129.3	106.3	130.9	107.1	134.4	10

3.2.4 Performance Evaluation Samples

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	Q05131A1
Site:	Audit Cylinder	Date Sampled:	
Can #:	152	Date Analyzed:	5-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.27	not detected	not detected
Vinyl Chloride	0.27	1.0	2.6
Freon 11	0.27	0.56	3.2
1,1-Dichloroethene	0.27	not detected	not detected
Dichloromethane	0.27	2.9	10
Trichlorotriflouroethane	0.27	not detected	not detected
1,1-Dichloroethane	0.27	not detected	not detected
c-1,2-Dichloroethene	0.27	not detected	not detected
t-1,2-Dichloroethene	0.27	not detected	not detected
Chloroform	0.27	1.2	5.6
1,1,1-Trichloroethane	0.27	0.66	3.6
1,2-Dichloroethane	0.27	1.2	4.8
Benzene	0.27	1.0	3.2
Carbon Tetrachloride	0.27	1.3	8.1
Trichloroethene	0.27	1.2	6.2
Toluene	0.27	0.61	2.3
Tetrachloroethene	0.27	1.2	8.0

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	Q05131A5
Site:	Audit Cylinder	Date Sampled:	
Can #:	368	Date Analyzed:	5-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.68	not detected	not detected
Vinyl Chloride	0.68	12	31
Freon 11	0.68	6.7	38
1,1-Dichloroethene	0.68	not detected	not detected
Dichloromethane	0.68	14	50
Trichlorotriflouroethane	0.68	not detected	not detected
1,1-Dichloroethane	0.68	not detected	not detected
c-1,2-Dichloroethene	0.68	not detected	not detected
t-1,2-Dichloroethene	0.68	not detected	not detected
Chloroform	0.68	14	69
1,1,1-Trichloroethane	0.68	7.3	40
1,2-Dichloroethane	0.68	14	57
Benzene	0.68	13	40
Carbon Tetrachloride	0.68	15	97
Trichloroethene	0.68	14	76
Toluene	0.68	7.0	27
Tetrachloroethene	0.68	15	99

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	Q05131A4
Site:	Audit Cylinder	Date Sampled:	
Can #:	368	Date Analyzed:	5-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.68	not detected	not detected
Vinyl Chloride	0.68	12	30
Freon 11	0.68	6.4	36
1,1-Dichloroethene	0.68	not detected	not detected
Dichloromethane	0.68	15	51
Trichlorotriflouroethane	0.68	not detected	not detected
1,1-Dichloroethane	0.68	not detected	not detected
c-1,2-Dichloroethene	0.68	not detected	not detected
t-1,2-Dichloroethene	0.68	not detected	not detected
Chloroform	0.68	13	65
1,1,1-Trichloroethane	0.68	7.0	38
1,2-Dichloroethane	0.68	13	54
Benzene	0.68	11	36
Carbon Tetrachloride	0.68	15	92
Trichloroethene	0.68	14	73
Toluene	0.68	6.6	25
Tetrachloroethene	0.68	15	93

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	Q05131A2
Site:	Audit Cylinder	Date Sampled:	
Can #:	152	Date Analyzed:	5-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.18	not detected	not detected
Vinyl Chloride	0.18	1.0	2.6
Freon 11	0.18	0.55	3.1
1,1-Dichloroethene	0.18	not detected	not detected
Dichloromethane	0.18	2.0	6.8
Trichlorotriflouroethane	0.18	not detected	not detected
1,1-Dichloroethane	0.18	not detected	not detected
c-1,2-Dichloroethene	0.18	not detected	not detected
t-1,2-Dichloroethene	0.18	not detected	not detected
Chloroform	0.18	1.2	5.6
1,1,1-Trichloroethane	0.18	0.62	3.4
1,2-Dichloroethane	0.18	1.2	4.7
Benzene	0.18	1.0	3.3
Carbon Tetrachloride	0.18	1.3	8.3
Trichloroethene	0.18	1.1	6.1
Toluene	0.18	0.62	2.3
Tetrachloroethene	0.18	1.2	8.4

3.3 EAS Quality Assurance Document

QUALITY ASSURANCE MANUAL

Air Sampling and Analysis
Ambient Air and Landfill Gas Analylsis

Prepared by:

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1.0 INTRODUCTION

Environmental Analytical Service, Inc. (EAS), is located in San Luis Obispo, California and Special Analytical Services Laboratory providing services to consulting engineers, industrial clients, commercial laboratories, and regulatory agencies. EAS specializes in the analysis of ambient air and source samples for the following programs.

Ambient Air Analysis for Toxic Organic Compounds

Calderon Landfill Analysis

Toxic Hot Spots, AB2588

Hydrocarbon Speciaiton for Ozone Modeling

Volatile Organic Compound Analysis by GC/MS

EAS is equipped to analyze toxic organic compounds, chlorinated hydrocarbons, sulfur gases, and permanent gases. A GC/MS (mass spectrometer) system is used for analysis of complex samples and for compound verification. EAS is using the GC/MS for primary analysis and for confirmation of other GC samples. Most of the analytical work done by EAS is on large-scale projects requiring frequent, ongoing collection of large numbers of samples and issuing monthly or quarterly reports and has had considerable experience on the handling of SUMMA canisters.

EAS has done considerable work in the area of methods development especially on the use of full scan GC/MS for the analysis of ambient air samples, and indoor air pollutants. Dr. Steven Hoyt has published numerous papers of trace organic analysis and has developed methods to collect and analyze urban air samples for hydrocarbons and chlorinated hydrocarbons, especially for identifying and quantitating individual hydrocarbons at the parts-per-billion level for use in modeling residual organic carbon. He has also developed an integrated sampler to collect ambient air samples of Calderon Landfill testing and for studies of ROC compounds in Santa Barbara, and for VOC compounds in landfills in San Bernardino County. EAS has also had experience in analysis of reduced sulfur compounds on NOAA oceanographic studies on acid rain precursors in the Gulf of Mexico.

1.1 QA Policy and Objectives

This Quality Assurance (QA) manual provides documentation of the quality assurance program used by Environmental Analytical Service, Inc. (EAS) to validate

analytical data generated for air and gas measurement programs. EAS specialized in the analysis of air and gas samples by EPA method TO-14 and the corporate policy is that data quality and traceabliity is the prime mission of all employees. The manual includes detailed information on management policies, facilities and equipment, documnet control, analytical methodology, data generation, quality control, and quality assurance.

While EAS conducts reasearch into method development and publishes papers on the analysis of air toxics, all testing done on client samples for programs and regulatory agencies, are done using standard methods that are documented in the EAS Standard Operating Procedure Manual. These methods come from the EPA ambient air methods manual, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, California Air Resources Board Stationary Source Test Methods, and California Air Resources Board Ambient Toxics Sampling and Analytical Procedures, EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air, and EPA SW-846 Test Methods for Evaluating Solid Waste.

2. LABORATORY ORGANIZATION AND PERSONNEL.

2.1 Introduction

The organizational chart for EAS is shown in Figure 2.1. The chart outlines the accountability of each person in the organization. The responsibilities and duties of each position on the chart are presented in Section 2.2.

2.2 QA Management and Responsibilities

This section describes the duties and responsibilities of each position in EAS, Inc. with emphasis on the quality assurance program.

2.2.1 Organization

2.2.2.1 Laboratory Director

The Laboratory Director is responsible for project management and the coordination of lab operations and field work. He consults with the Laboratory Supervisor to schedule the sampling and analysis to minimize lab delays and maintain rapid turn-around time. The Laboratory Director determines the analytical capabilities of the lab and what analyses are to be done.

The Laboratory Director coordinates the quality assurance program with the Quality Assurance Supervisor, the Sample Control Officer, and the Lab Supervisor. He works on the development and review of the Quality Assurance Document and reviews the Standard Operating Procedures established by the Lab Supervisor. The Lab Director is responsible for deciding on the corrective actions to be taken for laboratory problems.

The Lab Director maintains a cooperative and safe working environment. He sees that the staff receives training for their positions, and is continually kept informed of current developments in the field.

2.2.2.2 Quality Assurance Supervisor

The Quality Assurance Supervisor is responsible for drafting and implementing the laboratory Quality Assurance Document. He establishes the daily quality assurance tests that are to be performed, and verifies that these tests are completed and reported properly. He coordinates with the Laboratory Supervisor in the preparation and scheduling of blanks, duplicates, and spiked samples.

The Quality Assurancet Supervisor works with the Sample Control Officer to establish a filing system for the data

and reports. He verifies that samples are logged in properly and the custody sheets are properly filled out.

The Quality Assurance Supervisor checks the bookkeeping and analytical procedures to be sure the quality assurance procedures developed for a program are being carried out and properly documented.

He coordinates with the Laboratory Director in arranging for interlaboratory comparisons and calibrations, and to be sure that the most current calibration procedures and standards are being used.

2.2.2.3 Air Laboratory Supervisor

The Laboratory Supervisor assists in developing the analytical procedures and Standard Operating Procedures for all laboratory work. He works with the Laboratory Director to prepare a schedule for analyzing the incoming samples to maintain a rapid turn-around time. The Laboratory Supervisor schedules and verifies that routine maintenance is performed on all instruments and equipment. He prepares calibration standards, establishes the correct concentration of the standards, and supervises the use of the standards. The Laboratory Supervisor does the initial servicing of all instruments and places service calls when necessary. He supervises the Laboratory Technicians, schedules work hours and provides training.

2.2.2.4 Sample Control Officer

The Sample Control Officer is responsible for logging in samples as they are received from clients. He also fills out the billing sheets and the laboratory worksheets. He maintains custody over the samples, and tracks the progress of samples through the laboratory. The Sample Control Officer merges all data and information on a sample, and maintains the filing system. He supervises the sample canister log and ships clean canisters to the client. The Sample Control Officer works with the Quality Assurance Supervisor to file all quality control data with the appropriate samples, and to file all daily blanks and standards.

2.2.2.5 Laboratory Technician

The Laboratory Technician's responsibilities include routine daily instrument checks, analysis of scheduled blanks, standards, quality control samples, and the analysis of scheduled samples. The technician performs initial checks on the validity of the data, and reports on any possible difficulties to the Laboratory Supervisor. The

technician transfers all data to the computer and prints out the initial data report.

He places raw data and completed spreadsheets in a data file and transfer the file to the Laboratory Director for review of the data reports. He maintains a computer disc file of all raw chromatographic data. The technician works with the Laboratory Supervisor on method development and keeping the Standard Operating Procedures current. He records data in the log books, maintains the quality control charts, and logs in samples when the Sample Control Officer is not present.

The technician is responsible for processing sample canisters and recording data about the canisters in the Sample Canister Logbook.

2.2.3 Assignment of QA and QC Responsibilities

The QA and QC duties and tasks are assigned and supervised by the Quality Assurance Supervisor. Each technician is responsible for the operation, calibration, and data reporting for their particular instrument and have prepared the SOP's for the daily analysis, QA procedures, and QC objectives. These are reviewed by the QA Supervisor, who then provides periodic checks and reviews to make sure they are implemented.

2.2.4 Reporting Relationships

The Organizational chart (Figure 2.1) outlines the general reporting relationship of each person in the organization. The philosophy of EAS is that each technician is responsible for calibration, analysis, routine maintenance, QC, and data reporting for their particular instrument. They report directly to the Air Lab Supervisor who is also the Technical Director, who assists them in data interpretation and reviewing the final reports. Since EAS is specialized in air and gas analysis the number of personnel in the laboratory is such that a close, working team relationship is maintained between the technical director, lab technicians, and clerical on all projects.

2.2.5 QA Document Control Procedures

The Administrative Director at EAS is in charge of the document control for the laboratory. EAS maintains files and copies on all QA documents issued. When changes are implementated in the QA procedures, memos are prepared and attached to the current document. When significant changes are made a new version of the document is printed and dated. The old versions are picked up and replaced with the new document. A staff meeting is called to alert personnel to the new changes in the document.

2.2.6 QA Assessment Procedures

The effictiveness of the QA program is assessed by the QA supervisor using the following methods.

1) Results of QC check samples.
2) Review of QC Control Charts.
3) Review of QA report submitted by analyst with each report.
4) Ssurveys passed out at staff meetings.
5) Discussions with clients on data.
6) QA Audits by outside agencies or companies.

2.3 Personnel

2.3.1 Resumes

The resumes of the key personnel are shown in Figure 2.2a,b,c,d.

Lisa H. Hoyt: Administrative Director
Steven D. Hoyt,Ph.D.:Technical Director/Lab Supervisor
Vivian Smith: QA Supervisor/Sample Custodian
Sheila Graham: Report/Office Manager

2.3.2 Training Programs

Dr. Steve Hoyt is a recognized experto on the analysis of ambient air samples and landfill gas samples by EPA method TO-14. He has written papers and presented talks on this topic at national meetings. Dr. Hoyt also teaches part-time at Cal Poly San Luis Obispo in the Chemistry and Environmental Engineering Departments. AT EAS Dr. Hoyt provides discussions and training on the theory and operation of equipment for analyzing samples by TO-14. Lab personnel attend meetings, short courses, and classes at Cal Poly.

3.0 Facilities and Equipment

EAS has been in the air toxics measurment business for over 5 years and has an established location in San Luis Obispo, California. EAS specializes in ambient air and landfill gas analysis and has state-of-the-art equipment for analyzing these samples. Since EAS has done SAS conctract work for EPA, all the necessary equipment, standards, document control, and report generation equipment are in place.

3.1 Instrumentation

A list of the analytical equipment owned by EAS and located in San Luis Obispo is given in Table 3.1. In the

five years of operation EAS has never lost a sample due to lack of operating equipment.

3.2 Maintenance Activities and Schedules.

1. An instrument maintenance sheet is kept on each piece of instrumentation. This sheet is used to list any maintenance performed and preventative maintenancedone as recommended by the manufacturer.

2. Instrument calibration logs are maintained for each analytical system. Any calibration work and the results are recorded in this log.

3. Service contracts are maintained on the gas chromatographs and Hewlett Packard service personnel will respond in 48 hours to any maintenance problems that cannot be serviced in house. EAS has personnel that are trained to repair most equipment problems.

4.0 DOCUMENT CONTROL

4.1 Laboratory Records and Notebooks

The laboratory records are in integral part of sample custody and quality assurance. The laboratory records can be divided into two categories, those dealing with the sample and those dealing with quality assurance.

4.2 Sample Tracking/Custody Records

All of the sample custody records generated for a given sample are attached together and are filed with the raw data in the customer file.

1. Sample Custody Form (Figure 4.1): A chain of custody form is sent with each sample canister. This form is filled out at the time of collection with date, time, integrated sampler, number, location, technician collecting sample, can number, can pressure, and other observations. Included on the sheet are places to sign for sample transfer. When a sample arrives at the lab, the lab number and the can pressure are entered on the sheet. A client file is generated for the samples received and the chain of custody sheets placed in the file. The file is placed in the active box until all analysis are complete. As data is collected for the sample it is immediately placed in this file.

2. Laboratory Log Book: Each sample is entered into a bound log book kept at the EAS laboratory. From this book a unique laboratory number is assigned to the can. In addition, the date, time, can number, can pressure, location, and client are entered along with the person receiving the sample.

3. Laboratory Worksheet (Figure 4.2): When a sample is logged-in, a laboratory worksheet is generated for the sample. The worksheet has general information about the sample, the date received, the expiration date, and a list of analysis to be performed on the sample. This sheet follows the sample through the lab until all analyses have been performed and is dated and signed by the analyst running the test. Any comments about the sample by the analyst are recorded on this sheet.

4. Instrument Log: Each chromatograph has a log book where each sample run on the machine is recorded by day run. The book shows the can number, the sample number, the volume injected, a description of the sample, and the method file used to analyze the sample. A Sample Instrument log is shown in Figure 4.3.

4.3 Sample Data Processing

1. Computer Spreadsheet: Each day as a standard and blank are run, the data is entered into the computer template spreadsheet for that day. As a sample is run a sample worksheet is generated from the template and the data are entered into the spreadsheet. The computer calculates the concentrations of the compound, checks the retention times, and subtracts the blank values to give the final results. As the final spreadsheet is generated the analyst reviews all data and chromatograms to verify its validity. The computer prints out a computer worksheet, a client report, a copy of the standard and blank for that day. These are reviewed and signed by the lab director. A copy of the client report is sent to the client, and the rest of the information is placed in the sample file.

4.4 Quality Assurance Records

Files are kept on all quality assurance tasks. These files are kept according to date so information on the machine performance on the day a particular sample was run is easily accessible.

1. Daily Quality Assurance Sheets lists the instrument parameters that are to be checked each day before samples are run. The Lab Supervisor lists the blanks, standards, and QA samples to run that day. Any observations about the instrument performance.

2. Initial Five or Three Point Calibration: The calculated response factors and raw data are stored in a file along with the chromatograms and calibration data. The initial calibration data is formatted in the EPA CLP format.

3. Sample Canister Log: Data on each of the sample canisters is maintained in a log book. This included the date in service, cleaning dates, leak tests, vacuum tests, and stability tests.

4. Quality Assurance Charts (Figure 4.4): These are the standard EPA forms for plotting quality control data for air monitoring. Charts are maintained for range and mean values. These are described in more detail in Section 6.4.

4.5 Storage of Raw Data and Reports

Each sample set has a file folder which is generated when the sample is received in the laboratory. Initially the file folder contains the chain of custody sheets for the samples and is placed in the active file bin. As analytical data is collected it is placed in the file and attached to the appropriate chain of custody sheet. All of the raw data and paperwork for a sample are placed in the file folder and the complete package stapled together and kept as a

permanent record filed under the client's name by sample number.

The finished file will contain the raw chromatograms for the sample, the computer spreadsheet showing the calculations, the integrated areas for the standard run that day, the areas for the blank run that day, a copy of the QA sample results, the chain of custody sheet, the laboratory worksheet, and the final client report. All of this material is stapled together for each sample into a complete package.

5. ANALYTICAL METHODOLOGY

5.1 RECEIPT AND REVIEW OF ORDER DOCUMENTS

The sample custodian is responsible for receiving and logging in samples. The shipping container is examined for the presence or absence of custody seals and their condition. Airbills are signed and dated (month/day/year/time) and filed in an airbill folder. In the event that the container arrives with an airbill sticker which cannot be removed for filing, all shipping and tracking numbers are noted in the sample receipt log.

The type of sample and its container's condition is examined, including the presence or absence of custody seals, and the presence or absence of sample tags. The sample custodian is responsible for signing and dating (month/day/year/time) in ink the chain of custody forms at the time samples are logged in.

All documentation, sample tags, sample labels, and custody seals are closely scrutinized for verification of agreement or non-agreement of information.

5.2 Calibration Standards

There are two types of calibration standards used by EAS . The standards used for the routine analytical tests are commercial NBS traceable gas standards nornally ordered at a concentration of 5 ppbv in AL150 cylinders. Special in-house standards are prepared for special projects where commercial standards are not available and for determining the retention times for many of the individual hydrocarbons.

5.2.1 Quantitative Standards

The concentrations of the individual hydrocarbons are determined by their uniform carbon response on the FID. This procedure is the recommended calibration procedure and has been shown to be accurate to 5 to 8% (Lonneman, 1979).

the primary calibration standard used for the light and heavy hydrocarbons is a NBS traceable reference gas standard obtained from Scott-Marrin, Riverside, CA. The specifications of the standard are shown in Figure 5.3.1.(a) the light hydrocarbon fraction is calibrated against propane and the non-aromatic fraction of the heavy hydrocarbons are calibrated against hexane. The aromatic hydrocarbons are calibrated against benzene. The standard cylinder is returned every year for recalibration by the manufacturer. The concentrations of the hydrocarbons in the standard are converted to parts per billion carbon (ppbC) using the procedure described by Westbert et. al. (1984).

The concentrations of the individual compounds are determined by using an External Calibration procedure, in which the compound's response is compared to the response of a standard. The primary calibration standard is an NIST traceable reference gas standard obtained from Scott-Marrin, Inc., Riverside, CA. The standard cylinder is returned every year for recertification by the manufacturer. EAS maintains cylinders with standards for most of the EPA VOC and TO-14 target compounds.

Standards for aldehyde determinations will be prepared as described in ARB Method 110.

Intercomparison of the light and heavy hydrocarbon runs can be made using both the propane peak and the hexane peak. The propane peak can be used because the heavy loaded column is capable of separating the lighter hydrocarbons.

5.2.2 Qualitative Calibration

The retention times are calibrated against commercial gas standard blends of different compounds and from laboratory standards prepared from neat materials.

The commercial gas blends are available from Ideal Gas Products and Scott Specialty Gases. These standards are used to establish retention times and to check concentrations obtained from the NBS traceable standard.

Laboratory standards are prepared from pure materials for those compounds not available in gas blends. Known quantities of the pure materials are diluted with a measured volume of "zero air". Dilutions are made in stainless steel canisters and are stable for use in retention time calibrations for several months.

5.2.3 Calibration Procedures

The calibration procedures for the GC and GC/MS analysis of ambient air and landfill gas samples is given below.

5.2.3.1 Hydrocarbons

5.2.3.2 GC/MS Compounds

The GC/MS Compounds are calibrated by using a dilution of the NBS traceable standard. The daily calibration consists of a zero point and two calibration points (10% and 100% of range). One calibration point is run at the beginning of the day and one at the end of the day. During the monthly internal audit of the analytical system a 5 point calibration curve is run to establish performance criteria for the system. The response factors for the initial calibration curve to be within 10%. If the response factor for the daily standard is more then 30% from the initial calibration a new calibration curve is prepared. Standards are prepared by using a gas dilution system on the gas chromatograph or by making static dilutions to atmospheric levels. The gas dilution system is constructed from an 8 port gas sampling valve with a 0.05 mL, 0.5 mL, and 5.0 sample loops. The loops are filled with the standard and flushed with humidified "zero air" prepared with an AADCO Model 737 pure air generator. The three loop sizes are used to prepare a three point calibration of the system to check the linearity in the concentration range of interest. The gas dilution system is used for the daily instrument calibration. The concentration of the individual hydrocarbons is determined using the response factors calculated by the integrator.

Standards at atmospheric concentration levels are prepared by diluting the NBS traceable standard in stainless steel canisters. The standards are diluted by using a calibrated syringe to inject a measured volume of the NBS traceable standard into a passivated stainless steel canister. The canister is filled with a known volume of zero air measured using a mass flow meter. This ambient level standard is sent to another laboratory for calibration against the NBS 5 ppbv VOC standard. The diluted standard is run in exactly the same manner as the samples and serves as a check of the sample concentration injection system.

5.2.3.2 GC/MD Compounds

The GC/MD (Multiple Detectors) Compounds are calibrated by using a dilution of the NBS traceable standard. The daily calibration consists of a zero point and two calibration points (10% and 100% of range). One calibration point is run at the beginning of the day and one at the end of the day. During the monthly internal audit of the analytical system a 5 point calibration curve is run to establish performance criteria for the system. If the

response factor for daily standard does not fall within 30% of the initial calibration a new initial calibration is prepared. Standards are prepared by using a gas dilution system on the gas chromatograph or by making static dilutions to atmospheric levels. The gas dilution system is constructed from an 8 port gas sampling valve with a 0.05 mL, 0.5 mL, and 5.0 sample loops. The loops are filled with the standard and flushed with humidified "zero air" prepared with an AADCO Model 737 pure air generator. The three loop sizes are used to prepare a three point calibration of the system to check the linearity in the concentration range of interest. The gas dilution system is used for the daily instrument calibration. The concentration of the individual compounds is determined using the calculated response factors in the integrator.

Standards at atmospheric concentration levels are prepared by diluting the NBS traceable standard in stainless steel canisters. The standards are diluted by using a calibrated syringe to inject a measured volume of the NBS traceable standard into a passivated stainless steel canister. The canister is filled with a known volume of humidified zero air measured using a mass flow meter. This ambient level standard is sent to another laboratory for calibration against the NBS 5 ppbv VOC standard. The diluted standard is run in exactly the same manner as the samples and serves as a check of the sample concentration injection system.

5.3 SAMPLE CONTAINER QUALITY ASSURANCE

5.3.1 SUMMA Canister Cleaning and QA

The quality assurance program on the sample canisters starts when the canisters are first constructed. When the electropolished canister is received it is inspected internally to visually verify that all surfaces and welds are polished. New canisters are leak tested by pressurizing the canister to 40 psig and submerging it in water and checking for bubbles. If none are found the canister is assigned a number and the number and the results of the pressure test are entered into the log book. The canister is then steam cleaned overnight (minimum of 12 hours).

The air sampling canister is then placed in a 110√C oven and evacuated to 10 microns of vacuum. The canister is capped and stored under vacuum for three days. If the final vacuum is measured and found to be 29.9" Hg (gauge pressure) the canister is ready for use. The canister is then marked as passing the vacuum test in the sample canister log book (Figure 4.1).

After use for sample collection the canisters are placed in a 110 C oven and evacuated to 10 microns vacuum. Canisters that do not reach this level of vacuum are re-tested for leaks by the above procedure. Cans that are received at the lab that do not have the same can pressure as they did when collected in the field are re-tested for leaks.

The standard laboratory QA procedure is ten percent of the canisters that are recycled are filled with zero air and run as blanks to look for contamination from carryover in the processing step. If contamination is found additional remedies such as increasing the sample processing time, using an intermediate zero air flush or steam cleaning are necessary. For special QA programs the individual canisters are tested on the GC/FID to measure the total hydrocarbons, and chromatograms are supplied for each canister. This service has to be requested in advance and involves an additional charge.

5.3.2 Standard Operating Procedures for Sample Container Preparation.

The actual procedures used to prepare the sample containers for use are described.

5.3.2.1 Preparation of Sampling Canisters for Sample Collection

1. Check pressure to sampling canister. If canister is under positive pressure vent canister.

2. Connect sampling canister to vacuum system line.

3. Check to be sure liquid nitrogen trap on vacuum system is full and pump is producing 10 micron vacuum.

4. Place sampling canister in over at 110√C.

5. Open valve on vacuum system line, and check for leaks in connecting line.

6. Open valve on sample canister slowly and pump can down slowly, then open valve fully.

7. Leave sample canister connected for 6 hours and verify vacuum of 10 microns in canister.

8. Close sampling canister valve.

9. Close vacuum system line valve.

10. If the sampling can will sit more than 48 hours before shipment to sampling site, fill sample canister with "zero" air at 20 psig. Place red sticker on can and put on storage shelf.

11. Place cap on sample canister.

12. Record status of sample canister in log book.

13. Cans filled with zero air for storage are to be evacuated to 10 microns before shipment to sampling site. After evacuation remove red sticker and place on shipment shelf. Record in log book.

5.3.2.2 Preparation of Tedlar Bags for Sampling

1. Visully check the Tedlar bags for leaks.

2. Connect Tedlar bag to Zero air machine and fill until bag is taught.

3. Let bag sit for at least 1 hr and check for leakage.

4. Connect bag to vacuum line and evacuate bag.

5. Fill bag with zero air and evacuate three times to clean bag.

6. Analyze one bag per batch for the project target compounds, and establish blank levels.

7. Analyze all bags if called for in project QA.

8. Place Tedlar bags in light tight cardboard box, and ship to client. Bags should be shipped within 48 hrs of flushing.

5.4 SAMPLE ANALYSIS

5.4.1 Introduction to Analytical Methodology

Environmental Analytical Service, Inc. (EAS) will do the chemical analysis of samples using approved methods for the project. Depending on the type of sample and the regulator that the results will be reported to, methods from one of the following sources will be used. The bold characters are the prefix used with the method number to indicate the source of the method. Only generally accepted modifications to the methods are made.

EPA Environmental Protection Agency

EPA ambient air methods manual, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air,

EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air, and EPA SW-846 Test Methods for Evaluating Solid Waste.

APCA Air and Waste Management Association

APCA Intersociety Committee, Methods of Air Sampling and Analysis

ASTM American Society of Testing Materials

EAS Environmental Analytical Service

Special Method developed by Environmental Analytical Service from original research, testing, and literature search.

The methods used by EAS are listed below by the method number the letters in front of the number indicate the source of the method . A description of the method and any

modifications are described along with some of the QA objectives.

5.4.2 AMBIENT AIR ANALYSIS BY EPA METHOD TO-14

EPA TO-14 Hydrocarbon by GC/FID

The heavy hydrocarbons and oxygenates (aldehydes and ketones) are analyzed using an HP 5890 gas chromatograph with a fused silica capillary column. Major components that cannot be identified using FID can be confirmed on an HP 5890/5970 GC/MSD system as described in EPA Method TO-14. The heavy hydrocarbons are analyzed by passing a 100 to 1000 ml sample through a Nafion dryer into the 8" glass bead freezeout loop immersed in liquid oxygen. The components are desorbed into a fused silica cryofocussing loop with 80 C hot water. They are then desorbed from the cryofocus loop and the components are separated using a 30-meter DB-5 fused silica capillary column. The column is programmed from -20 C to 200 C at 3 C/min. Total analysis time is 60 minutes The method detection limit for this method is about 0.1 ppbv for most compounds and the precise analysis at 10 ppbvC is 5 percent. The compounds are detected on a FID set to operate at high sensitivity. Chromatograms are integrated using an HP 3393A computing integrator and stored on a HP 9114 disk drive for reintegration or further examination if required at a later date. Compounds are calibrated using an NBS-traceable propane/hexane/ benzene standard. On the FID, hydrocarbons have a uniform response based on the number of carbon atoms. Data from the integrator is entered into the LOTUS 1-2-3 spreadsheet to generate the final report.

EPA TO-14 Chlorinated hydrocarbon by GC/ECD/PID

The chlorinated hydrocarbons are analyzed using an HP 5890 gas chromatograph with a fused silica capillary column using EPA Method To-14. Major components that cannot be identified using the ECD can be confirmed on an HP 5890/5970 GC/MSD system as described in EPA Method TO-14 for Full Scan GC/MS. The samples are analyzed by passing a 10 to 500 ml sample through a Nafion dryer into the 8" glass bead freezeout loop immersed in liquid oxygen. The components are desorbed into a fused silica cryofocussing loop with 80 C hot water. They are then desorbed from the cryofocus loop and the components are separated using a 30-meter DB-5 fused silica capillary column. The column is programmed from -20 C to 200 C at 3 C/min. Total analysis time is 30 minutes The method detection limit for this method varies from 1 pptv to about 500 pptv depending on the number and type of halogen atoms on the compound the RAD at 200 pptv is 5 percent. Vinyl chloride and methyl chloride cannot be measured by this method. Chromatograms are integrated using

an HP 3393A computing integrator and stored on a HP 9114 disk drive for reintegration or further examination if required at a later date. Compounds are calibrated using an NBS-traceable standard. Data from the integrator is entered into the LOTUS 1-2-3 spreadsheet to generate the final report.

EPA TO-14 Ambient Air by GC/MS Full Scan

The GC/MS method (EPA Method TO-14) uses a cryotrapping system and a high resolution capillary column to analyze for volatile organic compounds. Samples are collected in SUMMA canisters or Tedlar bags.

Samples are analyzed on an HP 5890 gas chromatograph and HP 5970 MSD quadrapole mass spectrometer detector. A 500 to 1000 mL ambient air sample introduced from the air sampling container through a Nafion dryer to the freezeout loop. The freezeout loop is immersed in liquid oxygen and concentrates the air sample. After the sample is loaded, it is cryofocussed onto the beginning of a 30 meter fused silica capillary column. The cryofocused loop is then warmed and the compounds are separated and enter the mass spectrometer. The MS is scanned from 45 to 300 amu sith a scan rate of 1 to 2 seconds. The GC/MS has a complete data system capable of collecting, storing, and interpreting the data collected. The GC/MS is tuned and operated according to the specifications outlined in EPA SW 846 Test Methods. Compounds are calibrated by the external standard procedure using a NBS traceable Scott-Marrin air standards. The relative standard deviation of the method is 15% at 5 ppbv and the MDL is 0.5 ppbv for most compounds.

5.5 Calibration Standards

There are two types of calibration standards used by EAS . The standards used for the Standard EPA TO-14 analytical tests are commercial NBS traceable gas standards nornally ordered at a concentration of 5 ppbv in AL150 cylinders. Special in-house standards are prepared for special projects where commercial standards are not available and for determining the retention times for many of the individual hydrocarbons.

5.5.1 Quantitative Standards

The concentrations of the individual compounds are determined by using an External Calibration procedure, in which the compound's response is compared to the response of a standard. The primary calibration standard is an NIST traceable reference gas standard obtained from Scott-Marrin, Inc., Riverside, CA. The standard cylinder is returned

every year for recertification by the manufacturer. EAS maintains cylinders with standards for all of the EPA VOC and TO-14 target compounds.

6. QUALITY ASSURANCE AND QUALITY CONTROL

6.1 Quality Assurance Administration

The quality assurance program at Environmental Analytical Service, Inc. is under the supervision of the Quality Assurance Supervisor (Section 2.2.2). He is responsible for implementing the procedures described in this manual, and for the quarterly Quality Assurance review. Each person in the laboratory has assigned QA duties that they are responsible for on a daily and weekly basis along with a monthly Quality Assurance Audit, which is a day each month set aside for extensive checks and calibrations of the various instruments used for sampling and analysis. The following sections describe specific QA procedures for various aspects of the laboratory operation.

6.2 Method Validation

Each of the analytical procedures described in Section 5 was developed according to approved procedures established by the EPA, CARB, or SCAQMD. Once the equipment and the standard operating procedures have been established the following method validation procedures are performed.

6.2.1 Compound Identification

The substances of interest in the chromatograms are identified by analyzing qualitative standards prepared from the pure materials. The results of these identifications are checked against the results of other laboratories run on similar columns. From this information at list of retention times for the standard operating parameters is prepared. A quality assurance standard is collected or prepared that has the desired compounds at proportions present in representative samples. This QA standard is analyzed at periodic intervals to check the peak assignments.

6.2.2 Initial Calibration

The linearity of the procedure is established by running a five point initial calibration curve. The response factors are calculated for each calibration point. The linear rance is considered the region where the response factors do not vary fore then 20%. The daily calibration is checked against the initial calibration curve and if t e deviation of the daily calibration is more then 15% from the initial calibration the intial calibration curve is redone before the samples are analyzed.

6.2.3 Minimum Detectable Level (Detection Limit)

The minimum detectable level (MDL) is the lowest concentration of a substance that can be measured with confidence. The MDL is calculated at the 99% confidence level from eight repetitive measurements on a sample whose concentration does not exceed 10 times the estimated MDL (Glaser et. al. 1981; Long and Winefordner, 1983). To calculate the MDL a sample is prepared in the appropriate matrix with components near the estimated MDL which is about 3 times the instrument noise level. This sample is run eight consecutive times and the standard deviation (S) is calculated. The MDL is determined using the following formula.

$$MDL = 3.0*S$$

The 95% confidence limits derived from the chi square distribution can be calculated using the equations below.

$$LCL = 0.69*MDL$$

$$UCL = 1.92*MDL$$

6.2.4 Relative Standard Deviation (RSD)

The relative standard deviation for the analytical method is calculated from repetitive runs on an actual air sample representative of the types of samples that will be analyzed. The RSD provides information on the precision or reproducibility of the actual measurement process. The RSD is calculated for a particular compound from the mean (x) and standard deviation (S) of five consecutive measurements using the following equation:

$$RSD\ (\%) = \frac{S * 100}{x}$$

The RSD is reported as a percentage deviation at a particular concentration.

6.2.5 Accuracy, Interlaboratory Comparisons

Duplicate samples and intercalibration samples are analyzed on a regular basis usually for project specific QA programs. For many EPA SAS projects EAS will analyze blind performance samples which are checked by RTI for EPA. If results do not agree within 20%, the analysis and calculations are checked to determine the source of the difference before additional samples are analyzed.

6.3 Instrument Calibration and Maintenance

The following quality assurance procedures are used to check each instrumental parameter that would affect the accuracy of the analytical data.

6.3.1 Calibration Standards

The concentrations of the individual compounds are determined by using NIST traceable reference gas standards obtained from Scott-Marrin, Inc., or Scott Specialaty Gases. Both manufacturers have over 10 years experience in blending gas standards. The standard cylinder is returned every year for recertification by the manufacturer. EAS maintains cylinders with standards for most of the EPA VOC and TO-14 target compounds.

For the semi-volatile organic compounds commercial liquid standards are used. These are purchased in sealed ampules from Supelco, Inc. or Ultra Scienfific. The concentrations of these components are certified by the manufacturer. These standards are used directly or with a 1:10 diltution.

6.3.2 Standard Dilution System

The standard dilution system on the gas chromatograph for diluting the 5 ppbv gas standards to the working level is calibrated gravimetrically by measuring the mass of water held by the sample loop and calculating the volume from the density of the water at the measurement temperature. This value is compared to the value supplied by the manufacturer of the loop.

6.3.3 Sample Volume Measurement and Calibration

The volume of air sampled is determined by transferring the air through the freezeout loop into an evacuated canister of known volume (1.7L). The pressure drop in the canister is measured using a precision vacuum gauge with an accuracy of 0.25%. From the pressure drop the volume of air at 25 C can be determined.

The volume of the canister is determined by weighing it empty, filling it with water, then reweighing it to get the mass of the water. The mass of water can be used to calculate the volume using the density of water. For ambient air samples the amount of material trapped out in the freezeout loop is small and can be neglected in the volume calculation (this is not always true for source samples which are run using a sampling loop). Water is removed using a Nafion dryer so the results are reported as dry air. The estimated overall uncertainty of the sample volume measurement system is about 2%.

The calculated volume is checked by using a calibrated 100 mL syringe to determine the pressure change corresponding to 100 mL, 200 mL, 300 mL, and 500 mL using successive volumes of zero air. This process is repeated three times to determine the average pressure drop corresponding to 500 mL and to check the linearity of the volume measuring system.

6.4 Quality Control Charts

6.4.1 Control Charts for Range

The EPA recommended quality control chart is maintained for each of the analytical methods. The chart is shown in Figure 6.5.a-b. Selected compounds in each of the analytical procedures are plotted using the data collected for a duplicate pair of samples which are run at least once a day. The control charts are prepared initially by calculating the range in 10 duplicate runs.

From this data the average range (R) is determined. The control limits are determined from the following formula (EPA, QA Handbook $n\geq$ H-10).

UCL = 3.3 * R

UWL = 2.5 * R

LWL = 0

Range cannot be less than 0

LCL = 0

As duplicate data is collected the value of the average range is updated with the current information.

6.4.2 Control Charts for Averages

The control chart for average values are plotted for stable compounds which can be used to prepare a standard reference sample. To start the chart,the check sample is run in duplicate 10 times over a period of several days. From the duplicate runs the average value for each pair is calculated and the average of the averages (X) determined. The control limits are calculated using the following equations.

UCL = X + 1.88 * R

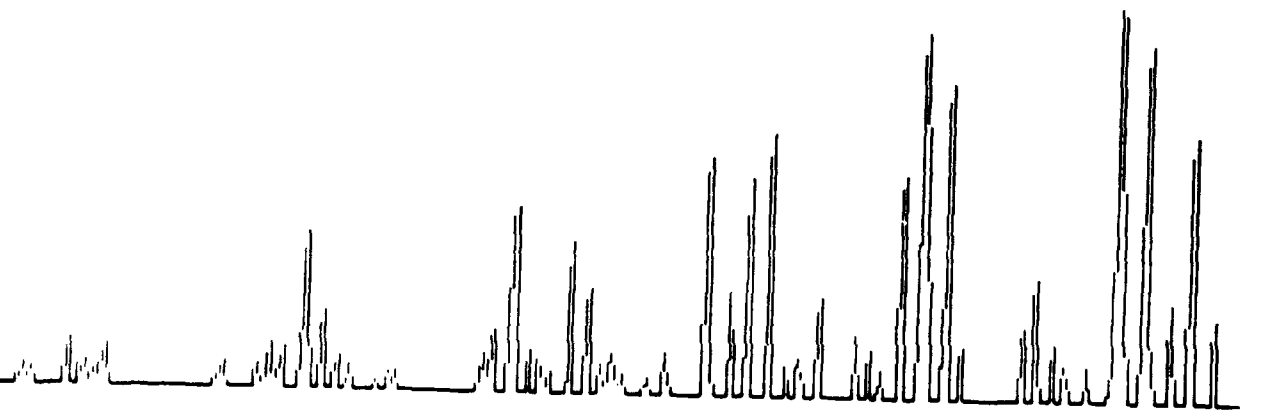
LCL = X - 1.88 *R

UWL = X + 1.25 *R

SECTION III
CSL DATA

Environmental Analytical Service

ANALYTICAL REPORT
Section 2
McClellan AFB
Close Support Laboratory
March 20 - April 12, 1991



ANALYTICAL REPORT
Section 2
McClellan AFB
Close Support Laboratory
March 20 - April 12, 1991

Prepared for:

CH_2M Hill

Prepared by:

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SECTION 2

4.0 Analytical Results

The analytical results for the Close Support Laboratory (CSL) are tabulated by day analyzed in the following sub-sections.

For the quality assurance report for the data set refer to the material in Section 1 of the complete report.

