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NSA CRANE
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SAMPLING AND ANALYSIS PLAN FOR DETECTION MONITORING EVENT NUMBER 1 AT SANITARY WASTE LANDFILL MARCH 20-27 1999 WITH TRANSMITTAL NSA CRANE IN 7/1/2001
TETRA TECH

7769-3.4-30

TETRA TECH NUS, INC.
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PITT 07-9-158

July 23, 1999

Project Number 7769

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
Attn: E.P. Johns (Code 1829)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order 0048

Subject: Report for Detection Monitoring Event Number 1 for
Naval Surface Warfare Center (NSWC)
Crane, Indiana

Dear Mr. Johns:

Detection Monitoring Event No. 1 has been completed. During this monitoring event ground water was collected at the Sanitary Waste Landfill (SWL) and analyzed. Enclosed is the Report for Detection Monitoring Event No. 1. All field sampling was conducted in accordance with the draft field sampling procedures described in the Field Sampling Plan (FSP). In accordance with 329 IAC 10-21-1(t) and Section 5.0 of the FSP, the following information is supplied in this report.

STATIC WATER LEVELS
Static water levels were measured to the nearest 0.01 foot. These water levels are presented as part of the Field Sampling Report (specifically, Appendix 4 of the Report includes the Water Level Measurement Forms). The Field Sampling Report is included as Attachment 1.

GROUND WATER POTENTIOMETRIC MAPS
Figures 1 and 2 show the Potentiometric Maps for the two aquifers monitored.

LABORATORY REPORTS
Information from the laboratory data packages is included as Attachment 2. These data include dates of sample receipt by the laboratory, dates analyzed, detection limits, and information related to quality control samples.

Two additional, unbound copies of Attachment 2 are included with this report for submission to IDEM by NSWC Crane.

FIELD REPORT SHEETS
As described in the FSP Section 5.1, the Field Sampling Report in Attachment 1 contains all field forms including Ground Water Sampling Logs and Low Flow Purge Sheets (Appendix 1 of the Report), Monitoring Well Inspection Forms (Appendix 2 of the Report), Water Level Measurement Forms (Appendix 4 of the Report), Equipment Calibration Logs (Appendix 6 of the Report), and Chain-of-Custody Forms (Appendix 7 of the Report).

SAMPLE NUMBER CORRELATION
Table 1 of the Field Sampling Report contains a correlation between the sample identification and the wells monitored.

WELL SAMPLING SEQUENCE
Dedicated sampling pumps were installed at all monitoring wells at the SWL. As a result, no cross-contamination from the use of shared sampling equipment is possible, making the sequence in which the wells are sampled irrelevant. The dates that each well was sampled have been included in Table 1 of the Field Sampling Report in Attachment 1.

STATISTICAL EVALUATION REPORT
This report will be completed following the collection of four quarters of sampling data, and after IDEM approves the statistical evaluation procedure.

LABORATORY RESULTS ON DISKETTE
Two diskettes containing the laboratory results of the analyses are included as Attachment 3 to this report. One diskette contains the Electronic Data Deliverable (EDD) as received from the laboratory. The second diskette contains the analytical data as contained in the TtNUS database after data validation was completed.

RAW DATA
The data package as received from the laboratory, Laucks Testing, including all raw data, laboratory bench sheets, laboratory work sheets, chromatograms, instrument printouts and calibration records, will be stored at the TtNUS warehouse in Pittsburgh, PA. This data is available upon request.

Please contact Ralph Basinski at 412/921-8308 (e-mail basinskir@ttnus.com) regarding questions and or comments.

Sincerely,

Ralph R. Basinski
Task Order Manager

RRB/vvp

Enclosures

c: Mr. Tom Brent, NSWC Crane, (w/enclosures - 3 copies of Volume 1, 2 unbound copies of Attachment 2)
Ms. D. Wroblewski, (w/o enclosures)
Ms. R.A. Baur (w/o enclosures)
M. Perry, Project File CTO 0048 (w/ enclosures - 1 unbound copy of Volume 1)

Sampling and Analysis Report Detection Monitoring Event No. 1 at the Sanitary Waste Landfill March 20-27, 1999

Naval Surface Warfare Center Crane Division Crane, Indiana

Southern Division Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0048

July 2001

020013/p

SAMPLING AND ANALYSIS REPORT
FOR
GROUND WATER MONITORING
AT THE
SANITARY WASTE LANDFILL

DETECTION MONITORING EVENT NO. 1
MARCH 20 - 27, 1999

NAVAL SURFACE WARFARE CENTER, CRANE DIVISION
CRANE, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0048

JULY 2001

PREPARED UNDER THE SUPERVISION OF

Ralph R. Basinski Date 7/10/01
RALPH R. BASINSKI, Q.E.P.
TASK ORDER MANAGER
TETRA TECH NUS, INC.

APPROVED FOR SUBMITTAL BY

Debbie Wroblewski Date 7/11/01
DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.

APPENDICES

Contents:

1 Ground Water Sample Log Sheets and Low Flow Purge Data Forms
2 Monitoring Well Inspection Forms
3 Log Books
4 Water Level Measurement Forms
5 Pump Certifications
6 Equipment Calibration Logs
7 Chain of Custody's

NSWC CRANE
CRANE, INDIANA
SANITARY WASTE LANDFILL FIELD REPORT
DETECTION MONITORING EVENT NO. 1, MARCH 1999

The following is a summary of field activities for ground water monitoring conducted from March 13 through March 27, 1999 at the NSWC Crane facility, Crane Indiana. Detection monitoring event number one sampling was completed for all monitoring wells, except MW1A and 14 3 93, at the Sanitary Waste Landfill (SWL). Wells MW1A and 14 3 93 were not sampled due to insufficient water levels in the wells.

