AIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910

301/587-8202

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

1 of 2

2

**SAMPLING AND ANALYSES REPORT FOR POSTBURN
SAMPLING AT THE RMI UCG SITE, HANNA, WYOMING**

**By
Scott E. Crader**

June, 1988⁹

**Work Performed Under Cooperative Agreement
DE-FC21-86MC11076**

**For
U.S. Department of Energy
Office of Fossil Energy
Morgantown Energy Technology Center
Laramie Projects Office
Laramie, Wyoming**

**By
Western Research Institute
Laramie, Wyoming**

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES.....	iii
INTRODUCTION.....	1
SAMPLING ACTIVITIES.....	1
DISCUSSION OF RESULTS AND ANALYSES.....	2
QUALITY ASSURANCE AND QUALITY CONTROL.....	2
ACKNOWLEDGEMENT.....	9
DISCLAIMER.....	9
APPENDIX A: Sampling Record and Purging Data.....	10
APPENDIX B: VOA Analytical Results for Inner Ring Coal Seam Wells.....	56

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. RM1 Sampling Summary for March 1989.....	4
2. Compliance Suite Analyses for Samples Obtained from Coal, Overburden and Underburden Monitoring Wells and Two Cavity Wells.....	6
3. Compliance Suite Analyses for Quality Assurance/ Quality Control Samples.....	8

INTRODUCTION

Between June 22, 1989 and June 26, 1989, Western Research Institute (WRI) completed the second quarterly Rocky Mountain 1 (RM1) groundwater monitoring for the year 1989. This quarterly sample outing represents the third sampling since the completion of the RM1 groundwater restoration.

Background material and the sampling and analytical procedures associated with this task are described in the "Rocky Mountain 1 Postburn Groundwater Monitoring Quality Assurance Plan," prepared by Western Research Institute for the Gas Research Institute and the U.S. Department of Energy.

SAMPLING ACTIVITIES

A summary of the sampling activities performed by WRI at the RM1 site during the June 1989 quarterly sampling period are presented in Table 1. This table shows a list of the wells sampled, sampling date, sampling method, the sample parameter suite, and observations made during sampling.

A total of 23 monitoring wells were sampled during the second quarterly postburn sampling of 1989. This included 16 wells completed in the coal seam, 2 wells completed in the unit A overburden, 2 wells completed in the unit C overburden, 1 well completed in the underburden, 1 well completed in the ELW cavity, and 1 well completed in the CRIP cavity. All wells were sampled for the compliance suite (CS) of parameters. Compliance suite refers to those parameters sampled for as designated by the "Rocky Mountain 1 Postburn Groundwater Monitoring Quality Assurance Plan." In addition, the inner ring coal seam wells were sampled for volatile organics acid analyses.

Wells EMW-2 and EMW-8 have very low permeability and historically have not recharged sufficiently to sample with a portable pump. These two wells were sampled with a Teflon bailer on June 24, 1989.

Well EMW-6 has a two inch diameter casing that has become bent or twisted. The Bennett pump system will not reach appropriate sample depth, therefore, a Teflon bailer was also used to sample this well.

All of the other wells have sufficient recharge and pumped and sampled using the Bennett pump system.

Well purging procedures precede sample collection to ensure that the sample is obtained from the hydrostratigraphic unit and not from the wellbore. Purging data (purge time, temperature, conductivity, pH, Eh, water level, and pump discharge rate) are recorded during the well purging process. Stabilization of the purging parameters is used to indicate formation water recovery. Well purging data collected for each well requiring sample purging are included in Appendix A of this report. Stabilized purging parameter data, water level measurements, field alkalinity titration data, and other data are compiled for each well and are entered on the WRI Groundwater Sampling Record form.

These forms correspond to each well sampled at the RM1 site and are also included in Appendix A.

DISCUSSION OF RESULTS AND ANALYSES

The results of sample analyses for compliance suite parameters of all wells sampled during June, 1989 are presented in Table 2. Results of VOA analyses performed on inner ring coal seam wells are presented in Appendix B.

In general, the wells in the west and southwest areas of the RM1 site, the wells that showed the most significant effect during the UCG burn (TW-2, EMW-11a, TW-18, and TW-17), are continuing to show effects of the burn after the groundwater restoration. Overburden-process conditions communications are also supported by the data collected. There is a trend of higher concentrations of ammonia and sulfate coupled with higher amounts of total dissolved solids in some of the groundwater from coal seam wells.

Total organic carbon (TOC) levels in coal seam wells TW-5, TW-13, TW-18 and EMW-11a exceeded the highest baseline concentration of 45 mg/L. The value in these wells were 50 mg/L, 46 mg/L, 55 mg/L and 46 mg/L.

Total dissolved solids (TDS) levels in coal seam well TW-18 measured at 3250 mg/L was above highest baseline concentrations of 2750 mg/L. The cavity wells VIW-1 and CPW-2, measured at 3520 mg/L and 3210 mg/L were also above highest baseline values.

Well TW-18 has an ammonia level of 8.4 mg/L which was above the highest baseline concentration for coal seam wells of 7.9 mg/L.

Wells showing phenols include EMW-2, TW-3, and CPW-2 at .02 mg/L, .035 mg/L and .028 mg/L respectively.

Boron was measured at 1.48 mg/L and 1.22 mg/L in wells VIW-1 and CPW-2, respectively, indicating high levels of boron in the cavity area.

QUALITY ASSURANCE AND QUALITY CONTROL

Concentrated stock solutions were supplied by the WRI Quality Assurance/Quality Control (QA/QC) officer, diluted in the field, and submitted as field standard samples. Field standards are designed to check analytical accuracy. Standards of each element or compound to be analyzed were diluted in the field with distilled-deionized water and submitted anonymously as a regular sample set. The sample preparation procedures were supplied by the QA/QC officer.

A field duplicate sample was collected from well TW-18 which has a history as one of the most contaminated wells at the RM-1 site. The regular and duplicate samples were prepared and preserved in an identical manner. The duplicate sample was submitted anonymously using

a predetermined name. Field duplicates are designed to check analytical accuracy and consistency.

Quality assurance and quality control rinsate samples were generated using the sampling pump, local tap water, and Type 1 water. Rinsate sampling is intended to simulate the rinsing which occurs while purging each well before sampling. For this reason, the amount of rinsate water pumped through the sampling system for rinsate sampling represents an average amount of water pumped from each well.

Seventy five gallons of local tap water was pumped through the sampling system. The line was then evacuated using compressed air. Finally, ten gallons of Type 1 water was pumped through the line and sampled.

Type 1 water is high purity deionized, distilled water prepared in WRI's analytical laboratory using distilled water as a feedstock and processed through a Millipore water purification system. The Millipore system recirculates water through 4 cartridges (1 carbon adsorption, 1 particulate trap, and 2 ion exchanges) and has a conductivity of less than 2 $\mu\text{mhos/cm}$. The Type 1 water is thus assumed to be blank, and any levels of the compliance suite parameters detected in the rinsate water are assumed to be the result of cross-contamination from the sample pump and line.

Table 3 shows the results of the QA/QC standard, duplicate, and rinsate samples. Also included in the table are the expected results for each sample as determined by WRI's QA/QC officer. The expected results for the duplicate sample are the results obtained from the regular sample of well EMW-11a.

Western Research Institute's QA/QC officer reviewed the analytical results for the March 1989 RM-1 groundwater sampling test. His report stated that, "in general the results were acceptable and precision and accuracy were within accepted limits." All compliance suite analyses were within acceptable limits.

June
Table 1. RMI Sampling Summary for ~~March~~ 1989

Well Name	Date Sampled	Sample Method	Parameter Suite	Comments
EMW-1	06/24/89	Bennett pump	CS + VOA	Slight sulfur odor. Water was clear. Gas in line.
EMW-2	06/24/89	Teflon bailer	CS	Boiled sample.
EMW-3	06/24/89	Bennett pump	CS + VOA	Slight sulfur odor to water. Gas in line. Colorless water.
EMW-4	06/22/89	Bennett pump	CS	Colorless, odorless water.
EMW-6	06/23/89	Teflon bailer	CS	Boiled sample.
EMW-8	06/24/89	Teflon bailer	CS	Boiled sample
EMW-9	06/23/89	Bennett pump	CS + VOA	Colorless, odorless water.
EMW-10	06/23/89	Bennett pump	CS	Colorless, odorless water.
EMW-11a	06/24/89	Bennett pump	CS + VOA	Water was clear. Some sulfur odor. Gas in line.
TW-2	06/24/89	Bennett pump	CS + VOA	Colorless, odorless water. Gas in line.
TW-3	06/24/89	Bennett pump	CS + VOA	Slight sulfur odor. Water was clear. Some gas.
TW-4	06/23/89	Bennett pump	CS + VOA	Colorless, odorless water.
TW-5	06/23/89	Bennett pump	CS + VOA	Colorless, odorless water.

June
Table 1. RMI Sampling Summary for ~~March~~, 1989 (continued)

Well Name	Date Sampled	Sample Method	Parameter Suite	Comments
TW-11	06/23/89	Bennett pump	CS	Strong sulfur smell to water. Colorless water. Some gas.
TW-12	06/22/89	Bennett pump	CS	Colorless, odorless water. Some gas.
TW-13	06/22/89	Bennett pump	CS	Gray muddy silt in water.
TW-14a	06/23/89	Bennett pump	CS	Colorless, odorless water.
TW-15	06/22/89	Bennett pump	CS	Colorless, odorlessd water.
TW-16	06/22/89	Bennett pump	CS	Colorless, odorless water.
TW-17	06/25/89	Bennett pump	CS	Colorless, odorless water. Some gas.
TW-18	06/25/89	Bennett pump	CS	Colorless, odorless water. Gas in line.
VIW-1	06/25/89	Bennett pump	CS + VOA	"Turpentine" odor to water. Coal fines in water. Gas in line. Water is clear.
CPW-2	06/25/89	Bennett pump	CS + VOA	Slight sulfur "turpentine" smell to water. Coal fines in water. Water is slightly black tinted. Some gas.