ANALYTICAL RESULTS

March 20, 1991

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VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC MS Full Scan

Client:	CH2M Hill	Lab #:	3001
Site:	MW-AC-C-001	Date Sampled:	3-20-91
Can #:	P-1	Date Analyzed:	3-20-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	7.50	30	150
Vinyl Chloride	7.50	not detected	not detected
Freon 11	7.50	72	410
1,1-Dichloroethene	7.50	880	3500
Dichloromethane	7.50	79 B	270 B
Trichlorotrifluoroethane	7.50	3900	30000
1,1-Dichloroethane	7.50	not detected	not detected
c-1,2-Dichloroethene	7.50	not detected	not detected
t-1,2-Dichloroethene	7.50	not detected	not detected
Chloroform	7.50	not detected	not detected
1,1,1-Trichloroethane	7.50	not detected	not detected
1,2-Dichloroethane	7.50	not detected	not detected
Benzene	7.50	not detected	not detected
Carbon Tetrachloride	7.50	not detected	not detected
Trichloroethene	7.50	not detected	not detected
Toluene	7.50	not detected	not detected
Tetrachloroethene	7.50	not detected	not detected

B - This compound is present in the daily instrument blank.

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3002
Site:	MW-AC-C-002	Date Sampled:	3-20-91
Can #:	P-2	Date Analyzed:	3-20-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	7.50	44	220
Vinyl Chloride	7.50	not detected	not detected
Freon 11	7.50	100	560
1,1-Dichloroethene	7.50	1100	4600
Dichloromethane	7.50	150 B	530 B
Trichlorotrifluoroethane	7.50	4300	33000
1,1-Dichloroethane	7.50	not detected	not detected
c-1,2-Dichloroethene	7.50	not detected	not detected
t-1,2-Dichloroethene	7.50	not detected	not detected
Chloroform	7.50	not detected	not detected
1,1,1-Trichloroethane	7.50	not detected	not detected
1,2-Dichloroethane	7.50	not detected	not detected
Benzene	7.50	not detected	not detected
Carbon Tetrachloride	7.50	7.6	48
Trichloroethene	7.50	not detected	not detected
Toluene	7.50	not detected	not detected
Tetrachloroethene	7.50	not detected	not detected

b - This compound is present in the daily instrument blank.

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC MS Full Scan

Client:	CH2M Hill	Lab #:	3005
Site:	MW-AC-C-007	Date Sampled:	3-20-91
Can #:	P-5	Date Analyzed:	3-20-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	7.50	120	580
Vinyl Chloride	7.50	not detected	not detected
Freon 11	7.50	270	1500
1,1-Dichloroethene	7.50	2500	10000
Dichloromethane	7.50	not detected	not detected
Trichlorotrifluoroethane	7.50	not detected	not detected
1,1-Dichloroethane	7.50	not detected	not detected
c-1,2-Dichloroethene	7.50	not detected	not detected
t-1,2-Dichloroethene	7.50	not detected	not detected
Chloroform	7.50	not detected	not detected
1,1,1-Trichloroethane	7.50	not detected	not detected
1,2-Dichloroethane	7.50	not detected	not detected
Benzene	7.50	not detected	not detected
Carbon Tetrachloride	7.50	21	130
Trichloroethene	7.50	20	110
Toluene	7.50	not detected	not detected
Tetrachloroethene	7.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3000
Site:	MW-AC-C-019	Date Sampled:	3-20-91
Can #:	P-10	Date Analyzed:	3-20-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detec
Vinyl Chloride	0.75	not detected	not detec
Freon 11	0.75	not detected	not detec
1,1-Dichloroethene	0.75	not detected	not detec
Dichloromethane	0.75	5.9 B	20 B
Trichlorotriflouroethane151	0.75	not detected	not detec
1,1-Dichloroethane	0.75	not detected	not detec
c-1,2-Dichloroethene	0.75	not detected	not detec
t-1,2-Dichloroethene	0.75	not detected	not detec
Chloroform	0.75	not detected	not detec
1,1,1-Trichloroethane 97	0.75	not detected	not detec
1,2-Dichloroethane	0.75	not detected	not detec
Benzene	0.75	not detected	not detec
Carbon Tetrachloride 117	0.75	not detected	not detec
Trichloroethene	0.75	not detected	not detec
Toluene	0.75	not detected	not detec
Tetrachloroethene	0.75	not detected	not detec

B - This compound is present in the daily instrument blank.

ANALYTICAL RESULTS

March 26, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-013
Operator	Hoyt	Lab #:	3007A2.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final:	936

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.3
Freon-11	0.75	129.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	3.5
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	23.2
Trichloroethene	0.75	20.2
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-013
Operator	Hoyt	Lab #:	3007A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final: 936

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.5
Freon-11	0.75	302.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	21.8
Toluene	0.75	0.6
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-003
Operator	Hoyt	Lab #:	3003A2.D
Volume	200 ml	Date Ana	03/26/91

Canister		Initial:	800	Final:	1044

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.3
Vinyl Chloride	0.75	0.3
Freon-11	0.75	150.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.5
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	23.8
Trichloroethene	0.75	21.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-008
Operator	Hoyt	Lab #:	3004A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final: 963

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.3
Vinyl Chloride	0.75	0.0
Freon-11	0.75	129.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.4
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	23.1
Trichloroethene	0.75	20.5
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-3-2
Operator	Hoyt	Lab #:	3016A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	698 Final:	975

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.1
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	8.6
Trichloroethene	0.75	12.0
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-009
Operator	Hoyt	Lab #:	3006A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final: 908

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.2
Freon-11	0.75	201.2 P
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.2
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	21.2
Trichloroethene	0.75	19.9
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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P - Poor Peak Shape

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-015
Operator	Hoyt	Lab #:	3009A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final: 963

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.2
Freon-11	0.75	13.5 P
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	3.0
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	20.2
Trichloroethene	0.75	18.3
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.2

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P - Poor Peak Shape

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-014
Operator	Hoyt	Lab #:	3008A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	800	Final: 909

Compound	MDL	Concentration ppbv	
Freon-12	0.75	0.0	
Vinyl Chloride	0.75	0.0	
Freon-11	0.75	259.1	P
c-1,2-Dichloroethene	0.75	0.0	
1,1-Dichloroethane	0.75	0.2	
t-1,2-Dichloroethene	0.75	0.1	
Chloroform	0.75	0.2	
1,1,1-Trichloroethane	0.75	3.0	
1,2-Dichloroethane	0.75	0.1	
Benzene	0.75	0.1	
Carbon Tetrachloride	0.75	22.2	
Trichloroethene	0.75	19.2	
Toluene	0.75	0.2	
Tetrachloroethene	0.75	0.3	

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P- Poor Peak Shape

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-1-3
Operator	Hoyt	Lab #:	3012A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	705	Final: 986

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	21.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	1.8
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	14.4
Trichloroethene	0.75	12.8
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-2-1
Operator	Hoyt	Lab #:	3013A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	718 Final:	905

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	31.6
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	4.0
Chloroform	0.75	0.4
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	38.9
Trichloroethene	0.75	109.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-1-1
Operator	Hoyt	Lab #:	3010A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	694	Final: 986

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	81.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.6
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	4.2
Trichloroethene	0.75	3.4
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-2-2
Operator	Hoyt	Lab #:	3014A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	35.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	3.1
Chloroform	0.75	0.4
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	30.3
Trichloroethene	0.75	84.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	ZERO AIR BLANK
Operator	Hoyt	Lab #:	B03261A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-3-3
Operator	Hoyt	Lab #:	3018A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	690 Final:	963

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	5.8
Trichloroethene	0.75	7.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-2-3
Operator	Hoyt	Lab #:	3015A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	716	Final: 971

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.1
Vinyl Chloride	0.75	0.0
Freon-11	0.75	26.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	4.3
Chloroform	0.75	0.6
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	43.3
Trichloroethene	0.75	120.0
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-1-2
Operator	Hoyt	Lab #:	3011A1.D
Volume	200 ml	Date Ana	03/26/91

Canister	Initial:	698	Final:	957

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	122.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	1.6
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	12.0
Trichloroethene	0.75	10.3
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.1

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ANALYTICAL RESULTS
March 27, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	mw-pc-c-2-b
Operator	Hoyt	Lab #:	3020A2.D
Volume	200 ml	Date Ana	03/27/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	26.9
1,1-Dichloroethane	0.75	0.0
1,2-Dichloroethene	0.75	3.3
Chloroform	0.75	0.4
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	1.9
Carbon Tetrachloride	0.75	26.0
Trichloroethene	0.75	83.8
Toluene	0.75	1.2
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-PC-C-2-3
Operator	Hoyt	Lab #:	3023A1.D
Volume	200 ml	Date Ana	03/27/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	38.5
1,1-Dichloroethane	0.75	0.0
1,2-Dichloroethene	0.75	3.4
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	2.3
Carbon Tetrachloride	0.75	28.2
Trichloroethene	0.75	90.8
Toluene	0.75	1.6
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	mw-pc-c-2-b
Operator	Hoyt	Lab #:	3019A1.D
Volume	200 ml	Date Ana	03/27/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
1,1-Dichloroethane	0.75	0.0
1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.0
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-PC-C-2-2
Operator	Hoyt	Lab #:	3021A1.D
Volume	200 ml	Date Ana	03/27/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	33.3
1,1-Dichloroethane	0.75	0.2
1,2-Dichloroethene	0.75	5.8
Chloroform	0.75	0.8
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.6
Carbon Tetrachloride	0.75	50.2
Trichloroethene	0.75	151.0
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-PC-C-2-2-DUPLI
Operator	Hoyt	Lab #:	3022A2.D
Volume	200 ml	Date Ana	03/27/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.2
Freon-11	0.75	36.0
1,1-Dichloroethane	0.75	0.2
1,2-Dichloroethene	0.75	7.7
Chloroform	0.75	0.8
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	59.5
Trichloroethene	0.75	182.0
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND ANALYSIS REPORT
Close Support Laboratory, McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3019
Site:	MW-PC-C-2-B	Date Sampled:	3-27-91
Can #:		Date Analyzed:	3-27-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3	Flag
Freon 12	0.75	nd	nd	
Vinyl Chloride	0.75	nd	nd	
Freon 11	0.75	nd	nd	
1,1-Dichloroethene	0.75	NM	NM	NM
Dichloromethane	0.75	NM	NM	NM
Trichlorotrifluoroethane	0.75	NM	NM	NM
1,1-Dichloroethane	0.75	nd	nd	
c-1,2-Dichloroethene	0.75	nd	nd	
t-1,2-Dichloroethene	0.75	nd	nd	
Chloroform	0.75	nd	nd	
1,1,1-Trichloroethane	0.75	nd	nd	
1,2-Dichloroethane	0.75	nd	nd	
Benzene	0.75	nd	nd	
Carbon Tetrachloride	0.75	nd	nd	
Trichloroethene	0.75	nd	nd	
Toluene	0.75	nd	nd	
Tetrachloroethene	0.75	nd	nd	

Data Flags: B - Compound Present in Daily Blank
NM - Not Measured on this Analysis

ANALYTICAL RESULTS

March 29, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-B
Operator	STEVE HOYT	Lab #:	S3027A1.D
Volume	200 ml	Date Ana	03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.2
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.0
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-3
Operator	STEVE HOYT	Lab #:	S3026.D
Volume	200 ml	Date Ana	03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.3
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	2.8
Trichloroethene	0.75	4.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-2
Operator	STEVE HOYT	Lab #:	S3025A1.D
Volume	200 ml	Date Ana	03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	5.8
Trichloroethene	0.75	9.2
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-1
Operator	STEVE HOYT	Lab #:	S3024A1.D
Volume	200 ml	Date Ana	03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	4.8
Trichloroethene	0.75	7.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-HDR-C-1-1
Operator STEVE HOYT	Lab #: S3028.D
Volume 200 ml	Date Ana 03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	234.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	2.7
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	14.1
Trichloroethene	0.75	13.6
Toluene	0.75	0.5
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-3
Operator	STEVE HOYT	Lab #:	S3026.D
Volume	200 ml	Date Ana	03/29/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.3
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	2.8
Trichloroethene	0.75	4.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.1

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ANALYTICAL RESULTS

April 1, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	ZERO AIR BLANK
Operator	RUTH	Lab #:	B04011A1.D
Volume	200 ml	Date Ana	04/01/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.0
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-9-3
Operator	MILLER	Lab #:	3037A1.D
Volume	200 ml	Date Ana	04/01/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.1
Vinyl Chloride	0.75	0.2
Freon-11	0.75	69.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.9
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.6
1,1,1-Trichloroethane	0.75	23.6
1,2-Dichloroethane	0.75	1.3
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	0.7
Trichloroethene	0.75	30.5
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.4

Environmental Analytical Service
170 Granada, Suite C
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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-7-2
Operator	MILLER	Lab #:	3030B2.D
Volume	10 ml	Date Ana	04/01/91

Canister	Initial:	681	Final: 982

Compound	MDL	Concentration ppbv
Freon-12	15.00	0.6
Vinyl Chloride	15.00	0.0
Freon-11	15.00	385.2
c-1,2-Dichloroethene	15.00	0.0
1,1-Dichloroethane	15.00	4334.7
t-1,2-Dichloroethene	15.00	5158.2
Chloroform	15.00	53.4
1,1,1-Trichloroethane	15.00	334.0
1,2-Dichloroethane	15.00	731.4
Benzene	15.00	276.5
Carbon Tetrachloride	15.00	1.5
Trichloroethene	15.00	2168.5
Toluene	15.00	6.8
Tetrachloroethene	15.00	233.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-7-2
Operator	MILLER	Lab #:	3030B1.D
Volume	10 ml	Date Ana	04/01/91

Canister	Initial:	681	Final:	982

Compound	MDL	Concentration ppbv
Freon-12	15.00	0.0
Vinyl Chloride	15.00	0.0
Freon-11	15.00	0.0
c-1,2-Dichloroethene	15.00	0.0
1,1-Dichloroethane	15.00	5157.0
t-1,2-Dichloroethene	15.00	5571.6
Chloroform	15.00	64.4
1,1,1-Trichloroethane	15.00	377.5
1,2-Dichloroethane	15.00	827.0
Benzene	15.00	313.8
Carbon Tetrachloride	15.00	2.1
Trichloroethene	15.00	3050.1
Toluene	15.00	8.5
Tetrachloroethene	15.00	271.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-9-1
Operator	MILLER	Lab #:	3035B1.D
Volume	200 ml	Date Ana	04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	63.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.2
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.6
1,1,1-Trichloroethane	0.75	17.4
1,2-Dichloroethane	0.75	0.9
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	29.3
Toluene	0.75	0.1
Tetrachloroethene	0.75	1.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-DR-C-9-2 P-3
Operator MILLER	Lab #: 3036B1.D
Volume 140 ml	Date Ana 04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.07	0.0
Vinyl Chloride	1.07	0.0
Freon-11	1.07	47.1
c-1,2-Dichloroethene	1.07	0.0
1,1-Dichloroethane	1.07	1.0
t-1,2-Dichloroethene	1.07	0.1
Chloroform	1.07	0.5
1,1,1-Trichloroethane	1.07	21.5
1,2-Dichloroethane	1.07	1.3
Benzene	1.07	0.3
Carbon Tetrachloride	1.07	0.6
Trichloroethene	1.07	35.1
Toluene	1.07	0.0
Tetrachloroethene	1.07	2.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-7-1 P-39
Operator	MILLER	Lab #:	3029A1.D
Volume	195 ml	Date Ana	04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.77	0.0
Vinyl Chloride	0.77	0.0
Freon-11	0.77	263.2
c-1,2-Dichloroethene	0.77	0.0
1,1-Dichloroethane	0.77	7374.8
t-1,2-Dichloroethene	0.77	10411.6
Chloroform	0.77	45.7
1,1,1-Trichloroethane	0.77	409.9
1,2-Dichloroethane	0.77	854.3
Benzene	0.77	291.0
Carbon Tetrachloride	0.77	0.0
Trichloroethene	0.77	6001.7
Toluene	0.77	0.0
Tetrachloroethene	0.77	86.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-DR-C-7-3 P-44
Operator MILLER	Lab #: 3031A1.D
Volume 95 ml	Date Ana 04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.58	0.0
Vinyl Chloride	1.58	0.0
Freon-11	1.58	224.2
c-1,2-Dichloroethene	1.58	0.0
1,1-Dichloroethane	1.58	1707.5
t-1,2-Dichloroethene	1.58	2190.0
Chloroform	1.58	22.5
1,1,1-Trichloroethane	1.58	148.9
1,2-Dichloroethane	1.58	304.9
Benzene	1.58	119.7
Carbon Tetrachloride	1.58	0.5
Trichloroethene	1.58	652.9
Toluene	1.58	1.5
Tetrachloroethene	1.58	44.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-8-3 P-43
Operator	MILLER	Lab #:	3034A1.D
Volume	180 ml	Date Ana	04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.83	0.0
Vinyl Chloride	0.83	0.0
Freon-11	0.83	103.9
c-1,2-Dichloroethene	0.83	0.0
1,1-Dichloroethane	0.83	81.2
t-1,2-Dichloroethene	0.83	14.3
Chloroform	0.83	3.7
1,1,1-Trichloroethane	0.83	225.9
1,2-Dichloroethane	0.83	14.4
Benzene	0.83	4.4
Carbon Tetrachloride	0.83	2.2
Trichloroethene	0.83	246.2
Toluene	0.83	0.2
Tetrachloroethene	0.83	25.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-8-2 P-49
Operator	MILLER	Lab #:	3033A1.D
Volume	137 ml	Date Ana	04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.09	0.1
Vinyl Chloride	1.09	0.5
Freon-11	1.09	399.2
c-1,2-Dichloroethene	1.09	0.0
1,1-Dichloroethane	1.09	173.4
t-1,2-Dichloroethene	1.09	24.9
Chloroform	1.09	8.1
1,1,1-Trichloroethane	1.09	365.8
1,2-Dichloroethane	1.09	22.9
Benzene	1.09	6.6
Carbon Tetrachloride	1.09	3.4
Trichloroethene	1.09	976.2
Toluene	1.09	0.0
Tetrachloroethene	1.09	13.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-8-1 P-48
Operator	MILLER	Lab #:	3032A1.D
Volume	200 ml	Date Ana	04/02/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	184.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	75.8
t-1,2-Dichloroethene	0.75	8.1
Chloroform	0.75	4.0
1,1,1-Trichloroethane	0.75	176.7
1,2-Dichloroethane	0.75	10.8
Benzene	0.75	3.4
Carbon Tetrachloride	0.75	1.9
Trichloroethene	0.75	141.6
Toluene	0.75	0.1
Tetrachloroethene	0.75	14.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-~~DR~~-C-7-1 P-27
Operator MILLER	Lab #: 3032A9.D
Volume 180 ml	Date Ana 04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.83	4.1
Vinyl Chloride	0.83	0.0
Freon-11	0.83	618.4
c-1,2-Dichloroethene	0.83	0.0
1,1-Dichloroethane	0.83	7690.2
t-1,2-Dichloroethene	0.83	4116.7
Chloroform	0.83	48.7
1,1,1-Trichloroethane	0.83	268.7
1,2-Dichloroethane	0.83	508.3
Benzene	0.83	202.6
Carbon Tetrachloride	0.83	0.0
Trichloroethene	0.83	2166.1
Toluene	0.83	3.9
Tetrachloroethene	0.83	100.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-7-1 P-42
Operator MILLER	Lab #: 3038A1.D
Volume 200 ml	Date Ana 04/02/91

Canister	Initial:	662 Final:	1010

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	875.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	16470.6
t-1,2-Dichloroethene	0.75	8457.4
Chloroform	0.75	99.8
1,1,1-Trichloroethane	0.75	606.3
1,2-Dichloroethane	0.75	1278.1
Benzene	0.75	512.7
Carbon Tetrachloride	0.75	3.8
Trichloroethene	0.75	6367.0
Toluene	0.75	11.2
Tetrachloroethene	0.75	255.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-7-3 P-32
Operator	MILLER	Lab #:	3040A1.D
Volume	158.5 ml	Date Ana	04/02/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.95	0.0
Vinyl Chloride	0.95	0.0
Freon-11	0.95	617.2
c-1,2-Dichloroethene	0.95	0.0
1,1-Dichloroethane	0.95	8113.4
t-1,2-Dichloroethene	0.95	5343.0
Chloroform	0.95	48.7
1,1,1-Trichloroethane	0.95	290.8
1,2-Dichloroethane	0.95	606.9
Benzene	0.95	236.2
Carbon Tetrachloride	0.95	0.0
Trichloroethene	0.95	22048.7
Toluene	0.95	5.1
Tetrachloroethene	0.95	88.4

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ANALYTICAL RESULTS

April 2, 1991

ANALYTICAL RESULTS

April 4, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-9-B P-65
Operator MILLER	Lab #: 3057A1.D
Volume 200 ml	Date Ana 04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-9-3 P-64
Operator	MILLER	Lab #:	3055A1.D
Volume	137 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.09	0.1
Vinyl Chloride	1.09	0.3
Freon-11	1.09	45.0
c-1,2-Dichloroethene	1.09	0.0
1,1-Dichloroethane	1.09	1.0
t-1,2-Dichloroethene	1.09	0.0
Chloroform	1.09	0.4
1,1,1-Trichloroethane	1.09	13.9
1,2-Dichloroethane	1.09	0.7
Benzene	1.09	0.3
Carbon Tetrachloride	1.09	0.4
Trichloroethene	1.09	28.4
Toluene	1.09	0.1
Tetrachloroethene	1.09	1.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-9-4 P-63
Operator	MILLER	Lab #:	3056A1.D
Volume	200 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	58.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.2
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	14.3
1,2-Dichloroethane	0.75	0.7
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	0.4
Trichloroethene	0.75	26.8
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-9-2 P-57
Operator	MILLER	Lab #:	3054A1.D
Volume	158.5 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.95	0.0
Vinyl Chloride	0.95	0.0
Freon-11	0.95	38.5
c-1,2-Dichloroethene	0.95	0.0
1,1-Dichloroethane	0.95	0.9
t-1,2-Dichloroethene	0.95	0.1
Chloroform	0.95	0.3
1,1,1-Trichloroethane	0.95	14.5
1,2-Dichloroethane	0.95	0.8
Benzene	0.95	0.3
Carbon Tetrachloride	0.95	0.4
Trichloroethene	0.95	29.0
Toluene	0.95	0.1
Tetrachloroethene	0.95	1.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-9-1 P-58
Operator MILLER	Lab #: 3053B1.D
Volume 21.6 ml	Date Ana 04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	0.00
1,1-Dichloroethene	6.94	0.00
Freon-113	6.94	166.17
Dichloromethane	6.94	13.13
1,1-Dichloroethane	6.94	1.16
1,2-Dichloroethene	6.94	0.00
Chloroform	6.94	0.53
1,1,1-Trichloroethane	6.94	14.33
1,2-Dichloroethane	6.94	0.99
Benzene	6.94	0.24
Carbon Tetrachloride	6.94	0.82
Trichloroethene	6.94	26.62
Toluene	6.94	0.00
Tetrachloroethene	6.94	1.03

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-9-1 P-58
Operator MILLER	Lab #: 3053A1.D
Volume 200 ml	Date Ana 04/04/91

Canister	Initial:	653	Final: 1054

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	65.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.3
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	19.4
1,2-Dichloroethane	0.75	1.0
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	34.5
Toluene	0.75	0.1
Tetrachloroethene	0.75	1.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-2-2 P-19
Operator	MILLER	Lab #:	3014B1.D
Volume	21.6 ml	Date Ana	04/04/91

Canister	Initial:	716	Final: 953

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.97
Freon-11	6.94	64.51
1,1-Dichloroethene	6.94	362.29
Freon-113	6.94	248.10
Dichloromethane	6.94	34.84
1,1-Dichloroethane	6.94	0.00
1,2-Dichloroethene	6.94	7.31
Chloroform	6.94	1.00
1,1,1-Trichloroethane	6.94	0.00
1,2-Dichloroethane	6.94	0.00
Benzene	6.94	0.29
Carbon Tetrachloride	6.94	46.85
Trichloroethene	6.94	175.94
Toluene	6.94	0.17
Tetrachloroethene	6.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-1-2
Operator	RUTH	Lab #:	3011B1.D
Volume	21.6 ml	Date Ana	04/04/91

Canister	Initial:	698	Final: 957

Compound	MDL	Concentration ppbv
Freon-12	6.94	73.54
Vinyl Chloride	6.94	0.00
Freon-11	6.94	292.10
1,1-Dichloroethene	6.94	2310.55
Freon-113	6.94	548.09
Dichloromethane	6.94	41.82
1,1-Dichloroethane	6.94	0.06
1,2-Dichloroethene	6.94	1.44
Chloroform	6.94	0.79
1,1,1-Trichloroethane	6.94	3.28
1,2-Dichloroethane	6.94	1.14
Benzene	6.94	0.47
Carbon Tetrachloride	6.94	15.97
Trichloroethene	6.94	16.20
Toluene	6.94	0.80
Tetrachloroethene	6.94	0.85

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-008 P4
Operator	MILLER	Lab #:	3004B1.D
Volume	21.6 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	102.23
Vinyl Chloride	6.94	0.59
Freon-11	6.94	408.31
1,1-Dichloroethene	6.94	2509.68
Freon-113	6.94	824.55
Dichloromethane	6.94	62.42
1,1-Dichloroethane	6.94	0.48
1,2-Dichloroethene	6.94	0.80
Chloroform	6.94	0.00
1,1,1-Trichloroethane	6.94	3.90
1,2-Dichloroethane	6.94	0.00
Benzene	6.94	0.00
Carbon Tetrachloride	6.94	24.17
Trichloroethene	6.94	21.72
Toluene	6.94	0.00
Tetrachloroethene	6.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-009 P6
Operator	MILLER	Lab #:	3006B1.D
Volume	21.6 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	468.26
1,1-Dichloroethene	6.94	2687.80
Freon-113	6.94	1840.74
Dichloromethane	6.94	149.54
1,1-Dichloroethane	6.94	0.58
1,2-Dichloroethene	6.94	0.00
Chloroform	6.94	0.00
1,1,1-Trichloroethane	6.94	4.16
1,2-Dichloroethane	6.94	0.00
Benzene	6.94	0.00
Carbon Tetrachloride	6.94	23.34
Trichloroethene	6.94	22.42
Toluene	6.94	0.00
Tetrachloroethene	6.94	0.56

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-DR-C-5-1 P54
Operator MILLER	Lab #: 3050A1.D
Volume 200 ml	Date Ana 04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	5.7
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	0.5
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	1.6
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	10.5
Toluene	0.75	1.9
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-5-3 P52
Operator	MILLER	Lab #:	3052A1.D
Volume	200 ml	Date Ana	04/04/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.1
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.6
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.5
t-1,2-Dichloroethene	0.75	69.4
Chloroform	0.75	0.7
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	158.2
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-5-2 P55
Operator MILLER	Lab #: 3051A1.D
Volume 200 ml	Date Ana 04/04/91

Canister	Initial:	643 Final:	1032

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.8
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.9
t-1,2-Dichloroethene	0.75	48.5
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	0.3
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	116.5
Toluene	0.75	0.4
Tetrachloroethene	0.75	0.4

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ANALYTICAL RESULTS

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-8-B P51
Operator MILLER	Lab #: 3049A1.D
Volume 200 ml	Date Ana 04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.1
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	1.6
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-8-1 P26
Operator	MILLER	Lab #:	3046A1.D
Volume	160 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	413.5
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	180.3
t-1,2-Dichloroethene	0.94	13.6
Chloroform	0.94	8.1
1,1,1-Trichloroethane	0.94	301.9
1,2-Dichloroethane	0.94	18.3
Benzene	0.94	6.1
Carbon Tetrachloride	0.94	3.4
Trichloroethene	0.94	1311.9
Toluene	0.94	0.4
Tetrachloroethene	0.94	30.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-8-2 P46
Operator MILLER	Lab #: 3047A1.D
Volume 200 ml	Date Ana 04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	274.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	110.8
t-1,2-Dichloroethene	0.75	8.6
Chloroform	0.75	5.3
1,1,1-Trichloroethane	0.75	208.5
1,2-Dichloroethane	0.75	13.4
Benzene	0.75	4.3
Carbon Tetrachloride	0.75	2.6
Trichloroethene	0.75	174.9
Toluene	0.75	0.7
Tetrachloroethene	0.75	24.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-6-4 P-41
Operator	MILLER	Lab #:	3045A1.D
Volume	200 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	2.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	3.4
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	44.8
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-6-3 P-53
Operator	RUTH	Lab #:	3044A1.D
Volume	200 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.7
t-1,2-Dichloroethene	0.75	1.6
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	49.0
Toluene	0.75	1.3
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-8-3 P-31
Operator	RUTH	Lab #:	3048A2.D
Volume	95 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.58	0.0
Vinyl Chloride	1.58	0.0
Freon-11	1.58	249.9
c-1,2-Dichloroethene	1.58	0.0
1,1-Dichloroethane	1.58	129.5
t-1,2-Dichloroethene	1.58	10.4
Chloroform	1.58	6.5
1,1,1-Trichloroethane	1.58	238.5
1,2-Dichloroethane	1.58	14.9
Benzene	1.58	4.9
Carbon Tetrachloride	1.58	2.4
Trichloroethene	1.58	363.3
Toluene	1.58	0.3
Tetrachloroethene	1.58	32.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-7-B P-37
Operator	MILLER	Lab #:	3041A1.D
Volume	134 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.12	0.4
Vinyl Chloride	1.12	0.0
Freon-11	1.12	0.2
c-1,2-Dichloroethene	1.12	0.0
1,1-Dichloroethane	1.12	1.0
t-1,2-Dichloroethene	1.12	1.1
Chloroform	1.12	0.0
1,1,1-Trichloroethane	1.12	0.4
1,2-Dichloroethane	1.12	0.3
Benzene	1.12	0.5
Carbon Tetrachloride	1.12	0.0
Trichloroethene	1.12	10.7
Toluene	1.12	2.3
Tetrachloroethene	1.12	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-6-1 P47
Operator	RUTH	Lab #:	3042A1.D
Volume	200 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.3
t-1,2-Dichloroethene	0.75	4.1
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	46.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-6-2 P-46
Operator	RUTH	Lab #:	3043A1.D
Volume	200 ml	Date Ana	04/03/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	3.7
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	42.5
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.2

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ANALYTICAL RESULTS

April 8, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-3 P-70
Operator	MILLER	Lab #:	3072B1.D
Volume	20 ml	Date Ana	04/08/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	7.50	0.00
Vinyl Chloride	7.50	0.00
Freon-11	7.50	4.64
1,1-Dichloroethene	7.50	33.94
Freon-113	7.50	333.64
Dichloromethane	7.50	21.10
1,1-Dichloroethane	7.50	1.10
1,2-Dichloroethene	7.50	74.05
Chloroform	7.50	0.55
1,1,1-Trichloroethane	7.50	0.00
1,2-Dichloroethane	7.50	0.00
Benzene	7.50	0.45
Carbon Tetrachloride	7.50	0.00
Trichloroethene	7.50	160.55
Toluene	7.50	0.00
Tetrachloroethene	7.50	0.33

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-3 P-70
Operator	MILLER	Lab #:	3072A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.7
t-1,2-Dichloroethene	0.75	49.9
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	0.1
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	115.9
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.3

Environmental Analytical Service
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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-2 P-76
Operator	MILLER	Lab #:	3071A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.6
t-1,2-Dichloroethene	0.75	46.1
Chloroform	0.75	0.4
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	103.5
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-1 P-7
Operator	MILLER	Lab #:	3070A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	677	Final: 1044

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.4
t-1,2-Dichloroethene	0.75	29.3
Chloroform	0.75	0.3
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	64.8
Toluene	0.75	0.4
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-6-2
Operator	MILLER	Lab #:	3066A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.8
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	4.3
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	59.3
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-6-B
Operator	RUTH	Lab #:	3068A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-6-1 P-61
Operator	RUTH	Lab #:	3065A1.D
Volume	200 ml	Date Ana	04/08/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	3.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	3.9
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	0.2
1,2-Dichloroethane	0.75	0.1
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	56.5
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.2

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ANALYTICAL RESULTS

April 5, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-31-3 P-68
Operator	MILLER	Lab #:	3063A2.D
Volume	200 ml	Date Ana	04/05/91

Canister	Initial:	544 Final:	1050

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	5.2
t-1,2-Dichloroethene	0.75	0.5
Chloroform	0.75	0.7
1,1,1-Trichloroethane	0.75	178.0
1,2-Dichloroethane	0.75	9.3
Benzene	0.75	0.9
Carbon Tetrachloride	0.75	0.2
Trichloroethene	0.75	52.7
Toluene	0.75	0.3
Tetrachloroethene	0.75	1.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-31-2 P-69
Operator	MILLER	Lab #:	3062A1.D
Volume	200 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.6
t-1,2-Dichloroethene	0.75	0.4
Chloroform	0.75	0.4
1,1,1-Trichloroethane	0.75	126.9
1,2-Dichloroethane	0.75	6.5
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	35.4
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-31-1 P-72
Operator	RUTH	Lab #:	3061A1.D
Volume	200 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	92.7
1,2-Dichloroethane	0.75	4.8
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	26.0
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-31-B P-71
Operator	RUTH	Lab #:	3064A1.D
Volume	200 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.5
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-4-3 P-59
Operator	RUTH	Lab #:	3060A1.D
Volume	200 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.0
t-1,2-Dichloroethene	0.75	98.5
Chloroform	0.75	1.7
1,1,1-Trichloroethane	0.75	1.7
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	71.6
Toluene	0.75	0.0
Tetrachloroethene	0.75	1.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-4-1 P-60
Operator	RUTH	Lab #:	3058A2.D
Volume	106 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.42	0.0
Vinyl Chloride	1.42	0.0
Freon-11	1.42	1.5
c-1,2-Dichloroethene	1.42	0.0
1,1-Dichloroethane	1.42	3.5
t-1,2-Dichloroethene	1.42	105.7
Chloroform	1.42	1.7
1,1,1-Trichloroethane	1.42	1.7
1,2-Dichloroethane	1.42	0.3
Benzene	1.42	0.3
Carbon Tetrachloride	1.42	0.0
Trichloroethene	1.42	522.3
Toluene	1.42	0.2
Tetrachloroethene	1.42	1.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-DR-C-4-2 P-56
Operator RUTH	Lab #: 3059A1.D
Volume 200 ml	Date Ana 04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.4
t-1,2-Dichloroethene	0.75	118.4
Chloroform	0.75	2.1
1,1,1-Trichloroethane	0.75	2.0
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	77.2 *
Toluene	0.75	0.1
Tetrachloroethene	0.75	1.1

* [illegible]

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-DR-C-7-2 P-30
Operator	MILLER	Lab #:	3030B1.D
Volume	21.6 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	0.00
1,1-Dichloroethene	6.94	0.00
Freon-113	6.94	6827.21
Dichloromethane	6.94	19.80
1,1-Dichloroethane	6.94	553.49
1,2-Dichloroethene	6.94	1539.25
Chloroform	6.94	17.16
1,1,1-Trichloroethane	6.94	96.08
1,2-Dichloroethane	6.94	213.72
Benzene	6.94	95.40
Carbon Tetrachloride	6.94	0.62
Trichloroethene	6.94	336.47
Toluene	6.94	1.93
Tetrachloroethene	6.94	63.20

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-7-2 P-27
Operator	MILLER	Lab #:	3039B1.D
Volume	21.6 ml	Date Ana	04/05/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	-1.31
Freon-11	6.94	0.00
1,1-Dichloroethene	6.94	0.00
Freon-113	6.94	7997.68
Dichloromethane	6.94	385.11
1,1-Dichloroethane	6.94	16365.78
1,2-Dichloroethene	6.94	6082.77
Chloroform	6.94	75.07
1,1,1-Trichloroethane	6.94	330.03
1,2-Dichloroethane	6.94	712.52
Benzene	6.94	341.75
Carbon Tetrachloride	6.94	0.00
Trichloroethene	6.94	3742.58
Toluene	6.94	0.00
Tetrachloroethene	6.94	85.67

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-3-2 P-35
Operator	MILLER	Lab #:	3025B1.D
Volume	21.6 ml	Date Ana	04/05/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	0.00
1,1-Dichloroethene	6.94	4.33
Freon-113	6.94	1037.21
Dichloromethane	6.94	20.51
1,1-Dichloroethane	6.94	0.20
1,2-Dichloroethene	6.94	0.00
Chloroform	6.94	0.20
1,1,1-Trichloroethane	6.94	0.00
1,2-Dichloroethane	6.94	0.19
Benzene	6.94	0.00
Carbon Tetrachloride	6.94	3.88
Trichloroethene	6.94	7.80
Toluene	6.94	0.00
Tetrachloroethene	6.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-PC-C-2-2 P-18
Operator	MILLER	Lab #:	3021B1.D
Volume	21.6 ml	Date Ana	04/05/91

Canister	Initial:	700	Final: 700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	27.23
1,1-Dichloroethene	6.94	162.08
Freon-113	6.94	6561.91
Dichloromethane	6.94	16.26
1,1-Dichloroethane	6.94	0.00
1,2-Dichloroethene	6.94	10.94
Chloroform	6.94	1.10
1,1,1-Trichloroethane	6.94	0.00
1,2-Dichloroethane	6.94	0.29
Benzene	6.94	1.05
Carbon Tetrachloride	6.94	69.79
Trichloroethene	6.94	280.64
Toluene	6.94	0.63
Tetrachloroethene	6.94	0.42

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ANALYTICAL RESULTS
April 11, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-B P-86
Operator	MILLER	Lab #:	3076A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.2
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-1 P-87
Operator	MILLER	Lab #:	3080B1.D
Volume	159 ml	Date Ana	04/11/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.00
Vinyl Chloride	0.94	0.00
Freon-11	0.94	0.00
1,1-Dichloroethene	0.94	0.29
Freon-113	0.94	7.49
Dichloromethane	0.94	2.20
1,1-Dichloroethane	0.94	0.00
1,2-Dichloroethene	0.94	0.00
Chloroform	0.94	0.00
1,1,1-Trichloroethane	0.94	0.20
1,2-Dichloroethane	0.94	0.20
Benzene	0.94	0.17
Carbon Tetrachloride	0.94	0.00
Trichloroethene	0.94	0.57
Toluene	0.94	0.11
Tetrachloroethene	0.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-2 P-93
Operator	MILLER	Lab #:	3081B1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.20
Freon-113	0.75	8.90
Dichloromethane	0.75	1.55
1,1-Dichloroethane	0.75	0.07
1,2-Dichloroethene	0.75	0.14
Chloroform	0.75	0.03
1,1,1-Trichloroethane	0.75	0.29
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.05
Trichloroethene	0.75	0.47
Toluene	0.75	0.09
Tetrachloroethene	0.75	0.04

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-3 P-88
Operator	MILLER	Lab #:	3082A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.3
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.4
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	1.0
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-4 P-98
Operator	MILLER	Lab #:	3083A1.D
Volume	159 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	0.0
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	0.0
t-1,2-Dichloroethene	0.94	0.1
Chloroform	0.94	0.0
1,1,1-Trichloroethane	0.94	0.3
1,2-Dichloroethane	0.94	0.0
Benzene	0.94	0.0
Carbon Tetrachloride	0.94	0.0
Trichloroethene	0.94	1.7
Toluene	0.94	0.2
Tetrachloroethene	0.94	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-1 P-82
Operator	MILLER	Lab #:	3073A1.D
Volume	116 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.29	0.0
Vinyl Chloride	1.29	0.0
Freon-11	1.29	2.7
c-1,2-Dichloroethene	1.29	0.0
1,1-Dichloroethane	1.29	2.6
t-1,2-Dichloroethene	1.29	122.8
Chloroform	1.29	1.6
1,1,1-Trichloroethane	1.29	1.7
1,2-Dichloroethane	1.29	0.3
Benzene	1.29	0.4
Carbon Tetrachloride	1.29	0.0
Trichloroethene	1.29	106.0
Toluene	1.29	0.3
Tetrachloroethene	1.29	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-3 P-85
Operator	MILLER	Lab #:	3088A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.6
t-1,2-Dichloroethene	0.75	0.4
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.4
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	4.0
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-2 P-77
Operator	MILLER	Lab #:	3074A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.0
t-1,2-Dichloroethene	0.75	101.9
Chloroform	0.75	1.3
1,1,1-Trichloroethane	0.75	1.4
1,2-Dichloroethane	0.75	0.4
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	0.0
Toluene	0.75	0.4
Tetrachloroethene	0.75	1.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-4 P-75
Operator	MILLER	Lab #:	3079B1.D
Volume	21.6 ml	Date Ana	04/11/91

Canister		Initial:	881	Final:	1064

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	429.61
1,1-Dichloroethene	6.94	3038.50
Freon-113	6.94	411.78
Dichloromethane	6.94	41.38
1,1-Dichloroethane	6.94	0.00
1,2-Dichloroethene	6.94	0.00
Chloroform	6.94	0.41
1,1,1-Trichloroethane	6.94	4.68
1,2-Dichloroethane	6.94	1.24
Benzene	6.94	0.17
Carbon Tetrachloride	6.94	27.56
Trichloroethene	6.94	33.31
Toluene	6.94	0.12
Tetrachloroethene	6.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-4 P-75
Operator	MILLER	Lab #:	3079A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	881 Final:	1064

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	135.8
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.3
t-1,2-Dichloroethene	0.75	0.3
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.7
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	20.7
Trichloroethene	0.75	25.9
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.4

Environmental Analytical Service
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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-3 P-96
Operator	MILLER	Lab #:	3078A1.D
Volume	200 ml	Date Ana	04/11/91