Keith Simpson and Scott Neil, Tetra Tech NUS, Inc, conducted pump installation and ground water sampling in accordance with the March 1999 Field Sampling Plan (FSP). Pumps were installed in a total of 19 monitoring wells. Samples were obtained from these wells. All samples to be analyzed were shipped, via over-night courier, to Laucks Testing Laboratory, Inc. Purge water generated during the sampling effort was transported (via 8-gallon containers) and discharged into the NSWC-permitted sanitary sewer system on site via manhole number 327.

Attached Table 1 contains a list of monitoring points, sample date, sample time, water levels, and pump installation date.

Section 5.1 of the FSP describes information which is to be included in the Field Report, in accordance with 329 IAC 10-21-2(b)(12). Following is the required information:

1. Time and date each well was sampled

   The attached Table 1 includes a summary of the time and date each monitoring well was sampled. The Ground Water Sample Log Sheets, presented in Appendix 1, also contains this information.

2. The location of each well that was sampled, including identifying the wells as upgradient or downgradient of the solid waste boundary.

   Wells MW201, MW1A, and MW1B are upgradient; all other wells are downgradient. The attached Figure 1 shows the location and up or down gradient status of each monitoring well.

3. The condition of well heads and well security devices.

   The condition and security of each monitoring well has been recorded on Monitoring Well Inspection Forms. A copy of these forms can be found in Appendix 2.

4. The weather conditions during sample collection.

   Weather and site conditions can be found in the Site Log Books. Copies of the Site Log Books can be found in Appendix 3.

5. The condition of purged water with regard to odor, turbidity, and the conditions of the collected samples.

   The condition of purged water and all field parameters are recorded on the Low Flow Purge Data Form. A copy of this form can be found in Appendix 1.

6. The in-situ temperature, in degrees Celsius, of the ground water as measured in line or immediately after removal of water form the well.

The in-situ temperature, in degrees Celsius, of the ground water as measured in line from the well can be found on the Low Flow Purge Data Form and Ground Water Sample Log Forms. A copy of these forms are provided in Appendix 1.

7. The static water elevations, referenced to mean sea level and measured to the nearest one-hundredth (0.01) foot.

   The static water elevations can be found on the attached Table 1 and in Appendix 4, which contains the Water Level Measurement Forms.

8. The equipment used to purge and sample the well.

   The following equipment was used to purge and sample each well:

   - Well Key
   - Electronic water level indicator
   - Electronic Programmable Controler, Model 400
   - Compressed nitrogen gas cylinder with regulator
   - Multiple parameter water quality meter
   - Flow-through cell adapter for water quality meter
   - Purge water container
   - Graduated cylinder and stop watch
   - Decontamination supplies
   - Dedicated bladder pumps (See Appendix 5 for pump certifications).

9. The source and type of all field equipment calibration standards.

   Equipment Calibration Log Sheets are included in Appendix 6. Calibration solutions for each parameter (pH, and specific conductance) are obtained in sealed plastic bottles from the supplier of the Multiple Parameter Water Quality Meter. Calibration of the instrument is checked daily.

10. The type of equipment used for purging and for collection of samples, and where applicable, the cord's chemical composition.

    Dedicated 1.66-inch-diameter PVC bladder pumps with Teflon lined PVC tubing were installed in each monitoring well prior to purging and sampling. Section 8 contains a list of equipment.

11. A copy of the chain-of-custody for the samples.

    Copies of the COC's are provided in Appendix 7.

12. The location and elevation of the referenced measuring mark on the well casing used to measure the static water elevations.

    Table 1 lists the top of casing elevation used to measure static elevations. Elevations are measured to the V-notch in the top of the PVC riser pipe.

13. The time equipment was decontaminated at each well location.

    Dedicated sampling equipment was used at each monitoring well. Therefore, it was not necessary to decontaminate sampling equipment. Water level measurement equipment was decontaminated by rinsing with deionized water and wiping in between each well in which the water levels were measured. The time each water level was measured is noted in the Water Level Measurement Forms contained in Appendix 3.

14. The reaction of the ground water to the preserving agent when the sample is containerized.

    Any reactions of the ground water to the preserving agent can be found on the Ground Water Sample Log Forms included in Appendix 1.