Table 2. Compliance Suite Analyses for Samples Obtained from Coal, Overburden, and Underburden Monitoring Wells and Two Cavity Wells

Well Name	EMW-1	EMW-2	EMW-3	EMW-4	EMW-6	EMW-8	EMW-9	EMW-10	EMW-11a	TW-2	TW-3	TW-4
<u>Parameter</u>												
Phenolics, mg/L	<.02	.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
Cyanide, mg/L	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
Ammonia, mg/L	5.1	8.8	2.7	4.0	10.3	4.8	2.8	3.6	4.2	4.4	2.5	2.24
Total Organic Carbon, mg/L	38	<10	27	<10	22	13	41	<10	46	39	22	27
Total Dissolved Solids, mg/L	2580	1400	1600	1010	2110	1510	2130	550	2660	2650	1610	1440
Sulfide, mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulfate, mg/L	603	13	471	150	782	115	1060	88	886	1070	514	426
Boron, mg/L	.037	.069	.035	.080	.071	.081	.036	.051	<.02	.037	.033	.038
Alkalinity (lab) ^a	1300	1140	730	650	780	1070	560	400	1020	750	680	690
Alkalinity (field) ^a	1462	*	831	735	*	*	602	422	1116	835	771	771
pH (lab)	7.6	10.0	7.5	7.5	9.4	8.9	7.5	7.0	7.6	7.6	7.6	7.7
pH (field)	7.75	*	7.91	7.62	*	9.12	8.26	7.45	7.97	7.93	8.10	8.47
Eh, mV (field) ^b	-12.7	*	1.1	81.9	*	-9.8	60.5	109.9	7.87	-13.6	-2.5	113.9
Corrected Conductivity, μ mhos/cm (field)	3360	*	2160	1440	*	2160	2820	870	3480	3420	2190	1920
Sample Temperature, °C	11.1	*	11.8	12.9	*	10.1	10.8	11.1	11.7	11.2	10.8	11.8
Sample Discharge Rate, gpm	1.1	Z	0.8	.75	Z	Z	1.0	.025	1.1	.85	1.1	0.9

^a meq CaCO₃

^b Corrected to Standard H⁺ Electrode

Z Bailed sample--Sample Discharge Rate not available

* Value not available

Table 2. Compliance Suite Analyses for Samples Obtained from Coal, Overburden, and Underburden Monitoring Wells and Two Cavity Wells (continued)

Well Name	TW-5	TW-11	TW-12	TW-13	TW-14a	TW-15	TW-16	TW-17	TW-18	VIW-1	CPW-2
<u>Parameter</u>											
Phenolics, mg/L	<.02	<.02	<.02	<.02	.023	<.02	<.02	<.02	<.02	<.02	<.02
Cyanide, mg/L	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
Ammonia, mg/L	3.4	3.3	2.7	2.4	2.1	2.2	2.4	3.8	8.4	5.9	5.0
Total Organic Carbon, mg/L	50	23	15	46	30	22	26	42	55	<10	<10
Total Dissolved Solids, mg/L	2420	1630	1600	1430	1390	1470	1500	2530	3250	3520	3210
Sulfide, mg/L	<1	1.3	<1	<1	1.8	<1	<1	<1	<1	<1	<1
Sulfate, mg/L	1090	557	522	415	330	368	394	1100	1600	1830	1740
Boron, mg/L	.040	.025	.028	.051	.040	.047	.042	.033	.030	1.48	1.22
Alkalinity (lab) ^a	570	670	620	610	730	700	690	640	580	430	240
Alkalinity (field) ^a	610	779	703	683	831	743.4	763	703	622	474	277
pH (lab)	7.5	7.5	7.5	7.6	7.9	7.7	7.7	7.6	7.5	7.6	7.9
pH (field)	8.35	8.23	8.09	8.12	8.60	8.52	8.20	8.06	7.81	7.69	7.76
Eh, mV (field) ^b	27.7	-19.3	78.1	73.6	64.2	65.8	59.4	43.8	-14.2	-37.6	-35.3
Corrected Conductivity, µmhos/cm (field)	3150	2160	1860	1980	1860	1950	2040	2910	3390	3900	3480
Sample Temperature, °C	10.1	9.9	10.9	13.3	11.6	10.2	9.7	12.5	13.6	20.4	24.2
Sample Discharge Rate, gpm	1.1	1.0	0.8	.95	0.4	.46	1.1	1.0	0.9	0.9	1.0

^a meq CaCO₃

^b Corrected to Standard H⁺ Electrode

* Value not available

**Table 3. Compliance Suite Analyses for Quality Assurance/
Quality Control Samples**

	Field Standard		Field Duplicate		System Rinsate	
	Actual	Expected	Actual	Expected	Actual	Expected
Phenol	150	141	<.02	<.02	<.02	0
Cyanide	17	100	<.02	<.02	<.02	0
Ammonia	2.3	2.5	8.2	8.4	<.2	0
TOC	8900	46	54	55	<10	0
TDS	677	670	3300	3250	19	0
Sulfide	15	24.3	<1	<1	<1	0
Sulfate	68	95	1590	1600	<5	0
Boron	2.49	2.5	.04	.03	.022	0
Alkaline	90	95	590	580	<10	0
pH	9.0	9.0	7.5	7.5	5.8	2

ACKNOWLEDGEMENT

The authors express thanks and appreciation to the United States Department of Energy for funding of this work under Cooperative Agreement Number DE-FC21-86MC11076.

DISCLAIMER

Mention of specific brand names or models of equipment is for information only and does not imply endorsement of any particular brand.

APPENDIX A

Sampling Record and Purging Data

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name EMW-1
 Date 24 June 89 Field Crew Crocker, West
 Weather partly cloudy, calm Air Temperature 65 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 109.05' Depth of Sampling Device 354'

Field Analyses at Time of Sampling

Temperature 11.1 (°C)
 Corrected Conductivity 336.0 (µmhos/cm at 25°C)
 pH 7.75
 Eh -221.7 (mV, Field Electrode)
 Eh -12.69 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.1 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.82
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 36.4 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 1461.82 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-29-15-EMW1 -A; Hdup	(VOA)	A5062; A5063
-B	BNA	
0560-29-15-EMW1 -C	(Total Phenols)	A5064
0560-29-15-EMW1 -D	TKN, (NH ₃), (TOC, COD, NO ₃ , NO ₂)	A5065
0560-29-15-EMW1 -E	(Sulfide)	A5066
0560-29-15-EMW1 -F	(Cyanide)	A5067
0560-29-15-EMW1 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , (ALK) p.T	A5068
0560-29-15-EMW1 -H	(Baron) Metals, SCN	A5069
-J	TSS

Well Name EMW-2

Date 24 June 89

Power Requirements_____

Phase

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

Bailed sample - low transmissivity well.

WRI GROUNDWATER SAMPLING RECORD

Project Rm-1

Well Name Emw-2

Date 24 June 89

Field Crew Crader, West

Weather cloudy, calm

Air Temperature 62 (F°)

Measuring Point TOC

Sampling Device Teflon Bailor

Depth to Water 250'

Depth of Sampling Device 301'

Field Analyses at Time of Sampling

Temperature _____ (°C)

Corrected Conductivity _____ (µmhos/cm at 25°C)

pH _____

Eh _____ (mV, Field Electrode)

Eh _____ (mV, Corrected to Standard Hydrogen Electrode)

Discharge Rate _____ (gallons/min)

Alkalinity Titration

Filtered Sample pH _____

mls of Sample Tested _____ ml

mls of HCl Added to Reach pH 4.5 _____ ml

Normality of HCl _____ N

Total Alkalinity _____ (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-45-15-Emw2 -C	Total Phenols	A5070
0560-45-15-Emw2 -D	TKN, (NH ₃), (TOC, COD, NO ₃ , NO ₂)	A5071
0560-45-15-Emw2 -E	Sulfide	A5072
0560-45-15-Emw2 -F	Cyanide	A5073
0560-45-15-Emw2 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK	A5074
0560-45-15-Emw2 -H	(Boron) Metals, SCN	A5075
-J	TSS	

Project Rm-1

Well Name EMW-3

Date 24 June 89

Power Requirements

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

0930 - water is clear, very slight odor, lots of gas

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name EMW-3
 Date 24 June 89 Field Crew Cooley, West
 Weather Cloudy, calm Air Temperature 58 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 128.9' Depth of Sampling Device 344'

Field Analyses at Time of Sampling

Temperature 16.8 (°C)
 Corrected Conductivity 216.0 (µmhos/cm at 25°C)
 pH 7.91
 Eh -207.3 (mV, Field Electrode)
 Eh 1.08 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.8 (gallons/min)

Alkalinity Titration

Filtered Sample pH 8.01
 mls of Sample Tested 25 ml
 mls of HCl Added to Reach pH 4.5 20.7 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 831.31 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-27-15-EMW3-A, Adup	VOA	AS0416 AS0417
-B	BNA	
0560-27-15-EMW3-C	Total Phenols	AS0550
0560-27-15-EMW3-D	TKN, (NH ₃), TOC, COD, NO ₃ , NO ₂	AS0551
0560-27-15-EMW3-E	Sulfide	AS0552
0560-27-15-EMW3-F	Cyanide	AS0553
0560-27-15-EMW3-G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , (ALK)	AS0554
0560-27-15-EMW3-H	(Barium) Metals, SCN	AS0555
-J	TSS	

WRI GROUNDWATER SAMPLING RECORD

Project RM-1

Well Name EMW-4

Date 22 June 89

Field Crew Crocker, West

Weather mostly cloudy, gusty

Air Temperature 70 (F°)

Measuring Point TOC

Sampling Device Bennett Pump

Depth to Water 112.0'

Depth of Sampling Device 150'

Field Analyses at Time of Sampling

Temperature 12.9 (°C)

Corrected Conductivity 1440 (μmhos/cm at 25°C)

pH 7.62

Eh -129.5 (mV, Field Electrode)

Eh 81.89 (mV, Corrected to Standard Hydrogen Electrode)

Discharge Rate 1.75 (gallons/min)

Alkalinity Titration

Filtered Sample pH 7.60

mls of Sample Tested 25.0 ml

mls of HCl Added to Reach pH 4.5 18.3 ml

Normality of HCl 0.02008 N

Total Alkalinity 734.93 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-09-15-EMW4 -C	Total Phenols	A4980
0560-09-15-EMW4 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A4981
0560-09-15-EMW4 -E	Sulfide	A4982
0560-09-15-EMW4 -F	Cyanide	A4983
0560-09-15-EMW4 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK	A4984
0560-09-15-EMW4 -H	Metals, SCN	A4985
-J	TSS

WESTERN RESEARCH INSTITUTE

Project Rm-1

Well Name EMW-6

Date 23 June 89

Power Requirements

Phase

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, μmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
<u>1600</u>	<u>not enough water available to measure</u>				<u>33.9</u>	<u>bailed</u>
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

COMMENTS

Bailed sample to avoid getting Bennett pump stuck.