Canister		Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	188.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.4
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	19.6
Trichloroethene	0.75	24.2
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-2 P-74
Operator	RUTH	Lab #:	3077A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	102.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.3
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.1
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	19.1
Trichloroethene	0.75	22.3
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-3 P-91
Operator	RUTH	Lab #:	3075A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	2.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.0
t-1,2-Dichloroethene	0.75	236.7
Chloroform	0.75	1.8
1,1,1-Trichloroethane	0.75	2.5
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	126.4
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-B P-81
Operator	RUTH	Lab #:	3069A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-6-3 P-66
Operator	RUTH	Lab #:	3067A1.D
Volume	104 ml	Date Ana	04/11/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.44	0.0
Vinyl Chloride	1.44	0.0
Freon-11	1.44	3.0
c-1,2-Dichloroethene	1.44	0.0
1,1-Dichloroethane	1.44	0.3
t-1,2-Dichloroethene	1.44	3.8
Chloroform	1.44	0.3
1,1,1-Trichloroethane	1.44	0.2
1,2-Dichloroethane	1.44	0.0
Benzene	1.44	0.2
Carbon Tetrachloride	1.44	0.0
Trichloroethene	1.44	46.2
Toluene	1.44	0.0
Tetrachloroethene	1.44	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-2 P-93
Operator	MILLER	Lab #:	3081B1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.20
Freon-113	0.75	8.90
Dichloromethane	0.75	1.55
1,1-Dichloroethane	0.75	0.07
1,2-Dichloroethene	0.75	0.14
Chloroform	0.75	0.03
1,1,1-Trichloroethane	0.75	0.29
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.05
Trichloroethene	0.75	0.47
Toluene	0.75	0.09
Tetrachloroethene	0.75	0.04

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-3 P-88
Operator	MILLER	Lab #:	3082A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.3
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.4
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	1.0
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-AC-C-4-B P-86
Operator MILLER	Lab #: 3076A1.D
Volume 200 ml	Date Ana 04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.2
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-1 P-87
Operator	MILLER	Lab #:	3080B1.D
Volume	159 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.00
Vinyl Chloride	0.94	0.00
Freon-11	0.94	0.00
1,1-Dichloroethene	0.94	0.29
Freon-113	0.94	7.49
Dichloromethane	0.94	2.20
1,1-Dichloroethane	0.94	0.00
1,2-Dichloroethene	0.94	0.00
Chloroform	0.94	0.00
1,1,1-Trichloroethane	0.94	0.20
1,2-Dichloroethane	0.94	0.20
Benzene	0.94	0.17
Carbon Tetrachloride	0.94	0.00
Trichloroethene	0.94	0.57
Toluene	0.94	0.11
Tetrachloroethene	0.94	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-4 P-75
Operator	MILLER	Lab #:	3079A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	881 Final:	1064

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	135.8
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.3
t-1,2-Dichloroethene	0.75	0.3
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.7
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	20.7
Trichloroethene	0.75	25.9
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-3 P-96
Operator	MILLER	Lab #:	3078A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	188.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.4
1,2-Dichloroethane	0.75	0.3
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	19.6
Trichloroethene	0.75	24.2
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-2 P-74
Operator	RUTH	Lab #:	3077A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	102.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.2
t-1,2-Dichloroethene	0.75	0.3
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	3.1
1,2-Dichloroethane	0.75	0.2
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	19.1
Trichloroethene	0.75	22.3
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-3 P-91
Operator	RUTH	Lab #:	3075A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	2.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.0
t-1,2-Dichloroethene	0.75	236.7
Chloroform	0.75	1.8
1,1,1-Trichloroethane	0.75	2.5
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	126.4
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-5-B P-81
Operator	RUTH	Lab #:	3069A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.0
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.0
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.0
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	0.1
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-6-3 P-66
Operator	RUTH	Lab #:	3067A1.D
Volume	104 ml	Date Ana	04/11/91

Canister	Initial:	700	Final: 700

Compound	MDL	Concentration ppbv
Freon-12	1.44	0.0
Vinyl Chloride	1.44	0.0
Freon-11	1.44	3.0
c-1,2-Dichloroethene	1.44	0.0
1,1-Dichloroethane	1.44	0.3
t-1,2-Dichloroethene	1.44	3.8
Chloroform	1.44	0.3
1,1,1-Trichloroethane	1.44	0.2
1,2-Dichloroethane	1.44	0.0
Benzene	1.44	0.2
Carbon Tetrachloride	1.44	0.0
Trichloroethene	1.44	46.2
Toluene	1.44	0.0
Tetrachloroethene	1.44	0.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-43-4 P-98
Operator	MILLER	Lab #:	3083A1.D
Volume	159 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	0.0
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	0.0
t-1,2-Dichloroethene	0.94	0.1
Chloroform	0.94	0.0
1,1,1-Trichloroethane	0.94	0.3
1,2-Dichloroethane	0.94	0.0
Benzene	0.94	0.0
Carbon Tetrachloride	0.94	0.0
Trichloroethene	0.94	1.7
Toluene	0.94	0.2
Tetrachloroethene	0.94	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-1 P-82
Operator	MILLER	Lab #:	3073A1.D
Volume	116 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.29	0.0
Vinyl Chloride	1.29	0.0
Freon-11	1.29	2.7
c-1,2-Dichloroethene	1.29	0.0
1,1-Dichloroethane	1.29	2.6
t-1,2-Dichloroethene	1.29	122.8
Chloroform	1.29	1.6
1,1,1-Trichloroethane	1.29	1.7
1,2-Dichloroethane	1.29	0.3
Benzene	1.29	0.4
Carbon Tetrachloride	1.29	0.0
Trichloroethene	1.29	106.0
Toluene	1.29	0.3
Tetrachloroethene	1.29	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-3 P-85
Operator	MILLER	Lab #:	3088A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.6
t-1,2-Dichloroethene	0.75	0.4
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	0.4
1,2-Dichloroethane	0.75	0.0
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	4.0
Toluene	0.75	0.2
Tetrachloroethene	0.75	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-AC-C-4-2 P-77
Operator	MILLER	Lab #:	3074A1.D
Volume	200 ml	Date Ana	04/11/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.0
t-1,2-Dichloroethene	0.75	101.9
Chloroform	0.75	1.3
1,1,1-Trichloroethane	0.75	1.4
1,2-Dichloroethane	0.75	0.4
Benzene	0.75	0.4
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	0.0
Toluene	0.75	0.4
Tetrachloroethene	0.75	1.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location MW-HDR-C-1-4 P-75
Operator MILLER	Lab #: 3079B1.D
Volume 21.6 ml	Date Ana 04/11/91

Canister	Initial:	881 Final:	1064

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.00
Vinyl Chloride	6.94	0.00
Freon-11	6.94	429.61
1,1-Dichloroethene	6.94	3038.50
Freon-113	6.94	411.78
Dichloromethane	6.94	41.38
1,1-Dichloroethane	6.94	0.00
1,2-Dichloroethene	6.94	0.00
Chloroform	6.94	0.41
1,1,1-Trichloroethane	6.94	4.68
1,2-Dichloroethane	6.94	1.24
Benzene	6.94	0.17
Carbon Tetrachloride	6.94	27.56
Trichloroethene	6.94	33.31
Toluene	6.94	0.12
Tetrachloroethene	6.94	0.00

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ANALYTICAL RESULTS

April 12, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-2 P-84
Operator	MILLER	Lab #:	3086B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	1.02
Freon-113	0.75	6.95
Dichloromethane	0.75	0.50
1,1-Dichloroethane	0.75	0.51
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.08
1,1,1-Trichloroethane	0.75	0.28
1,2-Dichloroethane	0.75	0.07
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.08
Trichloroethene	0.75	0.70
Toluene	0.75	0.02
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-HDR-C-9-1 P-94
Operator	MILLER	Lab #:	3106A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	47.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.8
t-1,2-Dichloroethene	0.75	0.7
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	18.5
1,2-Dichloroethane	0.75	1.2
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	48.1
Toluene	0.75	0.2
Tetrachloroethene	0.75	1.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-HDR-C-7-4 P-10
Operator	MILLER	Lab #:	3115A1.D
Volume	100 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.50	0.0
Vinyl Chloride	1.50	0.0
Freon-11	1.50	502.0
c-1,2-Dichloroethene	1.50	0.0
1,1-Dichloroethane	1.50	4490.3
t-1,2-Dichloroethene	1.50	4128.7
Chloroform	1.50	36.8
1,1,1-Trichloroethane	1.50	224.4
1,2-Dichloroethane	1.50	480.4
Benzene	1.50	203.6
Carbon Tetrachloride	1.50	1.5
Trichloroethene	1.50	1389.3
Toluene	1.50	5.0
Tetrachloroethene	1.50	150.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-61-B
Operator	LONGACRE	Lab #:	3098B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.68
Freon-113	0.75	0.48
Dichloromethane	0.75	1.44
1,1-Dichloroethane	0.75	0.04
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.06
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.44
Toluene	0.75	0.06
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-B
Operator	LONGACRE	Lab #:	120B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.08
Vinyl Chloride	0.75	0.09
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	2.46
Freon-113	0.75	1.59
Dichloromethane	0.75	2.17
1,1-Dichloroethane	0.75	0.12
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.85
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.10
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.66
Toluene	0.75	0.10
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-3 P-10
Operator	MILLER	Lab #:	3113A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.9
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	106.2
1,2-Dichloroethane	0.75	5.7
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	44.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	1.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-2 P-10
Operator	MILLER	Lab #:	3112A1.D
Volume	159 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	0.1
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	1.3
t-1,2-Dichloroethene	0.94	0.4
Chloroform	0.94	0.3
1,1,1-Trichloroethane	0.94	141.4
1,2-Dichloroethane	0.94	7.6
Benzene	0.94	0.3
Carbon Tetrachloride	0.94	0.1
Trichloroethene	0.94	62.7
Toluene	0.94	0.0
Tetrachloroethene	0.94	1.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-35-4 P-11
Operator	MILLER	Lab #:	3109B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.00
Freon-113	0.75	106.17
Dichloromethane	0.75	2.59
1,1-Dichloroethane	0.75	2.38
1,2-Dichloroethene	0.75	0.39
Chloroform	0.75	0.55
1,1,1-Trichloroethane	0.75	145.59
1,2-Dichloroethane	0.75	8.13
Benzene	0.75	0.29
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	68.00
Toluene	0.75	0.08
Tetrachloroethene	0.75	2.25

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-35-5 P-11
Operator	MILLER	Lab #:	3111A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.5
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.3
1,1,1-Trichloroethane	0.75	133.4
1,2-Dichloroethane	0.75	7.4
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	67.8
Toluene	0.75	0.0
Tetrachloroethene	0.75	2.1

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Close Support Laboratory, CH2M Hill
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EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-1 P-10
Operator	MILLER	Lab #:	3110A1.D
Volume	190 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	0.0
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	0.5
t-1,2-Dichloroethene	0.79	0.2
Chloroform	0.79	0.1
1,1,1-Trichloroethane	0.79	125.7
1,2-Dichloroethane	0.79	6.9
Benzene	0.79	0.2
Carbon Tetrachloride	0.79	0.1
Trichloroethene	0.79	61.4
Toluene	0.79	0.1
Tetrachloroethene	0.79	1.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-3 P-11
Operator	MILLER	Lab #:	3119B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	15.82
Freon-113	0.75	25.79
Dichloromethane	0.75	1.20
1,1-Dichloroethane	0.75	0.43
1,2-Dichloroethene	0.75	0.10
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	21.00
1,2-Dichloroethane	0.75	1.30
Benzene	0.75	0.07
Carbon Tetrachloride	0.75	0.07
Trichloroethene	0.75	7.85
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.19

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-3 P-12
Operator	MILLER	Lab #:	3104B1.D
Volume	137 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.09	0.00
Vinyl Chloride	1.09	0.16
Freon-11	1.09	0.00
1,1-Dichloroethene	1.09	160.06
Freon-113	1.09	123.43
Dichloromethane	1.09	4.29
1,1-Dichloroethane	1.09	1.74
1,2-Dichloroethene	1.09	0.63
Chloroform	1.09	0.35
1,1,1-Trichloroethane	1.09	207.23
1,2-Dichloroethane	1.09	12.20
Benzene	1.09	0.43
Carbon Tetrachloride	1.09	0.12
Trichloroethene	1.09	71.49
Toluene	1.09	0.00
Tetrachloroethene	1.09	1.16

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-B P-12
Operator	MILLER	Lab #:	3101A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.07
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	4.08
Freon-113	0.75	3.14
Dichloromethane	0.75	1.61
1,1-Dichloroethane	0.75	1.14
1,2-Dichloroethene	0.75	1.79
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	5.87
1,2-Dichloroethane	0.75	0.41
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	1.13
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.07

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-1 P-12
Operator	MILLER	Lab #:	3102A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.6
1,1,1-Trichloroethane	0.75	308.1
1,2-Dichloroethane	0.75	17.9
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	110.0
Toluene	0.75	0.3
Tetrachloroethene	0.75	2.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-2 P-11
Operator	MILLER	Lab #:	3103A1.D
Volume	180 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.83	0.0
Vinyl Chloride	0.83	0.0
Freon-11	0.83	0.2
c-1,2-Dichloroethene	0.83	0.0
1,1-Dichloroethane	0.83	1.6
t-1,2-Dichloroethene	0.83	0.4
Chloroform	0.83	0.3
1,1,1-Trichloroethane	0.83	217.9
1,2-Dichloroethane	0.83	13.6
Benzene	0.83	0.4
Carbon Tetrachloride	0.83	0.1
Trichloroethene	0.83	87.2
Toluene	0.83	0.0
Tetrachloroethene	0.83	2.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-43-B P-83
Operator	MILLER	Lab #:	3087B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.17
Freon-11	0.75	0.03
1,1-Dichloroethene	0.75	1.00
Freon-113	0.75	3.59
Dichloromethane	0.75	1.83
1,1-Dichloroethane	0.75	0.00
1,2-Dichloroethene	0.75	0.06
Chloroform	0.75	0.03
1,1,1-Trichloroethane	0.75	0.00
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.06
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.37
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-B P-78
Operator	MILLER	Lab #:	3084B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.06
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.10
1,1-Dichloroethene	0.75	2.12
Freon-113	0.75	90.76
Dichloromethane	0.75	1.63
1,1-Dichloroethane	0.75	0.00
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.00
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.04
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.49
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-5 P-92
Operator	MILLER	Lab #:	3089A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	237.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.3
t-1,2-Dichloroethene	0.75	0.8
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	6.3
1,2-Dichloroethane	0.75	0.5
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	29.8
Trichloroethene	0.75	19.7
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-1 P-80
Operator	MILLER	Lab #:	3085A1.D
Volume	190 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	0.1
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	0.5
t-1,2-Dichloroethene	0.79	0.2
Chloroform	0.79	0.1
1,1,1-Trichloroethane	0.79	0.2
1,2-Dichloroethane	0.79	0.2
Benzene	0.79	0.1
Carbon Tetrachloride	0.79	0.0
Trichloroethene	0.79	3.0
Toluene	0.79	0.0
Tetrachloroethene	0.79	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-6 P-97
Operator	MILLER	Lab #:	3090B1.D
Volume	21.6 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.0
Vinyl Chloride	6.94	0.0
Freon-11	6.94	468.6
1,1-Dichloroethene	6.94	7554.2
Freon-113	6.94	806.1
t-1,2-Dichloroethene	6.94	37.2
1,2-Dichloroethene	6.94	0.0
Bromochloromethane	6.94	9.3
Chloroform	6.94	0.0
1,1,1-Trichloroethane	6.94	5.3
1,2-Dichloroethane	6.94	0.0
Carbon Tetrachloride	6.94	28.9
1,4-Difluorobenzene	6.94	9.3
Trichloroethene	6.94	47.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-6 P-97
Operator	MILLER	Lab #:	3090A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.5
t-1,2-Dichloroethene	0.75	1.9
Chloroform	0.75	0.3
1,1,1-Trichloroethane	0.75	3.6
1,2-Dichloroethane	0.75	0.6
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	20.3
Trichloroethene	0.75	53.7
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-7-1 P-89
Operator	MILLER	Lab #:	3091A1.D
Volume	128 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.17	0.0
Vinyl Chloride	1.17	0.0
Freon-11	1.17	7717.9
c-1,2-Dichloroethene	1.17	0.0
1,1-Dichloroethane	1.17	125805.8
t-1,2-Dichloroethene	1.17	4029.5
Chloroform	1.17	769.7
1,1,1-Trichloroethane	1.17	265.3
1,2-Dichloroethane	1.17	581.1
Benzene	1.17	249.4
Carbon Tetrachloride	1.17	2.3
Trichloroethene	1.17	2981.0
Toluene	1.17	5.9
Tetrachloroethene	1.17	131.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-B P-10
Operator	MILLER	Lab #:	3108B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.03
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.41
Freon-113	0.75	0.40
Dichloromethane	0.75	1.78
1,1-Dichloroethane	0.75	0.05
1,2-Dichloroethene	0.75	0.08
Chloroform	0.75	0.02
1,1,1-Trichloroethane	0.75	0.11
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.02
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.16
Toluene	0.75	0.08
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-B P-10
Operator	MILLER	Lab #:	3108B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.03
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.41
Freon-113	0.75	0.40
Dichloromethane	0.75	1.78
1,1-Dichloroethane	0.75	0.05
1,2-Dichloroethene	0.75	0.08
Chloroform	0.75	0.02
1,1,1-Trichloroethane	0.75	0.11
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.02
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.16
Toluene	0.75	0.08
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-3 P-10
Operator	MILLER	Lab #:	3113A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.9
t-1,2-Dichloroethene	0.75	0.2
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	106.2
1,2-Dichloroethane	0.75	5.7
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	44.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	1.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-2 P-10
Operator	MILLER	Lab #:	3112A1.D
Volume	159 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	0.1
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	1.3
t-1,2-Dichloroethene	0.94	0.4
Chloroform	0.94	0.3
1,1,1-Trichloroethane	0.94	141.4
1,2-Dichloroethane	0.94	7.6
Benzene	0.94	0.3
Carbon Tetrachloride	0.94	0.1
Trichloroethene	0.94	62.7
Toluene	0.94	0.0
Tetrachloroethene	0.94	1.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-35-4 P-11
Operator	MILLER	Lab #:	3109B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700	Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.00
Freon-113	0.75	106.17
Dichloromethane	0.75	2.59
1,1-Dichloroethane	0.75	2.38
1,2-Dichloroethene	0.75	0.39
Chloroform	0.75	0.55
1,1,1-Trichloroethane	0.75	145.59
1,2-Dichloroethane	0.75	8.13
Benzene	0.75	0.29
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	68.00
Toluene	0.75	0.08
Tetrachloroethene	0.75	2.25

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-35-5 P-11
Operator	MILLER	Lab #:	3111A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.5
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.3
1,1,1-Trichloroethane	0.75	133.4
1,2-Dichloroethane	0.75	7.4
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	67.8
Toluene	0.75	0.0
Tetrachloroethene	0.75	2.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-35-1 P-10
Operator	MILLER	Lab #:	3110A1.D
Volume	190 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	0.0
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	0.5
t-1,2-Dichloroethene	0.79	0.2
Chloroform	0.79	0.1
1,1,1-Trichloroethane	0.79	125.7
1,2-Dichloroethane	0.79	6.9
Benzene	0.79	0.2
Carbon Tetrachloride	0.79	0.1
Trichloroethene	0.79	61.4
Toluene	0.79	0.1
Tetrachloroethene	0.79	1.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-3 P-11
Operator	MILLER	Lab #:	3119B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	15.82
Freon-113	0.75	25.79
Dichloromethane	0.75	1.20
1,1-Dichloroethane	0.75	0.43
1,2-Dichloroethene	0.75	0.10
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	21.00
1,2-Dichloroethane	0.75	1.30
Benzene	0.75	0.07
Carbon Tetrachloride	0.75	0.07
Trichloroethene	0.75	7.85
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.19

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-3 P-12
Operator	MILLER	Lab #:	3104B1.D
Volume	137 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.09	0.00
Vinyl Chloride	1.09	0.16
Freon-11	1.09	0.00
1,1-Dichloroethene	1.09	160.06
Freon-113	1.09	123.43
Dichloromethane	1.09	4.29
1,1-Dichloroethane	1.09	1.74
1,2-Dichloroethene	1.09	0.63
Chloroform	1.09	0.35
1,1,1-Trichloroethane	1.09	207.23
1,2-Dichloroethane	1.09	12.20
Benzene	1.09	0.43
Carbon Tetrachloride	1.09	0.12
Trichloroethene	1.09	71.49
Toluene	1.09	0.00
Tetrachloroethene	1.09	1.16

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-B P-12
Operator	MILLER	Lab #:	3101A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.07
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	4.08
Freon-113	0.75	3.14
Dichloromethane	0.75	1.61
1,1-Dichloroethane	0.75	1.14
1,2-Dichloroethene	0.75	1.79
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	5.87
1,2-Dichloroethane	0.75	0.41
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	1.13
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.07

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-1 P-12
Operator	MILLER	Lab #:	3102A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.9
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.1
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.6
1,1,1-Trichloroethane	0.75	308.1
1,2-Dichloroethane	0.75	17.9
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	110.0
Toluene	0.75	0.3
Tetrachloroethene	0.75	2.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-34-2 P-11
Operator	MILLER	Lab #:	3103A1.D
Volume	180 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.83	0.0
Vinyl Chloride	0.83	0.0
Freon-11	0.83	0.2
c-1,2-Dichloroethene	0.83	0.0
1,1-Dichloroethane	0.83	1.6
t-1,2-Dichloroethene	0.83	0.4
Chloroform	0.83	0.3
1,1,1-Trichloroethane	0.83	217.9
1,2-Dichloroethane	0.83	13.6
Benzene	0.83	0.4
Carbon Tetrachloride	0.83	0.1
Trichloroethene	0.83	87.2
Toluene	0.83	0.0
Tetrachloroethene	0.83	2.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-43-B P-83
Operator	MILLER	Lab #:	3087B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.17
Freon-11	0.75	0.03
1,1-Dichloroethene	0.75	1.00
Freon-113	0.75	3.59
Dichloromethane	0.75	1.83
1,1-Dichloroethane	0.75	0.00
1,2-Dichloroethene	0.75	0.06
Chloroform	0.75	0.03
1,1,1-Trichloroethane	0.75	0.00
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.06
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.37
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-2 P-84
Operator	MILLER	Lab #:	3086B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	1.02
Freon-113	0.75	6.95
Dichloromethane	0.75	0.50
1,1-Dichloroethane	0.75	0.51
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.08
1,1,1-Trichloroethane	0.75	0.28
1,2-Dichloroethane	0.75	0.07
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.08
Trichloroethene	0.75	0.70
Toluene	0.75	0.02
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location VR-HDR-C-9-1 P-94
Operator MILLER	Lab #: 3106A1.D
Volume 200 ml	Date Ana 04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	47.7
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1.8
t-1,2-Dichloroethene	0.75	0.7
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	18.5
1,2-Dichloroethane	0.75	1.2
Benzene	0.75	0.5
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	48.1
Toluene	0.75	0.2
Tetrachloroethene	0.75	1.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-HDR-C-7-4 P-10
Operator	MILLER	Lab #:	3115A1.D
Volume	100 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.50	0.0
Vinyl Chloride	1.50	0.0
Freon-11	1.50	502.0
c-1,2-Dichloroethene	1.50	0.0
1,1-Dichloroethane	1.50	4490.3
t-1,2-Dichloroethene	1.50	4128.7
Chloroform	1.50	36.8
1,1,1-Trichloroethane	1.50	224.4
1,2-Dichloroethane	1.50	480.4
Benzene	1.50	203.6
Carbon Tetrachloride	1.50	1.5
Trichloroethene	1.50	1389.3
Toluene	1.50	5.0
Tetrachloroethene	1.50	150.8

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-61-B
Operator	LONGACRE	Lab #:	3098B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	0.68
Freon-113	0.75	0.48
Dichloromethane	0.75	1.44
1,1-Dichloroethane	0.75	0.04
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.06
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.00
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.44
Toluene	0.75	0.06
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-B
Operator	LONGACRE	Lab #:	120B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700	Final: 700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.08
Vinyl Chloride	0.75	0.09
Freon-11	0.75	0.00
1,1-Dichloroethene	0.75	2.46
Freon-113	0.75	1.59
Dichloromethane	0.75	2.17
1,1-Dichloroethane	0.75	0.12
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.85
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.10
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.66
Toluene	0.75	0.10
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-B P-78
Operator	MILLER	Lab #:	3084B1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.06
Vinyl Chloride	0.75	0.00
Freon-11	0.75	0.10
1,1-Dichloroethene	0.75	2.12
Freon-113	0.75	90.76
Dichloromethane	0.75	1.63
1,1-Dichloroethane	0.75	0.00
1,2-Dichloroethene	0.75	0.00
Chloroform	0.75	0.00
1,1,1-Trichloroethane	0.75	0.00
1,2-Dichloroethane	0.75	0.00
Benzene	0.75	0.04
Carbon Tetrachloride	0.75	0.00
Trichloroethene	0.75	0.49
Toluene	0.75	0.00
Tetrachloroethene	0.75	0.00

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-5 P-92
Operator	MILLER	Lab #:	3089A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	237.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.3
t-1,2-Dichloroethene	0.75	0.8
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	6.3
1,2-Dichloroethane	0.75	0.5
Benzene	0.75	0.3
Carbon Tetrachloride	0.75	29.8
Trichloroethene	0.75	19.7
Toluene	0.75	0.3
Tetrachloroethene	0.75	0.0

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-44-1 P-80
Operator	MILLER	Lab #:	3085A1.D
Volume	190 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	0.1
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	0.5
t-1,2-Dichloroethene	0.79	0.2
Chloroform	0.79	0.1
1,1,1-Trichloroethane	0.79	0.2
1,2-Dichloroethane	0.79	0.2
Benzene	0.79	0.1
Carbon Tetrachloride	0.79	0.0
Trichloroethene	0.79	3.0
Toluene	0.79	0.0
Tetrachloroethene	0.79	0.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-6 P-97
Operator	MILLER	Lab #:	3090B1.D
Volume	21.6 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.0
Vinyl Chloride	6.94	0.0
Freon-11	6.94	468.6
1,1-Dichloroethene	6.94	7554.2
Freon-113	6.94	806.1
t-1,2-Dichloroethene	6.94	37.2
1,2-Dichloroethene	6.94	0.0
Bromochloromethane	6.94	9.3
Chloroform	6.94	0.0
1,1,1-Trichloroethane	6.94	5.3
1,2-Dichloroethane	6.94	0.0
Carbon Tetrachloride	6.94	28.9
1,4-Difluorobenzene	6.94	9.3
Trichloroethene	6.94	47.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-1-6 P-97
Operator	MILLER	Lab #:	3090A1.D
Volume	200 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.0
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.5
t-1,2-Dichloroethene	0.75	1.9
Chloroform	0.75	0.3
1,1,1-Trichloroethane	0.75	3.6
1,2-Dichloroethane	0.75	0.6
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	20.3
Trichloroethene	0.75	53.7
Toluene	0.75	0.1
Tetrachloroethene	0.75	0.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-7-1 P-89
Operator	MILLER	Lab #:	3091A1.D
Volume	128 ml	Date Ana	04/12/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.17	0.0
Vinyl Chloride	1.17	0.0
Freon-11	1.17	7717.9
c-1,2-Dichloroethene	1.17	0.0
1,1-Dichloroethane	1.17	125805.8
t-1,2-Dichloroethene	1.17	4029.5
Chloroform	1.17	769.7
1,1,1-Trichloroethane	1.17	265.3
1,2-Dichloroethane	1.17	581.1
Benzene	1.17	249.4
Carbon Tetrachloride	1.17	2.3
Trichloroethene	1.17	2981.0
Toluene	1.17	5.9
Tetrachloroethene	1.17	131.3

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ANALYTICAL RESULTS

April 13, 1991

VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-36-5 P125
Operator	MILLER	Lab #:	3126A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.4
Freon-11	0.75	0.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.7
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	146.7
1,2-Dichloroethane	0.75	9.8
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	56.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	2.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR--AC-C-36-1 P11
Operator	MILLER	Lab #:	3122A1.D
Volume	21.6 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.0
Vinyl Chloride	6.94	0.0
Freon-11	6.94	2.9
c-1,2-Dichloroethene	6.94	0.0
1,1-Dichloroethane	6.94	17.2
t-1,2-Dichloroethene	6.94	8.6
Chloroform	6.94	1.5
1,1,1-Trichloroethane	6.94	252.8
1,2-Dichloroethane	6.94	20.3
Benzene	6.94	1.1
Carbon Tetrachloride	6.94	0.0
Trichloroethene	6.94	199.6
Toluene	6.94	0.0
Tetrachloroethene	6.94	3.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-1 P128
Operator	MILLER	Lab #:	3117A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.4
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	37.3
1,2-Dichloroethane	0.75	2.4
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	11.5
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-2 P126
Operator	MILLER	Lab #:	3118A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.7
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	30.0
1,2-Dichloroethane	0.75	1.8
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	10.3
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-61-1
Operator	MILLER	Lab #:	3099A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	243.4
t-1,2-Dichloroethene	0.75	444.3
Chloroform	0.75	1.1
1,1,1-Trichloroethane	0.75	103.1
1,2-Dichloroethane	0.75	7.0
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.2
Trichloroethene	0.75	184.2
Toluene	0.75	0.0
Tetrachloroethene	0.75	34.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-61-2 P116
Operator	MILLER	Lab #:	3092A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	218.6
t-1,2-Dichloroethene	0.75	422.9
Chloroform	0.75	1.2
1,1,1-Trichloroethane	0.75	39.7
1,2-Dichloroethane	0.75	13.5
Benzene	0.75	1.0
Carbon Tetrachloride	0.75	0.3
Trichloroethene	0.75	215.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	22.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-36-3
Operator	MILLER	Lab #:	3124A1.D
Volume	220 ml	Date Ana	04/13/91

Canister	Initial:	640	Final:	1095

Compound	MDL	Concentration ppbv
Freon-12	0.68	0.0
Vinyl Chloride	0.68	0.0
Freon-11	0.68	0.0
c-1,2-Dichloroethene	0.68	0.0
1,1-Dichloroethane	0.68	2.5
t-1,2-Dichloroethene	0.68	0.6
Chloroform	0.68	0.5
1,1,1-Trichloroethane	0.68	156.0
1,2-Dichloroethane	0.68	10.5
Benzene	0.68	0.3
Carbon Tetrachloride	0.68	0.0
Trichloroethene	0.68	62.1
Toluene	0.68	0.1
Tetrachloroethene	0.68	1.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-9-2 P117
Operator	MILLER	Lab #:	3107B1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	54.85
1,1-Dichloroethene	0.75	0.00
Freon-113	0.75	306.00
Dichloromethane	0.75	6.42
1,1-Dichloroethane	0.75	1.40
1,2-Dichloroethene	0.75	0.55
Chloroform	0.75	0.53
1,1,1-Trichloroethane	0.75	16.11
1,2-Dichloroethane	0.75	1.22
Benzene	0.75	0.24
Carbon Tetrachloride	0.75	0.57
Trichloroethene	0.75	40.41
Toluene	0.75	0.10
Tetrachloroethene	0.75	1.80

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-7-3 P10
Operator	MILLER	Lab #:	3114A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	140.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1905.3
t-1,2-Dichloroethene	0.75	1005.9
Chloroform	0.75	16.2
1,1,1-Trichloroethane	0.75	64.2
1,2-Dichloroethane	0.75	168.5
Benzene	0.75	59.4
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	121.1
Toluene	0.75	2.0
Tetrachloroethene	0.75	48.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-36-2
Operator	MILLER	Lab #:	3123A1.D
Volume	149 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.01	0.0
Vinyl Chloride	1.01	0.7
Freon-11	1.01	0.9
c-1,2-Dichloroethene	1.01	0.0
1,1-Dichloroethane	1.01	3.6
t-1,2-Dichloroethene	1.01	1.7
Chloroform	1.01	0.6
1,1,1-Trichloroethane	1.01	118.0
1,2-Dichloroethane	1.01	8.2
Benzene	1.01	0.5
Carbon Tetrachloride	1.01	0.0
Trichloroethene	1.01	49.3
Toluene	1.01	0.0
Tetrachloroethene	1.01	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-9-3 P12
Operator	MILLER	Lab #:	3116A1.D
Volume	190 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	35.1
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	317.4
t-1,2-Dichloroethene	0.79	400.6
Chloroform	0.79	5.8
1,1,1-Trichloroethane	0.79	42.3
1,2-Dichloroethane	0.79	72.4
Benzene	0.79	24.8
Carbon Tetrachloride	0.79	0.8
Trichloroethene	0.79	110.2
Toluene	0.79	0.7
Tetrachloroethene	0.79	21.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-9-4 P11
Operator	MILLER	Lab #:	3127A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	14.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.9
t-1,2-Dichloroethene	0.75	3.9
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	16.1
1,2-Dichloroethane	0.75	2.2
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	153.8
Toluene	0.75	0.1
Tetrachloroethene	0.75	2.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-7-2
Operator	MILLER	Lab #:	3105A1.D
Volume	159 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	104.7
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	3493.6
t-1,2-Dichloroethene	0.94	3415.7
Chloroform	0.94	29.2
1,1,1-Trichloroethane	0.94	180.6
1,2-Dichloroethane	0.94	441.6
Benzene	0.94	152.9
Carbon Tetrachloride	0.94	0.0
Trichloroethene	0.94	1523.2
Toluene	0.94	2.8
Tetrachloroethene	0.94	80.5

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-PC-C-36-5 P125
Operator	MILLER	Lab #:	3126A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.4
Freon-11	0.75	0.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	2.7
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.0
1,1,1-Trichloroethane	0.75	146.7
1,2-Dichloroethane	0.75	9.8
Benzene	0.75	0.2
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	56.9
Toluene	0.75	0.0
Tetrachloroethene	0.75	2.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR--AC-C-36-1 P11
Operator	MILLER	Lab #:	3122A1.D
Volume	21.6 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	6.94	0.0
Vinyl Chloride	6.94	0.0
Freon-11	6.94	2.9
c-1,2-Dichloroethene	6.94	0.0
1,1-Dichloroethane	6.94	17.2
t-1,2-Dichloroethene	6.94	8.6
Chloroform	6.94	1.5
1,1,1-Trichloroethane	6.94	252.8
1,2-Dichloroethane	6.94	20.3
Benzene	6.94	1.1
Carbon Tetrachloride	6.94	0.0
Trichloroethene	6.94	199.6
Toluene	6.94	0.0
Tetrachloroethene	6.94	3.6

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-1 P128
Operator	MILLER	Lab #:	3117A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.1
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.4
t-1,2-Dichloroethene	0.75	0.0
Chloroform	0.75	0.1
1,1,1-Trichloroethane	0.75	37.3
1,2-Dichloroethane	0.75	2.4
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.1
Trichloroethene	0.75	11.5
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-39-2 P126
Operator	MILLER	Lab #:	3118A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.1
Freon-11	0.75	0.3
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	0.7
t-1,2-Dichloroethene	0.75	0.1
Chloroform	0.75	0.2
1,1,1-Trichloroethane	0.75	30.0
1,2-Dichloroethane	0.75	1.8
Benzene	0.75	0.1
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	10.3
Toluene	0.75	0.0
Tetrachloroethene	0.75	0.4

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-61-2 P116
Operator	MILLER	Lab #:	3092A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	1.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	218.6
t-1,2-Dichloroethene	0.75	422.9
Chloroform	0.75	1.2
1,1,1-Trichloroethane	0.75	39.7
1,2-Dichloroethane	0.75	13.5
Benzene	0.75	1.0
Carbon Tetrachloride	0.75	0.3
Trichloroethene	0.75	215.4
Toluene	0.75	0.1
Tetrachloroethene	0.75	22.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client: CH2M HILL	Location VR-AC-C-61-1
Operator MILLER	Lab #: 3099A1.D
Volume 200 ml	Date Ana 04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	0.5
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	243.4
t-1,2-Dichloroethene	0.75	444.3
Chloroform	0.75	1.1
1,1,1-Trichloroethane	0.75	103.1
1,2-Dichloroethane	0.75	7.0
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.2
Trichloroethene	0.75	184.2
Toluene	0.75	0.0
Tetrachloroethene	0.75	34.2

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-36-3
Operator	MILLER	Lab #:	3124A1.D
Volume	220 ml	Date Ana	04/13/91

Canister	Initial:	640	Final: 1095

Compound	MDL	Concentration ppbv
Freon-12	0.68	0.0
Vinyl Chloride	0.68	0.0
Freon-11	0.68	0.0
c-1,2-Dichloroethene	0.68	0.0
1,1-Dichloroethane	0.68	2.5
t-1,2-Dichloroethene	0.68	0.6
Chloroform	0.68	0.5
1,1,1-Trichloroethane	0.68	156.0
1,2-Dichloroethane	0.68	10.5
Benzene	0.68	0.3
Carbon Tetrachloride	0.68	0.0
Trichloroethene	0.68	62.1
Toluene	0.68	0.1
Tetrachloroethene	0.68	1.7

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-C-9-2 P117
Operator	MILLER	Lab #:	3107B1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.00
Vinyl Chloride	0.75	0.00
Freon-11	0.75	54.85
1,1-Dichloroethene	0.75	0.00
Freon-113	0.75	306.00
Dichloromethane	0.75	6.42
1,1-Dichloroethane	0.75	1.40
1,2-Dichloroethene	0.75	0.55
Chloroform	0.75	0.53
1,1,1-Trichloroethane	0.75	16.11
1,2-Dichloroethane	0.75	1.22
Benzene	0.75	0.24
Carbon Tetrachloride	0.75	0.57
Trichloroethene	0.75	40.41
Toluene	0.75	0.10
Tetrachloroethene	0.75	1.80

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-7-3 P10
Operator	MILLER	Lab #:	3114A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	140.4
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	1905.3
t-1,2-Dichloroethene	0.75	1005.9
Chloroform	0.75	16.2
1,1,1-Trichloroethane	0.75	64.2
1,2-Dichloroethane	0.75	168.5
Benzene	0.75	59.4
Carbon Tetrachloride	0.75	0.0
Trichloroethene	0.75	121.1
Toluene	0.75	2.0
Tetrachloroethene	0.75	48.1

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	VR-AC-C-36-2
Operator	MILLER	Lab #:	3123A1.D
Volume	149 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	1.01	0.0
Vinyl Chloride	1.01	0.7
Freon-11	1.01	0.9
c-1,2-Dichloroethene	1.01	0.0
1,1-Dichloroethane	1.01	3.6
t-1,2-Dichloroethene	1.01	1.7
Chloroform	1.01	0.6
1,1,1-Trichloroethane	1.01	118.0
1,2-Dichloroethane	1.01	8.2
Benzene	1.01	0.5
Carbon Tetrachloride	1.01	0.0
Trichloroethene	1.01	49.3
Toluene	1.01	0.0
Tetrachloroethene	1.01	0.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-9-3 P12
Operator	MILLER	Lab #:	3116A1.D
Volume	190 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.79	0.0
Vinyl Chloride	0.79	0.0
Freon-11	0.79	35.1
c-1,2-Dichloroethene	0.79	0.0
1,1-Dichloroethane	0.79	317.4
t-1,2-Dichloroethene	0.79	400.6
Chloroform	0.79	5.8
1,1,1-Trichloroethane	0.79	42.3
1,2-Dichloroethane	0.79	72.4
Benzene	0.79	24.8
Carbon Tetrachloride	0.79	0.8
Trichloroethene	0.79	110.2
Toluene	0.79	0.7
Tetrachloroethene	0.79	21.9

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR--C-9-4 P11
Operator	MILLER	Lab #:	3127A1.D
Volume	200 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.75	0.0
Vinyl Chloride	0.75	0.0
Freon-11	0.75	14.2
c-1,2-Dichloroethene	0.75	0.0
1,1-Dichloroethane	0.75	3.9
t-1,2-Dichloroethene	0.75	3.9
Chloroform	0.75	0.5
1,1,1-Trichloroethane	0.75	16.1
1,2-Dichloroethane	0.75	2.2
Benzene	0.75	0.7
Carbon Tetrachloride	0.75	0.6
Trichloroethene	0.75	153.8
Toluene	0.75	0.1
Tetrachloroethene	0.75	2.3

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VOLATILE ORGANIC COMPOUND REPORT

Close Support Laboratory, CH2M Hill
McClellan AFB

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M HILL	Location	MW-HDR-7-2
Operator	MILLER	Lab #:	3105A1.D
Volume	159 ml	Date Ana	04/13/91

Canister	Initial:	700 Final:	700

Compound	MDL	Concentration ppbv
Freon-12	0.94	0.0
Vinyl Chloride	0.94	0.0
Freon-11	0.94	104.7
c-1,2-Dichloroethene	0.94	0.0
1,1-Dichloroethane	0.94	3493.6
t-1,2-Dichloroethene	0.94	3415.7
Chloroform	0.94	29.2
1,1,1-Trichloroethane	0.94	180.6
1,2-Dichloroethane	0.94	441.6
Benzene	0.94	152.9
Carbon Tetrachloride	0.94	0.0
Trichloroethene	0.94	1523.2
Toluene	0.94	2.8
Tetrachloroethene	0.94	80.5

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Sacramento Office

3840 Rosin Court, Suite 110. Sacramento. California 95834. Telephone: 916/920-0300

TO STEVE HOUT
ENVIRONMENTAL ANALYTICAL SERVICE
170 - C GRANADA
SAN LUIS OBISPO, CA 93401
ATTN:

DATE 5/6/91
RE: MCCLELLAN QUALITY CONTROL REPORT
OUR PROJECT NO. SAC 24722.03.02

WE ARE SENDING THE FOLLOWING MATERIAL TO YOU

☐ HEREWITH ☐ GREYHOUND ☐ FIRST CLASS MAIL ☐ EXPRESS ☒ UPS

NO. COPIES	ITEM
1	ALL DATA RECEIVED AT CH2M HILL FOR MCCLELLAN LAB WORK.
	CLOSE SUPPORT DATA CLIPPED FOR SEPARATE DAYS.
	SAN LUIS OBISPO DATA CLIPPED AS RECEIVED.
	STEVE
	IT WILL ASSIST US IN OUR REPORTING EFFORT IF WE CAN
	RECEIVE THE QC REPORT BY 5/17/91 AS YOU ESTIMATED. IF
	YOU NEED ANYTHING ELSE, PLEASE CALL.
	Robert

IF MATERIAL RECEIVED IS NOT AS LISTED ABOVE, KINDLY NOTIFY US AT ONCE.