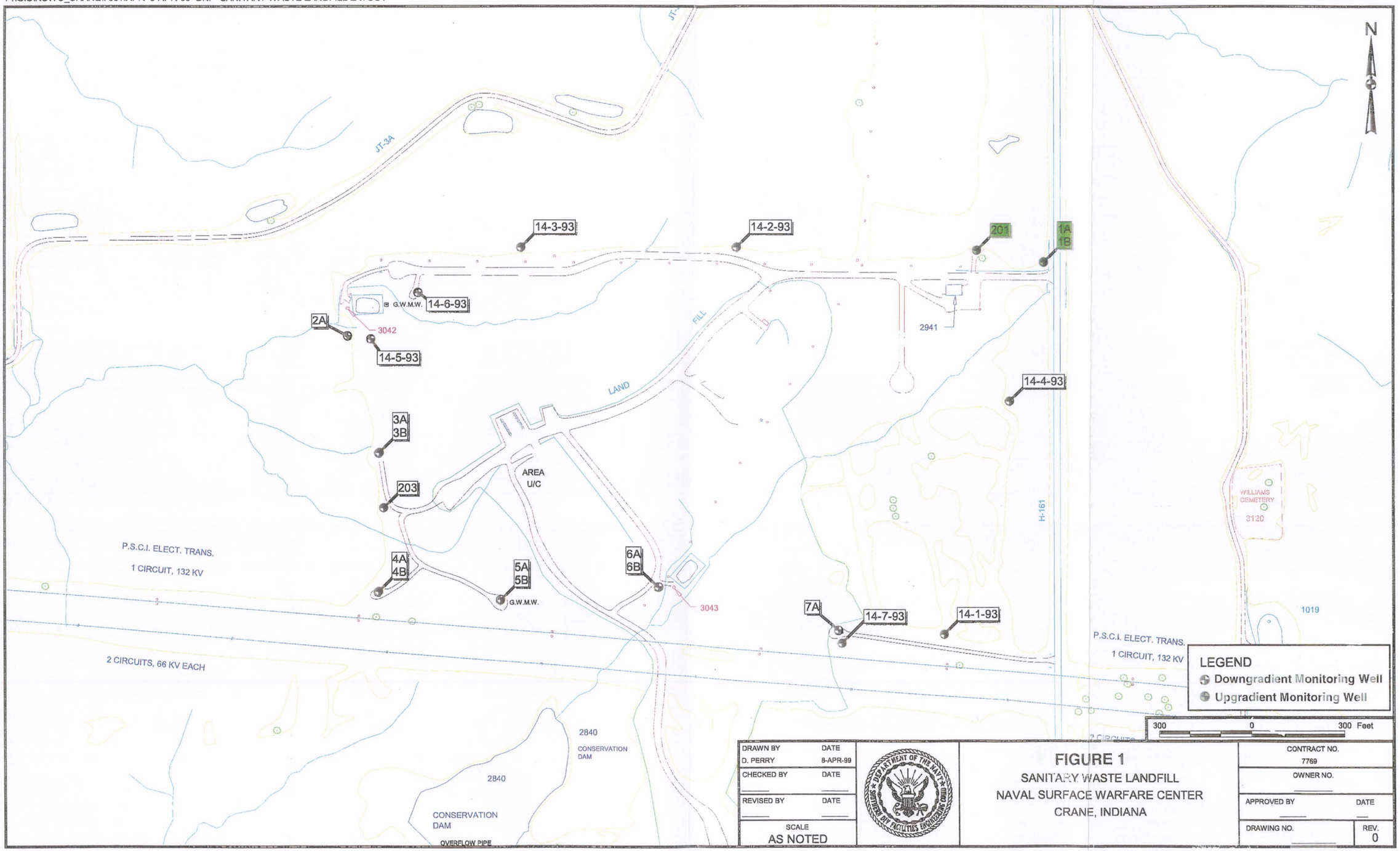
TABLE 1

NSWC CRANE
SANITARY WASTE LANDFILL
DETECTION MONITORING EVENT NUMBER 1

Well ID	Sample ID	Pump Installation	Date Sampled	Water Level (2)	Start Purge	Sample Time	Water Level Elevation (3)	Comments
MW1A	SMW1A1A99	NA	3/27/99	20.17	NA	NA	694.87	DRY
MW2A	SMW2A1A99	3/13/99	3/25/99	26.44	0723	1130	646.76	FD 032599 01
MW1B	SMW1B1A99	3/13/99	3/23/99	28.61	0850	1255	686.38	
MW3A	SMW3A1A99	3/13/99	3/25/99	37.75	1330	1735	641.57	
MW3B	SMW3B1A99	3/13/99	3/27/99(1)	4.88	0735	0745	674.46	
MW4A	SMW4A1A99	3/13/99	3/24/99	5.09	1345	1750	684.44	
MW4B	SMW4B1A99	3/24/99	3/25/99	22.32	0945	1350	667.18	
MW5A	SMW5A1A99	3/13/99	3/26/99	20.51	0758	1203	674.90	
MW5B	SMW5B1A99	3/13/99	3/26/99	6.13	1350	1755	689.23	
MW6A	SMW6A1A99	3/13/99	3/26/99	7.71	1358	1805	682.37	
MW6B	SMW6B1A99	3/13/99	3/27/99	5.35	0857	1305	684.74	
MW7A	SMW7A1A99	3/13/99	3/24/99	30.16	0825	1225	681.95	
MW201	SMW2011A99	3/13/99	3/23/99	3.03	0825	1230	712.13	
MW203	SMW2031A99	3/24/99	3/24/99	4.02	0815	1645	677.52	
14 1 93	S141931A99	3/13/99	3/23/99	27.37	1420	1620	682.02	
14 2 93	S142931A99	3/13/99	3/22/99	53.02	1327	1545	658.29	
14 3 93	S143931A99	NA	3/22/99	43.98	NA	NA	661.23	DRY
14 4 93	S144931A99	3/13/99	3/23/99	20.80	1430	1735	690.11	
14 5 93	S145931A99	3/26/99	3/27/99	28.25	1458	1723	647.49	
14 6 93	S146931A99	3/13/99	3/22/99	36.01	1326	1450	649.95	
14 7 93	S147931A99	3/13/99	3/27/99	28.79	0750	1035	681.73	FD 032799 01

(1) Well MW3B was purged 3/26/99 and sampled 3/27/99
(2) Measurments are from the top of the riser (inner case) to the nearest 0.01'
(3) Feet above mean sea level
FD = Field Duplicate
Samples from well 14 7 93 were also analyzed for a MS/MSD
Wells MW1A, MW1B and MW201 are Upgradient all others are Downgradient