—

—

—

—

—

—

—

—

—

—

WRI GROUNDWATER SAMPLING RECORD

Project RM-1

Well Name EMU-6

Date 23 June 89

Field Crew Crosby, Wint

Weather overcast, slight wind

Air Temperature 58 (F°)

Measuring Point TOC

Sampling Device Teflon Bail

Depth to Water 33.9'

Depth of Sampling Device 395'

Field Analyses at Time of Sampling

Temperature _____ (°C)

Corrected Conductivity _____ (μmhos/cm at 25°C)

pH _____

Eh _____ (mV, Field Electrode)

Eh _____ (mV, Corrected to Standard Hydrogen Electrode)

Discharge Rate _____ (gallons/min)

Alkalinity Titration

Filtered Sample pH _____

mls of Sample Tested _____ ml

mls of HCl Added to Reach pH 4.5 _____ ml

Normality of HCl _____ N

Total Alkalinity _____ (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-47-15-EMU6 -C	Total Phenols	A5026
0560-47-15-EMU6 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A5027
0560-47-15-EMU6 -E	Sulfide	A5028
0560-47-15-EMU6 -F	Cyanide	A5029
0560-47-15-EMU6 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK	A5030
0560-47-15-EMU6 -H	Metals, SCN	A5031
-J	TSS	

Project RM-1

Well Name EMW-8

Date 24 Jan 89

Power Requirements

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

COMMENTS

Bailed sample - very low transmissivity well.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name EMW-8
 Date 24 June 89 Field Crew Charles West
 Weather cloudy, calm, nice Air Temperature 60 (F°)

Measuring Point TOC Sampling Device Teflon Bail
 Depth to Water 293' Depth of Sampling Device 324'

Field Analyses at Time of Sampling

Temperature 10.1 (°C)
 Corrected Conductivity 2160 (µmhos/cm at 25°C)
 pH 9.12
 Eh -237.9 (mV, Field Electrode)
 Eh -9.81 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate baited (gallons/min)
~~Alkalinity Titration~~
~~Filtered Sample pH _____~~
~~mls of Sample Tested _____ ml~~
~~mls of HCl Added to Reach pH 4.5 _____ ml~~
~~Normality of HCl _____ N~~
~~Total Alkalinity _____ (mg/L Equiv. CaCO₃)~~

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-43-15-EMW8 -C	Total Phenols	A5056
0560-43-15-EMW8 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A5057
0560-43-15-EMW8 -E	Sulfide	A5058
0560-43-15-EMW8 -F	Cyanide	A5059
0560-43-15-EMW8 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK ¹	A5060
0560-43-15-EMW8 -H	Baron Metals, SCN	A5061
-J	TSS

Well Name EMW-9

Power Requirements_____

FIELD MEASUREMENTS DURING WELL PURGING

COMMENTS

1545 - water is clear, odor free, no gas.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name EMW-9
 Date 23 June 89 Field Crew Crocker, West
 Weather cloudy, cool Air Temperature 60 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 87.65' Depth of Sampling Device 360'

Field Analyses at Time of Sampling

Temperature 10.6 (°C)
 Corrected Conductivity 2820 (µmhos/cm at 25°C)
 pH 8.26
 Eh -146.8 (mV, Field Electrode)
 Eh 60.48 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.0 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.41
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 15.0 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 602.40 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-21-15-EMW9 -A; Adup	VOA	A5018; A5019
-B	BNA	
0560-21-15-EMW9 -C	Total Phenols	A5020
0560-21-15-EMW9 -D	TKN, (NH ₃), TOC, COD, NO ₃ , NO ₂	A5021
0560-21-15-EMW9 -E	Sulfide	A5022
0560-21-15-EMW9 -F	Cyanide	A5023
0560-21-15-EMW9 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK, pH	A5024
0560-21-15-EMW9 -H	Barium Metals, SCN	A5025
-J	TSS	

Project RM-1

Well Name EMW-10

Date 23 June 89

Power Requirements

Phase

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, μmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
<u>1335</u>	<u>10.5</u>	<u>1260</u>	<u>7.59</u>	<u>-54.2</u>	<u>95.8</u>	<u>0.9</u>
<u>1355</u>	<u>9.1</u>	<u>740</u>	<u>7.53</u>	<u>-116.6</u>	<u>115.2</u>	<u>1.0</u>
<u>1415</u>	<u>9.7</u>	<u>740</u>	<u>7.57</u>	<u>-115.8</u>	<u>130.7</u>	<u>0.8</u>
<u>1435</u>	<u>9.1</u>	<u>740</u>	<u>7.54</u>	<u>-110.9</u>	<u>141.5</u>	<u>0.8</u>
<u>1455</u>	<u>9.4</u>	<u>804</u>	<u>7.47</u>	<u>-101.3</u>	<u>143.4</u>	<u>0.4</u>
<u>1515</u>	<u>10.2</u>	<u>870</u>	<u>7.45</u>	<u>-99.1</u>	<u>139.4</u>	<u>0.25</u>

COMMENTS

1340- water is clear, odor free, gas free

1435- reduce flow rate to avoid breaking suction

1455- reduced flow rate again.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name EMW-10
 Date 23 June 89 Field Crew Crackler, Went
 Weather Cloudy Air Temperature 65 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 95.8' Depth of Sampling Device 147

Field Analyses at Time of Sampling

Temperature 11.1 (°C)
 Corrected Conductivity 870 (μmhos/cm at 25°C)
 pH 7.45
 Eh -99.1 (mV, Field Electrode)
 Eh 109.91 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.25 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.60
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 10.5 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 421.68 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-19-15-EMW10 -C	Total Phenols	ASC12
0560-19-15-EMW10 -D	TKN, (NH ₃), TOC, COD, NO ₃ , NO ₂	ASC13
0560-19-15-EMW10 -E	Sulfide	ASC14
0560-19-15-EMW10 -F	Cyanide	ASC15
0560-19-15-EMW10 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , (ALK) (pH)	ASC16
0560-19-15-EMW10 -H	Heavy Metals, SCN	ASC17
-J	TSS	

Project RM-1

Well Name EMW-11a

Date 24 June 89

Power Requirements_____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

1340 - water is clear, some sulfur odor, alot of gas.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name Emu-11a
 Date 24 June 89 Field Crew Leslie, West
 Weather cloudy, windy Air Temperature 61 (F°)

Measuring Point TCC Sampling Device Fennell Pump
 Depth to Water 107.2' Depth of Sampling Device 344'

Field Analyses at Time of Sampling

Temperature 11.7 (°C)
 Corrected Conductivity 3480 (µmhos/cm at 25°C)
 pH 7.97
 Eh -200.6 (mV, Field Electrode)
 Eh 7.87 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.1 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.01
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 27.8 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 1116.45 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-31-15-Emu11a -A; Ardup	VOA	ASC76; ASC77
-B	BNA	
0560-31-15-Emu11a -C	Total Phenols	ASC78
0560-31-15-Emu11a -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	ASC29
0560-31-15-Emu11a -E	Sulfide	ASC80
0560-31-15-Emu11a -F	Cyanide	ASC81
0560-31-15-Emu11a -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK	ASC82
0560-31-15-Emu11a -H	(Biom) Metals, SCN	ASC83
-J	TSS

Well Name TW-2

Power Requirements_____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

1615- water is clear and odorless, alot of gas

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-2
 Date 24 June 89 Field Crew Coady, West
 Weather partly cloudy, breeze Air Temperature 64 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 122.4' Depth of Sampling Device 340'

Field Analyses at Time of Sampling

Temperature 14.2 (°C)
 Corrected Conductivity 3420 (µmhos/cm at 25°C)
 pH 7.95
 Eh -222.5 (mV, Field Electrode)
 Eh -13.58 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate .85 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.98
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 20.8 ml
 Normality of HCl .02008 N
 Total Alkalinity 435.53 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-33-15-TW2 -A	VOA	AS084; AS085
-B	BNA	
0560-33-15-TW2 -C	Total Phenols	AS086
0560-33-15-TW2 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	AS087
0560-33-15-TW2 -E	Sulfide	AS088
0560-33-15-TW2 -F	Cyanide	AS089
0560-33-15-TW2 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK	AS090
0560-33-15-TW2 -H	Boron Metals, SCN	AS091
-J	TSS

Well Name TW-3

Power Requirements_____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

pH probe and meter standardized on pH 7 & 10

Ek probe = 253.2 (label standard)

conductivity = 1860 (standard = 2000)

0725 - water is clear, some gas, slight sulfur odor

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-3
 Date 24 June 89 Field Crew Cindy West
 Weather cloudy, cool, calm Air Temperature 52 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 120.6' Depth of Sampling Device 343'

Field Analyses at Time of Sampling

Temperature 10.8 (°C)
 Corrected Conductivity 2190 (μmhos/cm at 25°C)
 pH 8.10
 Eh -211.8 (mV, Field Electrode)
 Eh -2.52 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.1 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.17
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 19.2 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 771.07 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-25-15-TW3 -A; Adup	VOA	AS040, AS041
-B	BNA	
0560-25-15-TW3 -C	Total Phenols	AS042
0560-25-15-TW3 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	AS043
0560-25-15-TW3 -E	Sulfide	AS044
0560-25-15-TW3 -F	Cyanide	AS045
0560-25-15-TW3 -G	Sulfate, IDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	AS046
0560-25-15-TW3 -H	Boron, Metals, SCN	AS047
-J	TSS	

Project Rm-1

Well Name Tw-4/

Date 23 June 89

Power Requirements

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

11410 - water is clear, odor free, gas free

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-4
 Date 23 June 89 Field Crew Crosby, West
 Weather cloudy, windy Air Temperature 60 (F°)

Measuring Point TCC Sampling Device Bennett Pump
 Depth to Water 89.5' Depth of Sampling Device 372'

Field Analyses at Time of Sampling

Temperature 11.8 (°C)
 Corrected Conductivity 1920 (μmhos/cm at 25°C)
 pH 8.47
 Eh -164.5 (mV, Field Electrode)
 Eh 438E (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.9 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.46
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 19.2 ml
 Normality of HCl 0.2008 N
 Total Alkalinity 771.07 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-17-15-TW4 -A; Adwp	VOA	AS004; AS005
-B	BNA	
0560-17-15-TW4 -C	Total Phenols	AS006
0560-17-15-TW4 -D	TKN (NH ₃), TOC, COD, NO ₃ , NO ₂	AS007
0560-17-15-TW4 -E	Sulfide	AS008
0560-17-15-TW4 -F	Cyanide	AS009
0560-17-15-TW4 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK, pH	AS010
0560-17-15-TW4 -H	(Baron) Metals, SCN	AS011
-J	TSS	

Project Rm-1

Well Name Tw-5

Date 23 June 89

Power Requirements_____

Phase

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

1750 - clear, odorless, gas, no water

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-5
 Date 23 June 89 Field Crew Crosby, Uicet
 Weather Intermittent Rain, calm Air Temperature 59 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 96.6' Depth of Sampling Device 359'

Field Analyses at Time of Sampling

Temperature 10.1 (°C)
 Corrected Conductivity 3150 (µmhos/cm at 25°C)
 pH 8.35
 Eh -182.2 (mV, Field Electrode)
 Eh 27.71 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.1 (gallons/min)