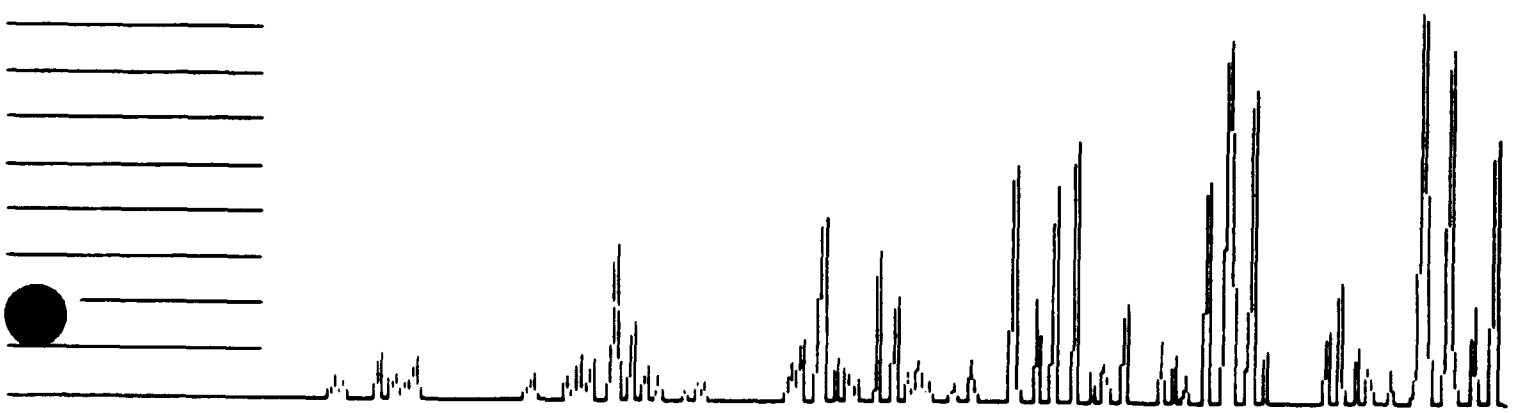
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SECTION IV
OFFSITE DATA

Environmental Analytical Service

ANALYTICAL REPORT
Section 2
McClellan AFB
Off-Site Laboratory
March 20 - April 12, 1991



ANALYTICAL REPORT
Section 2
McClellan AFB
Off-Site Laboratory
March 20 - April 12, 1991

Prepared for:

CH_2M Hill

Prepared by:

Steven D. Hoyt, Ph.D.

ENVIRONMENTAL ANALYTICAL SERVICE, INC.
170 Granada, Suite C
San Luis Obispo, California 93401
Phone (805) 541-3666 FAX (805) 541-4550

SECTION 2

4.0 ANALYTICAL RESULTS, BATCH BLANKS AND DUPLICATES

This section of the report contains all of daily batches of analysis preformed by Environmental Analytical Service for the off-site analytical portion of the McClellan Air Force Base Project.

METHOD BLANK REPORT

QC Lot: 3-22-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10252
Duplcte 10252 D
QC Lot: 3-22-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	29	28	5	40
Vinyl Chloride	not detec	not detec		40
Freon 11	370	300	31	40
1,1-Dichloroethene	2200	1800	30	40
Dichloromethane	17	16	9	40
Trichlorotrifluoroethane	29000	21000	48	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	4.5	3.5	38	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	29	23	35	40
Trichloroethene	25	19	41	40
Toluene	1.	1.1	36	40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-AC-0-004
Can #: 82

Lab #: 10251
Date Sampled: 3-20-91
Date Analyzed: 3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	22	110
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	530	3000
1.1-Dichloroethene	0.75	3100	12000
Dichloromethane	0.75	30	100
Trichlorotriflouroethane	0.75	29000	220000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	4.9	26
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	32	200
Trichloroethene	0.75	31	170
Toluene	0.75	0.95	3.6
Tetrachloroethene	0.75	0.85	5.8

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10252
Site:	MW-B-0-005	Date Sampled:	3-20-91
Can #:	Bag	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	29	140
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	370	2100
1,1-Dichloroethene	0.75	2200	8600
Chloromethane	0.75	17	60
Trichlorotriflouroethane	0.75	29000	220000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	4.5	25
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	29	180
Trichloroethene	0.75	25	140
Toluene	0.75	1.4	5.1
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10252 D
Site:	MW-B-0-005	Date Sampled:	3-20-91
Can #:	Bag	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	28	140
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	300	1700
1,1-Dichloroethene	0.75	1800	7300
Dichloromethane	0.75	16	55
Trichlorotriflouroethane	0.75	21000	160000
1,1-Dichloroethane	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	3.5	19
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	23	140
Trichloroethene	0.75	19	100
Toluene	0.75	1.1	4.1
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10254
Site:	MW-AC-0-010	Date Sampled:	3-20-91
Can #:	127	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	10	50
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	340	1900
1.1-Dichloroethene	0.75	2900	11000
Dichloromethane	0.75	52	180
Trichlorotriflouroethane	0.75	28000	210000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	4.4	24
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	30	190
Trichloroethene	0.75	27	150
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-B-0-011
Can #: Bag

Lab #: 10255
Date Sampled: 3-20-91
Date Analyzed: 3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	12	58
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	460	2600
1.1-Dichloroethene	0.75	2600	10000
Dichloromethane	0.75	41	140
Trichlorotriflouroethane	0.75	25000	190000
1.1-Dichloroethane	0.75	1.4	5.6
c-1.2-Dichloroethene	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	4.7	26
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	28	180
Trichloroethene	0.75	25	130
Toluene	0.75	1.3	4.9
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10257
Site:	MW-AC-0-016	Date Sampled:	3-20-91
Can #:	125	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	11	56
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	480	2700
1,1-Dichloroethene	0.75	2500	9900
Dichloromethane	0.75	41	140
Trichlorotriflouroethane	0.75	25965	200000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	4.9	26
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
[illegible]rbon Tetrachloride	0.75	34	210
[illegible]loroethene	0.75	31	160
[illegible]ne	0.75	not detected	not detected
[illegible]etrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10258
Site:	MW-B-0-017	Date Sampled:	3-20-91
Can #:	Bag	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	290	1700
1.1-Dichloroethene	0.75	25000	98000
Dichloromethane	0.75	73	250
Trichlorotriflouroethane	0.75	520	4000
1.1-Dichloroethane	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	2.5	14
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	17	110
Trichloroethene	0.75	14	76
Toluene	0.75	4.5	17
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10260
Site:	MW-AC-0-020	Date Sampled:	3-20-91
Can #:	83	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	1.6	5.5
Trichlorotriflouroethane	0.75	not detected	not detected
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10261
Site:	MW-B-0-021	Date Sampled:	3-20-91
Can #:	Bag	Date Analyzed:	3-22-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	0.85	4.2
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	2.3	7.9
Trichlorotriflouroethane	0.75	7.9	60
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

March 27, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10253
Site:	MW-S-0-006	Date Sampled:	3-20-91
Tube #:	2005	Date Analyzed:	3-27-91

Compound	MDL ng	Concentration ng
Freon 12	1.00	230
Vinyl Chloride	1.00	25
Freon 11	1.00	850
1.1-Dichloroethene	1.00	2300
Dichloromethane	1.00	16
Trichlorotriflouroethane	1.00	3700
1.1-Dichloroethane	1.00	not detected
c-1.2-Dichloroethene	1.00	not detected
t-1.2-Dichloroethene	1.00	not detected
Chloroform	1.00	not detected
1.1.1-Trichloroethane	1.00	4.9
1.2-Dichloroethane	1.00	not detected
Benzene	1.00	not detected
Carbon Tetrachloride	1.00	5.3
Trichloroethene	1.00	6.36
Toluene	1.00	14
Tetrachloroethene	1.00	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10256
Site:	MW-S-0-012	Date Sampled:	3-20-91
Tube #:	1007	Date Analyzed:	3-27-91

Compound	MDL ng	Concentration ng
Freon 12	1.00	7.0
Vinyl Chloride	1.00	not detected
Freon 11	1.00	1400
1,1-Dichloroethene	1.00	3600
Dichloromethane	1.00	15
Trichlorotriflouroethane	1.00	7600
1,1-Dichloroethane	1.00	not detected
c-1,2-Dichloroethene	1.00	not detected
t-1,2-Dichloroethene	1.00	not detected
Chloroform	1.00	not detected
1,1,1-Trichloroethane	1.00	25
1,2-Dichloroethane	1.00	not detected
Benzene	1.00	2.9
Carbon Tetrachloride	1.00	84
Trichloroethene	1.00	69
Toluene	1.00	30
Tetrachloroethene	1.00	1.7

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10259
Site:	MW-T-0-018	Date Sampled:	3-20-91
Tube #:	2003	Date Analyzed:	3-27-91

Compound	MDL ng	Concentration ng
Freon 12	1.00	9.0
Vinyl Chloride	1.00	not detected
Freon 11	1.00	8.6
1,1-Dichloroethene	1.00	7.4
Dichloromethane	1.00	73
Trichlorotriflouroethane	1.00	56
1,1-Dichloroethane	1.00	not detected
c-1,2-Dichloroethene	1.00	not detected
t-1,2-Dichloroethene	1.00	not detected
Chloroform	1.00	not detected
1,1,1-Trichloroethane	1.00	3.5
1,2-Dichloroethane	1.00	not detected
Benzene	1.00	1.3
Carbon Tetrachloride	1.00	not detected
Trichloroethene	1.00	not detected
Toluene	1.00	39
Tetrachloroethene	1.00	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10262
Site:	MW-S-0-022	Date Sampled:	3-20-91
Tube #:	1003	Date Analyzed:	3-27-91

Compound	MDL ng	Concentration ng
Freon 12	1.00	22
Vinyl Chloride	1.00	not detected
Freon 11	1.00	14
1,1-Dichloroethene	1.00	not detected
Dichloromethane	1.00	290
Trichlorotriflouroethane	1.00	not detected
1,1-Dichloroethane	1.00	not detected
c-1,2-Dichloroethene	1.00	not detected
t-1,2-Dichloroethene	1.00	not detected
Chloroform	1.00	not detected
1,1,1-Trichloroethane	1.00	15
1,2-Dichloroethane	1.00	not detected
Benzene	1.00	not detected
Carbon Tetrachloride	1.00	not detected
Trichloroethene	1.00	not detected
Toluene	1.00	15
Tetrachloroethene	1.00	not detected

ANALYTICAL RESULTS

March 28, 1991

METHOD BLANK REPORT

QC Lot: 3-28-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1.1-Dichloroethene	0.50	not detec
Dichloromethane	3.00	not detec
Trichlorotrifluoroethane	0.50	not detec
1.1-Dichloroethane	0.50	not detec
c-1.2-Dichloroethene	0.50	not detec
t-1.2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1.1.1-Trichloroethane	0.50	not detec
1.2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10284 D
Duplcte: 10284
QC Lot: 3-28-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	19	17	11	40
1.1-Dichloroethene	270	260	4	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	11000	12000	9	40
1.1-Dichloroethane	not detec	not detec		40
c-1.2-Dichloroethene	not detec	not detec		40
t-1.2-Dichloroethene	1.9	3.5	59	40
Chloroform	0.91	1.1	19	40
1.1.1-Trichloroethane	1.5	1.2	22	40
1.2-Dichloroethane	not detec	not detec		40
Benzene	1.1	0.92	18	40
Carbon Tetrachloride	40	42	5	40
Trichloroethene	110	110	0	40
Toluene	1.6	1.4	13	40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-PC-0-2-B
Can #: 400

Lab #: 10272
Date Sampled: 3-27-91
Date Analyzed: 3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	4.8	17
Trichlorotriflouroethane	0.75	11	86
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	3.8	12
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	4.9	19
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10281
Site:	MW-B-0-2-B	Date Sampled:	3-27-91
Can #:	Bag	Date Analyzed:	3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	1.6	7.8
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	290	1600
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	15	53
Trichlorotriflouroethane	0.75	4.8	37
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	3.3	18
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	1.8	5.8
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	2.3	12
Toluene	0.75	38	140
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10282
Site:	MW-B-0-2-1	Date Sampled:	3-27-91
Can #:	Bag	Date Analyzed:	3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	18	100
1.1-Dichloroethene	0.75	300	1200
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	12000	92000
1-Dichloroethane	0.75	not detected	not detected
1.2-Dichloroethene	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	1.9	7.4
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	42	260
Trichloroethene	0.75	110	610
Toluene	0.75	0.77	2.9
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10283
Site:	MW-B-0-2-2	Date Sampled:	3-27-91
Can #:	Bag	Date Analyzed:	3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	12	65
1.1-Dichloroethene	0.75	300	1200
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	12000	91000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	2.5	10
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	1.1	6.1
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	51	320
Trichloroethene	0.75	130	720
Toluene	0.75	1.8	6.7
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10284
Site:	MW-B-0-2-3	Date Sampled:	3-27-91
Can #:	Bag	Date Analyzed:	3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	17	95
1.1-Dichloroethene	0.75	260	1000
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	12000	90000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	3.5	14
Chloroform	0.75	1.1	5.1
1.1.1-Trichloroethane	0.75	1.2	6.7
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	0.92	2.9
Carbon Tetrachloride	0.75	42	260
Trichloroethene	0.75	110	620
Toluene	0.75	1.4	5.3
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10284 D
Site:	MW-B-0-2-3	Date Sampled:	3-27-91
Can #:	Bag	Date Analyzed:	3-28-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	19	110
1,1-Dichloroethene	0.75	270	1100
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	11000	83000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	1.9	7.6
Chloroform	0.75	0.91	4.4
1,1,1-Trichloroethane	0.75	1.5	7.9
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	1.1	3.5
Carbon Tetrachloride	0.75	40	250
Trichloroethene	0.75	110	560
Toluene	0.75	1.6	6.1
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

March 29, 1991

METHOD BLANK REPORT

QC Lot: 3-29-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10293
Duplcte: 10293 D
QC Lot: 3-29-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	not detec	not detec	16	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	not detec	not detec		40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec	5	40
Trichloroethene	not detec	not detec	31	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10291
Site:	MW-B-0-3-1	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	90	310
Trichlorotriflouroethane	0.75	4500	35000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	9.0	57
Trichloroethene	0.75	8.5	46
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10292
Site:	MW-B-0-3-2	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	2500	20000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	7.4	47
Trichloroethene	0.75	11	60
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10293
Site:	MW-B-0-3-3	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	2700	21000
-Dichloroethane	0.75	not detected	not detected
.2-Dichloroethene	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	7.4	46
Trichloroethene	0.75	8.8	47
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10293 D
Site:	MW-B-0-3-3	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detec
Vinyl Chloride	0.75	not detected	not detec
Freon 11	0.75	not detected	not detec
1,1-Dichloroethene	0.75	not detected	not detec
Dichloromethane	0.75	not detected	not detec
Trichlorotriflouroethane	0.75	2300	18000
1,1-Dichloroethane	0.75	not detected	not detec
c-1,2-Dichloroethene	0.75	not detected	not detec
t-1,2-Dichloroethene	0.75	not detected	not detec
Chloroform	0.75	not detected	not detec
1,1,1-Trichloroethane	0.75	not detected	not detec
1,2-Dichloroethane	0.75	not detected	not detec
Benzene	0.75	not detected	not detec
Carbon Tetrachloride	0.75	7.8	49
Trichloroethene	0.75	12	67
Toluene	0.75	not detected	not detec
Tetrachloroethene	0.75	not detected	not detec

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10294
Site:	MW-B-0-3-3 (Dup)	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	2000	15000
1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	7.5	47
Trichloroethene	0.75	11	62
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10295
Site:	MW-B-0-3-B	Date Sampled:	3-28-91
Can #:	Bag	Date Analyzed:	3-29-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	6.1	21
Trichlorotriflouroethane	0.75	not detected	not detected
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	2.5	9.5
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

March 30, 1991

METHOD BLANK REPORT

QC Lot: 3-30-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 3-30-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10273
Duplcte: 10273 D
QC Lot: 3-30-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec	27	40
1.1-Dichloroethene	not detec	not detec	40	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	not detec	not detec	34	40
1.1-Dichloroethane	not detec	not detec		40
c-1.2-Dichloroethene	not detec	not detec		40
t-1.2-Dichloroethene	not detec	not detec	14	40
Chloroform	not detec	not detec		40
1.1.1-Trichloroethane	not detec	not detec		40
1.2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec	4	40
Carbon Tetrachloride	not detec	not detec	10	40
Trichloroethene	not detec	not detec	10	40
Toluene	not detec	not detec	16	40
Tetrachloroethane	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10273
Duplcte: 10273 D
QC Lot: 3-30-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec	27	40
1.1-Dichloroethene	not detec	not detec	40	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	not detec	not detec	34	40
1.1-Dichloroethane	not detec	not detec		40
c-1.2-Dichloroethene	not detec	not detec		40
t-1.2-Dichloroethene	not detec	not detec	14	40
Chloroform	not detec	not detec		40
1.1.1-Trichloroethane	not detec	not detec		40
1.2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec	4	40
Carbon Tetrachloride	not detec	not detec	10	40
Trichloroethene	not detec	not detec	10	40
Toluene	not detec	not detec	16	40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10273
Site:	MW-PC-0-2-1	Date Sampled:	3-28-91
Can #:	91	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	38	210
1.1-Dichloroethene	0.75	140	570
Dichloromethane	0.75	not detected	not detected
richlorotriflouroethane	0.75	3400	26000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	1.3	5.1
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	2.9	9.1
Carbon Tetrachloride	0.75	31	190
Trichloroethene	0.75	86	460
Toluene	0.75	7.3	28
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10273 D
Site:	MW-PC-0-2-1	Date Sampled:	3-28-91
Can #:	91	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	29	170
1.1-Dichloroethene	0.75	93	370
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	2400	19000
1.1-Dichloroethane	0.75	not detected	not detected
-1.2-Dichloroethene	0.75	not detected	not detected
1.2-Dichloroethene	0.75	1.5	5.9
oroform	0.75	not detected	not detected
.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	2.8	9.0
Carbon Tetrachloride	0.75	28	170
Trichloroethene	0.75	78	420
Toluene	0.75	6.2	23
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10274
Site:	MW-PC-0-2-2	Date Sampled:	3-28-91
Can #:	79	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	19	93
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	27	150
1,1-Dichloroethene	0.75	110	440
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	2500	19000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	0.98	3.9
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	2.9	9.3
Carbon Tetrachloride	0.75	19	120
Trichloroethene	0.75	55	300
Toluene	0.75	7.3	28
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10296
Site:	MW-AC-0-3-1	Date Sampled:	3-28-91
Can #:	16	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	110	370
Trichlorotriflouroethane	0.75	830	6400
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	5.1	32
Trichloroethene	0.75	9.5	51
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	2.0	13

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10297
Site:	MW-AC-0-3-2	Date Sampled:	3-28-91
Can #:	69	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	88	310
Trichlorotriflouroethane	0.75	660	5100
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	3.7	23
Trichloroethene	0.75	11	60
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10298
Site:	MW-AC-0-3-3	Date Sampled:	3-28-91
Can #:	123	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	140	490
Trichlorotriflouroethane	0.75	670	5100
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	5.3	33
Trichloroethene	0.75	9.4	50
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10299
Site:	MW-AC-0-3-B	Date Sampled:	3-28-91
Can #:	52	Date Analyzed:	3-30-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	7.5	26
Trichlorotriflouroethane	0.75	not detected	not detected
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	0.80	3.0
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

April 1, 1991

METHOD BLANK REPORT

QC Lot: 4-1-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	2.00	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10275
Duplcte: 10275 D
QC Lot: 4-1-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		30
Vinyl Chloride	not detec	not detec		30
Freon 11	49	60	20	30
1.1-Dichloroethene	280	270	4	30
Dichloromethane	not detec	not detec		30
Trichlorotrifluoroethane	12000	13000	8	30
1.1-Dichloroethane	not detec	not detec		30
c-1.2-Dichloroethene	not detec	not detec		30
t-1.2-Dichloroethene	3.0	2.7	11	30
Chloroform	not detec	not detec		30
1.1.1-Trichloroethane	not detec	not detec		30
1.2-Dichloroethane	not detec	not detec		30
Benzene	not detec	not detec		30
Carbon Tetrachloride	61	64	5	30
Trichloroethene	170	170	0	30
Toluene	not detec	not detec		30
Tetrachloroethane	not detec	not detec		30

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10275
Site:	MW-PC-0-2-3	Date Sampled:	3-27-91
Can #:	61	Date Analyzed:	4-1-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	49	280
1,1-Dichloroethene	0.75	280	1100
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	12000	89000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	3.0	12
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	61	390
Trichloroethene	0.75	170	910
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10275 D
Site:	MW-PC-0-2-3	Date Sampled:	3-27-91
Can #:	61	Date Analyzed:	4-1-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	60	340
1.1-Dichloroethene	0.75	270	1100
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	13000	11000
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	2.7	11
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	64	410
Trichloroethene	0.75	170	920
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-PC-0-2-3 (Dup)
Can #: 122

Lab #: 10276
Date Sampled: 3-27-91
Date Analyzed: 4-1-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	39	220
1,1-Dichloroethene	0.75	200	790
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	15000	110000
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	3.6	14
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	87	550
Trichloroethene	0.75	240	1300
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

April 3, 1991

METHOD BLANK REPORT

QC Lot: 4-3-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	2.00	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10328
Duplicate: 10328D
QC Lot: [illegible]-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	230	260	12	40
Vinyl Chloride	2300	2800	20	40
Freon 11	170	230	30	40
1,1-Dichloroethene	42000	62000	38	40
Dichloromethane	120	190	45	40
Trichlorotrifluoroethane	20000	26000	26	40
1,1-Dichloroethane	2300	2700	16	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	460	360	24	40
Chloroform	28	29	4	40
1,1,1-Trichloroethane	140	140	0	40
1,2-Dichloroethane	360	440	20	40
Benzene	110	120	9	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	6900	7600	10	40
Toluene	not detec	not detec		40
Tetrachloroethane	160	170	6	40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10327
Site:	MW-AC-0-7-1	Date Sampled:	4-2-91
Can #:	05	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	5.00	280	1400
Vinyl Chloride	5.00	2300	5800
Freon 11	5.00	120	680
1,1-Dichloroethene	5.00	38000	150000
Dichloromethane	5.00	150	520
Trichlorotriflouroethane	5.00	14000	110000
1,1-Dichloroethane	5.00	1700	6800
1,2-Dichloroethene	5.00	not detected	not detected
1,2-Dichloroethene	5.00	380	1500
Chloroform	5.00	20	98
1,1,1-Trichloroethane	5.00	120	680
1,2-Dichloroethane	5.00	360	1500
Benzene	5.00	98	310
Carbon Tetrachloride	5.00	not detected	not detected
Trichloroethene	5.00	6700	36000
Toluene	5.00	not detected	not detected
Tetrachloroethene	5.00	140	970

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10328
Site:	MW-AC-0-7-2	Date Sampled:	4-2-91
Can #:	18	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	5.00	230	1100
Vinyl Chloride	5.00	2300	6000
Freon 11	5.00	170	940
1,1-Dichloroethene	5.00	42000	170000
Dichloromethane	5.00	120	401
Trichlorotriflouroethane	5.00	20000	150000
1,1-Dichloroethane	5.00	2300	9500
c-1,2-Dichloroethene	5.00	not detected	not detected
t-1,2-Dichloroethene	5.00	460	1800
Chloroform	5.00	28	130
1,1,1-Trichloroethane	5.00	140	750
1,2-Dichloroethane	5.00	360	1500
Benzene	5.00	110	340
Carbon Tetrachloride	5.00	not detected	not detected
Trichloroethene	5.00	6900	37000
Toluene	5.00	not detected	not detected
Tetrachloroethene	5.00	160	1100

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10328 D
Site:	MW-AC-0-7-2	Date Sampled:	4-2-91
Can #:	18	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	5.00	260	1300
Vinyl Chloride	5.00	2800	7100
Freon 11	5.00	230	1300
1,1-Dichloroethene	5.00	62000	250000
Dichloromethane	5.00	190	660
Trichlorotriflouroethane	5.00	26000	200000
1,1-Dichloroethane	5.00	2700	11000
trans-1,2-Dichloroethene	5.00	not detected	not detected
cis-1,2-Dichloroethene	5.00	360	1400
Chloroform	5.00	29	140
1,1,1-Trichloroethane	5.00	140	790
1,2-Dichloroethane	5.00	440	1800
Benzene	5.00	120	380
Carbon Tetrachloride	5.00	not detected	not detected
Trichloroethene	5.00	7600	41000
Toluene	5.00	not detected	not detected
Tetrachloroethene	5.00	170	1200

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10329
Site:	MW-AC-0-7-3	Date Sampled:	4-2-91
n #:	45	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	5.00	not detected	not detected
Vinyl Chloride	5.00	2200	5600
Freon 11	5.00	160	900
1,1-Dichloroethene	5.00	36000	140000
Dichloromethane	5.00	110	380
Trichlorotriflouroethane	5.00	18000	140000
1,1-Dichloroethane	5.00	2200	9000
c-1,2-Dichloroethene	5.00	8.2	33
t-1,2-Dichloroethene	5.00	440	1800
Chloroform	5.00	26	130
1,1,1-Trichloroethane	5.00	140	740
1,2-Dichloroethane	5.00	380	1500
Benzene	5.00	100	330
Carbon Tetrachloride	5.00	18	110
Trichloroethene	5.00	3800	37000
Toluene	5.00	not detected	not detected
Tetrachloroethene	5.00	160	1100

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10330
Site:	MW-AC-0-7-B	Date Sampled:	4-2-91
Can #:	36	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	15	51
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	3.1	11
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10331
Site:	MW-B-0-7-1	Date Sampled:	4-2-91
Can #:	Bag	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	7.50	250	1200
Vinyl Chloride	7.50	2300	5800
Freon 11	7.50	110	600
1,1-Dichloroethene	7.50	57000	230000
Dichloromethane	7.50	150	540
Trichlorotriflouroethane	7.50	29000	220000
1,1-Dichloroethane	7.50	3500	14000
c-1,2-Dichloroethene	7.50	not detected	not detected
t-1,2-Dichloroethene	7.50	610	2400
Chloroform	7.50	37	180
1,1,1-Trichloroethane	7.50	170	940
1,2-Dichloroethane	7.50	480	1900
Benzene	7.50	140	450
Carbon Tetrachloride	7.50	not detected	not detected
Trichloroethene	7.50	9200	50000
Toluene	7.50	not detected	not detected
Tetrachloroethene	7.50	180	1200

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10332
Site:	MW-B-0-7-2	Date Sampled:	4-2-91
Can #:	Bag	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	62	350
1,1-Dichloroethene	1.50	30000	120000
Dichloromethane	1.50	15	52
Trichlorotriflouroethane	1.50	16000	120000
1,1-Dichloroethane	1.50	2600	10000
c-1,2-Dichloroethene	1.50	9.9	39
t-1,2-Dichloroethene	1.50	450	1800
Chloroform	1.50	30	150
1,1,1-Trichloroethane	1.50	140	770
1,2-Dichloroethane	1.50	330	1400
Benzene	1.50	83	260
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	4900	26000
Toluene	1.50	4.6	17
Tetrachloroethene	1.50	100	680

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10333
Site:	MW-B-0-7-3	Date Sampled:	4-2-91
Can #:	Bag	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	7.50	54	270
Vinyl Chloride	7.50	1200	3200
Freon 11	7.50	150	830
1,1-Dichloroethene	7.50	54000	210000
Dichloromethane	7.50	91	320
Trichlorotriflouroethane	7.50	27000	210000
1,1-Dichloroethane	7.50	3100	13000
c-1,2-Dichloroethene	7.50	not detected	not detected
t-1,2-Dichloroethene	7.50	610	2400
Chloroform	7.50	37	180
1,1,1-Trichloroethane	7.50	170	950
1,2-Dichloroethane	7.50	450	1800
Benzene	7.50	140	440
Carbon Tetrachloride	7.50	not detected	not detected
Trichloroethene	7.50	8900	48000
Toluene	7.50	9.8	37
Tetrachloroethene	7.50	180	1200

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10334
Site:	MW-B-0-7-4	Date Sampled:	4-2-91
Can #:	Bag	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	180	910
Vinyl Chloride	3.75	180	450
Freon 11	3.75	270	1500
1,1-Dichloroethene	3.75	60000	240000
Dichloromethane	3.75	160	560
Trichlorotriflouroethane	3.75	23000	170000
1,1-Dichloroethane	3.75	1300	5400
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	120	500
Chloroform	3.75	15	72
1,1,1-Trichloroethane	3.75	32	170
1,2-Dichloroethane	3.75	91	370
Benzene	3.75	27	87
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	3400	18000
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	56	380

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10335
Site:	MW-B-0-7-B	Date Sampled:	4-2-91
Can #:	Bag	Date Analyzed:	4-3-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	5.3	18
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

April 4, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10277
Site:	MW-S-0-2-B	Date Sampled:	3-27-91
Tube #:	1009	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.103
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.057
1,1-Dichloroethene	0.001	0.004
Dichloromethane	0.001	0.050
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.004
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.016
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10278
Site:	MW-T-0-2-1	Date Sampled:	3-27-91
Tube #:	2015	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	0.168
c-1,2-Dichloroethene	0.001	0.077
t-1,2-Dichloroethene	0.001	0.115
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	0.002
Trichloroethene	0.001	0.045
Toluene	0.001	0.014
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client: CH2M Hill
Site: MW-S-0-2-2
Tube #: 1008

Lab #: 10279
Date Sampled: 3-27-91
Date Analyzed: 4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.135
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.679
1,1-Dichloroethene	0.001	0.15
Dichloromethane	0.001	0.047
Trichlorotriflouroethane	0.001	6.906
..1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.005
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.009
Toluene	0.001	0.020
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10280
Site:	MW-T-0-2-3	Date Sampled:	3-27-91
Tube #:	2002	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.005
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.005
1,1-Dichloroethene	0.001	0.005
Dichloromethane	0.001	0.023
Trichlorotriflouroethane	0.001	1.446
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	not detected
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10300
Site:	MW-S-0-3-1	Date Sampled:	3-28-91
Tube #:	1006	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.037
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.014
1,1-Dichloroethene	0.001	0.021
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	8.031
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.003
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	0.021
Trichloroethene	0.001	0.027
Toluene	0.001	not detected
Tetrachloroethene	0.001	0.032

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10301
Site:	MW-S-0-3-2	Date Sampled:	3-28-91
Tube #:	1005	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.201
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.047
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	23.43
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.005
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	0.018
Trichloroethene	0.001	0.036
Toluene	0.001	0.005
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10302
Site:	MW-S-0-3-3	Date Sampled:	3-28-91
Tube #:	2012	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.345
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.041
1,1-Dichloroethene	0.001	0.004
Dichloromethane	0.001	0.009
Trichlorotriflouroethane	0.001	18.54
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.005
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.006
Toluene	0.001	0.23
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10303
Site:	MW-S-0-3-B	Date Sampled:	3-28-91
Tube #:	2014	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	0.005
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.004
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	not detected
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10443
Site:	VR-B-0-44-B	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	58	330
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	8.4	29
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	10	55
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	4.5	17
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10444
Site:	VR-B-0-44-1	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	4.5	35
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: VR-B-0-43-3
Can #: Bag

Lab #: 10441
Date Sampled: 4-9-91
Date Analyzed: 4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.50	not detected	not detected
Vinyl Chloride	2.50	not detected	not detected
Freon 11	2.50	not detected	not detected
1,1-Dichloroethene	2.50	not detected	not detected
Dichloromethane	2.50	not detected	not detected
Trichlorotriflouroethane	2.50	not detected	not detected
1,1-Dichloroethane	2.50	not detected	not detected
c-1,2-Dichloroethene	2.50	not detected	not detected
t-1,2-Dichloroethene	2.50	not detected	not detected
Chloroform	2.50	not detected	not detected
1,1,1-Trichloroethane	2.50	not detected	not detected
1,2-Dichloroethane	2.50	not detected	not detected
Benzene	2.50	not detected	not detected
Carbon Tetrachloride	2.50	not detected	not detected
Trichloroethene	2.50	not detected	not detected
Toluene	2.50	not detected	not detected
Tetrachloroethene	2.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10442
Site:	VR-B-0-43-4	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.50	not detected	not detected
Vinyl Chloride	2.50	not detected	not detected
Freon 11	2.50	not detected	not detected
1,1-Dichloroethene	2.50	not detected	not detected
Dichloromethane	2.50	not detected	not detected
Trichlorotriflouroethane	2.50	20	150
1,1-Dichloroethane	2.50	not detected	not detected
c-1,2-Dichloroethene	2.50	not detected	not detected
t-1,2-Dichloroethene	2.50	not detected	not detected
Chloroform	2.50	not detected	not detected
1,1,1-Trichloroethane	2.50	not detected	not detected
1,2-Dichloroethane	2.50	not detected	not detected
Benzene	2.50	not detected	not detected
Carbon Tetrachloride	2.50	not detected	not detected
Trichloroethene	2.50	not detected	not detected
Toluene	2.50	not detected	not detected
Tetrachloroethene	2.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10439
Site:	VR-B-0-43-1	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.88	not detected	not detected
Vinyl Chloride	1.88	not detected	not detected
Freon 11	1.88	not detected	not detected
1,1-Dichloroethene	1.88	not detected	not detected
Dichloromethane	1.88	not detected	not detected
Trichlorotriflouroethane	1.88	not detected	not detected
1,1-Dichloroethane	1.88	not detected	not detected
c-1,2-Dichloroethene	1.88	not detected	not detected
t-1,2-Dichloroethene	1.88	not detected	not detected
Chloroform	1.88	not detected	not detected
1,1,1-Trichloroethane	1.88	not detected	not detected
1,2-Dichloroethane	1.88	not detected	not detected
Benzene	1.88	not detected	not detected
Carbon Tetrachloride	1.88	not detected	not detected
Trichloroethene	1.88	not detected	not detected
Toluene	1.88	not detected	not detected
Tetrachloroethene	1.88	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10440
Site:	VR-B-0-43-2	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.14	not detected	not detected
Vinyl Chloride	2.14	not detected	not detected
Freon 11	2.14	not detected	not detected
1,1-Dichloroethene	2.14	not detected	not detected
Dichloromethane	2.14	not detected	not detected
Trichlorotriflouroethane	2.14	not detected	not detected
1,1-Dichloroethane	2.14	not detected	not detected
c-1,2-Dichloroethene	2.14	not detected	not detected
t-1,2-Dichloroethene	2.14	not detected	not detected
Chloroform	2.14	not detected	not detected
1,1,1-Trichloroethane	2.14	not detected	not detected
1,2-Dichloroethane	2.14	not detected	not detected
Benzene	2.14	not detected	not detected
Carbon Tetrachloride	2.14	not detected	not detected
Trichloroethene	2.14	not detected	not detected
Toluene	2.14	not detected	not detected
Tetrachloroethene	2.14	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10431
Site:	MW-B-0-4-3	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	36	140
Dichloromethane	0.75	3.3	11
Trichlorotriflouroethane	0.75	120	920
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	9.3	37
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	2.2	12
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	1.2	4.0
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	190	1000
Toluene	0.75	2.0	7.4
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10438
Site:	VR-B-0-43-B	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	2.9	14
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	210	1200
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	25	87
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	19	100
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	2.1	6.6
Carbon Tetrachloride	0.75	2.5	16
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	57	220
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10429
Site:	MW-B-0-4-1	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	48	190
Dichloromethane	0.75	4.9	17
Trichlorotriflouroethane	0.75	280	2100
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	27	110
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	1.7	9.3
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	510	2700
Toluene	0.75	1.4	5.3
Tetrachloroethene	0.75	1.7	12

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10430
Site:	MW-B-0-4-2	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	11	56
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	97	390
Dichloromethane	1.50	3.6	13
Trichlorotriflouroethane	1.50	320	2400
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	29	120
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	7.0	38
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	1.8	5.7
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	500	2700
Toluene	1.50	3.2	12
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10427
Site:	MW-B-0-5-4	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	9.4	37
Dichloromethane	0.75	5.3	18
Trichlorotriflouroethane	0.75	92	700
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	4.5	18
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	0.93	3.0
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	37	200
Toluene	0.75	1.5	5.7
Tetrachloroethene	0.75	not detected	not detected

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10428
Site:	MW-B-O-4-B	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	5.2	18
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10425
Site:	MW-B-0-5-2	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	11	44
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	160	1300
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	11	45
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	86	460
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10426
Site:	MW-B-O-5-3	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	18	73
Dichloromethane	0.75	3.2	11
Trichlorotriflouroethane	0.75	280	2100
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	15	59
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	110	590
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10423
Site:	MW-B-0-5-B	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10424
Site:	MW-B-0-5-1	Date Sampled:	4-8-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	12	46
Dichloromethane	1.50	12	42
Trichlorotrifluoroethane	1.50	91	690
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	4.8	19
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	18	97
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	39	210
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

METHOD BLANK REPORT

QC Lot: 4-10-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv
Vinyl Chloride	0.50	not detec
Acetonitrile	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
1,2-Dibromoethane	0.50	not detec
Tetrachloroethene	0.50	not detec
Chlorobenzene	0.50	not detec
Xylenes	0.50	not detec
Dichlorobenzenes	0.50	not detec
Benzyl Chloride	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10387
Duplcte: 10387 D
QC Lot: 4-10-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Vinyl Chloride	not detec	not detec		40
Acetonitrile	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	1.6	2.3	35	40
1,1-Dichloroethane	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	3.1	3.3	6	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	2.2	2.3	4	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	5.3	5.6	5	40
1,2-Dibromoethane	not detec	not detec		40
Tetrachloroethene	0.48	0.45	8	40
Chlorobenzene	not detec	not detec		40
Xylenes	4.2	4.5	8	40
Dichlorobenzenes	not detec	not detec		40
Benzyl Chloride	not detec	not detec		40

ANALYTICAL RESULTS

April 10, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10405
Site:	MW-BT-0-7-2 (1st)	Date Sampled:	4-6-91
Tube #:	1009	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	1.147
Vinyl Chloride	0.001	4.979
Freon 11	0.001	0.594
1,1-Dichloroethene	0.001	32.19
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	134.7
1,1-Dichloroethane	0.001	5.979
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.620
Chloroform	0.001	0.310
1,1,1-Trichloroethane	0.001	0.985
1,2-Dichloroethane	0.001	1.664
Benzene	0.001	0.145
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	7.837
Toluene	0.001	0.003
Tetrachloroethene	0.001	0.052

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10406
Site:	MW-BT-0-7-2 (2nd)	Date Sampled:	4-6-91
Tube #:	1000	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.010
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.009
1,1-Dichloroethene	0.001	0.041
Dichloromethane	0.001	0.024
Trichlorotriflouroethane	0.001	0.275
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.004
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.031
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.040
Toluene	0.001	0.022
Tetrachloroethene	0.001	0.003

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10403
Site:	MW-BT-0-7-1 (1st)	Date Sampled:	4-6-91
Tube #:	2021	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.032
Vinyl Chloride	0.001	2.604
Freon 11	0.001	0.320
1,1-Dichloroethene	0.001	27.172
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	3.704
1,1-Dichloroethane	0.001	4.072
c-1,2-Dichloroethene	0.001	0.004
t-1,2-Dichloroethene	0.001	0.430
Chloroform	0.001	0.035
1,1,1-Trichloroethane	0.001	0.489
1,2-Dichloroethane	0.001	0.127
Benzene	0.001	0.095
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	6.123
Toluene	0.001	0.011
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10404
Site:	MW-BT-0-7-1 (2nd)	Date Sampled:	4-6-91
Tube #:	2029	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.002
Dichloromethane	0.001	0.013
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.015
Toluene	0.001	0.003
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10400 B
Site:	MW-T-0-6-2 (2nd)	Date Sampled:	4-6-91
Tube #:	1005	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.166
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.014
1,1-Dichloroethene	0.001	0.016
Dichloromethane	0.001	0.005
Trichlorotriflouroethane	0.001	0.031
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.016
Toluene	0.001	0.012
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10401 B
Site:	MW-T-0-6-3 (2nd)	Date Sampled:	4-6-91
Tube #:	2015	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.061
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.006
Dichloromethane	0.001	0.010
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.001
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.011
Toluene	0.001	0.017
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10398
Site:	MW-T-0-6-B	Date Sampled:	4-6-91
Tube #:	2020	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.042
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.005
1,1-Dichloroethene	0.001	0.008
Dichloromethane	0.001	0.034
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.006
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.014
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10399 B
Site:	MW-T-0-6-1 (2nd)	Date Sampled:	4-6-91
Tube #:	2003	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.252
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.009
1,1-Dichloroethene	0.001	0.037
Dichloromethane	0.001	0.012
Trichlorotriflouroethane	0.001	0.467
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.048
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.005
Carbon Tetrachloride	0.001	0.007
Trichloroethene	0.001	0.038
Toluene	0.001	0.074
Tetrachloroethene	0.001	0.022