P:\GIS\NSWC_CRANE\7651.APR 8-APR-99 DNP SANITARY WASTE LANDFILL LAYOUT



APPENDIX 1

GROUND WATER SAMPLE LOG SHEETS/LOW FLOW PURGE DATA FORMS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW1A1A99
Sample Location: MW1A (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: —
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date: 3.27.99	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	NA
Time:								
Method:								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method:								
Monitor Reading (ppm): 10.7			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 4" PVC								
Total Well Depth (TD): 21.4								
Static Water Level (WL): 20.17								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

DRY - NO SAMPLE

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	
Sulfate, Chloride,TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	

OBSERVATIONS / NOTES:

Reaction to Preservative: 3.27.99 @ 1430

ONLY 1.2' OF WATER, NO SAMPLE

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): K. S. Simpson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW2A1A99
Sample Location: MW2A (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3·25·99 Time: 1130	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	~~Other~~ ODOR ~~NA~~
Method DEDICATED BLADDER	CLEAR	5.51	0.755	11.3	1.0	0.56	265.5	NONE

PURGE DATA:

Date: 3·25·99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 3.4			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 43.9								
Static Water Level (WL): 26.44								
One Casing Volume (gal/L): 11.4								
Start Purge (hrs): 0723								
End Purge (hrs): 1125								
Total Purge Time (min): 242								
Total Vol. Purged (gal/L): 6.4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE
2' SCREEN
END WATER LEVEL @ 1230 = 26.58'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FD 032599 01

Signature(s): K. S. S.

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW2A (SWL)
DATE: 3-25-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0728	26.44	130	5.94	1.927	4.6	14.61	8.0	198.3	
0740	26.47	110	5.09	0.863	5.1	3.51	8.7	262.9	
0750	26.50	100	5.06	0.755	1.2	3.25	8.7	274.5	CLEANED TURB. PROBE
0800	26.50		5.05	0.748	1.0	3.00	8.4	284.3	
0810	26.50		5.04	0.743	1.0	3.08	8.4	289.6	
0820	26.53		5.04	0.741	1.0	2.69	8.7	289.4	TEMP. CHANGES ARE
0830	26.53		5.04	0.739	1.0	3.08	8.8	293.6	DUE TO SUN WARMING
0840	26.52		5.06	0.740	1.0	2.85	8.7	297.2	ON CELL/TUBING AND
0850	26.54		5.09	0.739	1.0	3.06	9.0	300.3	WARMING AIR TEMP.
0900	26.55		5.13	0.741	1.0	2.64	9.1	296.3	KEEPING CELL/TUBING
0910	26.55		5.19	0.743	1.0	2.91	9.1	295.8	IN THE SHADE.
0920	26.56		5.26	0.746	1.0	2.71	9.6	293.1	
0930	26.56		5.33	0.749	1.0	2.31	9.6	288.9	
0940	26.57		5.38	0.754	1.0	2.16	9.5	282.9	
0950	26.57		5.44	0.755	1.0	1.91	10.0	280.0	
1000	26.58		5.47	0.754	1.0	1.41	10.0	281.1	
1010	26.57		5.48	0.756	1.0	1.32	10.1	278.8	
1020	26.57		5.49	0.759	1.0	1.22	10.8	276.4	
1030	26.56		5.51	0.755	1.0	0.95	11.1	276.9	
1040	26.58		5.51	0.756	1.0	0.70	11.0	276.6	
1050	26.58		5.52	0.756	1.0	0.72	11.0	274.6	
1100	26.58		5.52	0.758	1.0	0.67	11.2	271.9	
1110	26.58		5.51	0.756	1.0	0.60	11.2	269.1	
1120	26.58		5.51	0.755	1.0	0.56	11.3	265.5	END PURGE 1125
	START SAMPLING		@ 1125						
	END SAMPLING		@ 1228						

SIGNATURE(S): K. S. Simpson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW1B1A99
Sample Location: SWL MW 1B
Sampled By: K. SIMPSON
C.O.C. No.: 00311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Other ODOR NA
Date: 3.23.99								
Time: 1255								
Method: DED BLADDER	CLEAR	6.72	1.996	11.5	0	5.87	207.7	NONE

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Date: 3.23.99								
Method: DED BLADDER								
Monitor Reading (ppm): 2.3			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 43.6								
Static Water Level (WL): 28.61								
One Casing Volume (gal/L): 9.8								
Start Purge (hrs): 0850								
End Purge (hrs): 1250								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 6.3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE
3' SCREEN
TOP OF SCREEN = 40.5±

4" WELL = 0.653 GAL/FT

PUMPED/PURGED FOR 4 HRS & STARTED SAMPLING AS PER FSP
PARAMETERS STABLE START SAMPLING

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): K. E. Sim

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

4" well

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: SWL MW1B
DATE: 3.23.99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP mV	Comments
0855	28.61	130	6.70	2.401	3.4	6.12	11.5	193.1	
0905	28.83	100	6.68	2.167	3.6	6.37	11.8	179.4	
0915	28.94		6.68	2.030	1.5	7.39	11.5	186.5	
0930	29.18		6.69	2.020	1	6.33	11.2	197.1	
0940	29.20		6.70	2.018	1	7.82	11.2	192.2	
0950	29.28		6.71	2.014	1	7.44	11.0	199.2	
1000	29.38		6.71	2.013	1	5.67	11.0	205.8	
1010	29.44		6.72	1.998	0	7.56	11.0	198.6	
1020	29.53		6.72	2.014	0	6.37	10.8	198.4	
1030	29.63		6.71	2.013	0	6.69	10.8	198.3	
1040	29.71		6.71	2.007	0	5.19	10.9	188.5	
1050	29.78		6.72	2.006	0	7.88	10.9	197.8	
1100	29.87		6.72	2.000	0	8.07	10.9	204.1	
1110	29.89		6.72	2.000	0	8.44	11.0	203.1	
1120	29.96		6.72	1.995	0	7.69	11.0	207.1	
1130	30.03		6.72	1.994	0	8.38	11.0	207.8	
1140	30.09		6.71	1.991	0	8.71	11.2	206.5	
1150	30.18		6.73	1.990	0	7.87	11.2	203.8	
1200	30.23		6.72	1.982	0	8.41	11.4	201.5	
1210	30.27		6.72	1.989	0	8.99	11.3	201.4	
1220	30.32		6.72	1.990	0	8.09	11.3	202.0	
1230	30.36		6.74	1.991	0	7.44	11.4	201.2	
1240	30.41		6.72	1.995	0	6.79	11.5	204.0	
1250	30.45		6.72	1.996	0	5.87	11.5	207.7	
	START	SAMPLING		1252					
	END	SAMPLING		1312		WATER LEVEL	@ END	SAMPLE =	30.59