Alkalinity Titration

Filtered Sample pH 8.35
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 15.2 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 610.43 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-23-15-TW5 -A; <u>Adup</u>	<u>VOA</u>	<u>A5032: A5033</u>
-B	<u>BNA</u>	
0560-23-15-TW5 -C	<u>Total Phenols</u>	<u>A5034</u>
0560-23-15-TW5 -D	<u>TKN, NH₃, TOC, COD, NO₃, NO₂</u>	<u>A5035</u>
0560-23-15-TW5 -E	<u>Sulfide</u>	<u>A5036</u>
0560-23-15-TW5 -F	<u>Cyanide</u>	<u>A5037</u>
0560-23-15-TW5 -G	<u>Sulfate, TDS, Br, Cl, F, HCO₃, CO₃, (ALK_{pH})</u>	<u>A5038</u>
0560-23-15-TW5 -H	<u>Trace Metals, SCN</u>	<u>A5039</u>
-J	<u>TSS</u>

Well Name TW-11

Power Requirements _____

Phase

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

Ek meter and probe read 252.0 (standard = 206.1)

conductivity reads 2520 (standard = 2000)

pH probe and meter standardized on pH 7 & 10

0715 - strong sulfur odor, gas in line, water is clear

WRI GROUNDWATER SAMPLING RECORD

Project RM-1
 Date 23 June 89
 Weather cloudy, windy, cool

Well Name TW-11
 Field Crew Crosby, Went
 Air Temperature 50 (F°)

Measuring Point TOC
 Depth to Water 128.6'

Sampling Device Bennett Pump
 Depth of Sampling Device 327'

Field Analyses at Time of Sampling

Temperature 9.9 (°C)
 Corrected Conductivity 2160 (µmhos/cm at 25°C)
 pH 8.23
 Eh -229.4 (mV, Field Electrode)
 Eh -19.31 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.0 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.27
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 19.4 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 777.10 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-13-15-TW11 -C	Total Phenols	A4992
0560-13-15-TW11 -D	TKN, (NH ₃), TOC, COD, NO ₃ , NO ₂	A4993
0560-13-15-TW11 -E	Sulfide	A4994
0560-13-15-TW11 -F	Cyanide	A4995
0560-13-15-TW11 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	A4996
0560-13-15-TW11 -H	Metals, SCN	A4997
-J	TSS

WESTERN RESEARCH INSTITUTE

Project RM-1

Well Name TW-12

Date 22 June 89

Power Requirements

Phase

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, μmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
<u>1745</u>	<u>10.3</u>	<u>1830</u>	<u>7.76</u>	<u>-144.3</u>	<u>121.9</u>	<u>0.75</u>
<u>1805</u>	<u>9.4</u>	<u>1830</u>	<u>8.12</u>	<u>-148.5</u>	<u>137.2</u>	<u>0.85</u>
<u>1825</u>	<u>9.4</u>	<u>1680</u>	<u>8.13</u>	<u>-148.3</u>	<u>140.8</u>	<u>0.90</u>
<u>1845</u>	<u>9.4</u>	<u>1590</u>	<u>8.07</u>	<u>-137.1</u>	<u>142.9</u>	<u>0.9</u>
<u>1905</u>	<u>9.4</u>	<u>1860</u>	<u>8.08</u>	<u>-131.1</u>	<u>143.7</u>	<u>0.8</u>
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

COMMENTS

1800 - water is clear and colorless, some gas

WRI GROUNDWATER SAMPLING RECORD

Project Rm-1 Well Name TW-12
 Date 22 June 89 Field Crew Crosby, West
 Weather cloudy, breezy Air Temperature 72 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 128.7' Depth of Sampling Device 347

Field Analyses at Time of Sampling

Temperature 10.9 (°C)
 Corrected Conductivity 1860 (μmhos/cm at 25°C)
 pH 8.09
 Eh -131.1 (mV, Field Electrode)
 Eh 78.09 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.8 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.10
 mls of Sample Tested 25 ml
 mls of HCl Added to Reach pH 4.5 17.5 ml
 Normality of HCl .02008 N
 Total Alkalinity 702.80 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-11-15-TW12 -C	(Total Phenols)	A4956
0560-11-15-TW12 -D	TKN, (NH ₃), (TOC), COD, NO ₃ , NO ₂	A4957
0560-11-15-TW12 -E	(Sulfide)	A4958
0560-11-15-TW12 -F	(Cyanide)	A4959
0560-11-15-TW12 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , (ALK)	A4960
0560-11-15-TW12 -H	(Barium) Metals, SCN	A4991
-J	TSS	

Project RM-1

Well Name TW-13

Date 22 June 89

Power Requirements _____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, µmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
<u>1325</u>	<u>10.6</u>	<u>2010</u>	<u>8.42</u>	<u>-174.0</u>	<u>90.7</u>	<u>1.33</u>
<u>1345</u>	<u>9.6</u>	<u>2010</u>	<u>8.64</u>	<u>-195.0</u>	<u>117.2</u>	<u>1.2</u>
<u>1405</u>	<u>9.6</u>	<u>2010</u>	<u>8.30</u>	<u>-178.0</u>	<u>126.5</u>	<u>1.1</u>
<u>1425</u>	<u>9.8</u>	<u>1950</u>	<u>8.20</u>	<u>-154.3</u>	<u>130.1</u>	<u>1.0</u>
<u>1445</u>	<u>9.8</u>	<u>1980</u>	<u>8.10</u>	<u>-133.4</u>	<u>130.8</u>	<u>.95</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

COMMENTS

1325 - water is clear, odorless, no gas
1400 - brown, muddy looking water appears, no odor or gas.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1

Well Name TW-13

Date 22 June 89

Field Crew Crocker, Went

Weather partly cloudy, calm

Air Temperature 68 (F°)

Measuring Point TOC

Sampling Device Bennett Pump

Depth to Water 99.8

Depth of Sampling Device 358

Field Analyses at Time of Sampling

Temperature 13.3 (°C)

Corrected Conductivity 198 (μmhos/cm at 25°C)

pH 8.12

Eh -133.4 (mV, Field Electrode)

Eh 73.63 (mV, Corrected to Standard Hydrogen Electrode)

Discharge Rate 1.95 (gallons/min)

Alkalinity Titration

Filtered Sample pH 8.12

mls of Sample Tested 25 ml

mls of HCl Added to Reach pH 4.5 17.0 ml

Normality of HCl 0.02008 N

Total Alkalinity 682.72 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-07-15-TW13 -C	Total Phenols	A4974
0560-07-15-TW13 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A4975
0560-07-15-TW13 -E	Sulfide	A4976
0560-07-15-TW13 -F	Cyanide	A4977
0560-07-15-TW13 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	A4978
0560-07-15-TW13 -H	Boron Metals, SCN	A4979
-J	TSS

Well Name TW-14a

Power Requirements_____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

0920 - clear, no clouds in view

1035 - low transmissivity cells. reduced flow rate.

WRI GROUNDWATER SAMPLING RECORD

Project Rm-1 Well Name TW-14a
 Date 23 June 89 Field Crew Charles West
 Weather cloudy, cool Air Temperature 57 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 80.5' Depth of Sampling Device 383'

Field Analyses at Time of Sampling

Temperature 11.6 (°C)
 Corrected Conductivity 1860 (µmhos/cm at 25°C)
 pH 8.60
 Eh -144.4 (mV, Field Electrode)
 Eh 64.16 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.4 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.59
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 20.7 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 831.31 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-15-15-TW14a -C	Total Phenols	A4998
0560-15-15-TW14a -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A4999
0560-15-15-TW14a -E	Sulfide	A5000
0560-15-15-TW14a -F	Cyanide	A5001
0560-15-15-TW14a -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	A5002
0560-15-15-TW14a -H	Barium Metals, SCN	A5003
-J	TSS	

Project RM-1

Well Name TW-15

Date 22 JUNE 89

Power Requirements

Phase

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, μmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
0800	<u>not measured - standardizing probes</u>				<u>92.3</u>	<u>1.2</u>
0815	<u>turn off to fix generator</u>				<u>—</u>	<u>—</u>
0830	<u>resume pumping</u>				<u>—</u>	<u>—</u>
0840	<u>9.3</u>	<u>2040</u>	<u>7.00</u>	<u>-115.7</u>	<u>n.m.</u>	<u>1.1</u>
0900	<u>9.4</u>	<u>2040</u>	<u>7.00</u>	<u>-154.9</u>	<u>n.m.</u>	<u>1.1</u>
0920	<u>9.4</u>	<u>2010</u>	<u>7.00</u>	<u>-157.0</u>	<u>n.m.</u>	<u>1.0</u>
0940	<u>9.6</u>	<u>1980</u>	<u>7.00</u>	<u>-156.1</u>	<u>n.m.</u>	<u>1.0</u>
0950	<u>9.6</u>	<u>1980</u>	<u>8.08</u>	<u>-154.1</u>	<u>172.8</u>	<u>.90</u>
1000	<u>9.7</u>	<u>1950</u>	<u>8.50</u>	<u>-152.2</u>	<u>176.9</u>	<u>.90</u>
1020	<u>10.1</u>	<u>1950</u>	<u>8.51</u>	<u>-144.0</u>	<u>175.8</u>	<u>.46</u>
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

COMMENTS

pH probe and meter standardized on pH 7 and 10

Eh probe = 249.8 mV (standard = 7.00V)

conductivity probe = 1860 (standard = 2000)

0840 - Water is clear and odor free - no gas

- Water levels not monitored because sounder was being used to water levels at other wells.

1000 - reduce flow rate - low transmissivity well.