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10360
Site:	MW-T-0-9-2 (2nd)	Date Sampled:	4-6-91
Tube #:	2013	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.075
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.028
Dichloromethane	0.001	0.010
Trichlorotriflouroethane	0.001	0.045
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.044
Toluene	0.001	0.013
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10362
Site:	MW-T-0-9-3 (2nd)	Date Sampled:	4-6-91
Tube #:	2008	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.076
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.008
1,1-Dichloroethene	0.001	0.091
Dichloromethane	0.001	0.013
Trichlorotriflouroethane	0.001	0.132
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.049
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.109
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.028
Toluene	0.001	0.181
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10340
Site:	MW-T-0-8-3	Date Sampled:	4-3-91
Tube #:	2016	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.245
Vinyl Chloride	0.001	1.81
Freon 11	0.001	1.32
1,1-Dichloroethene	0.001	41.3
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	56.7
1,1-Dichloroethane	0.001	0.534
c-1,2-Dichloroethene	0.001	0.002
t-1,2-Dichloroethene	0.001	0.014
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.991
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.025
Carbon Tetrachloride	0.001	0.003
Trichloroethene	0.001	1.70
Toluene	0.001	0.050
Tetrachloroethene	0.001	0.235

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10356
Site:	MW-T-0-9-B	Date Sampled:	4-6-91
Tube #:	2007	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.164
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.017
1,1-Dichloroethene	0.001	0.007
Dichloromethane	0.001	0.037
Trichlorotriflouroethane	0.001	0.036
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.012
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.112
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10338
Site:	MW-T-0-8-1	Date Sampled:	4-3-91
Tube #:	2000	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.008
Vinyl Chloride	0.001	1.16
Freon 11	0.001	1.06
1,1-Dichloroethene	0.001	23.2
`ichloromethane	0.001	not detected
richlorotriflouroethane	0.001	38.0
1,1-Dichloroethane	0.001	0.252
c-1,2-Dichloroethene	0.001	0.002
t-1,2-Dichloroethene	0.001	0.008
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.630
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.018
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	1.18
Toluene	0.001	0.081
Tetrachloroethene	0.001	0.167

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10339
Site:	MW-S-0-8-2	Date Sampled:	4-3-91
Tube #:	1001	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	1.52
Vinyl Chloride	0.001	2.07
Freon 11	0.001	1.97
1,1-Dichloroethene	0.001	33.9
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	45.7
1,1-Dichloroethane	0.001	0.786
c-1,2-Dichloroethene	0.001	0.002
t-1,2-Dichloroethene	0.001	0.017
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	1.46
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.015
Carbon Tetrachloride	0.001	0.015
Trichloroethene	0.001	2.22
Toluene	0.001	0.24
Tetrachloroethene	0.001	0.197

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10324
Site:	MW-S-0-7-3	Date Sampled:	4-2-91
Tube #:	1002	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	3.75
Freon 11	0.001	0.467
1,1-Dichloroethene	0.001	11.39
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	31.18
1,1-Dichloroethane	0.001	4.28
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.603
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.878
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.124
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	8.70
Toluene	0.001	0.044
Tetrachloroethene	0.001	0.400

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10325
Site:	MW-T-0-7-4	Date Sampled:	4-2-91
Tube #:	2006	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.896
Vinyl Chloride	0.001	2.36
Freon 11	0.001	0.353
1,1-Dichloroethene	0.001	18.37
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	31.16
1,1-Dichloroethane	0.001	2.30
c-1,2-Dichloroethene	0.001	0.003
t-1,2-Dichloroethene	0.001	0.277
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.321
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.064
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	5.26
Toluene	0.001	0.18
Tetrachloroethene	0.001	0.258

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10322
Site:	MW-T-0-7-1	Date Sampled:	4-2-91
Tube #:	2009	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	3.84
Freon 11	0.001	0.379
1,1-Dichloroethene	0.001	20.03
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	25.01
1,1-Dichloroethane	0.001	3.58
c-1,2-Dichloroethene	0.001	0.008
t-1,2-Dichloroethene	0.001	0.331
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.715
1,2-Dichloroethane	0.001	0.712
Benzene	0.001	0.136
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	7.67
Toluene	0.001	0.049
Tetrachloroethene	0.001	0.398

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10323
Site:	MW-T-0-7-2	Date Sampled:	4-2-91
Tube #:	2017	Date Analyzed:	4-9-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	6.50
Freon 11	0.001	0.258
1,1-Dichloroethene	0.001	28.88
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	24.54
1,1-Dichloroethane	0.001	4.17
c-1,2-Dichloroethene	0.001	0.011
t-1,2-Dichloroethene	0.001	0.574
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.395
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.074
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	4.46
Toluene	0.001	0.003
Tetrachloroethene	0.001	0.028

ANALYTICAL RESULTS

April 9, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10391
Site:	MW-B-0-6-2	Date Sampled:	4-6-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	7.0	35
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	21	73
Trichlorotriflouroethane	1.50	690	5300
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	1.9	7.6
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	11	59
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	61	330
Toluene	1.50	37	140
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10389
Site:	MW-B-0-6-B	Date Sampled:	4-6-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	27	130
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	7.2	25
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	3.0	12
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10390
Site:	MW-B-0-6-1	Date Sampled:	4-6-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	16	77
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	16	56
Trichlorotriflouroethane	1.50	740	5700
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	1.9	7.6
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	44	240
Toluene	1.50	4.3	16
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10375
Site:	VR-B-0-31-3	Date Sampled:	4-5-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detec
Vinyl Chloride	3.75	not detected	not detec
Freon 11	3.75	not detected	not detec
1.1-Dichloroethene	3.75	120	460
Dichloromethane	3.75	21	74
Trichlorotriflouroethane	3.75	140	1100
1.1-Dichloroethane	3.75	not detected	not detec
c-1.2-Dichloroethene	3.75	not detected	not detec
t-1.2-Dichloroethene	3.75	not detected	not detec
Chloroform	3.75	not detected	not detec
1.1.1-Trichloroethane	3.75	58	320
1.2-Dichloroethane	3.75	not detected	not detec
Benzene	3.75	not detected	not detec
Carbon Tetrachloride	3.75	not detected	not detec
Trichloroethene	3.75	15	81
Toluene	3.75	not detected	not detec
Tetrachloroethene	3.75	not detected	not detec

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10376
Site:	VR-B-0-31-4	Date Sampled:	4-5-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	35	200
1,1-Dichloroethene	3.75	340	1400
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	170	1300
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	150	790
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	33	180
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10373
Site:	VR-B-0-31-1	Date Sampled:	4-5-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	32	180
1,1-Dichloroethene	3.75	280	1100
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	260	2000
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	140	760
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	31	170
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10374
Site:	VR-B-0-31-2	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	180	720
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	130	1000
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	69	370
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	16	86
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10346
Site:	MW-AC-0-8-B	Date Sampled:	4-3-91
Can #:	106	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	4.3	15
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10372
Site:	VR-B-0-31-B	Date Sampled:	4-5-91
Can #:	Bag	Date Analyzed:	4-8-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	260	1300
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	6.5	22
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	2.6	9.6
Tetrachloroethene	0.75	not detected	not detected

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10388
Duplcte: 10388 D
QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	4.3	4.0	7	40
Trichlorotrifluoroethane	not detec	not detec		40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	2.5	2.1	17	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	1.8	1.4	24	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	4.9	4.3	13	40
Tetrachloroethane	0.40	0.27	39	40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10388
Duplcte: 10388 D
QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	4.3	4.0	7	40
Trichlorotrifluoroethane	not detec	not detec		40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	2.5	2.1	17	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	1.8	1.4	24	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	4.9	4.3	13	40
Tetrachloroethane	0.40	0.27	39	40

METHOD BLANK REPORT

QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10388
Duplcte: 10388 D
QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	4.3	4.0	7	40
Trichlorotrifluoroethane	not detec	not detec		40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	2.5	2.1	17	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	1.8	1.4	24	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	4.9	4.3	13	40
Tetrachloroethane	0.40	0.27	39	40

METHOD BLANK REPORT

QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-8-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

ANALYTICAL RESULTS

April 8, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10370
Site:	MW-B-0-9-4	Date Sampled:	4-4-91
Can #:	Bag	Date Analyzed:	4-6-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.00	not detected	not detected
Vinyl Chloride	2.00	not detected	not detected
Freon 11	2.00	120	660
1,1-Dichloroethene	2.00	11000	45000
Dichloromethane	2.00	not detected	not detected
Trichlorotriflouroethane	2.00	7100	54000
1,1-Dichloroethane	2.00	not detected	not detected
c-1,2-Dichloroethene	2.00	not detected	not detected
t-1,2-Dichloroethene	2.00	not detected	not detected
Chloroform	2.00	not detected	not detected
1,1,1-Trichloroethane	2.00	31	170
1,2-Dichloroethane	2.00	not detected	not detected
Benzene	2.00	not detected	not detected
Carbon Tetrachloride	2.00	not detected	not detected
Trichloroethene	2.00	53	290
Toluene	2.00	not detected	not detected
Tetrachloroethene	2.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10368
Site:	MW-B-0-9-2	Date Sampled:	4-4-91
Can #:	Bag	Date Analyzed:	4-6-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.00	not detected	not detected
Vinyl Chloride	2.00	not detected	not detected
Freon 11	2.00	80	450
1,1-Dichloroethene	2.00	9700	38000
Dichloromethane	2.00	33	120
Trichlorotriflouroethane	2.00	6000	46000
1,1-Dichloroethane	2.00	not detected	not detected
c-1,2-Dichloroethene	2.00	not detected	not detected
t-1,2-Dichloroethene	2.00	not detected	not detected
Chloroform	2.00	not detected	not detected
1,1,1-Trichloroethane	2.00	27	150
1,2-Dichloroethane	2.00	not detected	not detected
Benzene	2.00	not detected	not detected
Carbon Tetrachloride	2.00	not detected	not detected
Trichloroethene	2.00	45	240
Toluene	2.00	2.2	8.3
Tetrachloroethene	2.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10369
Site:	MW-B-0-9-3	Date Sampled:	4-4-91
Can #:	Bag	Date Analyzed:	4-6-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.00	170	830
Vinyl Chloride	2.00	not detected	not detected
Freon 11	2.00	83	470
1,1-Dichloroethene	2.00	15000	58000
Dichloromethane	2.00	not detected	not detected
Trichlorotriflouroethane	2.00	8200	63000
1,1-Dichloroethane	2.00	not detected	not detected
c-1,2-Dichloroethene	2.00	not detected	not detected
t-1,2-Dichloroethene	2.00	not detected	not detected
Chloroform	2.00	not detected	not detected
1,1,1-Trichloroethane	2.00	29	160
1,2-Dichloroethane	2.00	not detected	not detected
Benzene	2.00	not detected	not detected
Carbon Tetrachloride	2.00	not detected	not detected
Trichloroethene	2.00	51	280
Toluene	2.00	not detected	not detected
Tetrachloroethene	2.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10367
Site:	MW-B-0-9-1	Date Sampled:	4-4-91
Can #:	Bag	Date Analyzed:	4-6-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	140	810
1,1-Dichloroethene	3.00	11000	45000
Dichloromethane	3.00	21	74
Trichlorotriflouroethane	3.00	9200	71000
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	46	250
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	52	280
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10367 D
Site:	MW-B-0-9-1	Date Sampled:	4-4-91
Can #:	Bag	Date Analyzed:	4-6-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	180	1000
1,1-Dichloroethene	3.00	15000	61000
Dichloromethane	3.00	29	100
Trichlorotriflouroethane	3.00	12000	93000
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	42	230
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	49	260
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10367
Duplcte: 10367 D
QC Lot: 4-6-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	140	180	25	40
1,1-Dichloroethene	11000	15000	31	40
Dichloromethane	21	29	32	40
Trichlorotrifluoroethane	9200	12000	26	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	46	42	9	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	52	49	6	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

METHOD BLANK REPORT

QC Lot: 4-6-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

ANALYTICAL RESULTS

April 6, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-B-0-9-B
Can #: Bag

Lab #: 10371
Date Sampled: 4-4-91
Date Analyzed: 4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	5.1	29
1,1-Dichloroethene	0.75	2.8	11
ichloromethane	0.75	4.8	17
richlorotriflouroethane	0.75	4.7	26
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	4.8	26
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	1.2	3.8
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	14	51
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10344 D
Site:	MW-B-0-8-3	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	150	870
1,1-Dichloroethene	3.75	25000	100000
Dichloromethane	3.75	47	160
Trichlorotriflouroethane	3.75	17000	130000
1,1-Dichloroethane	3.75	96	390
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	220	1200
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	740	4000
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	23	150

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10345
Site:	MW-B-0-8-B	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.30	not detected	not detected
Vinyl Chloride	0.30	not detected	not detected
Freon 11	0.30	not detected	not detected
1,1-Dichloroethene	0.30	not detected	not detected
Dichloromethane	0.30	2.3	8.0
Trichlorotriflouroethane	0.30	not detected	not detected
1,1-Dichloroethane	0.30	not detected	not detected
c-1,2-Dichloroethene	0.30	not detected	not detected
t-1,2-Dichloroethene	0.30	not detected	not detected
Chloroform	0.30	not detected	not detected
1,1,1-Trichloroethane	0.30	not detected	not detected
1,2-Dichloroethane	0.30	not detected	not detected
Benzene	0.30	0.50	1.6
Carbon Tetrachloride	0.30	not detected	not detected
Trichloroethene	0.30	not detected	not detected
Toluene	0.30	0.62	2.3
Tetrachloroethene	0.30	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10343
Site:	MW-B-0-8-2	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	690	3400
Vinyl Chloride	3.00	310	790
Freon 11	3.00	230	1300
1,1-Dichloroethene	3.00	26000	100000
Dichloromethane	3.00	210	720
Trichlorotriflouroethane	3.00	16000	120000
1,1-Dichloroethane	3.00	80	320
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	250	1400
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	10	33
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	1000	5500
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	42	280

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10344
Site:	MW-B-O-8-3	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	230	1300
1,1-Dichloroethene	3.75	23000	92000
Dichloromethane	3.75	49	170
Trichlorotriflouroethane	3.75	20000	150000
1,1-Dichloroethane	3.75	100	410
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	210	1200
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	740	4000
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	17	110

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10304
Site:	MW-S-0-3-1	Date Sampled:	3-28-91
Tube #:	1004	Date Analyzed:	4-5-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.326
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.037
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	0.019
Trichlorotriflouroethane	0.001	18.24
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.004
Carbon Tetrachloride	0.001	0.011
Trichloroethene	0.001	0.024
Toluene	0.001	0.020
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10342
Site:	MW-B-0-8-1	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-5-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	51	130
Freon 11	1.50	280	1600
1,1-Dichloroethene	1.50	20000	79000
Dichloromethane	1.50	26	91
Trichlorotriflouroethane	1.50	13000	97000
1,1-Dichloroethane	1.50	140	580
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	5.1	20
Chloroform	1.50	6.0	29
1,1,1-Trichloroethane	1.50	320	1800
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	9.2	30
Carbon Tetrachloride	1.50	5.9	37
Trichloroethene	1.50	750	4100
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	34	230

EAS

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10344
Duplcte: 10344 D
QC Lot: 4-5-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	230	150	42	40
1,1-Dichloroethene	23000	25000	8	40
Dichloromethane	49	47	4	40
Trichlorotrifluoroethane	20000	17000	16	40
1,1-Dichloroethane	100	96	4	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	210	220	5	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	740	740	0	40
Toluene	not detec	not detec		40
Tetrachloroethane	17	23	30	40

EAS

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10344
Duplcte: 10344 D
QC Lot: 4-5-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	230	150	42	40
1,1-Dichloroethene	23000	25000	8	40
Dichloromethane	49	47	4	40
Trichlorotrifluoroethane	20000	17000	16	40
1,1-Dichloroethane	100	96	4	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	210	220	5	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	740	740	0	40
Toluene	not detec	not detec		40
Tetrachloroethane	17	23	30	40

METHOD BLANK REPORT

QC Lot: 4-5-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-5-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

ANALYTICAL RESULTS

April 5, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10326
Site:	MW-T-0-7-B	Date Sampled:	4-2-91
Tube #:	2019	Date Analyzed:	4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.002
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	0.005
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.029
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client: CH2M Hill
Site: MW-S-0-8-B
Tube #: 1000

Lab #: 10341
Date Sampled: 4-3-91
Date Analyzed: 4-4-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.013
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.003
1,1-Dichloroethene	0.001	0.003
Dichloromethane	0.001	0.011
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.008
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10445
Site:	VR-B-0-44-2	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10446
Site:	VR-B-0-44-3	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10447
Site:	VR-B-0-44-4	Date Sampled:	4-9-91
Can #:	Bag	Date Analyzed:	4-10-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.88	not detected	not detected
Vinyl Chloride	1.88	not detected	not detected
Freon 11	1.88	not detected	not detected
1,1-Dichloroethene	1.88	not detected	not detected
Dichloromethane	1.88	not detected	not detected
Trichlorotriflouroethane	1.88	not detected	not detected
1,1-Dichloroethane	1.88	not detected	not detected
c-1,2-Dichloroethene	1.88	not detected	not detected
t-1,2-Dichloroethene	1.88	not detected	not detected
Chloroform	1.88	not detected	not detected
1,1,1-Trichloroethane	1.88	not detected	not detected
1,2-Dichloroethane	1.88	not detected	not detected
Benzene	1.88	not detected	not detected
Carbon Tetrachloride	1.88	not detected	not detected
Trichloroethene	1.88	not detected	not detected
Toluene	1.88	not detected	not detected
Tetrachloroethene	1.88	not detected	not detected

ANALYTICAL RESULTS

April 11, 1991

METHOD BLANK REPORT

QC Lot: 4-11-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10557
Duplcte: 10557 D
QC Lot: 4-11-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	1300	1200	8	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	780	720	8	40
1,1-Dichloroethane	690	600	14	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	140	150	7	40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	1300	1700	27	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	190	180	5	40
Toluene	not detec	not detec		40
Tetrachloroethane	28	26	7	40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10358
Site:	MW-T-0-9-1 (1st)	Date Sampled:	4-4-91
Tube #:	2010	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	1.28
Vinyl Chloride	0.001	0.061
Freon 11	0.001	0.746
1,1-Dichloroethene	0.001	9.35
Dichloromethane	0.001	0.15
Trichlorotriflouroethane	0.001	26.1
1,1-Dichloroethane	0.001	0.006
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.091
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.006
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.053
Toluene	0.001	0.010
Tetrachloroethene	0.001	0.017

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10359
Site:	MW-T-0-9-2 (1st)	Date Sampled:	4-4-91
Tube #:	2004	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	1.26
Vinyl Chloride	0.001	0.054
Freon 11	0.001	3.92
1,1-Dichloroethene	0.001	6.50
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	19.05
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.060
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.134
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.020
Toluene	0.001	0.339
Tetrachloroethene	0.001	0.010

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10361
Site:	MW-T-0-9-3 (1st)	Date Sampled:	4-4-91
Tube #:	2011	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.038
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	not detected
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10399 A
Site:	MW-T-0-6-1 (1st)	Date Sampled:	4-4-91
Tube #:	2014	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.057
Toluene	0.001	0.064
Tetrachloroethene	0.001	0.007

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10400 A
Site:	MW-T-0-6-2 (1st)	Date Sampled:	4-4-91
Tube #:	1004	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.384
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.045
1,1-Dichloroethene	0.001	0.025
Dichloromethane	0.001	0.065
Trichlorotriflouroethane	0.001	2.57
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.006
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.074
Toluene	0.001	0.058
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10401 A
Site:	MW-T-0-6-3 (1st)	Date Sampled:	4-4-91
Tube #:	2019	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.302
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.028
1,1-Dichloroethene	0.001	0.014
Dichloromethane	0.001	0.006
Trichlorotriflouroethane	0.001	2.30
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.002
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.024
Toluene	0.001	0.010
Tetrachloroethene	0.001	0.002

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10402 A
Site:	MW-T-0-6-4 (1st)	Date Sampled:	4-4-91
Tube #:	1007	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.096
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	0.003
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	0.007
t-1,2-Dichloroethene	0.001	0.013
Chloroform	0.001	0.018
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.062
Toluene	0.001	0.048
Tetrachloroethene	0.001	0.008

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10402 B
Site:	MW-T-0-6-4 (2nd)	Date Sampled:	4-4-91
Tube #:	1003	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.170
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.014
1,1-Dichloroethene	0.001	0.012
Dichloromethane	0.001	0.099
Trichlorotriflouroethane	0.001	0.320
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.023
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.006
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.003
Toluene	0.001	0.019
Tetrachloroethene	0.001	0.004

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10415
Site:	MW-T-0-5-B	Date Sampled:	4-8-91
Tube #:	2012	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.003
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.013
Dichloromethane	0.001	0.013
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.011
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.020
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10416
Site:	MW-S-0-5-1	Date Sampled:	4-8-91
Tube #:	1006	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.028
Toluene	0.001	0.007
Tetrachloroethene	0.001	0.002

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10417
Site:	MW-T-0-5-2	Date Sampled:	4-8-91
Tube #:	2005	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.009
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1.1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	not detected
1.1-Dichloroethane	0.001	not detected
c-1.2-Dichloroethene	0.001	not detected
t-1.2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1.1.1-Trichloroethane	0.001	not detected
1.2-Dichloroethane	0.001	not detected
Benzene	0.001	not detected
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	not detected
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10418
Site:	MW-S-0-5-3	Date Sampled:	4-8-91
Tube #:	1008	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.032
1,1-Dichloroethene	0.001	0.092
Dichloromethane	0.001	0.017
Trichlorotriflouroethane	0.001	2.34
1,1-Dichloroethane	0.001	0.006
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.022
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.001
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.008
Tetrachloroethene	0.001	0.004

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10419
Site:	MW-T-0-4-B	Date Sampled:	4-8-91
Tube #:	2018	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.029
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.009
1,1-Dichloroethene	0.001	not detected
Dichloromethane	0.001	0.011
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.005
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.002
Toluene	0.001	0.023
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10420
Site:	MW-T-0-4-1	Date Sampled:	4-8-91
Tube #:	2026	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.083
Vinyl Chloride	0.001	0.009
Freon 11	0.001	0.024
1,1-Dichloroethene	0.001	0.187
Dichloromethane	0.001	0.018
Trichlorotriflouroethane	0.001	1.74
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.030
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.004
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.324
Toluene	0.001	0.011
Tetrachloroethene	0.001	0.004

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10421
Site:	MW-T-0-4-2	Date Sampled:	4-8-91
Tube #:	2025	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.047
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.015
1,1-Dichloroethene	0.001	0.092
Dichloromethane	0.001	0.019
Trichlorotriflouroethane	0.001	0.998
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.030
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.005
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.228
Toluene	0.001	0.009
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10422
Site:	MW-T-0-4-3	Date Sampled:	4-8-91
Tube #:	2027	Date Analyzed:	4-11-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.084
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.024
1,1-Dichloroethene	0.001	0.184
Dichloromethane	0.001	0.012
Trichlorotriflouroethane	0.001	1.73
1,1-Dichloroethane	0.001	0.006
c-1,2-Dichloroethene	0.001	0.001
t-1,2-Dichloroethene	0.001	0.047
Chloroform	0.001	0.004
1,1,1-Trichloroethane	0.001	0.004
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.005
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.0404
Toluene	0.001	0.10
Tetrachloroethene	0.001	0.005

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10550
Site:	VR-B-0-42-2	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	8.3	29
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	7.8	30
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10551
Site:	VR-B-0-42-1	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	not detected	not detected
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	not detected	not detected
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10552
Site:	VR-B-0-42-2	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	66	500
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	not detected	not detected
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10553
Site:	VR-B-0-42-3	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	not detected	not detected
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	not detected	not detected
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10554
Site:	VR-B-0-42-4	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	52	400
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	not detected	not detected
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	10	39
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10555
Site:	VR-B-0-61-B	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.50	not detected	not detected
Vinyl Chloride	0.50	not detected	not detected
Freon 11	0.50	not detected	not detected
1,1-Dichloroethene	0.50	not detected	not detected
Dichloromethane	0.50	3.7	13
Trichlorotriflouroethane	0.50	not detected	not detected
1,1-Dichloroethane	0.50	not detected	not detected
c-1,2-Dichloroethene	0.50	not detected	not detected
t-1,2-Dichloroethene	0.50	not detected	not detected
Chloroform	0.50	not detected	not detected
1,1,1-Trichloroethane	0.50	not detected	not detected
1,2-Dichloroethane	0.50	not detected	not detected
Benzene	0.50	not detected	not detected
Carbon Tetrachloride	0.50	not detected	not detected
Trichloroethene	0.50	not detected	not detected
Toluene	0.50	not detected	not detected
Tetrachloroethene	0.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10556
Site:	VR-B-0-61-1	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	1000	4100
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	690	5300
1,1-Dichloroethane	3.00	720	2900
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	150	580
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	1300	7000
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	160	860
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	30	210

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10557
Site:	VR-B-0-61-2	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	1300	5100
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	780	6000
1,1-Dichloroethane	3.00	690	2800
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	140	560
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	1300	7100
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	190	1000
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	28	190

ANALYTICAL REPORT

April 12, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10557 D
Site:	VR-B-0-61-2	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	1200	4700
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	720	5500
1,1-Dichloroethane	3.00	600	2400
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	150	610
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	1700	9400
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	180	990
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	26	180

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10559
Site:	VR-B-0-34-B	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-11-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.50	not detected	not detected
Vinyl Chloride	0.50	not detected	not detected
Freon 11	0.50	not detected	not detected
1,1-Dichloroethene	0.50	not detected	not detected
Dichloromethane	0.50	4.5	16
Trichlorotriflouroethane	0.50	not detected	not detected
1,1-Dichloroethane	0.50	not detected	not detected
c-1,2-Dichloroethene	0.50	not detected	not detected
t-1,2-Dichloroethene	0.50	not detected	not detected
Chloroform	0.50	not detected	not detected
1,1,1-Trichloroethane	0.50	not detected	not detected
1,2-Dichloroethane	0.50	not detected	not detected
Benzene	0.50	not detected	not detected
Carbon Tetrachloride	0.50	not detected	not detected
Trichloroethene	0.50	not detected	not detected
Toluene	0.50	11	41
Tetrachloroethene	0.50	not detected	not detected

METHOD BLANK REPORT

QC Lot: 4-12-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-12-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10352
Duplcte: 10352 D
QC Lot: 4-12-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	59	85	36	40
Vinyl Chloride	81	100	21	40
Freon 11	210	310	38	40
1,1-Dichloroethene	19000	26000	31	40
Dichloromethane	37	21	55	40
Trichlorotrifluoroethane	9800	13000	28	40
1,1-Dichloroethane	88	130	39	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	330	310	6	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	11	12	9	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	970	950	2	40
Toluene	not detec	not detec		40
Tetrachloroethane	46	43	7	40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10352
Duplicte: 10352 D
QC Lot: 4-12-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	59	85	36	40
Vinyl Chloride	81	100	21	40
Freon 11	210	310	38	40
1,1-Dichloroethene	19000	26000	31	40
Dichloromethane	37	21	55	40
Trichlorotrifluoroethane	9800	13000	28	40
1,1-Dichloroethane	88	130	39	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	330	310	6	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	11	12	9	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	970	950	2	40
Toluene	not detec	not detec		40
Tetrachloroethane	46	43	7	40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10348
Site:	MW-AC-0-8-2	Date Sampled:	4-3-91
Can #:	65	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	160	800
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	110	630
1,1-Dichloroethene	1.50	9200	37000
Dichloromethane	1.50	73	260
Trichlorotriflouroethane	1.50	5400	41000
1,1-Dichloroethane	1.50	43	180
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	71	390
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	320	1700
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	11	77

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10349
Site:	MW-AC-0-8-3	Date Sampled:	4-3-91
Can #:	123	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.88	170	830
Vinyl Chloride	1.88	not detected	not detected
Freon 11	1.88	140	770
1.1-Dichloroethene	1.88	11000	43000
Dichloromethane	1.88	28	98
Trichlorotriflouroethane	1.88	5500	42000
1.1-Dichloroethane	1.88	62	250
c-1.2-Dichloroethene	1.88	not detected	not detected
t-1.2-Dichloroethene	1.88	not detected	not detected
Chloroform	1.88	not detected	not detected
1.1.1-Trichloroethane	1.88	160	870
1.2-Dichloroethane	1.88	not detected	not detected
Benzene	1.88	not detected	not detected
Carbon Tetrachloride	1.88	not detected	not detected
Trichloroethene	1.88	440	2400
Toluene	1.88	not detected	not detected
Tetrachloroethene	1.88	18	120

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10350
Site:	MW-PC-0-8-4	Date Sampled:	4-3-91
Can #:	47	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	280	1400
Vinyl Chloride	3.00	160	400
Freon 11	3.00	210	1200
1,1-Dichloroethene	3.00	21000	84000
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	10000	79000
1,1-Dichloroethane	3.00	90	360
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	240	1300
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	820	4400
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	38	260

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10352
Site:	MW-PC-0-8-6	Date Sampled:	4-3-91
Can #:	98	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	59	290
Vinyl Chloride	3.00	81	210
Freon 11	3.00	210	1200
1,1-Dichloroethene	3.00	19000	76000
Dichloromethane	3.00	37	130
Trichlorotriflouroethane	3.00	9800	75000
1,1-Dichloroethane	3.00	88	360
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	4.8	19
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	330	1800
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	11	35
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	970	5200
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	46	310

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10352 D
Site:	MW-PC-0-8-6	Date Sampled:	4-3-91
Can #:	98	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	85	420
Vinyl Chloride	3.00	100	270
Freon 11	3.00	310	1800
1,1-Dichloroethene	3.00	26000	100000
Dichloromethane	3.00	21	73
Trichlorotriflouroethane	3.00	13000	99000
1,1-Dichloroethane	3.00	130	510
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	310	1700
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	12	38
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	950	5100
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	43	290

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10558
Site:	VR-B-0-61-3	Date Sampled:	4-3-91
Can #:	Bag	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	960	3800
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	630	4900
1,1-Dichloroethane	3.00	390	1600
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	130	500
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	1800	9800
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	210	1100
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	32	220

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10365
Site:	MW-AC-0-9-2	Date Sampled:	4-3-91
Can #:	400	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	66	370
1,1-Dichloroethene	1.50	5400	22000
Methylene Chloride	1.50	27	93
Trichlorotriflouroethane	1.50	3900	30000
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	26	140
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	31	170
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10366
Site:	MW-AC-0-9-3	Date Sampled:	4-4-91
Can #:	57	Date Analyzed:	4-12-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	17	82
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	50	290
1,1-Dichloroethene	1.50	6700	27000
Dichloromethane	1.50	21	74
Trichlorotriflouroethane	1.50	4800	37000
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	24	130
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	25	130
Toluene	1.50	5.00	19
Tetrachloroethene	1.50	not detected	not detected

ANALYTICAL REPORT

April 13, 1991

METHOD BLANK REPORT

QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

EAS

METHOD BLANK REPORT

QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10560
Duplicate: 10560 D
QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		30
Vinyl Chloride	not detec	not detec		30
Freon 11	not detec	not detec		30
1,1-Dichloroethene	850	740	14	30
Dichloromethane	not detec	not detec		30
Trichlorotrifluoroethane	390	350	11	30
1,1-Dichloroethane	not detec	not detec		30
c-1,2-Dichloroethene	not detec	not detec		30
t-1,2-Dichloroethene	not detec	not detec		30
Chloroform	not detec	not detec		30
1,1,1-Trichloroethane	510	500	2	30
1,2-Dichloroethane	not detec	not detec		30
Benzene	not detec	not detec		30
Carbon Tetrachloride	not detec	not detec		30
Trichloroethene	94	93	1	30
Toluene	not detec	not detec		30
Tetrachloroethane	not detec	not detec		30

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10560
Duplcte: 10560 D
QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	850	740	14	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	390	350	11	40
1,1-Dichloroetnane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	510	500	2	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	94	93	1	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10560
Duplcte: 10560 D
QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	850	740	14	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	390	350	11	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	510	500	2	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	94	93	1	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10560
Duplcte: 10560 D
QC Lot: 4-13-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	850	740	14	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	390	350	11	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	510	500	2	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	94	93	1	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10363
Site:	MW-AC-0-9-B	Date Sampled:	4-4-91
Can #:	79	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10364
Site:	MW-AC-0-9-1	Date Sampled:	4-4-91
Can #:	69	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	89	500
1,1-Dichloroethene	1.50	8400	34000
Dichloromethane	1.50	17	61
Trichlorotriflouroethane	1.50	6700	51000
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	24	130
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	27	150
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10393
Site:	MW-AC-0-6-B	Date Sampled:	4-6-91
Can #:	16	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	11	39
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-AC-0-6-2
Can #: 91

Lab #: 10395
Date Sampled: 4-6-91
Date Analyzed: 4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	14	67
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	270	2100
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	29	150
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10396
Site:	MW-AC-0-6-3	Date Sampled:	4-6-91
Can #:	114	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	12	57
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	240	1800
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	25	140
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10409
Site:	MW-AC-0-5-2	Date Sampled:	4-8-91
Can #:	105	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	not detected	not detected
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	not detected	not detected
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	not detected	not detected
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	not detected	not detected
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10560
Site:	VR-B-0-34-1	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	850	3400
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	390	3000
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	510	2800
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	94	510
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10560 D
Site:	VR-B-0-34-1	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	740	2900
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	350	2700
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	500	2700
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	93	500
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10561
Site:	VR-B-0-34-2	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-13-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	670	2700
Dichloromethane	3.75	not detected	1600
chlorotriflouroethane	3.75	440	not detected
1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	570	3100
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	100	550
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

ANALYTICAL RESULTS

April 14, 1991

METHOD BLANK REPORT

QC Lot: [illegible]-14-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-14-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10562
Duplicate: 10562 D
QC Lot: 4-14-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec	18	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	not detec	not detec	18	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	not detec	not detec	0	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec	2	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10562
Duplcte: 10562 D
QC Lot: 4-14-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	not detec	not detec		40
Freon 11	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec	18	40
Dichloromethane	not detec	not detec		40
Trichlorotrifluoroethane	not detec	not detec	18	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	not detec	not detec	0	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec	2	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10562
Duplicate: 10562 D
QC Lot: 4-14-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		30
Vinyl Chloride	not detec	not detec		30
Freon 11	not detec	not detec		30
1,1-Dichloroethene	not detec	not detec	18	30
Dichloromethane	not detec	not detec		30
Trichlorotrifluoroethane	not detec	not detec	18	30
1,1-Dichloroethane	not detec	not detec		30
c-1,2-Dichloroethene	not detec	not detec		30
t-1,2-Dichloroethene	not detec	not detec		30
Chloroform	not detec	not detec		30
1,1,1-Trichloroethane	not detec	not detec	0	30
1,2-Dichloroethane	not detec	not detec		30
Benzene	not detec	not detec		30
Carbon Tetrachloride	not detec	not detec		30
Trichloroethene	not detec	not detec	2	30
Toluene	not detec	not detec		30
Tetrachloroethane	not detec	not detec		30

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10562
Site:	VR-B-0-34-3	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	400	1600
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	250	1900
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	490	2700
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	81	440
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10562 D
Site:	VR-B-0-34-3	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	480	1900
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	300	2300
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	490	2700
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	83	444
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10563
Site:	VR-B-0-34-4	Date Sampled:	4-10-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	680	2700
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	340	2600
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	280	1500
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	63	340
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10582
Site:	VR-B-0-35-1	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	330	1300
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	230	1700
1,1-Dichloroethane	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	250	1400
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	63	340
Toluene	3.00	7.1	27
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10583
Site:	VR-B-0-35-2	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	240	960
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	200	1500
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	320	1700
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	68	360
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10584
Site:	VR-B-0-35-3	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	350	1400
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	240	1800
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	310	1700
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	61	330
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10586
Site:	VR-B-0-39-B	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	19	110
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	150	810
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	1.5	4.8
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	30	110
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10587
Site:	VR-B-0-39-2	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	53	210
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	54	410
1,1-Dichloroethane	3.00	not detected	not detected
-1,2-Dichloroethene	3.00	not detected	not detected
-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	85	460
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	9.7	52
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10588
Site:	VR-B-0-39-2	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	82	330
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	88	680
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	56	300
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3093
Site:	VR-AC-C-42-2	Date Sampled:	4-10-91
Can #:	P100	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.50	not detected	not detected
Vinyl Chloride	2.50	not detected	not detected
Freon 11	2.50	not detected	not detected
1.1-Dichloroethene	2.50	not detected	not detected
Dichloromethane	2.50	3.1	11
Trichlorotriflouroethane	2.50	51	390
1.1-Dichloroethane	2.50	not detected	not detected
c-1.2-Dichloroethene	2.50	not detected	not detected
t-1.2-Dichloroethene	2.50	not detected	not detected
Chloroform	2.50	not detected	not detected
1.1.1-Trichloroethane	2.50	3.6	20
1.2-Dichloroethane	2.50	not detected	not detected
Benzene	2.50	not detected	not detected
Carbon Tetrachloride	2.50	not detected	not detected
Trichloroethene	2.50	not detected	not detected
Toluene	2.50	not detected	not detected
Tetrachloroethene	2.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3094
Site:	VR-AC-C-42-3	Date Sampled:	4-10-91
Can #:	P95	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.50	not detected	not detec
Vinyl Chloride	2.50	not detected	not detec
Freon 11	2.50	not detected	not detec
1,1-Dichloroethene	2.50	not detected	not detec
Dichloromethane	2.50	not detected	not detec
Trichlorotriflouroethane	2.50	49	380
1,1-Dichloroethane	2.50	not detected	not detec
c-1,2-Dichloroethene	2.50	not detected	not detec
t-1,2-Dichloroethene	2.50	not detected	not detec
Chloroform	2.50	not detected	not detec
1,1,1-Trichloroethane	2.50	6.5	35
1,2-Dichloroethane	2.50	not detected	not detec
Benzene	2.50	not detected	not detec
Carbon Tetrachloride	2.50	not detected	not detec
Trichloroethene	2.50	not detected	not detec
Toluene	2.50	not detected	not detec
Tetrachloroethene	2.50	not detected	not detec

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: VR-AC-C-61-4
Can #: P99

Lab #: 3095
Date Sampled: 4-10-91
Date Analyzed: 4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	3.3	19
1,1-Dichloroethene	1.50	870	3400
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	450	3400
1,1-Dichloroethane	1.50	550	2200
-1,2-Dichloroethene	1.50	8.7	34
t-1,2-Dichloroethene	1.50	530	2100
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	360	2000
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	34	180
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	6.1	42

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3096
Site:	VR-AC-C-42-B	Date Sampled:	4-10-91
Can #:	P79	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	1.5	5.2
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: VR-AC-C-42-1
Can #: P90

Lab #: 3097
Date Sampled: 4-10-91
Date Analyzed: 4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	8.8	31
Trichlorotriflouroethane	3.75	63	480
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	5.1	28
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3100
Site:	VR-AC-C-61-3	Date Sampled:	4-10-91
Can #:	P101	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	870	3500
Dichloromethane	1.50	2.2	7.6
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	400	1600
c-1,2-Dichloroethene	1.50	8.7	35
t-1,2-Dichloroethene	1.50	370	1500
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	360	1900
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	32	170
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	4.7	32

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3128
Site:	VR-AC-C-13-B	Date Sampled:	4-12-91
Can #:	P140	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	2.3	8.1
Trichlorotriflouroethane	0.75	2.1	16
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3129
Site:	VR-AC-C-13-1	Date Sampled:	4-12-91
Can #:	P150	Date Analyzed:	4-14-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.00	not detected	not detected
Vinyl Chloride	1.00	not detected	not detected
Freon 11	1.00	not detected	not detected
1,1-Dichloroethene	1.00	not detected	not detected
Dichloromethane	1.00	2.1	7.2
Trichlorotriflouroethane	1.00	2.4	18
1,1-Dichloroethane	1.00	not detected	not detected
c-1,2-Dichloroethene	1.00	not detected	not detected
t-1,2-Dichloroethene	1.00	not detected	not detected
Chloroform	1.00	not detected	not detected
1,1,1-Trichloroethane	1.00	not detected	not detected
1,2-Dichloroethane	1.00	not detected	not detected
Benzene	1.00	not detected	1.3
Carbon Tetrachloride	1.00	not detected	not detected
Trichloroethene	1.00	not detected	not detected
Toluene	1.00	not detected	1.8
Tetrachloroethene	1.00	not detected	not detected

ANALYTICAL RESULTS

April 15, 1991

METHOD BLANK REPORT

QC Lot: 4-15-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Vinyl Chloride	0.50	not detec
Acetonitrile	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
1,2-Dibromoethane	0.50	not detec
Tetrachloroethene	0.50	not detec
Chlorobenzene	0.50	not detec
Xylenes	0.50	not detec
Dichlorobenzenes	0.50	not detec
Benzyl Chloride	0.50	not detec