SIGNATURE(S): [illegible]

screen 40.5'

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW3A1A99
Sample Location: MW3A (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3-25-99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~ ODOR
Time: 1735	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~
Method: DEDICATED BLADDER	CLEAR							NONE

PURGE DATA:

Date: 3-25-99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 1.4			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 48.4								
Static Water Level (WL): 37.75								
One Casing Volume (gal/L): 7								
Start Purge (hrs): 1330								
End Purge (hrs): 1730								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): ~~6.3~~ 5.7 GAL								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE
2' SCREEN

END WATER LEVEL @ 1800 = 41.75'

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): K. E. Simpson

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW3A
DATE: 3.25.99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1335	37.75	130	6.04	2.190	49	22.7	14.2	124.3	
1340	37.98	100	5.99	1.631	47	5.75	14.1	114.7	
1350	38.25	90	5.94	0.957	18.3	6.56	13.2	105.6	
1400	38.46	90	5.93	0.900	3.9	5.17	14.3	103.6	
1410	38.61		5.93	0.892	3.5	5.56	13.1	102.6	
1420	38.75		5.94	0.891	3.5	6.29	12.7	98.0	
1430	38.96		5.94	0.887	3.3	4.10	12.8	95.1	
1440	39.11		5.94	0.892	3.0	4.26	12.6	92.0	CLEANED TURB PROBE
1450	39.28		5.95	0.882	3.0	3.62	13.2	92.3	
1500	39.48		5.95	0.885	3.3	3.69	12.5	94.1	
1510	39.59		5.95	0.885	2.9	3.36	13.1	93.3	
1520	39.72		5.94	0.883	2.5	3.23	12.2	92.0	
1530	39.88		5.94	0.882	2.5	1.59	12.1	92.3	
1540	40.04		5.95	0.881	2.3	1.42	11.4	95.2	
1550	40.18		5.95	0.880	2.3	1.59	11.8	94.7	
1600	40.28		5.96	0.880	2.2	1.46	11.6	93.5	
1610	40.44		5.95	0.880	2.2	1.01	11.5	96.0	
1620	40.57		5.95	0.879	2.1	1.23	11.4	96.2	
1630	40.73		5.96	0.879	2.0	1.78	11.4	96.4	
1640	40.83		5.95	0.879	2.0	0.75	11.3	96.1	
1650	40.93		5.96	0.876	2.0	0.20	11.0	100.0	
1700	41.02		5.96	0.877	2.0	0.47	11.0	100.3	
1710	41.18		5.96	0.877	2.0	0.34	10.9	100.1	
1720	41.29		5.96	0.875	2.0	0.64	10.9	100.2	
1730	41.34		5.96	0.875	2.0	0.82	10.9	98.1	4 HRS, END PURGE
	START SAMPLING @ 1732								
	END SAMPLING @ 1803								

SIGNATURE(S): [illegible]

BTM 48.4
SCREEN 46

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW3B1A99
Sample Location: MW 3B (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3.27.99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~
Time: 0745	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~
Method: DEDICATED BLADDER	CLEAR	7.56	1.293	6.9	1.5	3.46	217.3	NONE

PURGE DATA:

Date: 3.26.99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 1.9			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 12.8								
Static Water Level (WL): 4.88								
One Casing Volume (gal/L): 5.2								
Start Purge (hrs): 0735								
End Purge (hrs): 1042								
Total Purge Time (min): 187								
Total Vol. Purged (gal/L): 4.4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