WRI GROUNDWATER SAMPLING RECORD

Project Rm-1

Well Name TW-15

Date 22 June 89

Field Crew Charles, West

Weather hazy, clear, calm

Air Temperature 63 (F°)

Measuring Point TOC

Sampling Device Remitt Pump

Depth to Water 92.3'

Depth of Sampling Device 345'

Field Analyses at Time of Sampling

Temperature 16.2 (°C)

Corrected Conductivity 1950 (μmhos/cm at 25°C)

pH 8.52

Eh -144.0 (mV, Field Electrode)

Eh 65.82 (mV, Corrected to Standard Hydrogen Electrode)

Discharge Rate 1.16 (gallons/min)

Alkalinity Titration

Filtered Sample pH 8.52

mls of Sample Tested 25 ml

mls of HCl Added to Reach pH 4.5 18.5 ml

Normality of HCl 0.02008 N

Total Alkalinity 742.96 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-03-15-TW15 -C	Total Phenols	14951
0560-03-15-TW15 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	14952
0560-03-15-TW15 -E	Sulfide	14953
0560-03-15-TW15 -F	Cyanide	14954
0560-03-15-TW15 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK, pH	14955
0560-03-15-TW15 -H	Metals, SCN	14956
-J	TSS	

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-16
 Date 22 June 89 Field Crew Cooper, West
 Weather sunny, some clouds, calm Air Temperature 66 (F°)

Measuring Point TCC Sampling Device Kennett Pump
 Depth to Water 112.5' Depth of Sampling Device 391'

Field Analyses at Time of Sampling

Temperature 9.7 (°C)
 Corrected Conductivity 264C (µmhos/cm at 25°C)
 pH 8.20
 Eh -150.9 (mV, Field Electrode)
 Eh 59.37 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.1 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.24
 mls of Sample Tested 25 ml
 mls of HCl Added to Reach pH 4.5 19.0 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 763.04 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-05-15-TW16 -C	Total Phenols	A4968
0560-05-15-TW16 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A4969
0560-05-15-TW16 -E	Sulfide	A4970
0560-05-15-TW16 -F	Cyanide	A4971
0560-05-15-TW16 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	A4972
0560-05-15-TW16 -H	(Barium) Metals, SCN	A4973
-J	TSS

Well Name TW-17

Power Requirements_____

Phase

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

Conductivity = 1890 (standard = 2000)
Ek probe = 252.0 (Zobell standard) @ 12.6° C
pH probe and meter standardized on pH 7 and 10.
0740 - water is clear, odor free, some gas

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name Tw-17
 Date 25 June 89 Field Crew Cooley, West
 Weather calm, partly cloudy Air Temperature 57 (F°)

Measuring Point TOC Sampling Device Sennett Pump
 Depth to Water 98.45' Depth of Sampling Device 329'

Field Analyses at Time of Sampling

Temperature 12.5 (°C)
 Corrected Conductivity 2910 (µmhos/cm at 25°C)
 pH 8.06
 Eh -164.0 (mV, Field Electrode)
 Eh 43.75 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 110 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 8.12
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 17.5 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 702.80 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-35-15-TW17 -C	Total Phenols	A5092
0560-35-15-TW17 -D	TKN, (NH ₃), (TOC), COD, NO ₃ , NO ₂	A5093
0560-35-15-TW17 -E	Sulfide	A5094
0560-35-15-TW17 -F	Cyanide	A5095
0560-35-15-TW17 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , (ALK) (pH)	A5096
0560-35-15-TW17 -H	(Barium) Metals, SCN	A5097
-J	TSS	

Project Rm-1

Well Name Tw-18

Date 25 June 89

Power Requirements_____

Phase _____

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

0915 - water is clear, odor free, alot of gas
This well sampled in duplicate as a BA/QC sample.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name TW-18
 Date 25 June 89 Field Crew Crocker, Went
 Weather mostly sunny, calm Air Temperature 63 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 118.0' Depth of Sampling Device 290'

Field Analyses at Time of Sampling

Temperature 13.6 (°C)
 Corrected Conductivity 3390 (µmhos/cm at 25°C)
 pH 7.81
 Eh -221.0 (mV, Field Electrode)
 Eh -14.24 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.4 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.85
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 15.5 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 622.48 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
-A	VOA	
-B	BNA	
0560-37-15-TW18 -C	Total Phenols	A5098
0560-37-15-TW18 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	A5099
0560-37-15-TW18 -E	Sulfide	A5100
0560-37-15-TW18 -F	Cyanide	A5828
0560-37-15-TW18 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	A5829
0560-37-15-TW18 -H	Boron, Metals, SCN	A5830
-J	TSS	

Project RM-1

Well Name WILW-1

Date 25 June 89

Power Requirements

Phase

FIELD MEASUREMENTS DURING WELL PURGING

Time	Temp., °C	Corrected Conductivity, μmhos/cm	pH	Eh, mV	Water Level, (feet below top of casing)	Pump Rate, gpm
<u>1110</u>	<u>21.6</u>	<u>3120</u>	<u>8.00</u>	<u>-218.3</u>	<u>93.4</u>	<u>1.2</u>
<u>1130</u>	<u>24.4</u>	<u>3510</u>	<u>7.79</u>	<u>-246.1</u>	<u>93.5</u>	<u>0.9</u>
<u>1150</u>	<u>22.2</u>	<u>3810</u>	<u>7.76</u>	<u>-240.4</u>	<u>94.1</u>	<u>0.9</u>
<u>1210</u>	<u>22.2</u>	<u>3700</u>	<u>7.75</u>	<u>-240.6</u>	<u>94.5</u>	<u>0.9</u>
<u>1230</u>	<u>22.7</u>	<u>3900</u>	<u>7.69</u>	<u>-238.2</u>	<u>94.9</u>	<u>0.9</u>
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

COMMENTS

Cavity Well

1110 - water is clear, color free, alot of gas

1115 - slight "turpentine" odor

1125 - odor is stronger, coal fines in discharge bath.

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name VIW-1
 Date 25 June 89 Field Crew Crocker, West
 Weather sunny, mild Air Temperature 68 (F°)

Measuring Point TOL Sampling Device Bennett Pump
 Depth to Water 92.75' Depth of Sampling Device 365'

Field Analyses at Time of Sampling

Temperature 20.4 (°C)
 Corrected Conductivity 3900 (μmhos/cm at 25°C)
 pH 7.69
 Eh -238.2 (mV, Field Electrode)
 Eh -37.56 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 0.9 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.80
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 11.8 ml
 Normality of HCl 0.02008 N
 Total Alkalinity 473.87 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-39-15-VIWI -A Adup	VOA	15837-15838
-B	BNA	
0560-39-15-VIWI -C	Total Phenols	15839
0560-39-15-VIWI -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	15840
0560-39-15-VIWI -E	Sulfide	15841
0560-39-15-VIWI -F	Cyanide	15842
0560-39-15-VIWI -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	15843
0560-39-15-VIWI -H	Metals, SCN	15844
-J	TSS

Well Name CPW-2

Power Requirements_____

Phase

FIELD MEASUREMENTS DURING WELL PURGING

[illegible]

COMMENTS

Cavity Well
1310 - water has black tint, neither / turpentine odor, some gas
1315 - Coal fines in leaching bath, water still black tinted, but not
as strong

WRI GROUNDWATER SAMPLING RECORD

Project RM-1 Well Name CPW-2
 Date 25 June 89 Field Crew Crosby, West
 Weather Partly Sunny, breezy Air Temperature 72 (F°)

Measuring Point TOC Sampling Device Bennett Pump
 Depth to Water 115.5' Depth of Sampling Device 325'

Field Analyses at Time of Sampling

Temperature 24.2 (°C)
 Corrected Conductivity 3480 (µmhos/cm at 25°C)
 pH 7.76
 Eh -232.5 (mV, Field Electrode)
 Eh -35.28 (mV, Corrected to Standard Hydrogen Electrode)
 Discharge Rate 1.0 (gallons/min)
 Alkalinity Titration
 Filtered Sample pH 7.80
 mls of Sample Tested 25.0 ml
 mls of HCl Added to Reach pH 4.5 6.9 ml
 Normality of HCl .02008 N
 Total Alkalinity 272.10 (mg/L Equiv. CaCO₃)

Analytical Submissions	Analysis Requested	Tag Numbers
0560-41-15-CPW 2 -A; Adup	VOA	15845; 15846
-B	BNA	
0560-41-15-CPW 2 -C	Total Phenols	15847
0560-41-15-CPW 2 -D	TKN, NH ₃ , TOC, COD, NO ₃ , NO ₂	15848
0560-41-15-CPW 2 -E	Sulfide	15849
0560-41-15-CPW 2 -F	Cyanide	15850
0560-41-15-CPW 2 -G	Sulfate, TDS, Br, Cl, F, HCO ₃ , CO ₃ , ALK (pH)	15851
0560-41-15-CPW 2 -H	Boron Metals, SCN	15852
-J	TSS	

APPENDIX B

VOA Analytical Results for Inner Ring Coal Seam Wells

Organics Analysis Data Sheet
(Page 1)

Sample Number

UOA BLANK

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: X08157::03

Sample Matrix: WATER

Data release Authorized by: *Leigh Anne Muehant*

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: ----

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 13:05

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.R.S. Number	ug/l or ug/Kg (Circle One)	C.R.S. Number	ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane 10. U	78-87-5	1,2-Dichloropropane 5. U
74-83-9	Bromomethane 10. U	10061-02-6	Trans-1,3-Dichloropropene 5. U
75-01-4	Vinyl Chloride 10. U	79-01-6	Trichloroethene 5. U
75-00-3	Chloroethane 10. U	124-48-1	Dibromochloromethane 5. U
75-09-2	Methylene Chloride 5. U	79-00-5	1,1,2-Trichloroethane 5. U
67-64-1	Acetone 10. U	71-43-2	Benzene 5. U
75-15-0	Carbon Disulfide 5. U	10061-01-5	cis-1,3-Dichloropropene 5. U
75-35-4	1,1-Dichloroethene 5. U		
75-34-3	1,1-Dichloroethane 5. U	75-25-2	Bromoform 5. U
156-60-5	Trans-1,2-Dichloroethene 5. U	108-10-1	4-Methyl-2-Pentanone 10. U
67-66-3	Chloroform 5. U	591-78-6	2-Hexanone 10. U
107-02-2	1,2-Dichloroethane 5. U	127-18-4	Tetrachloroethene 5. U
78-93-3	2-Butanone 10. U	79-34-5	1,1,2,2-Tetrachloroethane 5. U
71-55-6	1,1,1-Trichloroethane 5. U	108-88-3	Toluene 5. U
56-23-6	Carbon Tetrachloride 5. U	108-90-7	Chlorobenzene 5. U
108-05-4	Vinyl Acetate 10. U	100-41-4	Ethylbenzene 5. U
75-27-4	Bromodichloromethane 5. U	100-42-5	Styrene 5. U
			Total Xylenes 5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report
- OPTIONAL FLAGS
- N - Compound not present in Calibration File.