METHOD BLANK REPORT

QC Lot: 4-15-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Vinyl Chloride	0.50	not detec
Acetonitrile	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
1,2-Dibromoethane	0.50	not detec
Tetrachloroethene	0.50	not detec
Chlorobenzene	0.50	not detec
Xylenes	0.50	not detec
Dichlorobenzenes	0.50	not detec
Benzyl Chloride	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10567
Duplicate: 10867 D
QC Lot: 4-18-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Vinyl Chloride	not detec	not detec		40
Acetonitrile	not detec	not detec		40
1,1-Dichloroethene	not detec	not detec		40
Dichloromethane	2.6	4.0	43	40
1,1-Dichloroethane	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	3.4	3.5	3	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	1.8	1.8	2	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	3.2	3.3	5	40
1,2-Dibromoethane	not detec	not detec		40
Tetrachloroethene	not detec	not detec		40
Chlorobenzene	not detec	not detec		40
Xylenes	1.9	1.9	1	40
Dichlorobenzenes	not detec	not detec		40
Benzyl Chloride	not detec	not detec		40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10567
Duplcte: 10567 D
QC Lot: 4-15-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Vinyl Chloride	not detec	not detec		40
Acetonitrile	not detec	not detec		40
1.1-Dichloroethene	not detec	not detec		40
Dichloromethane	2.6	4.0	43	40
1.1-Dichloroethane	not detec	not detec		40
Chloroform	not detec	not detec		40
1.1.1-Trichloroethane	3.4	3.5	3	40
1.2-Dichloroethane	not detec	not detec		40
Benzene	1.8	1.8	2	40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	not detec	not detec		40
Toluene	3.2	3.3	5	40
1.2-Dibromoethane	not detec	not detec		40
Tetrachloroethene	not detec	not detec		40
Chlorobenzene	not detec	not detec		40
Xylenes	1.9	1.9	1	40
Dichlorobenzenes	not detec	not detec		40
Benzyl Chloride	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10589
Site:	VR-B-0-39-3	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	not detected	not detected
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	18	140
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	25	140
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	6.7	36
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10599
Site:	VR-B-0-36-B	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	10	35
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10600
Site:	VR-B-0-36-1	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1.1-Dichloroethene	3.75	140	540
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	110	860
1.1-Dichloroethane	3.75	not detected	not detected
c-1.2-Dichloroethene	3.75	not detected	not detected
t-1.2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1.1.1-Trichloroethane	3.75	67	360
1.2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	21	110
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10601
Site:	VR-B-0-36-2	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	56	220
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	not detected	not detected
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	150	820
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	41	220
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10602
Site:	VR-B-0-36-3	Date Sampled:	4-11-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	170	680
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	150	1100
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	120	660
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	29	160
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10603
Site:	VR-B-0-13-B	Date Sampled:	4-12-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	11	39
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	5.1	28
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	1.8	6.9
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10604
Site:	VR-B-0-13-1	Date Sampled:	4-12-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.00	not detected	not detected
Vinyl Chloride	3.00	not detected	not detected
Freon 11	3.00	not detected	not detected
1,1-Dichloroethene	3.00	not detected	not detected
Dichloromethane	3.00	not detected	not detected
Trichlorotriflouroethane	3.00	190	1400
1,1-Dichloroethane	3.00	not detected	not detected
c-1,2-Dichloroethene	3.00	not detected	not detected
t-1,2-Dichloroethene	3.00	not detected	not detected
Chloroform	3.00	not detected	not detected
1,1,1-Trichloroethane	3.00	not detected	not detected
1,2-Dichloroethane	3.00	not detected	not detected
Benzene	3.00	not detected	not detected
Carbon Tetrachloride	3.00	not detected	not detected
Trichloroethene	3.00	not detected	not detected
Toluene	3.00	not detected	not detected
Tetrachloroethene	3.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: VR-B-0-13-2
Can #: Bag

Lab #: 10605
Date Sampled: 4-12-91
Date Analyzed: 4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	32	110
Trichlorotriflouroethane	3.75	130	980
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	not detected	not detected
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10606
Site:	VR-B-0-13-3	Date Sampled:	4-12-91
Can #:	Bag	Date Analyzed:	4-15-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1.1-Dichloroethene	3.75	not detected	not detected
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	190	1400
1.1-Dichloroethane	3.75	not detected	not detected
c-1.2-Dichloroethene	3.75	not detected	not detected
t-1.2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1.1.1-Trichloroethane	3.75	not detected	not detected
1.2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	not detected	not detected
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

ANALYTICAL RESULTS

April 16, 1991

METHOD BLANK REPORT

QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1.1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1.1-Dichloroethane	0.50	not detec
c-1.2-Dichloroethene	0.50	not detec
t-1.2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1.1.1-Trichloroethane	0.50	not detec
1.2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10347
Duplcte: 10347 D
QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	28	36	25	40
Freon 11	110	71	43	40
1,1-Dichloroethene	9900	8100	20	40
Dichloromethane	16	19	17	40
Trichlorotrifluoroethane	5900	5000	17	40
1,1-Dichloroethane	42	40	5	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	80	68	16	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	370	310	18	40
Toluene	not detec	not detec		40
Tetrachloroethane	11	9.9	11	40

METHOD BLANK REPORT

QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10347
Duplcte: 10347 D
QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	28	36	25	40
Freon 11	110	71	43	40
1,1-Dichloroethene	9900	8100	20	40
Dichloromethane	16	19	17	40
Trichlorotrifluoroethane	5900	5000	17	40
1,1-Dichloroethane	42	40	5	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	80	68	16	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	370	310	18	40
Toluene	not detec	not detec		40
Tetrachloroethane	11	9.9	11	40

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 10347
Duplicate: 10347 D
QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	not detec	not detec		40
Vinyl Chloride	28	36	25	40
Freon 11	110	71	43	40
1,1-Dichloroethene	9900	8100	20	40
Dichloromethane	16	19	17	40
Trichlorotrifluoroethane	5900	5000	17	40
1,1-Dichloroethane	42	40	5	40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	not detec	not detec		40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	80	68	16	40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	not detec	not detec		40
Trichloroethene	370	310	18	40
Toluene	not detec	not detec		40
Tetrachloroethane	11	9.9	11	40

METHOD BLANK REPORT

QC Lot: 4-16-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.50	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10347
Site:	MW-AC-0-8-1	Date Sampled:	4-3-91
Can #:	22	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	28	72
Freon 11	1.50	110	640
1,1-Dichloroethene	1.50	9900	39000
Dichloromethane	1.50	16	57
Trichlorotriflouroethane	1.50	5900	45000
1,1-Dichloroethane	1.50	42	170
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	80	440
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	370	2000
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	11	75

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: MW-AC-D-8-1
Can #: 22

Lab #: 10347 D
Date Sampled: 4-6-91
Date Analyzed: 4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	36	91
Freon 11	1.50	71	400
1,1-Dichloroethene	1.50	8100	32000
Dichloromethane	1.50	19	67
Trichlorotriflouroethane	1.50	5000	37000
1,1-Dichloroethane	1.50	40	160
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	68	370
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	310	1600
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	9.9	67

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10351
Site:	MW-PC-0-8-5	Date Sampled:	4-3-91
Can #:	108	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	5.00	not detected	not detected
Vinyl Chloride	5.00	not detected	not detected
Freon 11	5.00	260	1500
1,1-Dichloroethene	5.00	27000	110000
Dichloromethane	5.00	39	130
Trichlorotriflouroethane	5.00	16000	130000
1,1-Dichloroethane	5.00	140	550
c-1,2-Dichloroethene	5.00	not detected	not detected
t-1,2-Dichloroethene	5.00	not detected	not detected
Chloroform	5.00	not detected	not detected
1,1,1-Trichloroethane	5.00	240	1300
1,2-Dichloroethane	5.00	not detected	not detected
Benzene	5.00	not detected	not detected
Carbon Tetrachloride	5.00	not detected	not detected
Trichloroethene	5.00	1100	6100
Toluene	5.00	not detected	not detected
Tetrachloroethene	5.00	32	210

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10394
Site:	MW-AC-0-6-1	Date Sampled:	4-6-91
Can #:	103	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	490	2000
Dichloromethane	0.75	7.8	27
Trichlorotriflouroethane	0.75	440	3400
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	20	110
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10397
Site:	MW-AC-0-6-4	Date Sampled:	4-6-91
Can #:	77	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	24	94
Dichloromethane	1.50	4.6	16
Trichlorotriflouroethane	1.50	540	4100
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	75	400
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10407
Site:	MW-AC-0-5-B	Date Sampled:	4-12-91
Can #:	92	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1.1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	13	44
Trichlorotriflouroethane	0.75	not detected	not detected
1.1-Dichloroethane	0.75	not detected	not detected
c-1.2-Dichloroethene	0.75	not detected	not detected
t-1.2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1.1.1-Trichloroethane	0.75	not detected	not detected
1.2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10408
Site:	MW-AC-0-5-1	Date Sampled:	4-8-91
Can #:	89	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	11	38
Trichlorotriflouroethane	1.50	not detected	not detected
1-Dichloroethane	1.50	not detected	not detected
1,2-Dichloroethene	1.50	not detected	not detected
1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10410
Site:	MW-AC-0-5-3	Date Sampled:	4-8-91
Can #:	83	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10411
Site:	MW-AC-0-4-B	Date Sampled:	4-8-91
Can #:	27	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	not detected	not detected
Dichloromethane	0.75	7.6	26
Trichlorotriflouroethane	0.75	not detected	not detected
1,1-Dichloroethane	0.75	not detected	not detected
c-1 2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	not detected	not detected
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	not detected	not detected
Toluene	0.75	7.8	29
Tetrachloroethene	0.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10412
Site:	MW-AC-3-4-1	Date Sampled:	4-8-91
Can #:	122	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.00	not detected	not detected
Vinyl Chloride	2.00	not detected	not detected
Freon 11	2.00	not detected	not detected
1,1-Dichloroethene	2.00	not detected	not detected
Dichloromethane	2.00	not detected	not detected
Trichlorotriflouroethane	2.00	not detected	not detected
1,1-Dichloroethane	2.00	not detected	not detected
c-1,2-Dichloroethene	2.00	not detected	not detected
t-1,2-Dichloroethene	2.00	not detected	not detected
Chloroform	2.00	not detected	not detected
1,1,1-Trichloroethane	2.00	not detected	not detected
1,2-Dichloroethane	2.00	not detected	not detected
Benzene	2.00	not detected	not detected
Carbon Tetrachloride	2.00	not detected	not detected
Trichloroethene	2.00	6.3	34
Toluene	2.00	not detected	not detected
Tetrachloroethene	2.00	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10413
Site:	MW-AC-0-4-2	Date Sampled:	4-8-91
Can #:	131	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	120	480
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	400	3100
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	43	170
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	720	3800
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10414
Site:	MW-AC-0-4-3	Date Sampled:	4-8-91
Can #:	94	Date Analyzed:	4-16-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.75	not detected	not detected
Vinyl Chloride	0.75	not detected	not detected
Freon 11	0.75	not detected	not detected
1,1-Dichloroethene	0.75	33	130
Dichloromethane	0.75	not detected	not detected
Trichlorotriflouroethane	0.75	210	1700
1,1-Dichloroethane	0.75	not detected	not detected
c-1,2-Dichloroethene	0.75	not detected	not detected
t-1,2-Dichloroethene	0.75	28	110
Chloroform	0.75	not detected	not detected
1,1,1-Trichloroethane	0.75	not detected	not detected
1,2-Dichloroethane	0.75	not detected	not detected
Benzene	0.75	not detected	not detected
Carbon Tetrachloride	0.75	not detected	not detected
Trichloroethene	0.75	520	2800
Toluene	0.75	not detected	not detected
Tetrachloroethene	0.75	not detected	not detected

ANALYTICAL RESULTS

April 17, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method 8240: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10448
Site:	VR-V-0-43	Date Sampled:	4-9-91
Vial #:	43	Date Analyzed:	4-17-91

Compound	MDL ug/L	Concentration ug/L
Freon 12	50	not detected
Vinyl Chloride	10	not detected
Freon 11	10	not detected
1,1-Dichloroethene	10	not detected
Dichloromethane	10	not detected
Trichlorotriflouroethane	10	not detected
1,1-Dichloroethane	10	not detected
c-1,2-Dichloroethene	10	not detected
t-1,2-Dichloroethene	10	not detected
Chloroform	10	not detected
1,1,1-Trichloroethane	10	not detected
1,2-Dichloroethane	10	not detected
Benzene	10	not detected
Carbon Tetrachloride	10	not detected
Trichloroethene	10	not detected
Toluene	10	not detected
Tetrachloroethene	10	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method 8240: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10449
Site:	VR-V-0-44	Date Sampled:	4-9-91
Vial #:	44	Date Analyzed:	4-17-91

Compound	MDL ug/L	Concentration ug/L
Freon 12	50	not detected
Vinyl Chloride	10	not detected
Freon 11	10	not detected
1,1-Dichloroethene	10	not detected
Dichloromethane	10	not detected
Trichlorotriflouroethane	10	not detected
1,1-Dichloroethane	10	not detected
c-1,2-Dichloroethene	10	not detected
t-1,2-Dichloroethene	10	not detected
Chloroform	10	not detected
1,1,1-Trichloroethane	10	not detected
1,2-Dichloroethane	10	not detected
Benzene	10	not detected
Carbon Tetrachloride	10	not detected
Trichloroethene	10	not detected
Toluene	10	not detected
Tetrachloroethene	10	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method 8240: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10565
Site:	VR-V-0-61	Date Sampled:	4-10-91
Vial #:	61	Date Analyzed:	4-17-91

Compound	MDL ug/L	Concentration ug/L
Freon 12	250	not detected
Vinyl Chloride	50	not detected
Freon 11	50	not detected
1,1-Dichloroethene	50	not detected
Dichloromethane	50	not detected
Trichlorotriflouroethane	50	not detected
1,1-Dichloroethane	50	not detected
c-1,2-Dichloroethene	50	not detected
t-1,2-Dichloroethene	50	not detected
Chloroform	50	not detected
1,1,1-Trichloroethane	50	not detected
1,2-Dichloroethane	50	not detected
Benzene	50	not detected
Carbon Tetrachloride	50	not detected
Trichloroethene	50	not detected
Toluene	50	not detected
Tetrachloroethene	50	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method 8240: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10566
Site:	VR-V-0-34	Date Sampled:	4-10-91
Vial #:	34	Date Analyzed:	4-17-91

Compound	MDL ug/L	Concentration ug/L
Freon 12	250	not detected
Vinyl Chloride	50	not detected
Freon 11	50	not detected
1,1-Dichloroethene	50	not detected
Dichloromethane	50	not detected
Trichlorotriflouroethane	50	not detected
1,1-Dichloroethane	50	not detected
c-1,2-Dichloroethene	50	not detected
t-1,2-Dichloroethene	50	not detected
Chloroform	50	not detected
1,1,1-Trichloroethane	50	not detected
1,2-Dichloroethane	50	not detected
Benzene	50	not detected
Carbon Tetrachloride	50	not detected
Trichloroethene	50	not detected
Toluene	50	not detected
Tetrachloroethene	50	not detected

ANALYTICAL RESULTS

April 18, 1991

METHOD BLANK REPORT

QC Lot: 4-18-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	MDL ppbv	Blank (ppbv)
Freon 12	0.50	not detec
Vinyl Chloride	0.50	not detec
Freon 11	0.50	not detec
1,1-Dichloroethene	0.50	not detec
Dichloromethane	0.60	not detec
Trichlorotrifluoroethane	0.50	not detec
1,1-Dichloroethane	0.50	not detec
c-1,2-Dichloroethene	0.50	not detec
t-1,2-Dichloroethene	0.50	not detec
Chloroform	0.50	not detec
1,1,1-Trichloroethane	0.50	not detec
1,2-Dichloroethane	0.50	not detec
Benzene	0.50	not detec
Carbon Tetrachloride	0.50	not detec
Trichloroethene	0.50	not detec
Toluene	0.50	not detec
Tetrachloroethane	0.50	not detec

DUPLICATE SAMPLE/SPIKE RESULTS

Sample: 3142
Duplcte: 3142D
QC Lot: 4-18-91 Method: EPA TO-14 - GC/MS Full Scan

Compound	Sample ppbv	Duplicate ppbv	% RPD	QC Limits
Freon 12	72	66	9	40
Vinyl Chloride	not detec	not detec		40
Freon 11	84	70	18	40
1,1-Dichloroethene	320	260	21	40
Dichloromethane	7.4	12	47	40
Trichlorotrifluoroethane	13000	12000	8	40
1,1-Dichloroethane	not detec	not detec		40
c-1,2-Dichloroethene	not detec	not detec		40
t-1,2-Dichloroethene	5.9	5.8	2	40
Chloroform	not detec	not detec		40
1,1,1-Trichloroethane	not detec	not detec		40
1,2-Dichloroethane	not detec	not detec		40
Benzene	not detec	not detec		40
Carbon Tetrachloride	19	15	24	40
Trichloroethene	37	29	24	40
Toluene	not detec	not detec		40
Tetrachloroethane	not detec	not detec		40

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3121
Site:	VR-AC-C-36-B	Date Sampled:	4-11-91
Can #:	P146	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	0.60	not detected	not detected
Vinyl Chloride	0.60	not detected	not detected
Freon 11	0.60	not detected	not detected
1,1-Dichloroethene	0.60	not detected	not detected
Dichloromethane	0.60	2.6	8.9
Trichlorotriflouroethane	0.60	not detected	not detected
1,1-Dichloroethane	0.60	not detected	not detected
c-1,2-Dichloroethene	0.60	not detected	not detected
t-1,2-Dichloroethene	0.60	not detected	not detected
Chloroform	0.60	not detected	not detected
1,1,1-Trichloroethane	0.60	not detected	not detected
1,2-Dichloroethane	0.60	not detected	not detected
Benzene	0.60	not detected	not detected
Carbon Tetrachloride	0.60	not detected	not detected
Trichloroethene	0.60	not detected	not detected
Toluene	0.60	not detected	not detected
Tetrachloroethene	0.60	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3130
Site:	VR-AC-C-13-2	Date Sampled:	4-12-91
Can #:	P135	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	3.0	10
Trichlorotriflouroethane	1.50	130	980
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3138
Site:	MW-LFAC-C-2-2	Date Sampled:	4-12-91
Can #:	P133	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.50	37	180
Vinyl Chloride	2.50	not detected	not detected
Freon 11	2.50	42	240
1,1-Dichloroethene	2.50	160	640
Dichloromethane	2.50	10	35
Trichlorotriflouroethane	2.50	8200	63000
1,1-Dichloroethane	2.50	not detected	not detected
c-1,2-Dichloroethene	2.50	not detected	not detected
t-1,2-Dichloroethene	2.50	4.1	16
Chloroform	2.50	not detected	not detected
1,1,1-Trichloroethane	2.50	not detected	not detected
1,2-Dichloroethane	2.50	not detected	not detected
Benzene	2.50	not detected	not detected
Carbon Tetrachloride	2.50	9.1	58
Trichloroethene	2.50	21	110
Toluene	2.50	not detected	not detected
Tetrachloroethene	2.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3140
Site:	VR-AC-C-13-4	Date Sampled:	4-12-91
Can #:	P148	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	74	570
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3141
Site:	MW-LFAC-C-2-3	Date Sampled:	4-12-91
Can #:	P130	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	68	340
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	82	460
1,1-Dichloroethene	1.50	310	1200
Methylchloromethane	1.50	8.3	29
Trichlorotriflouroethane	1.50	13000	100000
1,1-Dichloroethane	1.50	not detected	not detected
trans-1,2-Dichloroethene	1.50	not detected	not detected
cis-1,2-Dichloroethene	1.50	6.5	26
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	19	120
Trichloroethene	1.50	39	210
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3142
Site:	MW-LFAC-C-2-4	Date Sampled:	4-12-91
Can #:	P138	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	72	360
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	84	470
1.1-Dichloroethene	1.50	320	1300
Dichloromethane	1.50	7.4	26
Trichlorotriflouroethane	1.50	13000	100000
1.1-Dichloroethane	1.50	not detected	not detected
c-1.2-Dichloroethene	1.50	not detected	not detected
t-1.2-Dichloroethene	1.50	5.9	24
Chloroform	1.50	not detected	not detected
1.1.1-Trichloroethane	1.50	not detected	not detected
1.2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	19	120
Trichloroethene	1.50	37	200
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3142 D
Site:	MW-LFAC-C-2-4	Date Sampled:	4-12-91
Can #:	P138	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.67	66	330
Vinyl Chloride	1.67	not detected	not detected
Freon 11	1.67	70	400
1,1-Dichloroethene	1.67	260	1000
Dichloromethane	1.67	12	43
Trichlorotriflouroethane	1.67	12000	95000
1,1-Dichloroethane	1.67	not detected	not detected
c-1,2-Dichloroethene	1.67	not detected	not detected
t-1,2-Dichloroethene	1.67	5.8	23
Chloroform	1.67	not detected	not detected
1,1,1-Trichloroethane	1.67	not detected	not detected
1,2-Dichloroethane	1.67	not detected	not detected
Benzene	1.67	not detected	not detected
Carbon Tetrachloride	1.67	15	93
Trichloroethene	1.67	29	160
Toluene	1.67	not detected	not detected
Tetrachloroethene	1.67	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client: CH2M Hill
Site: VR-PC-C-36-4
Can #: P119

Lab #: 3125
Date Sampled: 4-11-91
Date Analyzed: 4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	not detected	not detected
Freon 11	3.75	not detected	not detected
1,1-Dichloroethene	3.75	240	930
Dichloromethane	3.75	not detected	not detected
Trichlorotriflouroethane	3.75	200	1600
1,1-Dichloroethane	3.75	not detected	not detected
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	not detected	not detected
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	180	960
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	not detected	not detected
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	20	100
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3131
Site:	VR-AC-C-13-3	Date Sampled:	4-12-91
Can #:	P149	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflourcethane	1.50	77	590
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

EAS

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3133
Site:	AA-AC-C-1	Date Sampled:	4-12-91
Can #:	P143	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	not detected	not detected
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3134
Site:	AA-AC-C-1	Date Sampled:	4-12-91
Can #:	P144	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	2.6	10
Dichloromethane	1.50	4.3	15
Trichlorotriflouroethane	1.50	not detected	not detected
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3135
Site:	MW-LFAC-C-7-1	Date Sampled:	4-12-91
Can #:	P129	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	310	800
Freon 11	3.75	98	550
1,1-Dichloroethene	3.75	20000	80000
Dichloromethane	3.75	15	52
Trichlorotriflouroethane	3.75	11000	85000
1,1-Dichloroethane	3.75	1400	5500
c-1,2-Dichloroethene	3.75	17	69
t-1,2-Dichloroethene	3.75	650	2600
Chloroform	3.75	5.1	25
1,1,1-Trichloroethane	3.75	51	280
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	30	97
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	920	5000
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	15	100

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3136
Site:	MW-LFAC-C-7-2	Date Sampled:	4-12-91
Can #:	P132	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	3.75	not detected	not detected
Vinyl Chloride	3.75	360	920
Freon 11	3.75	190	1100
1,1-Dichloroethene	3.75	55000	220000
chloromethane	3.75	91	320
ichlorotriflouroethane	3.75	27000	210000
1,1-Dichloroethane	3.75	2700	11000
c-1,2-Dichloroethene	3.75	not detected	not detected
t-1,2-Dichloroethene	3.75	1300	4300
Chloroform	3.75	not detected	not detected
1,1,1-Trichloroethane	3.75	73	400
1,2-Dichloroethane	3.75	not detected	not detected
Benzene	3.75	57	180
Carbon Tetrachloride	3.75	not detected	not detected
Trichloroethene	3.75	1900	10000
Toluene	3.75	not detected	not detected
Tetrachloroethene	3.75	32	220

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3137
Site:	MW-LFAC-C-2-1	Date Sampled:	4-12-91
Can #:	P134	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	2.14	57	280
Vinyl Chloride	2.14	not detected	not detected
Freon 11	2.14	78	440
1,1-Dichloroethene	2.14	300	1200
Dichloromethane	2.14	14	48
Trichlorotriflouroethane	2.14	14000	110000
1,1-Dichloroethane	2.14	not detected	not detected
c-1,2-Dichloroethene	2.14	not detected	not detected
t-1,2-Dichloroethene	2.14	6.6	26
Chloroform	2.14	not detected	not detected
1,1,1-Trichloroethane	2.14	not detected	not detected
1,2-Dichloroethane	2.14	not detected	not detected
Benzene	2.14	not detected	not detected
Carbon Tetrachloride	2.14	16	100
Trichloroethene	2.14	35	190
Toluene	2.14	not detected	not detected
Tetrachloroethene	2.14	not detected	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-14: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	3139
Site:	VR-AC-C-13-5	Date Sampled:	4-12-91
Can #:	P139	Date Analyzed:	4-18-91

Compound	MDL ppbv	Concentration ppbv	Concentration ug/m3
Freon 12	1.50	not detected	not detected
Vinyl Chloride	1.50	not detected	not detected
Freon 11	1.50	not detected	not detected
1,1-Dichloroethene	1.50	not detected	not detected
Dichloromethane	1.50	2.2	7.6
Trichlorotriflouroethane	1.50	120	890
1,1-Dichloroethane	1.50	not detected	not detected
c-1,2-Dichloroethene	1.50	not detected	not detected
t-1,2-Dichloroethene	1.50	not detected	not detected
Chloroform	1.50	not detected	not detected
1,1,1-Trichloroethane	1.50	not detected	not detected
1,2-Dichloroethane	1.50	not detected	not detected
Benzene	1.50	not detected	not detected
Carbon Tetrachloride	1.50	not detected	not detected
Trichloroethene	1.50	not detected	not detected
Toluene	1.50	not detected	not detected
Tetrachloroethene	1.50	not detected	not detected

ANALYTICAL RESULTS

April 19, 1991

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10591
Site:	MW-BT-0-7-3 (1st)	Date Sampled:	4-11-91
Tube #:	2024	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	7.25
Vinyl Chloride	0.001	5.08
Freon 11	0.001	0.007
1,1-Dichloroethene	0.001	6.69
Dichloromethane	0.001	0.005
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	not detected
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.47
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	2.24
Toluene	0.001	0.008
Tetrachloroethene	0.001	0.127

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10592
Site:	MW-BT-0-7-3 (2nd)	Date Sampled:	4-11-91
Tube #:	2022	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	1.68
Vinyl Chloride	0.001	4.54
Freon 11	0.001	0.322
1,1-Dichloroethene	0.001	11.3
Dichloromethane	0.001	0.025
Trichlorotriflouroethane	0.001	2.19
1,1-Dichloroethane	0.001	0.111
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.12
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.006
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.004
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.004
Toluene	0.001	0.087
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10593
Site:	MW-BT-0-7-4 (1st)	Date Sampled:	4-11-91
Tube #:	2023	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.047
Vinyl Chloride	0.001	3.98
Freon 11	0.001	0.038
1,1-Dichloroethene	0.001	21.6
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	10.9
1,1-Dichloroethane	0.001	0.161
c-1,2-Dichloroethene	0.001	0.52
t-1,2-Dichloroethene	0.001	0.348
Chloroform	0.001	0.316
1,1,1-Trichloroethane	0.001	0.082
1,2-Dichloroethane	0.001	0.097
Benzene	0.001	0.021
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	1.39
Toluene	0.001	0.003
Tetrachloroethene	0.001	0.013

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10594
Site:	MW-BT-0-7-4 (2nd)	Date Sampled:	4-11-91
Tube #:	2028	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.051
Vinyl Chloride	0.001	0.025
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.026
Dichloromethane	0.001	0.006
Trichlorotriflouroethane	0.001	0.114
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.007
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.003
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.002
Toluene	0.001	0.155
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10607
Site:	MW-LF-0-7-1 (1st)	Date Sampled:	4-12-91
Tube #:	2007	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.413
Vinyl Chloride	0.001	0.741
Freon 11	0.001	0.155
1,1-Dichloroethene	0.001	11.93
Dichloromethane	0.001	not detected
Trichlorotriflouroethane	0.001	18.7
1,1-Dichloroethane	0.001	0.990
-1,2-Dichloroethene	0.001	0.003
-1,2-Dichloroethene	0.001	0.125
Chloroform	0.001	0.003
1,1,1-Trichloroethane	0.001	0.069
1,2-Dichloroethane	0.001	0.031
Benzene	0.001	0.026
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	1.29
Toluene	0.001	0.015
Tetrachloroethene	0.001	0.059

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10608
Site:	MW-LF-0-7-2 (2nd)	Date Sampled:	4-12-91
Tube #:	2012	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.215
Vinyl Chloride	0.001	0.003
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.005
Dichloromethane	0.001	0.011
Trichlorotriflouroethane	0.001	not detected
1,1-Dichloroethane	0.001	not detected
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.002
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.003
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	not detected
Toluene	0.001	0.006
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10609
Site:	MW-LF-0-2-1 (1st)	Date Sampled:	4-12-91
Tube #:	1008	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	0.048
Vinyl Chloride	0.001	not detected
Freon 11	0.001	not detected
1,1-Dichloroethene	0.001	0.144
Dichloromethane	0.001	0.014
Trichlorotriflouroethane	0.001	0.495
1,1-Dichloroethane	0.001	0.004
c-1,2-Dichloroethene	0.001	not detected
-1,2-Dichloroethene	0.001	not detected
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.003
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.002
Carbon Tetrachloride	0.001	not detected
Trichloroethene	0.001	0.099
Toluene	0.001	0.004
Tetrachloroethene	0.001	not detected

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

EPA Method TO-02: GC/MS Full Scan

Client:	CH2M Hill	Lab #:	10610
Site:	MW-LF-0-2-2 (2nd)	Date Sampled:	4-12-91
Tube #:	2018	Date Analyzed:	4-19-91

Compound	MDL ug	Concentration ug
Freon 12	0.001	not detected
Vinyl Chloride	0.001	not detected
Freon 11	0.001	0.208
1,1-Dichloroethene	0.001	0.681
Dichloromethane	0.001	0.011
Trichlorotriflouroethane	0.001	57.3
1,1-Dichloroethane	0.001	0.004
c-1,2-Dichloroethene	0.001	not detected
t-1,2-Dichloroethene	0.001	0.002
Chloroform	0.001	not detected
1,1,1-Trichloroethane	0.001	0.018
1,2-Dichloroethane	0.001	not detected
Benzene	0.001	0.004
Carbon Tetrachloride	0.001	0.033
Trichloroethene	0.001	0.096
Toluene	0.001	0.015
Tetrachloroethene	0.001	not detected

SECTION V
CH2M HILL SAMPLE TRACKING SPREADSHEET

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-AC-C-001	1	3001	P-1	3/20/91	11:23 am	KE,SD	Close Support	
MW-AC-C-002	1	3002	P-2	3/20/91	11:30 am	KE,SD	Close Support	
MW-AC-C-003	1	3003A2.D	P-3	3/20/91	11:35 am	KE,SD	Close Support	
MW-AC-O-004	1	10251	AV082	3/20/91	11:20 am	KE,SD	Off Site	
MW-B-O-005	1	10252&D		3/20/91	11:20 am	KE,SD	Off Site	
MW-T-O-006	1	10253	2005	3/20/91	11:20 am	KE,SD	Off Site	
MW-AC-C-007	1	3005	P-5	3/20/91	12:05 pm	KE,SD	Close Support	
MW-AC-C-008	1	3004B1.D&A1.D	P-4	3/20/91	12:10 pm	KE,SD	Close Support	
MW-AC-C-009	1	3006B1.D&A1.D	P-6	3/20/91	12:15 pm	KE,SD	Close Support	
MW-AC-O-010	1	10254	AV127	3/20/91	12:00 pm	KE,SD	Off Site	
MW-B-O-011	1	10255		3/20/91	12:00 pm	KE,SD	Off Site	
MW-S-O-012	1	10256	1007	3/20/91	12:00 pm	KE,SD	Off Site	
MW-AC-C-013	1	3007A2.D&A1.D	P-7	3/20/91	12:30 pm	KE,SD	Close Support	
MW-AC-C-014	1	3008A1.D	P-8	3/20/91	12:35 pm	KE,SD	Close Support	
MW-AC-C-015	1	3009A1.D	P-9	3/20/91	12:40 pm	KE,SD	Close Support	
MW-AC-O-016	1	10257	AV125	3/20/91	12:25 pm	KE,SD	Off Site	
MW-B-O-017	1	10258		3/20/91	12:25 pm	KE,SD	Off Site	
MW-T-O-018	1	10259	2003	3/20/91	12:25 pm	KE,SD	Off Site	
MW-AC-C-019	1	3000	P-10	3/20/91	10:30 am	KE,SD	Close Support	Blank
MW-AC-O-020	1	10260	AV083	3/20/91	10:40 am	KE,SD	Off Site	Blank
MW-B-O-021	1	10261		3/20/91	10:55 am	KE,SD	Off Site	Blank
MW-S-O-022	1	10262	1003	3/20/91	10:30 am	KE,SD	Off Site	Blank
MW-DR-C-1-1	1	3010A1.D	P-24	3/22/91	11:14 am	RK	Close Support	approx. 50 ppm THC
MW-DR-C-1-2	1	3011A1.D&B1.D	P-23	3/22/91	3:07 pm	RK	Close Support	
MW-DR-C-1-3	1	3012A1.D	P-25	3/22/91	4:48 pm	RK	Close Support	
MW-HDR-C-1-1	1	3028	P-34	3/29/91	14:20	RK,TM	Close Support	
MW-HDR-C-1-2	1	3077A1.D	P-74	4/8/91	8:00	RK	Close Support	150 ppm
MW-HDR-C-1-3	1	3078A1.D	P-96	4/8/91		RK	Close Support	
MW-HDR-C-1-4	1	3079A1.D&B1.D	P-75	4/8/91	20:04	RK	Close Support	240 ppm
MW-HDR-C-1-5	1	3089A1.D	P-92	4/9/91	10:10	RK	Close Support	230 ppm
MW-HDR-C-1-6	1	3090A1.D&B1.D	P-97	4/9/91	11:35	RK	Close Support	300 ppm

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Area D--Soil Vapor Testing
Sample tracking spreadsheet
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Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-B-O-2-1	2	10282		3/27/91	12:40 PM	RK,KE	Off-Site	
MW-B-O-2-2	2	10283		3/27/91		RK,KE	Off-Site	
MW-B-O-2-3	2	10284&D		3/27/91		RK,KE	Off-Site	
MW-B-O-2-B	2	10281		3/27/91		RK,KE	Off-Site	
MW-PC-O-2-1	2	10273&D	AV091	3/27/91		RK,KE	Off-Site	
MW-PC-O-2-2	2	10274	AV079	3/27/91		RK,KE	Off-Site	
MW-PC-O-2-3	2	10275&D	AV061	3/27/91		RK,KE	Off-Site	
MW-PC-O-2-B	2	10272	AV400	3/27/91	11:25 AM	RK,KE	Off-Site	
MW-PC-O-2-3(dup)	2	10276	AV122	3/27/91		RK,KE	Off-Site	
MW-T-O-2-1	2	10278	2015	3/27/91		RK,KE	Off-Site	
MW-S-O-2-2	2	10279	1008	3/27/91		RK,KE	Off-Site	
MW-T-O-2-3	2	10280	2002	3/27/91		RK,KE	Off-Site	
MW-S-O-2-B	2	10277	1009	3/27/91	11:33 AM	RK,KE	Off-Site	
MW-DR-C-2-1	2	3013A1.D	P-14	3/23/91	10:37 am	RK	Close Support	Approx. 90 ppm THC
MW-DR-C-2-2	2	3014A1.D&B1.D	P-19	3/23/91	1:47 pm	RK	Close Support	90 ppm THC
MW-DR-C-2-3	2	3015A1.D	P-12	3/23/91	4:54 pm	RK	Close Support	Approx 80 ppm THC
MW-PC-C-2-B	2	3019A1.D	P-22	3/27/91	11:28 AM	RK,KE	Close Support	
MW-PC-C-2-1	2	3020A2.D	P-21	3/27/91		RK,KE	Close Support	85 PPM
MW-PC-C-2-2	2	3021A1.D&B1.D	P-18	3/27/91		RK,KE	Close Support	100 PPM
MW-PC-C-2-2(dup)	2	3022A2.D	P-17	3/27/91		RK,KE	Close Support	100 PPM
MW-PC-C-2-3	2	3023A1.D	P-11	3/27/91		RK,KE	Close Support	
MW-B-O-3-1	3	10291		3/28/91	1:54 pm	RK	Off-Site	
MW-B-O-3-2	3	10292		3/28/91	2:52 pm	RK,KE	Off-Site	
MW-B-O-3-3	3	10293&D		3/28/91	3:18 pm	RK,KE	Off-Site	
MW-B-O-3-3(dup)	3	10294		3/28/91	3:25 pm	RK,KE	Off-Site	
MW-B-O-3-B	3	10295		3/28/91		RK	Off-Site	
MW-AC-O-3-1	3	10296	AV016	3/28/91	13:54	RK	Off-Site	3.5 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-AC-O-3-2	3	10297	AV069	3/28/91	14:36	RK,KE	Off-Site	3.5 ppm
MW-AC-O-3-3	3	10298	AV123	3/28/91	15:26	RK,KE	Off-Site	
MW-AC-O-3-B	3	10299	AV057	3/28/91	13:37	RK	Off-Site	
MW-S-O-3-1	3	10300	1006	3/28/91	13:54	RK	Off-Site	3.5 ppm
MW-S-O-3-1(dup)	3	10304	1004	3/28/91	13:54	RK	Off-Site	3.5 ppm
MW-S-O-3-2	3	10301	1005	3/28/91	14:40	RK	Off-Site	
MW-T-O-3-3	3	10302	2012	3/28/91	15:23	RK,KE	Off-Site	
MW-T-O-3-B	3	10303	2014	3/28/91	12:47	RK,KE	Off-Site	23 min.
MW-DR-C-3-1	3	3016	P-20	3/25/91	10:16 am	RK	Close Support	13 ppm THC
MW-DR-C-3-2	3	3017	15	3/25/91	12:55 pm	RK	Close Support	13 ppm THC
MW-DR-C-3-3	3	3018A1.D	P-13	3/25/91	4:57 pm	RK	Close Support	16.8 ppm
MW-AC-C-3-1	3	S3024A1.D	P-50	3/28/91	13:38	RK	Close Support	3.5 ppm
MW-AC-C-3-2	3	3025A1.D&B1.D	P-35	3/28/91	14:27	RK,KE	Close Support	3.5 ppm
MW-AC-C-3-3	3	S3026.D	P-40	3/28/91	15:09	RK,KE	Close Support	
MW-AC-C-3-B	3	S3027A1.D	P-45	3/28/91	12:30	RK	Close Support	
MW-B-O-4-1	4	10429		4/8/91	14:13	KE,SD,CO	Off-Site	7.6 ppm
MW-B-O-4-2	4	10430		4/8/91	14:45	KE,SD,CO	Off-Site	7.5 ppm
MW-B-O-4-3	4	10431		4/8/91	15:11	KE,SD,CO	Off-Site	7.5 ppm
MW-B-O-4-B	4	10428		4/8/91	13:25	KE,SD,CO	Off-Site	
MW-AC-O-4-1	4	10412	AV122	4/8/91	14:00	KE,SD,CO	Off-Site	7.6 ppm
MW-AC-O-4-2	4	10413	AV131	4/8/91	14:44	KE,SD,CO	Off-Site	7.5 ppm
MW-AC-O-4-3	4	10414	AV094	4/8/91	15:12	KE,SD,CO	Off-Site	7.5 ppm
MW-AC-O-4-B	4	10411	E027	4/8/91	13:22	KE,SD,CO	Off-Site	
MW-T-O-4-1	4	10420	2026	4/8/91	14:19	KE,SD,CO	Off-Site	7.6 ppm
MW-T-O-4-2	4	10421	2025	4/8/91	14:50	KE,SD,CO	Off-Site	7.5 ppm
MW-T-O-4-3	4	10422	2027	4/8/91	15:19	KE,SD,CO	Off-Site	7.5 ppm
MW-T-O-4-B	4	10419	2018	4/8/91	13:46	KE,SD,CO	Off-Site	
MW-DR-C-4-1	4	3058A2.D	P-60	4/4/91	09:55	RK,BC	Close Support	9.0 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-DR-C-4-2	4	3059A1.D	P-56	4/4/91	11:57	RK,BC	Close Support	8.2 ppm
MW-DR-C-4-3	4	3060A1.D	P-59	4/4/91	13:57	RK,BC	Close Support	8.7 ppm
MW-AC-C-4-1	4	3073A1.D	P-82	4/8/91	14:02	KE,SD,CO	Close Support	7.6 ppm
MW-AC-C-4-2	4	3074A1.D	P-77	4/8/91	14:33	KE,SD,CO	Close Support	7.5 ppm
MW-AC-C-4-3	4	3075A1.D	P-91	4/8/91	15:04	KE,SD,CO	Close Support	7.5 ppm
MW-AC-C-4-B	4	3076A1.D	P-86	4/8/91	13:20	KE,SD,CO	Close Support	
MW-B-O-5-1	5	10424		4/8/91	10:55	KE,SD,CO	Off-Site	1.9 ppm
MW-B-O-5-2	5	10425		4/8/91	11:35	KE,SD,CO	Off-Site	1.4 ppm
MW-B-O-5-3	5	10426		4/8/91	12:13	KE,SD,CO	Off-Site	2.9 ppm
MW-B-O-5-4	5	10427		4/8/91	11:12	KE,SD,CO	Off-Site	1.9 ppm, DUP OF MW-B-O-5-1
MW-B-O-5-B	5	10423		4/8/91		KE,SD,CO		
MW-AC-O-5-1	5	10408	AV089	4/8/91	10:50	KE,SD,CO	Off-Site	1.9 ppm
MW-AC-O-5-2	5	10409	AV105	4/8/91	11:23	KE,SD,CO	Off-Site	1.4 ppm
MW-AC-O-5-3	5	10410	AV083	4/8/91	12:04	KE,SD,CO	Off-Site	2.9 ppm
MW-AC-O-5-B	5	10407	AV092	4/8/91	10:13	KE,SD,CO	Off-Site	
MW-S-O-5-1	5	10416	1006	4/8/91	10:50	KE,SD,CO	Off-Site	1.9 ppm
MW-T-O-5-2	5	10417	2005	4/8/91	11:23	KE,SD,CO	Off-Site	1.4 ppm
MW-S-O-5-3	5	10418	1008	4/8/91	12:04	KE,SD,CO	Off-Site	2.9 ppm
MW-T-O-5-B	5	10415	2012	4/8/91	10:13	KE,SD,CO	Off-Site	
MW-DR-C-5-1	5	3050A1.D	P-54	4/3/91	09:53	BC,RK	Close Support	1.4 ppm
MW-DR-C-5-2	5	3051A1.D	P-55	4/3/91	11:56	BC,RK	Close Support	2.6 ppm
MW-DR-C-5-3	5	3052A1.D	P-52	4/3/91	13:57	BC,RK	Close Support	2.8 ppm
MW-AC-C-5-1	5	3070A1.D	P-73	4/8/91	10:56	KE,SD,CO	Close Support	1.9 ppm
MW-AC-C-5-2	5	3071A1.D	P-76	4/8/91	11:26	KE,SD,CO	Close Support	1.4 ppm
MW-AC-C-5-3	5	3072A1.D&B1.D	P-70	4/8/91	12:00	KE,SD,CO	Close Support	2.9 ppm
MW-AC-C-5-B	5	3069A1.D	P-81	4/8/91	10:02	KE,SD,CO	Close Support	
MW-B-O-6-1	6	10390		4/6/91	13:26	RK,SD,KE	Off-Site	1.8 ppm
MW-B-O-6-2	6	10391		4/6/91	14:17	RK,SD,KE	Off-Site	1.9 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-B-O-6-3	6	10392		4/6/91	14:44	RK,SD,KE	Off-Site	1.7 ppm
MW-B-O-6-B	6	10389		4/6/91	12:30	RK,SD,KE	Off-Site	
MW-AC-O-6-1	6	10394	AV103	4/6/91	13:32	RK,SD,KE	Close Support	1.8 ppm
MW-AC-O-6-2	6	10395	AV091	4/6/91	13:57	RK,SD,KE	Close Support	1.9 ppm
MW-AC-O-6-3	6	10396	AV114	4/6/91	14:40	RK,SD,KE	Close Support	1.7 ppm
MW-AC-O-6-4	6	10397	AV077	4/6/91	13:57	RK,SD,KE	Close Support	1.9 ppm, DUP OF MW-AC-O-6-2
MW-AC-O-6-B	6	10393	AV016	4/6/91	12:33	RK,SD,KE	Close Support	
MW-T-O-6-B	6	10398	2020	4/6/91		RK,SD,KE	Off-Site	
MW-T-O-6-1 first	6	10399A	2014	4/6/91	13:30	RK,SD,KE	Off-Site	1.8 ppm
MW-T-O-6-1 secon	6	10399B	2003	4/6/91	13:30	RK,SD,KE	Off-Site	1.8 ppm
MW-S-O-6-2 first	6	10400A	1001	4/6/91	14:01	RK,SD,KE	Off-Site	1.9 ppm
MW-S-O-6-2 secon	6	10400B	1005	4/6/91	14:01	RK,SD,KE	Off-Site	1.9 ppm
MW-T-O-6-3 first	6	10401A	2019	4/6/91	14:41	RK,SD,KE	Off-Site	1.7 ppm
MW-T-O-6-3 secon	6	10401B	2015	4/6/91	14:41	RK,SD,KE	Off-Site	1.7 ppm
MW-S-O-6-4 first	6	10402A	1007	4/6/91	14.01	RK,SD,KE	Off-Site	1.9 ppm, DUP OF MW-S-O-6-2
MW-S-O-6-4 secon	6	10402B	1003	4/6/91	14:01	RK,SD,KE	Off-Site	1.9 ppm, DUP OF MW-S-O-6-2
MW-DR-C-6-1	6	3042A1.D	P-47	4/2/91	12:50	BC,RK	Close Support	6.8 ppm
MW-DR-C-6-2	6	3043A1.D	P-46	4/2/91	13:50	BC,RK	Close Support	0.4 ppm
MW-DR-C-6-3	6	3044A1.D	P-53	4/2/91	16:10	BC,RK	Close Support	1.5 ppm
MW-DR-C-6-4	6	3045A1.D	P-41	4/2/91	17:00	BC,RK	Close Support	1.3 ppm
MW-AC-C-6-1	6	3065A1.D	P-61	4/6/91	13:17	RK,SD,KE	Close Support	1.8 ppm
MW-AC-C-6-2	6	3066A1.D	P-62	4/6/91	13:48	RK,SD,KE	Close Support	1.9 ppm
MW-AC-C-6-3	6	3067A1.D	P-66	4/6/91	14:25	RK,SD,KE	Close Support	1.7 ppm
MW-AC-C-6-B	6	3068A1.D	P-67	4/6/91	12:30	RK,SD,KE	Close Support	
MW-B-O-7-1	7	10331		4/2/91	11:47	SD,KE	Off-Site	430 ppm
MW-B-O-7-2	7	10332		4/2/91	12:31	SD,KE	Off-Site	415 ppm
MW-B-O-7-3	7	10333		4/2/91	12:55	SD,KE	Off-Site	430 ppm
MW-B-O-7-4	7	10334		4/2/91	12:31	SD,KE	Off-Site	DUP. OF MW-B-O-7-2
MW-B-O-7-B	7	10335		4/2/91	10:50	SD,KE	Off-Site	