PURGED 3.26.99, RECHARGE OVERNITE SAMPLE 3.27

3' SCREEN

3.27.99 PURGED 1 QT THEN STARTED FILLING BOTTLES

FLOW RATE FOR SAMPLE = 80 ML/MIN

WATER LEVEL 3.27.99 @ 0735 8.43, SAMPLE

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): K. Simpson

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48

WELL ID.: MW3B (SWL)
DATE: 3-26-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
0740	4.88	100	7.50	1.561	43	14.12	7.1	147.8	
0750	5.20	80	7.51	1.440	9.4	12.23	6.9	154.1	
0800	5.84		7.53	1.298	6.3	11.80	6.7	176.6	
0810	6.22		7.53	1.294	5.6	12.30	6.7	182.7	
0820	6.59		7.54	1.295	0.4	11.32	6.7	189.7	
0830	7.00		7.55	1.296	0.4	12.45	6.7	195.4	
0840	7.28		7.56	1.293	1.3	10.97	6.9	196.5	DRYING WELL OUT
0850	—	100	7.57	1.293	1.0	11.77	6.8	193.4	WELL IS "MAKING" VERY LITTE
0900	7.86		7.58	1.294	1.0	11.20	7.0	198.9	WATER. INCREASE FLOW
0910	—		7.58	1.294	1.0	10.20	6.8	204.8	RATE TO 100 ML/MIN AND
0920	8.40		7.58	1.295	1.7	3.70	6.8	204.5	WILL PUMP TO INLET AND
0930	—		7.59	1.294	1.3	4.78	6.8	208.0	ALOW TO RECHARGE OVERNITE
0940	8.85		7.59	1.295	1.0	4.38	6.7	211.2	AND SAMPLE 3-27-99
0950	—		7.59	1.295	1.0	3.98	6.6	211.7	
1000	9.28		7.59	1.292	1.8	3.02	6.7	214.4	
1010	—		7.57	1.296	1.5	3.22	6.8	216.7	
1020	9.63		7.59	1.297	1.5	3.38	6.9	217.8	
1030	—		7.56	1.294	1.5	3.18	6.9	218.0	
1040	9.90		7.56	1.293	1.5	3.46	6.9	217.3	@TOP OF SCREEN, END PURGE
							~~6.9~~	~~217.6~~	KS
		3-27-99	START	SAMPLING @		0738			
		3-27-99	END	SAMPLING @		0843			

SIGNATURE(S): [signature]

9.8± SCREEN/3'
- .35/10MIN

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW4A1A99
Sample Location: SWL-MW4A99
Sampled By: Scott Neil
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date: 3/24/99	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	Odor NA
Time: 1750								
Method: Bladder Pump	Clear	6.31	0.167	12.2	6	9.15	139.5	None

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Date: 3/24/99								
Method: Low Flow (Bladder Pump)								
Monitor Reading (ppm): 2.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 27.52 FT								
Static Water Level (WL): 5.09 FT.								
One Casing Volume (gal/L): 14.6 gal								
Start Purge (hrs): 1345								
End Purge (hrs): 1745								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 5.3 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500MLPolyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

Screen length = 2 FT.
Top of Screen = 25.52 FT.
Total volume purged is lower than one casing volume due to the low flow rate not capable of purging enough volume in the maximum 4 hour period (per FSP).

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	

Signature(s): Scott Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW4A (SWL)
DATE: 3/24/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments	
1345	5.09							→	Begin purging	
1350	5.17	63	6.43	0.773	102	10.26	16.1	56.8		
1355	5.24	63	6.32	0.293	17	10.21	15.5	113.0	Adjust flow rate.	630
~~13~~ 1400	5.26	94	6.28	0.192	8	12.02	14.2	121.4	Adjust flow rate.	470
1410	5.35	125	6.36	0.174	5	~~13~~ 8.26	13.7	131.6	Adjust flow rate.	1250
1420	5.37	94	6.28	0.172	5	9.40	14.2	123.6		
1430	5.40	94	6.31	0.169	6	9.90	14.5	120.5		
1440	5.45	94	6.31	0.171	8	9.74	14.4	120.1		
1450	5.47	94	6.32	0.173	5	8.87	14.2	139.6		
1500	5.49	94	6.31	0.174	5	9.48	14.4	128.3		
1510	5.53	94	6.32	0.173	3	8.74	14.1	113.9		
1520	5.58	94	6.32	0.173	4	7.93	13.3	140.1		
1530	5.61	94	6.33	0.172	4	8.67	14.1	124.6	Adjust flow rate.	7520
1540	5.61	75	6.34	0.174	6	9.00	14.1	108.7		
1550	5.62	75	6.33	0.174	7	7.76	14.2	115.6		
1600	5.63	75	6.33	0.171	7	8.24	12.9	124.5		
1610	5.63	75	6.33	0.172	9	8.34	12.2	143.5		
1620	5.65	75	6.33	0.171	9	7.74	13.6	150.6		
1630	5.66	75	6.33	0.172	6	7.02	13.6	145.4		
1640	5.68	75	6.33	0.170	7	7.90	13.4	140.8		
1650	5.70	75	6.33	0.169	7	7.00	13.2	128.5		
1700	5.72	75	6.32	0.168	5	6.78	13.3	133.3		
1710	5.75	75	6.33	0.166	6	7.83	11.9	116.4		
1720	5.76	75	6.32	0.167	5	7.18	11.9	129.2		
1730	5.79	75	6.32	0.165	6	8.34	11.9	127.6		
1740	5.81	75	6.31	0.166	8	7.58	11.9	134.1	End purging.	
1745	5.84	75	6.31	0.167	6	9.15	12.2	139.5		10125
1750	Begin sampling - sample # SMW4A1A99.									
1823	End sampling.									

SIGNATURE(S): Scott W. Reid

GROUNDWATER SAMPLE LOG SHEET

Tetra Tech NUS, Inc.

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW4B1A99
Sample Location: SWL - MW4B
Sampled By: Scott Neil
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3/25/99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~
Time: 1350	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~ Odor
Method: Decl. Bladder Pump	Clear	6.74	1.888	13.2	3	6.97	112.3	None

PURGE DATA:

Date: 3/25/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: LOW FLOW (BLAB. PUMP)								
Monitor Reading (ppm): 17.0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 49.5 FT.								
Static Water Level (WL): 22.32 FT.								
One Casing Volume(~~gal~~/L): 17.7 gal.								
Start Purge (hrs): 0945								
End Purge (hrs): 1345								
Total Purge Time (min): 240								
* Total Vol. Purged (~~gal~~/L): 2.7 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500MLPolyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: None

+Screen length = 3 FT.
+Top of Screen = 46.5 FT.
*Purged for 4 hours per FSP; low flow rate resulted in low purge volume of 2.7 gallons.