890627 13:
 1.000
 Quant Time:
 Injected:
 Dilut:

ID: BLANK
 Name: BLANK_RM-1
 Misc: INST.9601_3:1S,SS,5 MLS 3 WPLE

ID File: ICS9ID:1D FILE FOR 9601_3 INITIAL CALIBRATIONS
 Title: CHLTHES ID FILE 13:15
 Lab: Calibration: 890627 13:15

Title: CHILLES: 1690627 13:15						
Lab: Calibration:						
Compound	R.T.	Q	Ion	Area	Conc	Unit
1) *BROMOCHLOROMETHANE	6.97	128.0	33299	50.00	PPB	
13) *1,2-DICHLOROETHANE-D4	8.26	65.0	32578	49.78	PPB	
15) *1,4-DIFLUOROBENZENE	9.33	114.0	125100	50.00	PPB	
29) *CHLOROBENZENE-D5	15.14	117.0	194032	49.73	PPB	
35) TOLUENE-D8	12.21	98.0	113589	49.20	PPB	
40) 4-BROMOFLUOROBENZENE	17.83	95.0	57672	49.20	PPB	

* Compound is 1STD

LAM 7-20-89

TOTAL ION CHROMATOGRAM

Data File: >VB157::D3

Quant Output File: ^VB157::Q2

Name: VOA BLANK RM-1

Misc: INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 13:15

Operator ID: BLANCHE

Quant Time: 890627 13:45

Injected at: 890627 13:05

LAM 7-20-89

Organics Analysis Data Sheet
(Page 1)

Sample Number 1
50-15-1U31-A 1

Standard

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RM001::08

Sample Matrix: WATER

Data release Authorized by:

High Line Merchant

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 14:12

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	83.
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	10.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	29.	71-43-2 Benzene	81.
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	81.
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	50.
156-60-5 1,2-Dichloroethene	67.	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	77.	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	79.
71-55-6 1,1,1-Trichloroethane	82.	108-88-3 Toluene	76.
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	75.
75-27-4 Bromodichloromethane	88.	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

OPTICAL FLAGS

N - Compound not present in Calibration file.

QUANT REPORT

Operator ID: BLANCHE
Output File: <RM001>:02
Data File: >RM001:0B
Name: UDA:50-15-TW31-A
Misc: ACN:28085:INST.9601_3:1S,SS,5 MLS SAMPLE

Quant Rev: 6 Quant Time: 890627 15:
Dilution Factor: Injected at: 890627 14:
1.000

ID File: IC591D::ID
Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
Last Calibration: 890627 15:27

Compound		R.T.	Q	ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.94	128.0		24377	50.00	PPB
6)	METHYLENE CHLORIDE	3.48	84.0		6282	10.22	PPB
7)	ACETONE	2.83	43.0		2267	29.04	PPB
11)	1,2-DICHLOROETHENE	3.95	96.0		43463M	66.65	PPB
11)	1,2-DICHLOROETHANE-D4	8.23	65.0		35505	51.85	PPB
11)	1,1,2-DICHLOROETHANE	8.40	62.0		62277	50.76	PPB
11)	*1,1,4-DIFLUOROBENZENE	9.32	114.0		119582	50.00	PPB
11)	*1,1,1-TRICHLOROETHANE	7.41	97.0		54520	82.45	PPB
20)	BROMODICHLOROPROPANE	10.87	83.0		76700	88.44	PPB
21)	1,2-DICHLOROPROPANE	10.19	63.0		99314	7.34	PPB
22)	C15-13-DICHLOROPROPENE	11.77	75.0		99321	81.34	PPB
26)	BENZENE	8.21	78.0		142014	81.13	PPB
27)	TRANS-1,3-DICHLOROPROPENE	13.00	75.0		492270	82.99	PPB
28)	BROMOFORM	17.02	173.0		65227	89.62	PPB
29)	*CHLOROBENZENE-D5	15.11	117.0		79288	50.00	PPB
33)	1,2,2-TETRACHLOROETHANE	18.43	83.0		79363	79.29	PPB
34)	TOLUENE	12.29	92.0		101135	49.75	PPB
35)	TOLUENE-D8	12.29	92.0		112635	49.78	PPB
37)	ETHYLBENZENE	15.52	106.0		68349	75.28	PPB
39)	TOLUENE	15.52	106.0		68349	75.28	PPB
40)	4-BROMOFLUOROBENZENE	17.79	95.0		59305	48.90	PPB

* Compound is ISTD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM001::DB

Quant Output File: ^RM001::Q2

Name: VOA:50-15-TW31-A

Misc: ACN:28085:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 15:31

Injected at: 890627 14:12

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number 1
150-15-1W31-A UB 1

V.A. Blank

Laboratory Name: WESTERN RESEARCH INST

Case No.: RM-1 POST BURN GROUNDWATER

Lab Sample ID: >RM002::08

QC Report No.: 1

Sample Matrix: WATER

Contract No.:

Data release Authorized by: Leigh Anne Marchant

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 14:56

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	2. J	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	30.	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

M - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: ^RM002::Q2
 Data File: >RM002::DB
 Name: VOA:50-15-TW31-A UB
 Misc: ACN:28086:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6 Quant Time: 890627 15:
 Injected at: 890627 14:
 Dilution Factor: 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 13:15

	Compound	R.T.	Q ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.92	128.0	22139	50.00	PPB
6)	METHYLENE CHLORIDE	3.46	84.0	1344	2.41	PPB
7)	ACETONE	2.79	43.0	6831	30.06	PPB
13)	1,2-DICHLOROETHANE-D4	8.21	65.0	30474	49.00	PPB
15)	*1,4-DIFLUOROBENZENE	9.32	114.0	118930	50.00	PPB
29)	*CHLOROBENZENE-D5	15.13	117.0	90453	50.00	PPB
33)	1,1,2,2-TETRACHLOROETHANE	18.45	83.0	1559	1.68	PPB
34)	TOLUENE	12.27	92.0	323	26	PPB
35)	TOLUENE-D8	12.17	98.0	106008	48.25	PPB
40)	4-BROMOFLUOROBENZENE	17.80	95.0	52579	46.63	PPB

* Compound is ISTD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM002::DB

Quant Output File: ^RM002::Q2

Name: VOA:50-15-TW31-A VB

Misc: ACN:28086:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 13:15

Operator ID: BLANCHE

Quant Time: 890627 15:24

Injected at: 890627 14:56

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RM014::08

Sample Matrix: WATER

Data release Authorized by: _____

! Sample Number !

! 17-15-TU4-A !

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 23:12

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	2. J	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	10. U	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.
- 8 - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: <RM014>:Q2
 Data File: >RM014:DB
 Name: UOA:17-15-Tw4-A
 Misc: ACN:28087:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6
 Dilution Factor:

Quant Time: 890627 23:
 Injected at: 890627 23:
 1.000

ID File: IC591D::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

Compound	R.T.	Q	ion	Area	Conc	Unit
1) *BROMOCHLOROMETHANE	6.97	128.0	21910	50.00	PPB	
6) METHYLENE CHLORIDE	3.43	84.0	1194	2.16	PPB	
13) 1,2-DICHLOROETHANE-D4	8.24	65.0	31846	51.74	PPB	
15) *1,4-DIFLUOROBENZENE	9.33	114.0	115290	50.00	PPB	
29) *CHLOROBENZENE-D5	15.12	117.0	87287	50.00	PPB	
34) TOLUENE	12.32	92.0	726	40	PPB	
35) TOLUENE-D8	12.19	98.0	109231	51.23	PPB	
40) 4-BROMOFLUOROBENZENE	17.81	95.0	54042	49.39	PPB	

* Compound is ISTD

* Compound is ISTD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM014::DB

Quant Output File: ^RM014::Q2

Name: VOA:17-15-TW4-A

Misc: ACN:28087:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 23:40

Injected at: 890627 23:12

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number :
21-15-EMW9-A

Laboratory Name: WESTERN RESEARCH INST

Case No.: RM-1 POST BURN GROUNDWATER

Lab Sample ID: >RM004::08

QC Report No.: 1

Sample Matrix: WATER

Contract No.:

Data release Authorized by: *Leigh Anne Marchant*

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 15:58

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	5.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	25.	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report
- OPTIONAL FLAGS
- N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE Quant Rev: 6 Quant Time: 890627 16:
 Output File: <RM004:Q2 Injected at: 890627 15:
 Data File: >RM004:08 Dilution Factor: 1.000
 Name: VOA:21-15-EMW9-A
 Misc: ACN:28088:INST.9601_3:1S,SS,5 MLS SAMPLE

ID File: IC59ID:ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

Compound	R.T.	Q	ion	Area	Conc	Unit
1) *BROMOCHLOROMETHANE	6.92	128.0		20843	50.00	PPB
2) CHLOROMETHANE	1.02	50.0		561	1.40	PPB
6) METHYLENE CHLORIDE	3.42	84.0		2705	5.15	PPB
7) ACETONE	2.77	43.0		5245	24.52	PPB
13) 1,2-DICHLOROETHANE-D4	8.31	65.0		31027	50.00	PPB
15) *1,4-DIFLUOROBENZENE	9.32	117.0		102457	50.00	PPB
29) *CHLOROBENZENE-D5	15.12	92.0		82838	50.00	PPB
34) TOLUENE	12.31	92.0		680	60	PPB
35) TOLUENE-D8	12.17	98.0		104492	51.93	PPB
40) 4-BROMOFLUOROBENZENE	17.80	95.0		51829	50.19	PPB

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM004::DB Quant Output File: ^RM004::Q2
Name: VOA:21-15-EMW9-A
Misc: ACN:28088:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID
Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
Last Calibration: 890627 15:27

Operator ID: BLANCHE
Quant Time: 890627 16:26
Injected at: 890627 15:58

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number
23-15-TWS-A

Laboratory Name: WESTERN RESEARCH INST

Case No.: RM-1 POST BURN GROUNDWATER

Lab Sample ID: >RMOOS::08

QC Report No.: 1

Sample Matrix: WATER

Contract No.:

Data release Authorized by:

Lough Anne Merchant

Date Sample Received: 6/25/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 16:29

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. J
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. J
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. J
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. J
75-09-2 Methylene Chloride	5.	79-00-5 1,1,2-Trichloroethane	5. J
67-64-1 Acetone	22.	71-43-2 Benzene	5. J
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. J
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. J
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	13. J
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. J
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. J
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. J
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ml in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
Output File: <RM005>:Q2
Data File: <RM005>:DB
Name: VOA:23-15-TW5-A
Misc: ACN:28089:Inst:9601_7:15:55,5 NLS SAMPLE

Quant Rev: 6 Quant Time: 890627 16:11
Dilution Factor: 1.0000

ID File: ICS9ID::10
Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
Last Calibration: 890627 15:27

Compound	R.T.	Q	Ion	Area	Conc	Units
1) *BROMOCHLOROMETHANE	6.92	129.0	21156	50.00	PPB	
2) CHLOROPRETHANE	6.98	150.0	1044	5.00	PPB	
6) METHYLENE CHLORIDE	3.46	92.0	2599	5.06	PPB	
7) ACETONE	3.79	72.0	4846	23.32	PPB	
13) 1,2-DICHLOROETHANE-D..	8.21	65.0	31738	52.90	PPB	
15) *1,4-DIFLUOROBENZENE	11.47	117.0	93976	50.00	PPB	
29) *CHLOROBENZENE-D5	15.13	117.0	81445	50.00	PPB	
32) TOLUENE	15.13	117.0	81445	50.00	PPB	
35) TOLUENE-D8	16.17	98.0	103034	52.08	PPB	
40) 4-BROMOFLUOROBENZENE	17.80	95.0	50166	49.41	PPB	