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/9 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-AC-O-7-1	7	10327	A005	4/2/91	11:45	SD,KE	Off-Site	430 ppm
MW-AC-O-7-2	7	10328&D	A018	4/2/91	12:28	SD,KE	Off-Site	415 ppm
MW-AC-O-7-3	7	10329	E045	4/2/91	12:59	SD,KE	Off-Site	430 ppm
MW-AC-O-7-B	7	10330	AV036	4/2/91	10:20	SD,KE	Off-Site	
MW-T-O-7-1	7	10322	2009	4/2/91	11:50	SD,KE	Off-Site	430 ppm
MW-T-O-7-2	7	10323	2017	4/2/91	12:30	SD,KE	Off-Site	415 ppm
MW-S-O-7-3	7	10324	1002	4/2/91	13:03	SD,KE	Off-Site	430 ppm
MW-T-O-7-4	7	10325	2006	4/2/91	11:50	SD,KE	Off-Site	DUP. OF MW-T-O-7 1
MW-T-O-7-B	7	10326	2019	4/2/91	10:36	SD,KE	Off-Site	
MW-BT-O-7-1 FIR	7	10403	2021	4/6/91		RK	Off-Site	
MW-BT-O-7-1 SEC	7	10404	2029	4/6/91		RK	Off-Site	
MW-BT-O-7-2 FIR	7	10405	1009	4/6/91		RK	Off-Site	
MW-BT-O-7-2 SEC	7	10406	1000	4/6/91		RK	Off-Site	
MW-BT-O-7-3 FIR	7	10591	2024	4/11/91	11:15	RK	Off-Site	460 ppm
MW-BT-O-7-3 SEC	7	10592	2022	4/11/91	11:15	RK	Off-Site	460 ppm
MW-BT-O-7-4 FIR	7	10593	2023	4/11/91	12:17	RK	Off-Site	460 ppm
MW-BT-O-7-4 SEC	7	10594	2028	4/11/91	12:17	RK	Off-Site	460 ppm
MW-DR-C-7-1	7	3029A1.D	P-39	3/30/91	10:55	RK,TM	Close Support	180 ppm
MW-DR-C-7-2	7	3030B1.D&B2.D	P-30	3/30/91	12:29	RK,TM	Close Support	140 ppm
MW-DR-C-7-3	7	3031A1.D	P-44	3/30/91	18:16	RK,TM	Close Support	440 ppm
MW-AC-C-7-1	7	3038A1.D	P-42	4/2/91	11:35	SD,KE	Close Support	430 ppm
MW-AC-C-7-2	7	3039	P-27	4/2/91	12:20	SD,KE	Close Support	415 ppm
MW-AC-C-7-3	7	3040A1.D	P-32	4/2/91	12:48	SD,KE	Close Support	430 ppm
MW-AC-C-7-B	7	3041A1.D	P-37	4/2/91	10:22	SD,KE	Close Support	
MW-HDR-C-7-1	7	3091A1.D	P-89	4/10/91	07:30	RK,CO	Close Support	
MW-HDR-C-7-2	7	3105A1.D	P-121	4/10/91	12:24	RK,CO	Close Support	
MW-HDR-C-7-3	7	3114A1.D	P-107	4/11/91	11:19	RK,CO	Close Support	approx. 450 ppm
MW-HDR-C-7-4	7	3115A1.D	P-102	4/11/91	12:33	RK,CO	Close Support	approx. 450 ppm
MW-B-O-8-1	8	10342		4/3/91	11:40	SD,KE	Off-Site	160 ppm
MW-B-O-8-2	8	10343		4/3/91	12:50	SD,KE	Off-Site	145 ppm
MW-B-O-8-3	8	10344&D		4/3/91	13:00	SD,KE	Off-Site	180 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-B-O-8-B	8	10345		4/3/91		SD,KE	Off-Site	
MW-AC-O-8-1	8	10347&D	E022	4/3/91	11:54	SD,KE	Off-Site	160 ppm
MW-AC-O-8-2	8	10348	AV065	4/3/91	12:30	SD,KE	Off-Site	145 ppm
MW-AC-O-8-3	8	10349	AV123	4/3/91	13:12	SD,KE	Off-Site	180 ppm
MW-PC-O-8-4	8	10350	E047	4/3/91	11:52	SD,KE	Off-Site	DUP. OF MW-AC-O-8-1
MW-PC-O-8-5	8	10351	AV108	4/3/91	12:30	SD,KE	Off-Site	DUP. OF MW-AC-O-8-2
MW-PC-O-8-6	8	10352&D	AV098	4/3/91	13:12	SD,KE	Off-Site	DUP. OF MW-AC-O-8-3
MW-AC-O-8-B	8	10346	AV106	4/3/91		SD,KE	Off-Site	
MW-T-O-8-1	8	10338	2000	4/3/91	11:48	SD,KE	Off-Site	160 ppm
MW-S-O-8-2	8	10339	1001	4/3/91	12:31	SD,KE	Off-Site	145 ppm
MW-T-O-8-3	8	10340	2010	4/3/91	13:13	SD,KE	Off-Site	180 ppm
MW-S-O-8-B	8	10341	1000	4/3/91		SD,KE	Off-Site	
MW-DR-C-8-1	8	3032A1.D	P-48	3/31/91	12:17	RK,TM	Close Support	175 ppm
MW-DR-C-8-2	8	3033A1.D	P-49	3/31/91	14:02	RK,TM	Close Support	180 ppm
MW-DR-C-8-3	8	3034A1.D	P-43	3/31/91	16:03	RK,TM	Close Support	190 ppm
MW-AC-C-8-1	8	3046A1.D	P-26	4/3/91	11:32	SD,KE	Close Support	160 ppm
MW-AC-C-8-2	8	3047A1.D	P-36	4/3/91	12:10	SD,KE	Close Support	145 ppm
MW-AC-C-8-3	8	3048A2.D	P-31	4/3/91	12:56	SD,KE	Close Support	180 ppm
MW-AC-C-8-B	8	3049A1.D	P-51	4/3/91	10:47	SD,KE	Close Support	
MW-B-O-9-1	9	10367&D		4/4/91	11:44	SD,KE	Off-Site	58 ppm
MW-B-O-9-2	9	10368		4/4/91		SD,KE	Off-Site	58 ppm
MW-B-O-9-3	9	10369		4/4/91	13:17	SD,KE	Off-Site	58 ppm
MW-B-O-9-4	9	10370		4/4/91	13:17	SD,KE	Off-Site	DUP. OF MW-B-09-3
MW-B-O-9-B	9	10371		4/4/91	10:27	SD,KE	Off-Site	
MW-AC-O-9-1	9	10364	AV069	4/4/91	12:03	SD,KE	Off-Site	58 ppm
MW-AC-O-9-2	9	10365	AV400	4/4/91	12:26	SD,KE	Off-Site	58 ppm
MW-AC-O-9-3	9	10366	AV057	4/4/91	13:18	SD,KE	Off-Site	58 ppm
MW-AC-O-9-B	9	10363	AV079	4/4/91	10:35	SD,KE	Off-Site	

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-T-O-9-1	9	10358	2010	4/4/91	11:59	SD,KE	Off-Site	58 ppm
MW-T-O-9-2 FIRST	9	10359	2004	4/4/91	12:36	SD,KE	Off-Site	58 ppm
MW-T-O-9-2 SECO	9	10360	2013	4/4/91	12:36	SD,KE	Off-Site	58 ppm
MW-T-O-9-3 FIRST	9	10361	2011	4/4/91	13:21	SD,KE	Off-Site	58 ppm
MW-T-O-9-3 SECO	9	10362	2008	4/4/91	13:21	SD,KE	Off-Site	58 ppm
MW-T-O-9-B	9	10356	2007	4/4/91	10:44	SD,KE	Off-Site	
MW-DR-C-9-1	9	3035B1.D	P-28	4/1/91	11:20	RK,BC	Close Support	50 ppm
MW-DR-C-9-1	9	3036B1.D	P-38	4/1/91	13:23	RK,BC	Close Support	52 ppm
MW-DR-C-9-1	9	3037A1.D	P-33	4/1/91	15:30	RK,BC	Close Support	53 ppm
MW-AC-C-9-1	9	3053A1.D&B1.D	P-58	4/4/91	11:45	SD,KE	Close Support	58 ppm
MW-AC-C-9-2	9	3054A1.D	P-57	4/4/91	12:18	SD,KE	Close Support	58 ppm
MW-AC-C-9-3	9	3055A1.D	P-64	4/4/91	13:09	SD,KE	Close Support	58 ppm
MW-AC-C-9-4	9	3056A1.D	P-63	4/4/91	11:45	SD,KE	Close Support	DUP OF MW-AC-C-9-1
MW-AC-C-9-B	9	3057A1.D	P-65	4/4/91	10:29	SD,KE	Close Support	
MW-HDR-C-9-1	9	3106A1.D	P-94	4/10/91	12:47	RK,CO	Close Support	55 ppm
MW-HDR-C-9-2	9	3107B1.D	P-117				Close Support	
MW-HDR-C-9-3	9	3116A1.D	P-127	4/11/91	12:47	RK,CO	Close Support	
MW-HDR-C-9-4	9	3127A1.D	P-115	4/11/91	14:59	RK,CO	Close Support	60 ppm
VR-B-O-31-B	3-1	10372		4/5/91	13:40	BC,RK,KE	Off-Site	
VR-B-O-31-1	3-1	10373		4/5/91	14:30	BC,RK,KE	Off-Site	1 ppm
VR-B-O-31-2	3-1	10374		4/5/91	14:54	BC,RK,KE	Off-Site	1 ppm
VR-B-O-31-3	3-1	10375		4/5/91	15:18	BC,RK,KE	Off-Site	0.9 ppm
VR-B-O-31-4	3-1	10376		4/5/91	14:23	BC,RK,KE	Off-Site	DUP OF VR-B-O-31-1
VR-AC-C-31-B	3-1	3064A1.D	P-71	4/5/91	13:40	BC,RK,KE	Close Support	
VR-AC-C-31-1	3-1	3061A1.D	P-72	4/5/91	14:30	BC,RK,KE	Close Support	1 ppm
VR-AC-C-31-2	3-1	3062A1.D	P-69	4/5/91	14:59	BC,RK,KE	Close Support	1 ppm
VR-AC-C-31-3	3-1	3063A2.D	P-68	4/5/91	15:22	BC,RK,KE	Close Support	0.9 ppm

Also took condensate vials on the above 7 samples, very little condensate.
Condensate vials were numbered the same as the above, except a "V" was added to the end.
Condensate vials were not analyzed.

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
VR-B-O-43-B	4-3	10438		4/9/91	11:10	SD,KE,CO	Off-Site	
VR-B-O-43-1	4-3	10439		4/9/91	12:01	SD,KE,CO	Off-Site	1 ppm
VR-B-O-43-2	4-3	10440		4/9/91	12:19	SD,KE,CO	Off-Site	1 ppm
VR-B-O-43-3	4-3	10441		4/9/91	12:42	SD,KE,CO	Off-Site	0.8 ppm
VR-B-O-43-4	4-3	10442		4/9/91	12:23	SD,KE,CO	Off-Site	DUP OF VR-B-O-43-2
VR-AC-C-43-B	4-3	3087B1.D	P-83	4/9/91	11:12	SD,KE,CO	Close Support	
VR-AC-C-43-1	4-3	3080B1.D	P-87	4/9/91	11:58	SD,KE,CO	Close Support	1 ppm
VR-AC-C-43-2	4-3	3081B1.D	P-93	4/9/91	12:28	SD,KE,CO	Close Support	1 ppm
VR-AC-C-43-3	4-3	3082A1.D	P-88	4/9/91	12:55	SD,KE,CO	Close Support	0.8 ppm
VR-AC-C-43-4	4-3	3083A1.D	P-98	4/9/91	11:58	SD,KE,CO	Close Support	DUP OF VR-AC-C-43-1
VR-V-O-43	4-3	10448		4/9/91			Off-Site	
VR-B-O-44-B	4-4	10443		4/9/91	13:42	SD,KE,CO	Off-Site	
VR-B-O-44-1	4-4	10444		4/9/91	14:10	SD,KE,CO	Off-Site	1.6 ppm
VR-B-O-44-2	4-4	10445		4/9/91	14:39	SD,KE,CO	Off-Site	1.5 ppm
VR-B-O-44-3	4-4	10446		4/9/91	14:56	SD,KE,CO	Off-Site	1.4 ppm
VR-B-O-44-4	4-4	10447		4/9/91	14:07	SD,KE,CO	Off-Site	DUP OF VR-B-O-44-1
VR-AC-C-44-B	4-4	3087B1.D	P-78	4/9/91	13:42	SD,KE,CO	Close Support	
VR-AC-C-44-1	4-4	3085A1.D	P-80	4/9/91	14:19	SD,KE,CO	Close Support	1.6 ppm
VR-AC-C-44-2	4-4	3086B1.D	P-84	4/9/91	14:42	SD,KE,CO	Close Support	1.5 ppm
VR-AC-C-44-3	4-4	3088A1.D	P-85	4/9/91	15:04	SD,KE,CO	Close Support	1.4 ppm
VR-V-O-44	4-4	10449		4/9/91			Off-Site	Not Analyzed
VR-B-O-42-B	4-2			4/10/91	9:25	SD,KE,CO	Off-Site	
VR-B-O-42-1	4-2	10511		4/10/91	10:10	SD,KE,CO	Off-Site	1.2 ppm
VR-B-O-42-2	4-2			4/10/91	10:26	SD,KE,CO	Off-Site	1.0 ppm
VR-B-O-42-3	4-2	10553		4/10/91	11:10	SD,KE,CO	Off-Site	0.8 ppm
VR-B-O-42-4	4-2	10554		4/10/91	10:10	SD,KE,CO	Off-Site	DUP OF VR-B-O-42-1

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
VR-AC-C-42-B	4-2	3096	P-79	4/10/91	09:25	SD,KE,CO	Close Support	
VR-AC-C-42-1	4-2	3097	P-90	4/10/91	10:02	SD,KE,CO	Close Support	1.2 ppm
VR-AC-C-42-2	4-2	3093	P-100	4/10/91	10:40	SD,KE,CO	Close Support	1.0 ppm
VR-AC-C-42-3	4-2	3094	P-95	4/10/91	11:10	SD,KE,CO	Close Support	0.8 ppm
VR-V-O-42	4-2			4/10/91			Off-Site	Not Analyzed
VR-B-O-61-B	6-1	10555		4/10/91	12:10	SD,KE,CO	Off-Site	
VR-B-O-61-1	6-1	10556		4/10/91	12:34	SD,KE,CO	Off-Site	3.8 ppm
VR-B-O-61-2	6-1	10557		4/10/91	12:57	SD,KE,CO	Off-Site	5.3 ppm
VR-B-O-61-3	6-1	10558		4/10/91	13:15	SD,KE,CO	Off-Site	5.5 ppm
VR-AC-C-61-B	6-1	3098B1.D	P-106	4/10/91	12:12	SD,KE,CO	Close Support	
VR-AC-C-61-1	6-1	3099A1.D	P-111	4/10/91	12:36	SD,KE,CO	Close Support	3.8 ppm
VR-AC-C-61-2	6-1	3092A1.D	P-116	4/10/91	12:59	SD,KE,CO	Close Support	5.3 ppm
VR-AC-C-61-3	6-1	3100	P-101	4/10/91	13:20	SD,KE,CO	Off-Site	5.5 ppm
VR-AC-C-61-4	6-1	3095	P-99	4/10/91	12:36	SD,KE,CO	Close Support	DUP OF VR-AC-C-61-1
VR-V-O-61	6-1	10565		4/10/91			Off-Site	
VR-B-O-34-B	3-4	10559		4/10/91	14:14	SD,KE,CO	Off-Site	
VR-B-O-34-1	3-4	10560&D		4/10/91	14:30	SD,KE,CO	Off-Site	2.5 ppm
VR-B-O-34-2	3-4	10561		4/10/91	15:10	SD,KE,CO	Off-Site	1.5 ppm
VR-B-O-34-3	3-4	10562		4/10/91	15:29	SD,KE,CO	Off-Site	1.5 ppm
VR-B-O-34-4	3-4	10563		4/10/91	14:30	SD,KE,CO	Off-Site	DUP OF VR-B-O-34-1
VR-AC-C-34-B	3-4	3101A1.D	P-122	4/10/91	14:14	SD,KE,CO	Close Support	
VR-AC-C-34-1	3-4	3102A1.D	P-124	4/10/91	14:40	SD,KE,CO	Close Support	2.5 ppm
VR-AC-C-34-2	3-4	3103A1.D	P-118	4/10/91	15:03	SD,KE,CO	Close Support	1.5 ppm
VR-AC-C-34-3	3-4	3104B1.D	P-123	4/10/91	15:26	SD,KE,CO	Close Support	1.5 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
VR-V-O-34	3-4			4/10/91			Off-Site	Not Analyzed
VR-B-O-35-B	3-5			4/11/91	10:50	SD,KE	Off-Site	
VR-B-O-35-1	3-5	10582		4/11/91	11:22	SD,KE	Off-Site	0.3 ppm
VR-B-O-35-2	3-5	10583		4/11/91	11:47	SD,KE	Off-Site	0.1 ppm
VR-B-O-35-3	3-5	10584		4/11/91	12:14	SD,KE	Off-Site	0.1 ppm
VR-AC-C-35-B	3-5	3108B1.D	P-103	4/11/91	10:50	SD,KE	Close Support	
VR-AC-C-35-1	3-5	3110A1.D	P-109	4/11/91	11:22	SD,KE	Close Support	0.3 ppm
VR-AC-C-35-2	3-5	3112A1.D	P-113	4/11/91	11:45	SD,KE	Close Support	0.1 ppm
VR-AC-C-35-3	3-5	3113A1.D	P-108	4/11/91	12:12	SD,KE	Close Support	0.1 ppm
VR-PC-C-35-4	3-5	3109B1.D	P-112	4/11/91	11:22	SD,KE	Close Support	PRES. DUP OF VR-AC-C-35-1
VR-PC-C-35-5	3-5	3111A1.D	P-104	4/11/91	11:46	SD,KE	Close Support	PRES. DUP OF VR-AC-C-35-2
VR-V-O-35	3-5			4/11/91	11:46	SD,KE	Off-Site	Not Analyzed
VR-B-O-39-B	3-9	10586		4/11/91	13:57	SD,KE	Off-Site	
VR-B-O-39-1	3-9			4/11/91	14:19	SD,KE	Off-Site	2.2 ppm
VR-B-O-39-2	3-9	10587		4/11/91	14:52	SD,KE	Off-Site	0.6 ppm
VR-B-O-39-3	3-9	10589		4/11/91	15:16	SD,KE	Off-Site	0.6 ppm
VR-AC-C-39-B	3-9	3120B1.D	P-105	4/11/91	13:57	SD,KE	Close Support	
VR-AC-C-39-1	3-9	3117A1.D	P-128	4/11/91	14:18	SD,KE	Close Support	2.2 ppm
VR-AC-C-39-2	3-9	3118A1.D	P-126	4/11/91	14:52	SD,KE	Close Support	0.6 ppm
VR-AC-C-39-3	3-9	3119B1.D	P-114	4/11/91	15:15	SD,KE	Close Support	0.6 ppm
VR-V-O-39	3-9			4/11/91		SD,KE	Off-Site	Not Analyzed
VR-B-O-36-B	3-6	10599		4/11/91	15:34	RK,CO	Off-Site	
VR-B-O-36-1	3-6	10600		4/11/91	16:00	RK,CO	Off-Site	2.5 ppm
VR-B-O-36-2	3-6	10601		4/11/91	16:18	RK,CO	Off-Site	1.6 ppm
VR-B-O-36-3	3-6	10602		4/11/91	16:34	RK,CO	Off-Site	1.6 ppm

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
VR-AC-C-36-B	3-6	3121	P-146	4/11/91	15:34	RK,CO	Close Support	
VR-AC-C-36-1	3-6	3122A1.D	P-110	4/11/91	16:00	RK,CO	Close Support	2.5 ppm
VR-AC-C-36-2	3-6	3123A1.D	P-120	4/11/91	16:18	RK,CO	Close Support	1.6 ppm
VR-AC-C-36-3	3-6	3124A1.D	P-145	4/11/91	16:34	RK,CO	Close Support	1.6 ppm
VR-PC-C-36-4	3-6	3125	P-119	4/11/91	16:00	RK,CO	Off-Site	PRES. DUP OF VR-AC-C-36-1
VR-PC-C-36-5	3-6	3126A1.D	P-125	4/11/91	16:34	RK,CO	Close Support	PRES. DUP OF VR-AC-C-36-3
VR-B-O-13-B	1-3	10603		4/12/91		RK,CO	Off-Site	
VR-B-O-13-1	1-3	10604		4/12/91		RK,CO	Off-Site	
VR-B-O-13-2	1-3	10605		4/12/91		RK,CO	Off-Site	
VR-B-O-13-3	1-3	10606		4/12/91		RK,CO	Off-Site	
VR-AC-C-13-B	1-3	3128	P-140	4/12/91	11:36	RK,CO	Off-Site	
VR-AC-C-13-1	1-3	3129	P-150	4/12/91	12:19	RK,CO	Off-Site	
VR-AC-C-13-2	1-3	3130	P-135	4/12/91	12:30	RK,CO	Off-Site	
VR-AC-C-13-3	1-3	3131	P-149	4/12/91	12:40	RK,CO	Off-Site	
VR-AC-C-13-4	1-3	3140	P-148	4/12/91	12:19	RK,CO	Off-Site	DUP OF VR-AC-C-13-1
VR-AC-C-13-5	1-3	3139	P-139	4/12/91	12:30	RK,CO	Off-Site	DUP OF VR-AC-C-13-2
Low Flow Tubes								
MW-LF-O-7-1 FIRS	7	10607	2007	4/12/91	14:10	RK,CO	Off-Site	100 PPM
MW-LF-O-7-2 SEC	7	10608	2012	4/12/91	14:10	RK,CO	Off-Site	100 PPM
MW-LF-O-2-1 FIRS	2		2018	4/12/91	14:32	RK,CO	Off-Site	100 PPM
MW-LF-O-2-2 SEC	2		1008	4/12/91	14:32	RK,CO	Off-Site	100 PPM
Cans taken with low flow tubes								
MW-LFAC-C-7-1	7	3135	P-129	4/12/91	15:57	RK,CO	Close Support	Later analyzed off-site
MW-LFAC-C-7-2	7	3136	P-132	4/12/91	15:57	RK,CO	Close Support	Later analyzed off-site
MW-LFAC-C-2-1	2	3137	P-134	4/12/91	14:15	RK,CO	Close Support	Later analyzed off-site
MW-LFAC-C-2-2	2	3138	P-133	4/12/91	14:20	RK,CO	Close Support	Later analyzed off-site
MW-LFAC-C-2-3	2	3141	P-130	4/12/91	14:37	RK,CO	Close Support	Later analyzed off-site

McClellan AFB
Area D--Soil Vapor Testing
Sample tracking spreadsheet
5/16/91 KAE

Sample Number	M.W.or V.R. Number	Lab I.D.	Other I.D.	Date	Time	Sampled By	Disposition	Notes
MW-LFAC-C-2-4	2	3142&D	P-138	4/12/91	14:42	RK,CO	Close Support	Later analyzed off-site
Ambient Air Samples								
AA-AC-C-1		3133	P-143	4/12/91	16:40	RK,CO	Close Support	Later analyzed off-site
AA-AC-C-2		3134	P-144	4/12/91	16:40	RK,CO	Close Support	Later analyzed off-site

SECTION VI
CH2M HILL FIELD NOTES

CH2M **DAILY INSPECTION DIARY**

PAGE _____ OF _____

PROJECT NO. SAC 28722.07.02

(1) DAY: _____ DATE: 04/21/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

07

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	212 DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	520 & FLD		
	318		
	1002		
	2		

(4) WORK ACCOMPLISHED TODAY: VR 1-3 MULTI MEDIA SAMPLES

MW #2 CHARCOAL LOW FLOW

TOTAL SYSTEM SAMPLE FLOW = 10 MM NEW ROTAMETER

INITIAL PPM = 100

START CHARCOAL TUBES @ TWE FLOW 50 cc/MIN

10 MIN SAMPLES

START @ 14:10 HOURS

STOP @ 14:20 HOURS - VAVE NOT OPEN ⇒ RERUN W/ 2 CAL

MW-C-2-4

START @ 14:32 HOURS

14:42 HOURS

MW #7 CHARCOAL LOW FLOW

START SAMPLE 15:42 460 PPM

STOP @ 15:57

(5) RESIDENT'S SIGNATURE _____ DATE _____

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 04/19/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. 1

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	SR-10 + FID		

(4) WORK ACCOMPLISHED TODAY: VENT RISER 3-6 MULTI MEDIA

RAN BLANK @ 3:30 PM

START SAMPLES @ 3:40 PM

INITIAL PPM = 3.5

AFTER #1 SAMPLE ~ 1.5 PPM

(5)

RESIDENT'S SIGNATURE _____ DATE _____

CH2M

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 04/19/91 WORK PERIOD _____ A.M./P.M. TO _____ A.M./P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & S-10 PICK UP		

(4) WORK ACCOMPLISHED TODAY: MW #77 RECOVERY SAMPLES & HIGHER VOLUME CHARCOAL TUBES FOR BREAKTHROUGH EVALUATION

10:51:38 STARTED CHARCOAL TUBES IN SERIES @ 100 CC/MIN ON POSITIVE PRESSURE SIDE OF PUMP

@ 11:15 RUNNING @ 99 CC/MIN SHUT OFF

TUBES 2024 = 1ST, 2022 = 2ND (CONDENSATE DIFFICULTIES)

CAN P107 TAKEN @ 11:19

TUBES 2023 = 1ST 2028 = 2ND

START AT 12:17 @ 100 CC/MIN W/ WATER KO IN-LINE

@ 12:18 102 CC/MIN PPM READINGS ~ 460 PPM

CAN P 102 TO BE TAKEN @ END OF CHARCOAL TUBE SAMPLE

INITIAL PRESSURE = 30" Hg VACUUM

TUBES FINISH @ 12:32 FINAL READING ROTAMETER = 98 CC/MIN

@ 12:41 MOVED TO WELL #9 @ 12:47 SAMPLED W/ CAN P-127

CAN P-124 INITIAL P = -29" Hg

CAN P-115 TAKEN @ 14:59 HOURS ON MW #9

ROTAMETER READING 47 MM - 18 349.67 ml/min

(5) _____ RESIDENT'S SIGNATURE _____ DATE

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 04/09/91 WORK PERIOD 6 A.M. / P.M. TO _____ A.M. / P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & S-10 PICKUP		
	HI FLO PUMP		

(4) WORK ACCOMPLISHED TODAY: MW #7 - HIGH FLOW DRAWDOWN TEST:

CAN # P B9 INITIAL PRESSURE = 28" Hg VACUUM
SAMPLE TAKEN @ 0730
PUMP INLET = 10.5 IN Hg VACUUM, ROTAMETER = 44 MM
17,143 ML/M.N

@ 12:20 PPM = 460
SAMPLED @ 12:24
PUMP INLET = 10 IN Hg VACUUM, ROTAMETER = 43 MM
16,741 ML/M.N

MOVE TO MW #9 @ 12:31
@ 12:47 TOOK HIGH FLOW SAMPLE FROM MW #9
ROTAMETER = 48 MM 18,751 ML/M.N
VACUUM @ PUMP INLET = 6" Hg
PPM = 55

@ 17:06 PPM = 55
CAN P117 TAKEN INITIAL PRESSURE = 30" Hg VACUUM
ROTAMETER = 48 MM 18,751 ML/M.N
PUMP INLET PRESSURE = 5" Hg GAUGE VACUUM

(5) _____ RESIDENT'S SIGNATURE _____ DATE

(8.1) FORM 21C

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 04091[illegible] WORK PERIOD 8 A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & S-10 PICK UP		

(4) WORK ACCOMPLISHED TODAY: HIFLOW DRAWDOWN, WELL #1, RECOVERY SAMPLES

ZERO ANALYZER, START @ 10:00 HRS

SAMPLE @ 10:10 HOURS

ANALYZER READING 700 PPM & CLIMBING

CAN P-92 INITIAL PRESSURE = 30" HG VACUUM

CONCENTRATION = 250 PPM @ END OF SAMPLING THIS CAN

ROTAMETER = 47 18,349.7 ml/MIN

CAN P-97 INITIAL PRESSURE: 30" HG VACUUM

CONCENTRATION = 300 PPM @ SAMPLE START

ROTAMETER READING = 47 MM 18,349.7 ml/MIN

(5)

RESIDENT'S SIGNATURE _____ DATE _____

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 04 08 91 WORK PERIOD 6 A.M. / P.M. TO _____ A.M. / P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & S-10 PICK UP		
	HI FLOW PUMP		

(4) WORK ACCOMPLISHED TODAY:

@ 15:10 HRS PPM THC = 210
ROTAMETER = 46.5 18,148.6 ml/min
PUMP INLET = 10" Hg

@ 17:15 HRS PPM THC = 212
ROTAMETER = 46 17,947.5 ml/min
PUMP INLET = 9" Hg

@ 19:45 HRS PPM THC = 198
ROTAMETER = 46 17,947.5 ml/min
PUMP INLET = 9.5" Hg

(5) _____ RESIDENT'S SIGNATURE _____ DATE

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 09/08/91 WORK PERIOD 6 A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: MW #1 HIGH FLOW DRAW DOWN

START INSTRUMENT (FID) ZERO @ 07:32

~~INITIAL THC READING = 150 PPM~~

~~PUMP ROTAMETER READING = 47 MM 18,349.7 ml/min~~

~~@ 0800 THC READING = 170 MOISTURE PROBLEMS~~

@ 10:46 THC READING = 203 PPM

ROTAMETER = 47 MM 18,349.7

PUMP INLET VACUUM = 10" Hg

@ 11:28 THC READING = 210 PPM

ROTAMETER = 46.5 MM 18,148.6

PUMP INLET = 10" Hg

@ 12:14 THC = 210 PPM

ROTAMETER = 47.0 MM 18,349.7

PUMP INLET = 10" Hg

@ 14:00 THC = 208 PPM

ROTAMETER = 46.5 18,148.6

PUMP INLET = -10" Hg

(5) _____ RESIDENT'S SIGNATURE _____ DATE

DAILY INSPECTION DIARY PAGE

PROJECT NO. SAC 28722.03.02

(1) DAY: _____ DATE: 04 06 91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. _____

WEATHER f TEMP. MAX ____°F: MIN ____°F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

RETURN TO MW #7 FOR 3B BREAKTHROUGH TUBE SAMPLES

PUMP & ORIFICE CAL TO 100 CC/MIN @ START,

TUBES 1009 = 1ST, 1000 = 2ND

HYDROCARBONS = 480 PPMC W/ 20 PPM ABOVE ZERO

RAN 20.1 MINS POST SAMPLE CAL = 100 CC/MIN

TUBES 2021 = 1ST @ 17:09 PPM TIC = 490

2029 = 2ND

FINAL CAL SHOWED 98 CC/MIN

(5) _____ RESIDENT'S SIGNATURE _____ DATE

(8.1)

FORM 21C

PROJECT NO. [redacted]

(1) DAY: [redacted] DATE: [redacted] WORK PERIOD [redacted] A.M./P.M. TO [redacted] A.M./P.M. REPORT NO. [redacted]

WEATHER [redacted] TEMP. MAX [redacted] °F; MIN [redacted] °F; PRECIPITATION [redacted]

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

1245 - begin set up for riser #3-1, start FID warming up + hook up all.

1320 - Calibrate FID:- zero pot at 4.71, span pot at 4.86 + 850ppm

1345 - take a set of blanks after purging all lines with N2. cylinder P-71 (blank) at ~30" Hg

1350 - begin pumping on well riser 3-1

1410 - began taking 1st set of samples (2 bags, 1 can) can is reading ~30 psi

3 vials taken also, small amount of condensate and some debris in each vial

1443 - [redacted] set of samples (1 bag, 1 can) can [redacted] psi (P-69) - 2 vials, same as above

1507 - [redacted] set of samples (1 bag, 1 can) can read ~30 psi (P-68)

1530 - recheck FID - read 680 ppm, span ~850 ppm, zero pot ~615 zero pot responded to 4.73

(5) RESIDENT'S SIGNATURE DATE

PROJECT: [redacted]

(1) DAY: Thursday DATE: 8/4/94 WORK PERIOD: [redacted] TO: [redacted] REPORT NO: [redacted]

WEATHER: [redacted] TEMP. MAX 78 °F: MIN 52 °F: PRECIPITATION: 0

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

Barry Collum - Tech

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1	J.U.M. FID mod. VE7 s/n 9261290		
1	Method 6 gas train box #		
1	Yokogawa mod 3057 portable recorder		
1	Coleman powermate 2250 watt generator # [redacted]		

(4) WORK ACCOMPLISHED TODAY:

MW - 5

0800 - arrive on site at MW-4 & begin setting up FID etc...
0855 - check cal on FID zero pot at 4.71, span pot at 5.2[redacted] reading 1000 ppm (started @ 850 ppm) Leave span pot as is - spanned yesterday while hot at 850 ppm
0910 - #6 pump - only initial reading = 2[redacted].0 CF
FID bypass = 6.5 SCFH R [redacted] bypass = 1.0 SCFH ppm = 9.0
0955 - Sample taken [redacted] EP-60, [redacted] < 30" Hg
#6 box - 279.5 [redacted] ppm = 9.0 [redacted]
FID bypass = 6.5 SCFH R [redacted]
1157 Sample taken [redacted] 2-56, [redacted] < 30" Hg
#6 box = 299.6 [redacted] ppm = [redacted]
1247 FID [redacted]
1357 [redacted]
#[redacted] ppm = [redacted]
FID [redacted] pump - bypass = 6.5 SCFH
1405 - [redacted]
initial span reading of [redacted]
recirc & respan - [redacted]
1415 - shut down FID - final readings [redacted]
1430 - finish breaking down & stowing gear [redacted]

(5)

RESIDENT'S SIGNATURE DATE

FORM 21C

[redacted] ENVIRONMENTAL

PROJECT NO. SK 28-722.03.02

(1) DAY: Wednesday DATE: 04.03.91 WORK PERIOD 0800 HR. TO 1700 HR. REPORT NO. _____

WEATHER Sunny TEMP. MAX 75 °F: MIN 50 °F: PRECIPITATION 0

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

Barry Collum - Tech

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1	J.U.M FID mod VE-7 #9261290		
1	Method 6 gas train box		
1	Yokogawa mod 3057 portable recorder		
1	Coleman powermate 2250 watt generator #8912564		

(4) WORK ACCOMPLISHED TODAY: MW-5

0800- arrive on site & begin setting up FID etc...