Tried to begin purging at 0754, but control box was not functioning properly. went back to trailer - called QED for tech support. Determined battery pack was low. spare battery packs were D cell - control box batteries were AA. went to store to purchase 8 AA batteries.

Circle if Applicable:

MS/MSD ✓ | Duplicate ID No.: ✓

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW4B (SWL)
DATE: 3/25/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0945	22.32	—						→	Begin purging.
0955	22.50	58	6.69	2.221	51	8.93	9.0	95.1	Adjust flow rate.
1005	22.74	54	6.67	2.062	58	7.12	9.5	132.7	Adjust flow rate.
1015	22.92	42	6.69	2.007	2	7.60	9.6	130.1	
1025	23.05	42	6.67	1.997	3	7.86	9.8	134.4	
1035	23.22	42	6.69	1.980	2	9.81	9.7	137.4	
1045	23.33	42	6.70	1.952	3	9.17	9.9	137.9	
1055	23.47	42	6.71	1.933	2	8.70	10.2	131.4	
1105	23.64	42	6.72	1.946	2	8.80	10.4	136.3	
1115	23.76	42	6.71	1.916	1	9.08	10.9	130.0	
1125	23.89	42	6.71	1.935	1	8.19	11.0	129.6	
1135	24.00	42	6.69	1.917	3	8.01	11.3	138.8	
1145	24.11	42	6.71	1.928	1	8.24	11.6	133.8	
1155	24.19	42	6.70	1.911	4	7.83	11.4	125.5	
1205	24.34	42	6.70	1.940	5	6.41	12.1	121.6	
1215	24.49	42	6.70	1.901	3	6.08	12.2	134.8	
1225	24.59	42	6.72	1.892	3	8.99	12.4	132.7	
1235	24.73	42	6.70	1.867	1	6.69	12.3	145.1	
1245	24.89	42	6.71	1.845	1	7.78	12.4	131.9	
1255	24.99	42	6.72	1.824	2	6.52	12.6	127.8	
1305	25.17	42	6.74	1.819	4	8.32	12.5	80.2	
1315	25.29	42	6.73	1.759	3	6.83	12.5	115.3	
1325	(SN) ~~52.40~~ 25.40	42	6.73	1.769	6	7.89	13.0	121.3	
1335	25.47	42	6.73	1.741	1	6.68	13.2	131.5	
1345	25.54	42	6.74	1.888	3	6.97	13.2	112.3	End purging.
1350	Begin sampling - sample # SMW4B 1A99.								
1446	End sampling.								

SIGNATURE(S): Scott A. Reid

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW5A1A99
Sample Location: SWL-MW5A
Sampled By: Scott Neil
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3/26/99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other ~~ODM~~ NA
Time: 1203	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: Ded. Bladder Pump	Clear/yel.	6.37	0.779	12.5	9	1.92	103.1	None

PURGE DATA:

Date: 3/26/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Low Flow (Bladder Pump)								
Monitor Reading (ppm): 2.1			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 44.0 FT.								
Static Water Level (WL): 20.31 FT.								
One Casing Volume (gal/L): 1.3 gal.								
Start Purge (hrs): 0758								
End Purge (hrs): 1158								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500ML Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: Some effervesence in last VOC; light foam on Ammonia sample (H_2SO_4).
Screen length = 2 FT.
Top of Screen = 42.0 FT.
Parameters not stable / one casing volume not removed after 4 hours - sample per FSP.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	—

Signature(s): Scott W. Neil

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW5A (SWL)
DATE: 3/26/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0758	20.51								Begin purging.
0808	20.63	51	6.30	1.627	64	6.45	7.8	125.2	Clear w/ yellow tint.
0818	20.73	51	6.28	0.865	18	3.19	7.5	118.6	
0828	20.82	51	6.29	0.784	7	2.63	7.4	111.7	
0838	20.87	51	6.32	0.656	11	4.53	7.8	99.7	Cleaned probes/flow-thru cell.
0848	20.94	51	6.32	0.759	6	2.42	7.8	99.4	Clear w/ yellow tint.
0858	21.00	51	6.32	0.768	7	3.05	8.3	97.9	
0908	21.03	51	6.33	0.765	12	3.78	8.5	100.9	
0918	21.04	51	6.33	0.777	19	2.43	8.9	101.9	
0928	21.06	51	6.35	0.779	11	3.80	8.6	108.7	
0938	21.06	51	6.34	0.794	15	3.15	9.1	111.6	
0948	21.09	51	6.35	0.787	21	2.45	9.4	107.6	
0958	21.11	51	6.33	0.784	22	2.41	9.5	103.5	
1008	21.11	51	6.36	0.795	29	3.48	9.9	117.0	Adjust flow rate.
1018	21.14	60	6.38	0.802	12	2.71	10.0	113.2	Clear w/ yellow tint.
1028	21.15	60	6.38	0.799	8	2.90	10.3	114.3	
1038	21.16	60	6.39	0.800	6	3.55	10.9	105.7	
1048	21.16	60	6.38	0.809	13	2.83	11.2	111.7	Adjust flow rate.
1058	21.16	72	6.39	0.794	15	2.76	11.6	116.1	Adjust flow rate; water
1108	21.38	120	6.35	0.723	11	2.27	11.8	111.2	level is dropping, but trying
1118	21.49	120	6.35	0.729	9	1.75	12.5	104.4	to remove as much volume
1128	21.57	120	6.37	0.758	7	2.78	11.3	108.1	as possible before sampling
1138	21.61	120	6.37	0.768	9	2.30	11.4	103.2	
1148	21.66	120	6.35	0.767	13	1.46	11.5	98.6	
1158	21.73	120	6.37	0.779	9	1.92	12.5	103.1	End purging. Steady rise
									in temp. readings due to
1203	Begin sampling - Sample ID: SMW5A1A99.								rise in daytime temps/
1221	End sampling.								sunshine on flow-thru
									cell. Decrease in temps.- sun
									behind clouds/very windy.