* Compound is 1STD

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM005::DB Quant Output File: ^RM005::Q2
Name: VOA:23-15-TW5-A
Misc: ACN:28089:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID
Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
Last Calibration: 890627 15:27

Operator ID: BLANCHE
Quant Time: 890627 16:56
Injected at: 890627 16:29

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number :
25-15-TW3-A

Laboratory Name: WESTERN RESEARCH INST

Case No.: RM-1 POST BURN GROUNDWATER

Lab Sample ID: >RM006::08

QC Report No.: 1

Sample Matrix: WATER

Contract No.:

Data release Authorized by:

Leigh Anne Marchant

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 16:59

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	7.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	20.	71-43-2 Benzene	6.
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/mL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: <RM006>:Q2
 Data File: >RM006::08
 Name: UOA:25-15-TW3A-A
 Misc: ACN:28090:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6
 Quant Time: 890627 17:
 Injected at: 890627 16:
 Dilution Factor: 1.000

ID File: IC591D::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

Compound		R.T.	Q	Ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.92	128.0	50.0	21070	50.00	PPB
2)	CHLOROMETHANE	1.00	50.0	1176	3506	6.60	PPB
6)	METHYLENE CHLORIDE	3.44	84.0	4266	31935	19.73	PPB
7)	ACETONE	2.77	43.0	31935	53.96	53.96	PPB
13)	1,2-DICHLOROETHANE-D4	8.19	114.0	110373	50.00	50.00	PPB
15)	*1,4-DIFLUOROBENZENE	9.30	114.0	81976	50.78	50.78	PPB
26)	BENZENE	8.17	178.0	9339	50.00	50.00	PPB
29)	*CHLOROBENZENE-D5	15.12	117.0	465	52.24	52.24	PPB
34)	TOLUENE	12.17	92.0	104025	48.28	48.28	PPB
35)	TOLUENE-D8	12.17	98.0	49333			PPB
40)	4-BROMOFLUOROBENZENE	17.80	95.0				PPB

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM006::DB

Quant Output File: ^RM006::Q2

Name: VOA:25-15-TW3A-A

Misc: ACN:28090:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 17:27

Injected at: 890627 16:59

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number
27-15-EMW3-A

Laboratory Name: WESTERN RESEARCH INST

Case No.: RM-1 POST BURN GROUNDWATER

Lab Sample ID: >RM007::08

QC Report No.: 1

Sample Matrix: WATER

Contract No.:

Data release Authorized by:

Leigh Anne Merchant

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 17:30

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	<u>ug/l</u> or ug/Kg (Circle One)	C.A.S. Number	<u>ug/l</u> or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	6.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	22.	71-43-2 Benzene	40.
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. J
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report
- OPTIONAL FLAGS
- N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: ^RM007::Q2
 Data File: >RM007::DB
 Name: VOA:27-15-EMW3-A
 Misc: ACN:28091:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6 Quant Time: 890627 17:
 Injected at: 890627 17:
 Dilution Factor: 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

	Compound	R.T.	Q ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.96	128.0	21148	50.00	PPB
6)	METHYLENE CHLORIDE	3.48	84.0	3105	5.82	PPB
7)	ACETONE	2.81	43.0	4801	22.12	PPB
13)	1,2-DICHLOROETHANE-D4	8.25	65.0	31193	52.51	PPB
15)	*1,4-DIFLUOROBENZENE	9.34	114.0	110456	50.00	PPB
26)	BENZENE	8.23	78.0	65088	40.26	PPB
29)	*CHLOROBENZENE-D5	15.14	117.0	82173	50.00	PPB
34)	TOLUENE	12.31	92.0	5358	4.75	PPB
35)	TOLUENE-D8	12.19	98.0	106963	53.59	PPB
37)	ETHYLBENZENE	15.83	106.0	474	.62	PPB
39)	TOTAL XYLENES	15.83	106.0	474	.53	PPB
40)	4-BROMOFLUOROBENZENE	17.82	95.0	50446	49.25	PPB

* Compound is ISTD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM007::DB

Quant Output File: ^RM007::Q2

Name: VOA:27-15-EMW3-A

Misc: ACN:28091:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 17:58

Injected at: 890627 17:30

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RM008::08

Sample Matrix: WATER

Data release Authorized by: *Leigh Anne Maichant*

Sample Number

29-15-EMW1-A

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 18:01

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	6.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	20.	71-43-2 Benzene	43.
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	1. J
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report
- OPTIONAL FLAGS
- M - Compound not present in Calibration file.

QUANT REPORT

Operator ID: BLANCHE
 Output File: <RM008>:Q2
 Data File: >RM008::08
 Name: VOA:29-15-EMW1-A
 Misc: ACN:28092:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6
 Dilution Factor:

Quant Time: 890627 18:
 Injected at: 890627 18:
 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

Compound	R.T.	Q	ion	Area	Conc	Unit
1) *BROMOCHLOROMETHANE	7.00	128.0		21611	50.00	PBB
6) METHYLENE CHLORIDE	3.48	84.0		3019	5.54	PBB
17) ACETONE	2.81	43.0		4544	20.48	PBB
13) 1,2-DICHLOROETHANE-D4	8.27	65.0		32243	53.11	PBB
15) *1,4-DIFLUOROBENZENE	8.25	114.0		114071	50.00	PBB
26) BENZENE	8.25	178.0		171399	42.76	PBB
29) *CHLOROBENZENE-D5	15.14	117.0		84370	50.00	PBB
34) TOLUENE	12.31	92.0		1654	1.43	PBB
35) TOLUENE-D8	12.19	98.0		106871	52.15	PBB
40) 4-BROMOFLUOROBENZENE	17.82	95.0		51238	48.72	PBB

* Compound is ISTD

LAm 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM008::DB

Quant Output File: ^RM008::Q2

Name: VOA:29-15-EMW1-A

Misc: ACN:28092:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 18:29

Injected at: 890627 18:01

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RM009::08

Sample Matrix: WATER

Data release Authorized by:

Rough Anne Marchant

Sample Number 1

31-15-EMW11A-A1

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 18:32

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	6. U	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	19. U	71-43-2 Benzene	4. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

M - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: \RM009::Q2
 Data File: >RM009:::DB
 Name: VOA:31-15-EMW11A-A
 Misc: ACN:28093:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6
 Dilution Factor:

Quant Time: 890627 19:
 Injected at: 890627 18:
 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

	Compound	R.T.	Q	ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.96	128.0		20269	50.00	PPB
6)	METHYLENE CHLORIDE	3.44	43.0		3091	6.05	PPB
7)	ACETONE	2.77	43.0		3947	18.97	PPB
13)	1,2-DICHLOROETHANE-D4	8.25	65.0		30431	53.45	PPB
15)	*1,4-DIFLUOROBENZENE	9.34	114.0		104832	50.00	PPB
26)	BENZENE	8.21	78.0		6681	4.35	PPB
29)	*CHLOROBENZENE-D5	15.12	117.0		76156	50.00	PPB
34)	TOLUENE	12.11	92.0		621	59	PPB
35)	TOLUENE-D8	12.17	98.0		99224	53.64	PPB
40)	4-BROMOFLUOROBENZENE	17.80	95.0		45239	47.71	PPB

* Compound is ISTD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

File >RM009 35.0-260.0 amu. VOA:31-15-EMW11A-A ACN:28093:INST.9601

Data File: >RM009::DB

Quant Output File: ^RM009::Q2

Name: VOA:31-15-EMW11A-A

Misc: ACN:28093:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 19:00

Injected at: 890627 18:32

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RMO10:08

Sample Matrix: WATER

Data release Authorized by:

Leigh Anne Marchant

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 19:02

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/L or ug/Kg (Circle One)	C.A.S. Number	ug/L or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-49-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	4. J	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	16.	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. J
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. J
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. J
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. J
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. J
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/ul in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.
- OPTIONAL FLAGS
- M - Compound not present in Calibration file.

QUANT REPORT

Operator ID: BLANCHE
 Output File: <RM010:::Q2
 Data File: >RM010:::D8
 Name: UDA:33-15-TW2-A
 Misc: ACN:28094:INST.9601_3:IS,SS,5 MLS SAMPLE
 Quant Rev: 6
 Quant Time: 890627 19:
 Injected at: 890627 19:
 Dilution Factor: 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

	Compound	R.T.	Q	ion	Area	Conc	Unit
1)	*BROMOCHLOROMETHANE	6.92	128.0		21076	50.00	PPB
6)	METHYLENE CHLORIDE	3.46	84.0		2256	4.24	PPB
7)	ACETONE	2.81	43.0		3448	15.94	PPB
13)	1,2-DICHLOROETHANE-D4	8.21	65.0		31181	52.67	PPB
15)	*1,4-DIFLUOROBENZENE	9.32	114.0		109999	50.00	PPB
26)	BENZENE	0.12	78.0		1934	1.20	PPB
29)	*CHLOROBENZENE-D5	15.12	117.0		78818	50.00	PPB
34)	TOLUENE	12.22	92.0		469	43	PPB
35)	TOLUENE-D8	12.17	98.0		99897	52.18	PPB
40)	4-BROMODIFLUOROBENZENE	17.80	95.0		46018	46.84	PPB

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM010::DB Quant Output File: ^RM010::Q2
Name: VOA:33-15-TW2-A
Misc: ACN:28094:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID
Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
Last Calibration: 890627 15:27

Operator ID: BLANCHE
Quant Time: 890627 19:31
Injected at: 890627 19:02

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RMO11::08

Sample Matrix: WATER

Data release Authorized by: *Leigh Anne Marchant*

Sample Number 1

39-15-VIWI-A

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 21:32

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane 10. U	78-87-5	1,2-Dichloropropane 5. U
74-83-9	Bromomethane 10. U	10061-02-6	Trans-1,3-Dichloropropene 5. U
75-01-4	Vinyl Chloride 10. U	79-01-6	Trichloroethene 5. U
75-00-3	Chloroethane 10. U	124-48-1	Dibromochloromethane 5. U
75-09-2	Methylene Chloride 2. J	79-00-5	1,1,2-Trichloroethane 5. U
67-64-1	Acetone 10. U	71-43-2	Benzene 31.
75-15-0	Carbon Disulfide 5. U	10061-01-5	cis-1,3-Dichloropropene 5. U
75-35-4	1,1-Dichloroethene 5. U		
75-34-3	1,1-Dichloroethane 5. U	75-25-2	Bromoform 5. U
156-60-5	Trans-1,2-Dichloroethene 5. U	108-10-1	4-Methyl-2-Pentanone 10. U
67-66-3	Chloroform 5. U	591-78-6	2-Hexanone 10. U
107-02-2	1,2-Dichloroethane 5. U	127-18-4	Tetrachloroethene 5. U
78-93-3	2-Butanone 10. U	79-34-5	1,1,2,2-Tetrachloroethane 5. U
71-55-6	1,1,1-Trichloroethane 5. U	108-88-3	Toluene 5. U
56-23-6	Carbon Tetrachloride 5. U	108-90-7	Chlorobenzene 5. U
108-05-4	Vinyl Acetate 10. U	100-41-4	Ethylbenzene 5. U
75-27-4	Bromodichloromethane 5. U	100-42-5	Styrene 5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

M - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: >PM011::02
 Data File: >PM011::08
 Name: VOA:39-15-V1W1-A
 Misc: ACN:28095:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6 Quant Time: 890627 22:
 Injected at: 390627 22:
 Dilution Factor: 1.000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 390627 15:27

	Compound	R.T.	Q ion	Area	Conc	Units
1)	*BROMOCHLOROMETHANE	6.95	128.0	23482	50.00	PPB
6)	METHYLENE CHLORIDE	3.46	84.0	966	1.63	PPB
13)	1,2-DICHLOROETHANE-D4	8.24	65.0	32774	49.69	PPB
15)	*1,4-DIFLUOROBENZENE	9.34	114.0	126694	50.00	PPB
26)	BENZENE	8.21	78.0	57410	30.96	PPB
29)	*CHLOROBENZENE-D5	15.12	117.0	94119	50.00	PPB
34)	TOLUENE	12.33	92.0	429	.33	PPB
35)	TOLUENE-D8	12.19	98.0	114781	50.21	PPB
37)	ETHYLBENZENE	15.55	106.0	762	.87	PPB
39)	TOTAL XYLENES	15.55	106.0	762	.74	PPB
40)	4-BROMOFLUOROBENZENE	17.80	95.0	56955	48.55	PPB

* Compound is ISTD

LAM 7-21-89

AIM

Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

Centimeter

Inches

MANUFACTURED TO AIM STANDARDS
BY APPLIED IMAGE, INC.

2 of 2

TOTAL ION CHROMATOGRAM

Data File: >RM011::DB

Quant Output File: ^RM011::Q2

Name: VOA:39-15-V1W1-A

Misc: ACN:28095:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 22:07

Injected at: 890627 21:32

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RM012::08

Sample Matrix: WATER

Data release Authorized by: *Leigh Anne Marchant*

Sample Number

41-15-CPU2-A

Case No.: RM-1 POST BURN GROUNDWATER

QC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 22:10

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	5. U	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	10. U	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.
- OPTIONAL FLAGS
- N - Compound not present in Calibration File.

QUANT REPORT

Operator ID: BLANCHE
 Output File: \RM012::Q2
 Data File: \RM012::DB
 Name: UOA:41-15-CPU2-A
 Misc: ACN:28096:INST.9601_3:15,SS,5 MLS SAMPLE
 Quant Rev: 6
 Quant Time: 890627 22:38
 Injected at: 890627 22:10
 Dilution Factor: 1.00000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

	Compound	R.T.	Q	Ion	Area	Conc	Units	g
1)	*BROMOCHLOROMETHANE	6.97	128.0		22031	50.00	PPB	100
13)	1,2-DICHLOROETHANE-D4	8.24	65.0		31199	50.41	PPB	100
15)	*1,4-DIFLUOROBENZENE	9.35	114.0		119745	50.00	PPB	100
29)	*CHLOROBENZENE-D5	15.13	117.0		91447	50.00	PPB	100
35)	TOLUENE-D8	12.20	93.0		112118	50.43	PPB	96
40)	4-BROMOFLUOROBENZENE	17.81	95.0		55696	48.86	PPB	100

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM012::DB

Quant Output File: ^RM012::Q2

Name: VOA:41-15-CPW2-A

Misc: ACN:28096:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 22:38

Injected at: 890627 22:10

LAM 7-21-89

Organics Analysis Data Sheet
(Page 1)

Sample Number
50-15-TW30-A

Duplicate TW-18

Laboratory Name: WESTERN RESEARCH INST

Lab Sample ID: >RMO13::GB

Sample Matrix: WATER

Data release Authorized by: Leigh Anne Marchant

Case No.: RM-1 POST BURN GROUNDWATER

GC Report No.: 1

Contract No.:

Date Sample Received: 6/26/89

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted:

Date Analyzed: 6/27/89 22:41

Conc/Dil factor: 1.00 pH:

Percent Moisture: (Not Decanted) 1.0

C.A.S. Number	ug/l or ug/Kg (Circle One)	C.A.S. Number	ug/l or ug/Kg (Circle One)
74-87-3 Chloromethane	10. U	78-87-5 1,2-Dichloropropane	5. U
74-83-9 Bromomethane	10. U	10061-02-6 Trans-1,3-Dichloropropene	5. U
75-01-4 Vinyl Chloride	10. U	79-01-6 Trichloroethene	5. U
75-00-3 Chloroethane	10. U	124-48-1 Dibromochloromethane	5. U
75-09-2 Methylene Chloride	7.	79-00-5 1,1,2-Trichloroethane	5. U
67-64-1 Acetone	10. U	71-43-2 Benzene	5. U
75-15-0 Carbon Disulfide	5. U	10061-01-5 cis-1,3-Dichloropropene	5. U
75-35-4 1,1-Dichloroethene	5. U		
75-34-3 1,1-Dichloroethane	5. U	75-25-2 Bromoform	5. U
156-60-5 Trans-1,2-Dichloroethene	5. U	108-10-1 4-Methyl-2-Pentanone	10. U
67-66-3 Chloroform	5. U	591-78-6 2-Hexanone	10. U
107-02-2 1,2-Dichloroethane	5. U	127-18-4 Tetrachloroethene	5. U
78-93-3 2-Butanone	10. U	79-34-5 1,1,2,2-Tetrachloroethane	5. U
71-55-6 1,1,1-Trichloroethane	5. U	108-88-3 Toluene	5. U
56-23-6 Carbon Tetrachloride	5. U	108-90-7 Chlorobenzene	5. U
108-05-4 Vinyl Acetate	10. U	100-41-4 Ethylbenzene	5. U
75-27-4 Bromodichloromethane	5. U	100-42-5 Styrene	5. U
		Total Xylenes	5. U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However the definition of each flag must be explicit.

- Value - If the result is a value greater than or equal to the detection limit, report the value.
- U - Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action (This is not necessarily the instrument detection limit). The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is < than the specified detection limit but > than zero (e.g. 10J). If limit of detection is 10 ug/L and a concentration of 3.0 ug/L is calculated, report as 3J.
- C - This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10 ng/uL in the final extract should be confirmed by GC/MS.
- B - This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns data the user to take appropriate action.
- Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

OPTIONAL FLAGS

N - Compound not present in Calibration file.

QUANT REPORT

Operator ID: BLANCHE
 Output File: <RM013>:Q2
 Data File: >RM013::DB
 Name: VDA:50-15-TW30-A
 Misc: ACN:28097:INST.9601_3:IS,SS,5 MLS SAMPLE

Quant Rev: 6
 Quant Time: 890627 23:00
 Injected at: 890627 23:00
 Dilution Factor: 1.0000

ID File: IC59ID::ID
 Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS
 Last Calibration: 890627 15:27

	Compound	R.T.	Q	Ion	Area	Conc	Units
1)	*BROMOCHLOROMETHANE	6.97	128.0		22118	50.00	PPB
6)	METHYLENE CHLORIDE	3.45	84.0		3982	57.14	PPB
13)	1,2-DICHLOROETHANE-D4	8.24	85.0		31711	51.04	PPB
15)	*1,4-DIFLUOROBENZENE	9.35	114.0		116590	50.00	PPB
29)	*CHLOROBENZENE-D5	15.14	117.0		89525	50.00	PPB
34)	TOLUENE	12.73	93.0		645	52	PPB
35)	TOLUENE-D8	12.19	98.0		111784	51.41	PPB
40)	4-BROMODIFLUOROBENZENE	17.81	95.0		55711	49.92	PPB

* Compound is 1STD

LAM 7-21-89

TOTAL ION CHROMATOGRAM

Data File: >RM013::DB

Quant Output File: ^RM013::Q2

Name: VOA:50-15-TW30-A

Misc: ACN:28097:INST.9601_3:IS,SS,5 MLS SAMPLE

Id File: IC59ID::ID

Title: VOLATILES ID FILE FOR 9601_3 INITIAL CALIBRATIONS

Last Calibration: 890627 15:27

Operator ID: BLANCHE

Quant Time: 890627 23:09

Injected at: 890627 22:41

LAM 7-21-89

Standards (TW-31) - 22 June 89

analytical submission	analyses requested	Tag #1's	Reference
0560-50-15-TW31-C	Total Phenols	A-4957	0505-17-1-Phenol
0560-50-15-TW31-D1	^{36.1} NH ₃	A-4958	0505-20-1-NH ₃
0560-50-15-TW31-E	Sulfide	A-4959	446-30-1-(E)sulfide
0560-50-15-TW31-F	Cyanide	A-4960	0505-19-1-(cyanide)
0560-50-15-TW31-G	TDS, SO ₄ , Alk, pH	A-4961	"G": Alk, AM, SO ₄ , TDS
0560-50-15-TW31-H	Boron	A-4962	0505-18-1-Boron
0560-50-15-TW31-ID2	TOC	A-4963	0505-21-1-TOC
0560-50-15-TW31-A	VOA	A-4964	QC 4-29-1A
0560-50-15-TW31-A dup	VOA	A-4965	QC 4-29-1B
0560-50-15-TW31-VOA Blank	VOA	A-4966	none
0560-50-15-TW31-VOA Blank dup	VOA	A-4967	none

Field Duplicates (TW-32) - 25 June 89

Taken from well TW-18

analytical submission	analyses requested	Tag #1's
0560-50-15-TW32-C	Total Phenols	AS831
0560-50-15-TW32-D	NH ₃ , TOC	AS832
0560-50-15-TW32-E	Sulfide	AS833
0560-50-15-TW32-F	Cyanide	AS834
0560-50-15-TW32-G	TDS, SO ₄ , Alk, pH	AS835
0560-50-15-TW32-H	Boron	AS836

System Rinse (TW-30) 26 June 89

75 gallons of lacrimis tap water followed by 10 gallons Type 2 water - type 1 water is sampled.

0560-50-15-TW30-A; A dup	VOA
0560-50-15-TW30-C	Total Phenol
0560-50-15-TW30-D	NH ₃ , TOC
0560-50-15-TW30-E	Sulfide
0560-50-15-TW30-F	Cyanide
0560-50-15-TW30-G	TDS, SO ₄ , Alk, pH
0560-50-15-TW30-H	Boron

SCIENTIFIC BINDERY PRODUCTS CHICAGO 80605

SIGNATURE

DATE

26 June 89

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

**DATE
FILMED**

8 / 12 / 94

END