0845- calibrating FID- zero pot at 4.74, span pot at 4.20
pump bypass: 500 cc/min, FID bypass: 2550 cc/min
#6 box: 228.8

0945- hook up to MW-5 & start pumps, [redacted]

0953- Sample taken in cyl. # P-54, P-54 at < -30" Hg
#6 box = [redacted] CF - ppm = 1.4
FID bypass = 6 SCFH pump bypass = 1.1 SCFH

1156- Sample taken in cyl. # P-55, P-55 at < -30" Hg
#6 box = 251.5 CF ppm = 2.6
FID bypass = 6 SCFH Pump bypass = 1.0 SCFH

1257- [redacted] taken in cyl # R52, R-52 at < -30" Hg
#6 [redacted] = 273.8 CF ppm = 2.8
FID [redacted] = 6 SCFH Pump bypass = 1.1 SCFH (400 cc/min)

1410- [redacted] FID & all- Final readings:
#6 [redacted] = 276.0 CF ppm as above
FID bypass as above pump bypass as above
zero pot- [redacted] 4.74 span pot- reset to [redacted]

1415- dismantle equip & store- all gas cylinders off.

(5) _____ _____
RESIDENT'S SIGNATURE DATE

DAILY INSPECTION DIARY

PROJECT NO. SK 2[illegible]03.07

(1) DAY: _____ DATE: 04 02 91 WORK PERIOD ____ A.M. / P.M. TO ____ A.M. / P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

1700 Sample collected in cyl. # P-41, P-41 at <-30" Hg
FID bypass = 2650 cc/min PPM = 1.3
pump bypass = 450. cc/min #6 box = 228.2 CF

1705 Final readings - #6 box: 228.8 CF
FID span gas - FID reads 885 ppm
Zero gas - FID reads 0 ppm
FID bypass - 2650 cc/min
pump bypass - 450 cc/min
FID exhaust - 1120 cc/min
1715: all off, pack up for departure, close all gas bottles + stow gear.
1745 - depart site

(5) _____ RESIDENT'S SIGNATURE _____ DATE

(8.1) FORM 21C

INSPECTION DIARY

PROJECT NO. SAC 28 TE 03.0

(1) DAY: Tuesday DATE: 04 02 91 WORK PERIOD 1000 P.M. TO 1000 P.M. REPORT NO. 20

WEATHER [redacted] TEMP. MAX 75 °F: MIN 50° °F: PRECIPITATION 0

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

Barry Collom - Tech

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1	J.U.M. FID and VE-7 #92612290		
1	Method 6 box gas train		
1	Yokogawa mod 3057 portable recorder		
1	Coleman powermate 2250 watt generator #8912604		

(4) WORK ACCOMPLISHED TODAY:

1130 - arrive at well #6 + begin setting up
1200 - FID up + doing cal - zero span pot at: 4.52
FID bypass: 6.5 SCFH cal. span pot at: 5.07
pump bypass: 1.0 SCFH method 6 box: 201.1
ppm = 10
1250 - sample taken in cylinder #P-47, P-47 at < -30" Hg
FID bypass - 2650 cc/min. ppm - 6.8
Pump bypass: 225 cc/min, #6 box: 207.5 CF
1345 - respan FID - span reading was 950 ppm - spanned back to 850 ppm
at span pot setting 4.44
1350 sample taken in cylinder #P-46, P-46 at < -30" Hg
FID bypass = 2650 cc/min ppm = 0.4
pump bypass = 450 cc/min #6 box = 217.9 CF
1400 - [redacted] off, sample line disconnected from FID - allow well to recover
1458 - recheck FID - pot at 4.44, respan FID - pot at 4.38
1512 - reconnect FID to well, #6 pump on. PPM = 1.6 - all off again
+ disconnect from well. Allow well further recovery
1610 - reconnect FID to well, #6 pump on. - PPM = 1.4
Sample collected in cyl. # P-53, P-53 at < -30" Hg
FID bypass = 2650 cc/min PPM = 1.5
pump bypass 450 cc/min #6 box = 219.6 CF

(5) RESIDENT'S SIGNATURE DATE

(8.1) FORM 21C

DAILY INSPECTION DIARY

PROJECT NO. SAC28722.03.02

(1) DAY: _____ DATE: 033091 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Low flow drawdown & recovery for MW #7

@15:02, New Box #6 reading = 97.7 cf
FID = 6 scfh
Bypass = 0.48

@16:16, Box #6 reading = 106.9 cf
THC concentration = 440 ppm
FID = 6 scfh
Bypass = 0.48

@18:17, Box #6 reading = 122.1 cf
THC concentration = 440 ppm
FID = 6 scfh
Bypass = 0.48

(5) _____ RESIDENT'S SIGNATURE _____ DATE

FORM 21C

[redacted] DAILY INSPECTION DIARY

PAGE 1 OF 2

PROJECT NO. SAC 28722.03.02

(1) DAY: _____ DATE: 03/30/91 WORK PERIOD 10 A.M. TO 6:7 P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Low flow drawdown & recovery for MW #7

Starting time - 10:41
Initial Box #6 reading = 404.5 cf
Bypass = 0.9

Sample #1 taken at 10:53 @ 180 ppm

@ 12:17, Box #6 reading = 410.4 cf
Bypass = 0.9
THC concentration = 120 ppm
Span reading = 8.30 ppm
Reset FID
Sample reading = 140 ppm
@ 12:37 Box #6 reading = 413.45 cf

@ 13:22, Box #6 reading = 421.6 cf
Bypass = 1.0
THC concentration = 140 ppm

(5) _____ RESIDENT'S SIGNATURE _____ DATE

DAILY INSPECTION DIARY

PAGE ____ OF ____

PROJECT NO. SAC 28722.03.02

(1) DAY: ____ DATE: 03/25/91 WORK PERIOD 244 A.M. P.M. TO 454 A.M. P.M. REPORT NO. ____

WEATHER ____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Low flow drawdown & recovery for MW #3
Started 14:44
Initial reading on #6 box - 374.4 cf
Bypass = 0.4
FID = 6 scfh
Total hydrocarbon (THC) concentration = 17 ppm

@ 1654
#6 Box reading = 382.67 cf
Bypass = 0.4
FID = 6 scfh
THC concentration = 17 ppm

Spa[illegible]49

(5) RESIDENT'S SIGNATURE ____ DATE ____

(8.1)

FORM 21C

DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. _____

(1) DAY: _____ DATE: 6/11/91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX ____°F: MIN ____°F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: ~~Moved to~~ Vent Riser 3-9
Multi-Media

Span & Cal.
Leak Check 13:55

~~Started~~ Blank 13:57

2.2 ppm
Started 1st Run at 14:04 (bag & can)

0.6 ppm
~~Started~~ 2nd Run at 14:31 (bag, can & ~~bag~~ dup KE)

0.6 ppm
~~Started~~ 3rd Run at 14:57

(5) _____ RESIDENT'S SIGNATURE _____ DATE

[redacted] DAILY INSPECTION DIARY

PAGE _____ OF _____

PROJECT NO. SAC 28722.03.07

(1) DAY: _____ DATE: 8 4 1 9 9 1 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. _____

/ WEATHER _____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & U HAUL		

(4) WORK ACCOMPLISHED TODAY: VR # 3-5

2nd FID @ 10:23

Leak check 10:40

all cans pressure checked

Started Blanks at 10:50

0.3 ppm

Started Run #1 at 11:01 (bag, sm. can, & sm. pres. can

0.1 ppm

Started Run #2 at 11:25 (bag, sm can & sm. pres. can)

0.1 ppm

Started Run #3 at 11:49 (bg, sm. can)

(5) _____ RESIDENT'S SIGNATURE _____ DATE

DAILY INSPECTION DIARY

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PROJECT NO. _____

(1) DAY: _____ DATE: 04/09/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & U HAUL		

(4) WORK ACCOMPLISHED TODAY: VR 3-4 SAMPLING

All cans at -30 (P122, P124, P118, P123

Leak check at 14:10

Blanks at 14:14

2.5 ppm Start Run #1 at 14:20 (bag dup)

1.5 ppm

Start Run #2 at 14:42 (no dup)

1.5 ppm

Start Run #3 at 15:12 (no dup)

(5) _____ RESIDENT'S SIGNATURE _____ DATE

(8.1)

FORM 21C

DAILY INSPECTION DIARY

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PROJECT NO. _____

(1) DAY: _____ DATE: 04/10/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER very Windy TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: ~~Vent Riser 6-1~~

Leak check at 11:55

All cans at -30 (P-111, P106, P99, P101, P116)

Started Blanks at 12:10

38 ppm
Started 1st Run at 12:16 (can dup)

53 ppm
Started 2nd Run at 12:38 (no dup)

5.5 ppm
Started 3rd Run at 13:00 (no dup)

(5)

RESIDENT'S SIGNATURE _____ DATE _____

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PROJECT NO. ____

(1) DAY: ____ DATE: 04/09/94 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER very windy TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

7

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	F.I.D & U HAUL		

(4) WORK ACCOMPLISHED TODAY: SVR 4-2 MULTI MEDIA

SPAN & ZERO @ 08:30
All cans at -30 (# P-79, P-90, P-100, P-95)
Started Blanks at 9:15

Started 1st Run at -9:30, (bag dup.) 1.2 ppm
generator ran out of gas at about 9:35,
shut down for approx. 60 sec.
Jeanne Moore and another AF employee onsite from 9:45 to 10:00
Started 2nd run at 10:05 (no dup.) 1.0 ppm

Ran out of strip chart paper approx. 10:15

10:40 0.8 ppm, 10:45 - 0.8, 10:50 - 0.75, 11:00 0.8
11:05 - 0.75 ppm, 11:10 - 0.75
Started 3rd run at 10:47

replaced strip chart.

(5) ____ RESIDENT'S SIGNATURE ____ DATE

FORM 21C

DAILY INSPECTION DIARY

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PROJECT NO. [redacted]

(1) DAY: _____ DATE: 04/09/94 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: Vent. Riser 4:4 Multi Media Sampling

Finished blanks at 13:40

Can P-80 at :30

Started Run #1 at 13:58

Can P-81 at :30

Started Run #2 at 14:23

Can P-85 at :30

Started Run #3 at 14:44

Finished sampling 15:04.

(5)

RESIDENT'S SIGNATURE _____ DATE _____

PROJECT NO: [redacted]

(1) RAIN: _____ DATE: 04/09/91 WORK HOURS: 8 A.M. TO 5 P.M. REPORT NO: _____

WEATHER: [redacted] TEMP: MAX ____°F: MIN ____ PRECIPITATION _____

(2) NUMBER AND CLASSIFICATION OF PERSONNEL EMPLOYED: [redacted]

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID & UHAUL		

(4) WORK ACCOMPLISHED TODAY: ~~[redacted]~~ VENT RISER 4-3 MULTI MEDIA SAMPLING

Took Blanks (sm. can & bag) at 11:00

Pressure on cans: P-98 and P-87 at -30

Started Run #1 at 11:27 (can dup.)

Bag did not fill, restarted at 11:50

Can P93 at -30.

Started run #2 at 12:06 (bag dup)

Can [redacted] -30

Start [redacted] #3 at 12:31

(5) _____

RESIDENT'S SIGNATURE DATE

(8.1)

FORM 21C

[redacted] DIARY

PROJECT NO. [redacted]

(1) DAY _____ DATE: 04 08 91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ PRECIPITATION _____

(2) NUMBER AND CLASSIFICATION OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

This may have been leaking for lg cans on MW#5 and for lg can on 1st run of MW#4

Cans P-77 and AV136 at [redacted] - 31

Pump #10099 w/o tube 100 cc/min. w/ tube # 2025 75cc/m
Recal to 100cc/m.
Post sample 80cc/min.

Start Run #2 at 14:30

Cans # P-91 and AV094 at [redacted] 31

Pump [redacted] w/o tube 100 cc/min w/tube # 2027 85cc/m
Recal to 100 cc/m
Post sample 95 cc/min
Recal w/o tube to 100 cc/min

Start [redacted] #3 at 14:59.

14:11

(5) RESIDENT'S SIGNATURE _____ DATE _____

(1) DAY: _____ DATE: 04.08.91 WORK PERFORMED _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

For run # 3

Pump # 10099 - for tube # 2018 on blank w/o tube - 100 cc/min
w/ tube - 60 cc/min
calibrated w/ tube - 100 cc/min
2.41 post sample
Moved to monitoring well #4 100 cc/min
Cans P-86 & EO22 at -30.

Started blanks at 13:15
(tube started at 13:28).

Cans AW22 and P82 at -30.

Pump [redacted] w/o tube 100 cc/min, with tube #2026
to 55 cc/min, recal
to 100 cc/min.
Post sample at 70 cc/m.

Started Run # 1 at 13:59

T at guage was possibly loose, tightened at 14:10
1g can. line

(5) _____
RESIDENT'S SIGNATURE DATE

5

(8.1) FORM 21C

(1) DAY: [redacted] WORK [redacted] TIME [redacted]

WEATHER [redacted] TEMP MAX [redacted] °F: MIN [redacted] PRECIPITATION [redacted]

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Local pump 10099 without tube to 100 cc/min

Pump 10099 with tube #2005 at 550cc/min, [redacted] to 100 cc/min. POST SAMPLE CAL [redacted]

Cans P-76 & AV105 at .30 psi.

1.4 ppm

Started Point 2 1:16

Pump 10099 with tube #[redacted] at [redacted] recal [redacted] Wit[redacted]

Cans [redacted] P-70 at .30

Start[redacted]3 at 11:[redacted]

Pump 10099 w/ tube #[redacted] flow of 85 cc/min.

(5)

RESIDENT'S SIGNATURE

PROJECT NO.

(1) DAY: _____ DATE: 8.9.11 WORK PERIOD 9:00 A.M. TO _____ P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASSIFICATION OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
	FID		
	GENERATOR		

(4) WORK ACCOMPLISHED TODAY: MULTI MEDIA SAMPLING ON MW # 5

Pump # 10099 - orifice for MW-T-O-5-B calibrated at 100 cc/min w/o carbon ~~tube~~

w/ carbon tube = 35-38 cc/min

Start Blanks 9:59

PUMP CAL 48 cc/min w/ CHARCOAL TUBE

105 cc/min w/o

Cons [redacted] 0.73 at -30.

Init [redacted] 1.9 ppm

Pump [redacted] 10100 @ 600 cc/min

[redacted] 102 @ 600 cc/min

Start Run #1 at 10:40

(also running Bag Samp.)

After sampling pump 10099 at 95 cc/[redacted]

(5) _____

RESIDENT'S SIGNATURE DATE

PROJECT NO: _____

(1) DAY: _____ DATE: 10.4.[illegible] WORK PERIOD 0 A.M. P.M. TO ____ A.M. P.M. REPORT NO: _____

WEATHER: _____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION _____

(2) NUMBER AND CLASSIFICATION OF PERSONNEL EMPLOYED:

(3) MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE

NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Started #2 run at 13:42

Can P-66 -30.

AV118 -30.

Start #3 run at 14:22

MW TO 6-3 START CAL TO 100 CC/MIN END = 100 CC/MIN

[redacted] END = 102

[redacted] FROM 100

(5)

RESIDENT'S SIGNATURE _____ DATE _____

[redacted] INSPECTION DIARY

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PROJECT NO. ____

(1) DAY: ____ DATE: 04 06 91 WORK PERIOD 10 A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER CLDY TEMP. MAX ____°F: MIN ____°F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: MW #6 MULTI-MEDIA

LEAK CHECK O.K

CAN P-67 = -30 in Hg

AV 016 = -30 in Hg

BLANKS RUN @ 12:31

P-61 = -30 in Hg

AV103 = -30 in Hg

Pump #10099 calibrated at ~~100~~ cc/min after plant run at 98 cc/min both orifices calibrated at 100 cc/min for sampling run #1

Sampling run #2 started at 1310.
Pump #10099 at 105 cc/min calibrated it to 100 cc/min

Sampling run #2 .100
Pump #10099 at [redacted] cc/min. } MW 50-6-2 END=102
~~MW 50-6-7 END=100~~

(5) Cans AV 079, AV091, P-68 at -30.

RESIDENT'S SIGNATURE DATE

(8.1)

FORM 21C

PROJECT NO. _____

(1) DAY: _____ DATE: 8/4/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

#2 set of Samples
lg. can #AV400 at 1-30 psi.
sm. can #P-57 at -30psi

~~Also~~ running 2 charcoal tubes in series
(both called MW-T-0-9-2; marked 1st 2nd in series)

Started at 12:15 (JEAN MOORE INSPECTED SITE AGAIN)

after sampling pump #10099 ~~at~~ at ~~100~~ 97 cc/min
recal. to 100 cc/min.

#3 set of Samples
[redacted] can #AV057 at -30 psi
[redacted] can #P-64 at -30 psi.
Running a dup., running tubes in series.
Started at 13:05
Calibrated pump #10102 to 600 cc/min. Prior to calibration it was 1050 cc/min. Pump #1816 was at 1050 cc/min at end of sampling.
Pump #10099 at 100 cc/min after sampling

(5)

RESIDENT'S SIGNATURE _____ DATE _____

(8.1) FORM 21C

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PROJECT NO. ____

(1) DAY: ____ DATE: 04/04/91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER ____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1	FID JUM VE-7		
1	UHAUL TRAILER		

(4) WORK ACCOMPLISHED TODAY: MW #9 MULTI-MEDIA SAMPLING

FID WARM UP START @ 8:20 A.M. STABLE T @ 9:50

PRESSURIZED SYSTEM TO 10 PSI & SNOOPED FOR LEAKS

BLANKED WITH N_2

Started Blanks at 10:25

Both cans at -30 PSI

916/643-5880 FAX OFFSITE DATA TO CHARLES THORPE

Charlie Thorpe & Jeanne Moore on site 11:00 to 11:20

#1 set of samples

Lg. can AV 039 at ≥ -30 PSI

Sm. can P-58 at ≥ -30 PSI.

Sm. can P-63 at -30 PSI

Gilian pump # 10099 cal. to 100 cc/min.

5[redacted] am

Start[redacted] at 11:39.

Took Sm. cans MW-AC-C-9-1

& MW-AC-C-9-4 (dup of above)

at 11:45.

After sampling pump # 10099 at 110 cc/min.

recal. to 100 cc/min.

(5) ____ RESIDENT'S SIGNATURE ____ DATE

(8.1) FORM 21C

INSPECTION DIARY

PAGE ____ OF ____

PROJECT NO. ____

(1) DAY: ____ DATE: ____ WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER ____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1.			

(4) WORK ACCOMPLISHED TODAY:

#3 samples
also taking a pressurized 1g. can.

AV048 reading less than -10 PSI, replaced with can # AV123 which reads -30 psi
Other cans reading -30 psi.

Start 12:52
180ppm

final pressure on pressurized can 26psi

Bag

(5)

RESIDENT'S SIGNATURE ____ DATE ____

DAILY INSPECTION DIARY

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PROJECT NO. _____

(1) DAY: _____ DATE: 04/03/91 WORK PERIOD 8 A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER Clear TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

BARRY COLLUM
SUZANNE DAVIS
KARLA EBERT
ROBERT KOSTER

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
2	JUM VE-7 TOTAL HYDROCARBON ANALYZERS		

(4) WORK ACCOMPLISHED TODAY: MULTI-MEDIA SAMPLES FROM MW-8

START FID OVEN @ 8:00

Start Blanks 10:45

#1 set of samples
also running lg. can. pressurized.
all cans at -30 PSI.
160 ppm
Start at 11:28.

pres. can ending pressure - 26.5 lbs +

#2 set of samples
also running pressurized lg. can.
all cans at -30 psi, except AV110 reading -24,
replaced with AV108 which is at -30.

Start at 12:06 145 ppm Bag started at 12:43

ending pressure on pres. can 29 lb.

(5)

RESIDENT'S SIGNATURE _____ DATE _____

(8.1)

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PROJECT NO. ____

(1) DAY: ____ DATE: |__|__|__|__|__|__| WORK PERIOD ____ A.M. / P.M. TO ____ A.M. / P.M. REPORT NO. ____

WEATHER ____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

#3 samples pressure in both cans -30psi
pumped all lines 12:35.
started at 12:43.
Finished sampling at 13:03
FINAL SPAN ON FID @ 14:00 HRS = 845 PPM (-5 PPM DRIFT)
BOTTLES OFF / SHUT DOWN @ 14:21 HOURS

(5) ____ RESIDENT'S SIGNATURE ____ DATE

DAILY INSPECTION DIARY

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PROJECT NO.

(1) DAY: _____ DATE: 04.29.91 WORK PERIOD ____ A.M./P.M. TO ____ A.M./P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX ____°F: MIN ____°F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Tedlar Gilian Cal: 10102 800 cc/min @ 1 L/min reading
10100 800 cc/min @ 1 L/min. reading.

Start Blanks at 10:16

Monitoring Well #7:
Can pressures: 30 psi

Pumped all lines 11:25

Start #1 samples: at 11:30, 1g. can, bag, charcoal tube & dup. of charcoal tube.
[redacted] ppm SD, KE
[redacted] - small can

#2 Samples - small can pressure -30psi, 1g can -30psi
pumped all lines 12:05
started at 12:10

(5) _____ _____
RESIDENT'S SIGNATURE DATE

(8.1)

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PROJECT NO. [redacted]

(1) DAY: _____ DATE: 04/01/91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY:

Field instrument readings:

1540 - Pre span, FID - reading obtained before respon - 780 ppm. span to 850 ppm

Pre zero FID & zero reading before zero local good

#6 box final = 201.2 CF

1545 - Turn off fuel & gases bottles, lock up equip + prep to depart

TEDLAR GILIAN CAL: 10102 800 cc/min @ 1 L/min READING

10100 800 cc/min @ 1 L/min READING

= 20 cc/min)

(5) _____ RESIDENT'S SIGNATURE _____ DATE

(8.1) FORM 21C

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PROJECT NO. [redacted] 2872.05.02

(1) DAY: _____ DATE: 09/01/91 WORK PERIOD _____ A.M. P.M. TO _____ A.M. P.M. REPORT NO. _____

WEATHER _____ TEMP. MAX _____ °F: MIN _____ °F: PRECIPITATION _____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.

(4) WORK ACCOMPLISHED TODAY: MW #9

FID START @ 10:27

#6 159.6

START @ 11:00

CAN # P 28 @ -30 "Hg

CAN TAKEN @ 11:20 CAN #P 28

11:28 #6 = 169.5 CF

FID = 2100 cc/MIN } 50 PPM THC

BYPASS = 390 CC/MIN }

12:52 #6 = 176.6 CF PPM = 52

FID = 2150 cc/MIN

BYPASS = 400 cc/MIN

1323 Sample can collected - P-38 at < -30" Hg

1326 #6 = [redacted] CF PPM = 52

FID = 2150 cc/min

Bypass = 400 cc/min

1530 Sample can collected - P-33 at < -30" Hg

1531 #6 = 200.7 CF FID = 2150 cc/min Bypass = 390 cc/min PPM = 53 ppm

1534 - Shut down #6 box - Final reading = 201.2 CF

(5)

RESIDENT'S SIGNATURE DATE

INSPECTION DAILY

PROJECT NO. SAL

(1) DAY: 7/31/91 DATE: 7/31/91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER Clear TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1			

(4) WORK ACCOMPLISHED TODAY:

FINAL INSTRUMENT SETTINGS

#6 Box 159.5 CF @ 16:10

FID = 2.200 L/min

FID EXHAUST = 70 CC/MIN

BYPASS = 400 CC/MIN

FID READINGS STABLE @ 190 PPM @ 11:50

DAY END INSTRUMENT SPAN = 850 PPM !!

(5) ____ 7/31/91

RESIDENT'S SIGNATURE DATE

FORM 21C

INSPECTION DIARY

PAGE 1 OF 2

PROJECT NO. SAC 28722

(1) DAY: 3/31/91 DATE: 03.31.91 WORK PERIOD ____ A.M. P.M. TO ____ A.M. P.M. REPORT NO. ____

WEATHER PTLY CLDY TEMP. MAX ____ °F: MIN ____ °F: PRECIPITATION ____

(2) NUMBER AND CLASS OF PERSONNEL EMPLOYED:

TIM MALONEY

ROBERT KOSTER

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
NO.	DESCRIPTION	SIZE/CAPACITY	HRS. OPER.
1	FID ANALYZER JUM VE-7		
2	HONDA GENERATOR		
3	METHOD 6 GAS SAMPLE CONTROL BOX		

(4) WORK ACCOMPLISHED TODAY:

START LOW-FLOW DRAWDOWN ON WELL #8

11:30 A.M. START WARM-UP ON FID

2.6 L/MIN → FID

1.0 L/MIN → BYPASS

METHOD 6 BOX INITIAL 122.0 CF @ 11:50

11:50 A.M. 0.6 L/MIN → BYPASS

1ST CAN P 48 INITIAL PRESSURE -30 IN Hg

CAN DRAWN @ 12:19 PPM = 175

@ 12:29 BYPASS FLOW = 400 CC/MIN

FID = 2.2 L/MIN

@ 12:31 #6 = 127.7

@ 13:57 PPM = 184, #6 = 141.5,

@ 14:19 BYPASS = 400 CC/MIN

FID = 2200 CC/MIN

#6 = 143.6 CC/MIN

@ 15:04 PPM = 190

#6 = 150.9

CAN P 49 INIT. P -30" Hg TAKEN @ 14:02

CAN P 43 INIT P -28" Hg SAMPLED @ 16:03, PPM = 190

(5) Robert Koster 3/31/91

RESIDENT'S SIGNATURE DATE

SECTION VII
CH2M HILL CHAIN-OF-CUSTODY SHEETS

CHEMNET QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 287220312	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: EPA TO-14 canisters modified ~~to~~ TO-02 · old Sorbents etc. as per McClellan Soil Gas Contract.

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	4/2					MW-T-O-7-1		Tube
	4/2					MW-T-O-7-2		" "
	4/2					MW-S-O 7-3		" "
	4/2					MW-T-O-7-4		" "
	4/2					MW-T O-7-B		Canister
	4/2					MW-AC-O-7-1		" "
	4/2					MW-AC-O-7-2		" "
	4/2					MW-AC-O-7-3		" "
	4/2					MW-AC-O-7-B		Bag
	4/2					MW-B-O-7-1		" "
	4/2					MW-B-O-7-2		" "
	4/2					MW-B-O-7-3		" "
	4/2					MW-B-O-7-4		" "
	4/2					MW-B-O-7-B		" "

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Karla Ebert, Suzanne Davis	4/2/91	Karla Ebert Suzanne C Davis	4/2/91 2:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

CH2M HILL **QUALITY ANALYTICS**

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722	Soil Gas - AFCEE

CLIENT NAME: McClellan AFB

PROJECT MANAGER	COPY TO:
Robert Kosler	

REQUESTED COMP. DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED:

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	3/26					MW-B-0-2-1	1	Bag
	3/26					MW-B-0-2-2	1	Bag
	3/26					MW-B-0-2-3	1	Bag
	3/26					MW-B-0-2-3(dup)	1	Bag
	3/					MW-B-0-2-B	1	Bag
						MW-AC-0-2-1	1	Bag (not received)
	3/					MW-AC-0-2-2	1	
	3/26					MW-AC-0-2-3	1	
	3/					MW-AC-0-2-B	1	
	3/26					MW-S-0-2-1	1	Tube
	3/					MW-S-0-2-2	1	"
	3/26					MW-S-0-2-3	1	"
	3/					MW-I-0-3-B	1	"
	3/26					MW-S-0-2(dup)	1	"

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
[illegible]	3/26/11	[illegible] Kent Porter	3/26/11 [illegible]
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER _____	AIR BILL#

REMARKS

ENTERED INTO LIMS _____ COC REVIEWED _____

REV 6/89 FORM 340

CH2M HILL **QUALITY ANALYTICS**

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722.05.02	Soil ... - Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kistler

COPY TO:

REQUESTED COMP. DATE:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	4/3					MW-T-0.8-1		Tubes
	4/3					MW-[illegible]-0.8-2		"
	4/3					MW-[illegible]-0.8-3		"
	4/3					MW-[illegible]-0.8-4		"
	4/					MW-B-C-8-1		Bag
	4/					MW-[illegible]-C-8-2		"
	4/					MW-E-C-8-3		"
	4/					MW-F-0.8-13		"
	4/3					MW-M-0.8-B		Sampler
	4/3					MW-AC-C-8-1		"
	4/3					MW-AC-C-8-2		"
	4/3					MW-AC-C-8-3		"
	4/3					MW-PC-C-8-4		"
	4/3					MW-[illegible]-C-8-5		Preserved on ice
	4/3					MW-[illegible]-C-8-6		"

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
[illegible]	4/3/91	Richard Ekert [illegible]	4/3/91 2:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

ENTERED INTO LIMS ____ COC REVIEWED ____

PD/4/80 FORM 340

CHEMTECH QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
CLIENT NAME	
PROJECT MANAGER	COPY TO:
REQUESTED COMP. DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: per McClellan Soil Gas Contract

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/5					~~AA~~ VR-B-0-31-B	
	4/5					VR-B-0-31-1	
						VR-B-0-31-2	
						VR-B-0-31-3	
						VR-B-0-31-4	
						VR-B-0-31-1V	
						VR-B-0-31-2V	
						VR-B-0-31-3V	
						VR-B-0-31-4V	
						VR AC-C-31-1V	
						VR AC-C-31-2V	
						VR AC-C-31-3V	

REMARKS: Bags " " " " " " Condensate Vials " " " " " "

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Robert Koster, Engineer	4/5/91	[illegible]	4/5/91 4:00pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

ENTERED INTO LIMS ____ COC REVIEWED ____

REV 4/89 FORM 340

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722.03	Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

SAMPLED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: EPA TO-14/Cannisters Modified TO-02 Solid Sorbents ETC. AS PER McClellan Soil Gas Contract

SEA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	3/20/91					MW-AC-0-004	1
	3/20/91					MW-B-0-005	1
	3/20/91					MW-T-0-006	1
	3/20/91					MW-AC-0-010	1
	3/20/91					MW-B-0-011	1
	3/20/91					MW-S-0-012	1
	3/20/91					MW-AC-0-016	1
	3/20/91					MW-B-0-017	1
	3/20/91					MW-T-0-018	1
	3/20/91					MW-AC-0-020	1
	3/20/91					MW-B-0-021	1
	3/20/91					MW-S-0-022	1

REMARKS

RELINQUISHED BY: Laura Ebert	DATE/TIME 3/20/91	RELINQUISHED BY: Laura Ebert	DATE/TIME 3/20/91 3:45pm
RECEIVED BY: Suzanne Davis	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

ENTERED INTO LIMS ____ REVIEWED ____

PD/4/80 FORM 340

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 728722.03.02 | PROJECT NAME: Soil Gas Area D

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Kosler | COPY TO:

SUGGESTED COMP. DATE | SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: EPA TO-14/Canisters Modified TO-02 Solid Sorbents etc. as per McClellan Soil Gas Contract

SDG REQ.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	3/27/91					MW-PC-0-2-B	1	Pressurized canister
	3/27/91					MW-PC-0-2-1	1	" "
	3/27/91					MW-PC-0-2-2	1	" "
	3/27/91					MW-PC-0-2-3	1	" "
	3/27/91					MW-PC-0-2-3(dup)	1	" "
	3/27/91					MW-S-0-2-B	1	tube
	3/27/91					MW-T-0-2-1	1	tube
	3/27/91					MW-S-0-2-2	1	tube
	3/27/91					MW-T-0-2-3	1	tube
	3/27/91					MW-BC-2-B		Bag
	3/27/91					MW-B-0-2-1		Bag
	3/27/91					MW-B-0-2-2		Bag
	3/27/91					MW-B-0-2-3		Bag

SAMPLED BY AND TITLE: Carla Ebert, Robert Kosler	DATE/TIME: 3/27/91	RELINQUISHED BY: Robert Kosler for Carla Ebert	DATE/TIME: 3/27/91 4:00pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
SAC 28722.03.02	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	4/11					VR-B-0-36-B		Bag
	↓					VR-B-0-36-1		↓
						VR-B-0-36-2		
						VR-B-0-36-3		
	4/12					VR-B-0-13-B		Bag
	↓					VR-B-0-13-1		↓
						VR-B-0-13-2		
						VR-B-0-13-3		
	4/12					MW-LF-0-7-1 (first)		Tubes
	↓					MW-LF-0-7-1 (second)		↓
						MW-LF-0-2-1 (first)		
						MW-LF-0-2-2 (second)		

SAMPLED BY AND TITLE: Chuck Ouellette, Robert Koster	DATE/TIME: 4/11 & 12/91	RELINQUISHED BY: Robert Koster	DATE/TIME: 4/12/91 4:30
RECEIVED BY: Vivian Longacre	DATE/TIME: 4/11/91 4:30 PM	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #

REMARKS

ENTERED INTO LIMS ____ COC REVIEWED ____

REV 6/89 FORM 340

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: SAC28722.0302	PROJECT NAME: McClellan Soil Gas
CLIENT NAME: McClellan AFB	
PROJECT MANAGER: Robert Koster	COPY TO:
REQUESTED COMP. DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/10					VR-B-0-42-B	
						VA-B-0-42-1	
						VR-B-0-42-2	
						VR-B-0-42-3	
						VR-B-0-42-4	
						VR-B-0-61-B	
						VR-B-0-61-1	
						VR-B-0-61-2	
						VR-B-0-61-3	
						VR-B-0-34-B	
						VR-B-0-34-1	
						VR-B-0-34-2	
						VR-B-0-34-3	
						VR-B-0-34-4	
						VR-V-0-42	
						VR-V-0-61	
						VR-V-0-34	

REMARKS: Bag → Vial

SAMPLED BY AND TITLE: Karla Ebert, Suzanne Davis	DATE/TIME: 4/10/91	RELINQUISHED BY	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

ENTERED INTO LIMS _____ COC REVIEWED _____

REV 6/89 FORM 340

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
AC 28722.0302	McClellan Soil Gas

COUNTY NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

SIR NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	4/10					VR-B-0-42-B		Bag
						VR-B-0-42-1		
						VR-B-0-42-2		
						VR-B-0-42-3		
						VR-B-0-42-4		
						VR-B-0-61-B		
						VR-B-0-61-1		
						VR-B-0-61-2		
						VR-B-0-61-3		
						VR-B-0-34-B		
						VR-B-0-34-1		
						VR-B-0-34-2		
						VR-B-0-34-3		
						VR-B-0-34-4		
						VR-V-0-42		Vial
						VR-V-0-61		
						VR-V-0-34		

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Kayla Ebert Surveyor Davis	4/10/91		
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

WHITE [redacted]

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER 22 080	PROJECT NAME McClellan AFB
CLIENT NAME McClellan AFB	
PROJECT MANAGER Kostr	COPY TO:
REQUESTED COMP. DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐

NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/11					VR-B-O-35-B	
						VR-B-O-35-1	
						VR-B-O-35-2	
						VR-B-O-35-3	
						VR-V-O-35	
						VR-B-O-39-B	
						VR-B-O-39-1	
						VR-B-O-39-2	
						VR B O 39-3	
						VR-V-O-39	
						MW-BT-O-7-3 (first in series)	
						MW-BT-O-7-3 (second in series)	
						MW-BT-O-7-4 (first in series)	
						MW-BT-O-7-4 (second in series)	

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED

Per McClellan Soil Gas Contract

REMARKS

Bag
↓
Vial
Bag
↓
Vial
Tube
↓

SAMPLED BY AND TITLE Chris Kostr	DATE/TIME 4/11/11	RELINQUISHED BY Kostr	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA UPS BUS FED-EX HAND OTHER	AIR BILL#

REMARKS

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: 6128722.03.02 | PROJECT NAME: McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

REQUIRED COMP. DATE:

CLIENT ADDRESS AND PHONE NUMBER:

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	REMARKS
	4/9					VR-B-0-43-B		Bag
						VR-B-0-43-1		
						VR-B-0-43-2		
						VR-B-0-43-3		
						VR-B-0-43-4		
						VR-B-0-44-B		
						VR-B-0-44-1		
						VR-B-0-44-2		
						VR-B-0-44-3		
						VR-B-0-44-4		
						VR-V-0-43		Vial
						VR-V-0-44		Vial

SAMPLED BY AND TITLE: Suzanne Davis, Kurt Colbert	DATE/TIME: 4/9/91	RELINQUISHED BY: Kurt Colbert / Suzanne Davis	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL #

REMARKS

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: SAC28722.03.02 | PROJECT NAME: McClellan SoilGas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster | COPY TO:

REQUESTED COMP. DATE | SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

SEA SMD.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/8					MW-AC-0-5-B	
	4/8					MW-AC-0-5-1	
	4/8					MW-AC-0-5-2	
	4/8					MW-AC-0-5-3	
	4/8					MW-AC-0-4-B	
	4/8					MW-AC-0-4-1	
	4/8					MW-AC-0-4-2	
	4/8					MW-AC-0-4-3	
	4/8					MW-T-0-5-B	
	4/8					MW-S-0-5-1	
	4/8					MW-T-0-5-2	
	4/8					MW-S-0-5-3	
	4/8					MW-T-0-4-B	
	4/8					MW-T-0-4-1	
	4/8					MW-T-0-4-2	
	4/8					MW-T-0-4-3	

REMARKS: Canister ↓ Tube ↓

SAMPLED BY AND TITLE: Karla Ebert Surveillance	DATE/TIME: 4/8/91	RELINQUISHED BY: Karla Ebert Surveillance	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

REV 6/89 FORM 340

CHAIN QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME
6AC28722.0302	McClellan Soil Gas

CLIENT NAME: McClellan AFB

PROJECT MANAGER: Robert Koster

COPY TO:

REQUESTED COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

SEA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/8					MW-B-0-5-B	
	4/8					MW-B-0-5-1	
	4/8					MW-B-0-5-2	
	4/8					MW-B-0-5-3	
	4/8					MW-B-0-5-4	
	4/8					MW-B-0-4-B	
	4/8					MW-B-0-4-1	
	4/8					MW-B-0-4-2	
	4/8					MW-B-0-4-3	
						DA	

REMARKS: Bag

SAMPLED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Kayla Ebert, Surveillance Driver	4/8/91	Kayla A. Ebert Suzanne C. Navarro	4/8/91 3:45pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

POLICY NUMBER	PROJECT NAME
28722.0802	McClellan Soil Gas

CLIENT NAME

PROJECT MANAGER: Robert Koster

COPY TO:

SAMPLING COMP. DATE

SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

SAMPLE NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)
	4/6					MW-BT-0-7-1 first
	4/6					MW-BT-0-7-1 second
	4/6					MW-BT-0-7-2 first
	4/6					MW BT-0-7-2 second

OF CONTAINERS

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED

Per McClellan Soil Gas Contract and Robert Koster Instructions

REMARKS

Tubes

SAMPLED BY AND TITLE: Robert Koster	DATE/TIME: 4/6/91	RELINQUISHED BY
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____

DATE/TIME

DATE/TIME

DATE/TIME

AIR BILL#

REMARKS

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

[illegible] 337.03.02	PROJECT NAME: McClellan Soil Gas
McClellan AFB	
PROJECT MANAGER: Robert Koster	COPY TO:
[illegible] DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐ ____

CLIENT ADDRESS AND PHONE NUMBER

ANALYSES REQUESTED: Per McClellan Soil Gas Contract

[illegible]	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS
	4/6					MW-B-0-6-B	
	4/6					MW-B-0-6-1	
	4/6					MW-B-0-6-2	
	4/6					MW-B-0-6-3	
	4/6					MW-AC-C-6-B	
	4/6					MW-AC-0-6-1	
	4/6					MW-AC-0-6-2	
	4/6					MW-AC-0-6-3	
	4/6					MW-AC-0-6-4	
	4/6					MW-T-0-6-B	
	4/6					MW-T-0-6-1	2
	4/6					MW-T-0-6-2	2
	4/6					MW-T-0-6-3	2
	4/6					MW-S-0-6-1	2

REMARKS: Bags, Canisters, Tubes

SAMPLED BY AND TITLE: Suzanne [illegible]	DATE/TIME: 4/6/91	RELINQUISHED BY: Kalpa Ekit	DATE/TIME: 4/6/91 3:30pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS

QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER	PROJECT NAME	# OF CONTAINERS	CLIENT ADDRESS AND PHONE NUMBER
AC20722 0342	McClellan Air Force Base		
CLIENT NAME			
McClellan SAT AFB			
SAMPLED BY	COPY TO:		
Robert Kosler			
REQUIRED COMP. DATE	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ☐		

ANALYSES REQUESTED: per McClellan Soil Gas Contract

LAB NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	REMARKS
	4/4					MW-T-0-1-B	Tube
	4/4					MW-T-0-9-1	"
	4/4					MW-T-0-1-21" inches	"
	4/4					MW-T-0-1-22" inches	"
	4/4					MW-T-0-1-31" inches	"
	4/4					MW-T-0-1-32" inches	"
	4/4					MW-AC-0-1-B	Canister
	4/4					MW-AC-0-1-1	"
	4/4					MW-AC-0-1-2	"
	4/4					MW-AC-0-1-3	"
	4/4					MW-B-0-9-1	Bag
	4/4					MW-B-0-9-2	"
	4/4					MW-B-0-9-3	"
	4/4					MW-B-0-9-4	"
	4/4					MW-B-0-9-B	"

RECEIVED BY AND TITLE	DATE/TIME	RELINQUISHED BY	DATE/TIME
Dan Tuel Civil	4/4/91	Robert Elvet	4/4/91 3:00pm
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB:	DATE/TIME	SAMPLE SHIPPED VIA: UPS BUS FED-EX HAND OTHER ____	AIR BILL#

REMARKS