SIGNATURE(S): Scott W. Reid

MW5B

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW~~48~~5B1A99 (EN)
Sample Location: SWL-MW~~48~~5B
Sampled By: Scott Neil
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3/26/99	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Other OVR
Time: 1755								
Method: Ded. Bladder Pump	LT. YELLOW	6.14	0.559	9.5	16	1.50	78.0	NONE

PURGE DATA:

Date: 2/26/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Low Flow (Blad. Pump)								
Monitor Reading (ppm): 5.1			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 18.7 Ft.								
Static Water Level (WL): 6.13 Ft.								
One Casing Volume (gal/L): 8.2 gal								
Start Purge (hrs): 1350								
End Purge (hrs): 1750								
Total Purge Time (min): 240								
* Total Vol. Purged (gal/L): 4.7 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500ML Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: Foam on Ammonia sample
Screen length = 3 Ft.
Top of screen = 15.7 Ft.
*Purged 4.7 gallons in 4 hours before sampling per FSP.
All samples have a yellow color.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Scott Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW5B (SWL)
DATE: 3/26/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
1350	6.13								Begin purging.
1400	6.22	54	6.38	1.500	108	5.54	10.6	110.3	water has yellow color.
1410	6.28	54	6.34	0.791	86	4.45	10.4	98.6	
1420	6.32	54	6.33	0.653	21	2.81	10.1	103.0	
1430	6.33	54	6.32	0.620	29	3.06	10.5	106.3	
1440	6.34	54	6.32	0.615	69	2.03	10.6	104.6	
1450	6.33	54	6.30	0.612	42	1.74	10.7	96.7	Adjust flow rate.
1500	6.36	60	6.32	0.609	27	3.44	10.6	91.6	Yellow color.
1510	6.37	60	6.29	0.607	21	1.70	10.5	94.9	Adjust flow rate.
1520	6.38	72	6.27	0.607	23	1.34	10.3	96.5	Adjust flow rate.
1530	6.48	120	6.24	0.599	13	1.11	10.5	93.6	Yellow color
1540	6.53	120	6.26	0.599	17	1.69	10.5	86.2	Adjust flow rate
1550	6.55	103	6.23	0.594	18	1.38	10.7	87.0	yellow color.
1600	6.56	103	6.23	0.591	14	2.08	10.6	84.4	
1610	6.59	103	6.23	0.586	19	1.87	10.4	72.9	
1620	6.59	103	6.22	0.581	14	1.59	10.4	75.0	
1630	6.59	103	6.20	0.583	10	1.11	10.5	76.0	
1640	6.60	103	6.20	0.573	11	0.96	10.6	74.4	
1650	6.62	103	6.16	0.572	12	1.14	10.5	76.6	
1700	6.63	103	6.17	0.567	9	1.34	10.4	76.7	
1710	6.63	103	6.15	0.565	13	0.95	10.1	79.3	
1720	6.65	103	6.14	0.561	6	1.44	9.9	80.6	
1730	6.65	103	6.15	0.562	5	1.27	9.8	78.6	
1740	6.66	103	6.14	0.561	12	1.19	9.6	80.3	
1750	6.67	103	6.14	0.559	16	1.50	9.5	78.0	End of purging.
1755	Begin sampling - sample ID: SMW5B1A99.								
1826	End sampling.								

SIGNATURE(S): Scott W. Neil

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW6A1A99
Sample Location: MW6A (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3·26·99 Time: 1805	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	~~Other~~ ODOR NA
Method: DEDICATED BLADDER	CLEAR	5.21	0.202	11.7	2.0	0.63	201.6	NONE

PURGE DATA:

Date: 3·26·99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 4.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 4" PVC								
Total Well Depth (TD): 44.5								
Static Water Level (WL): 7.71								
One Casing Volume (gal/L): 24								
Start Purge (hrs): 1358								
End Purge (hrs): 1800								
Total Purge Time (min): 242								
Total Vol. Purged (gal/L): 5.1								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

2' SCREEN

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): K. T. Simpson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW 6A (SWL)
DATE: 3·26·99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
1400	7.71	100	5.88	0.521	5.7	~~5.7~~ 11.49	13.3	229.1	DO = 11.49
1410	7.93	80	5.67	0.270	4.5	8.72	13.6	229.3	
1420	—		5.56	0.232	3.1	6.94	13.5	223.6	
1430	7.95		5.48	0.223	2.1	7.01	13.5	225.8	
1440	—		5.40	0.218	2.2	5.62	13.2	227.1	
1450	7.95		5.35	0.214	2.2	4.30	13.0	237.0	
1500	—		5.31	0.211	2.0	4.14	12.9	204.1	
1510	7.95		5.29	0.209	2.5	3.58	12.6	200.1	
1520			5.27	0.208	2.0	3.16	12.5	202.3	
1530			5.25	0.206	2.6	3.26	12.2	181.5	
1540			5.23	0.204	2.0	2.71	12.4	190.5	
1550			5.23	0.203	2.0	2.58	12.3	201.9	
1600			5.22	0.203	1.9	2.46	12.2	179.6	
1610			5.21	0.203	2.0	2.22	12.2	184.7	
1620			5.22	0.203	2.0	2.00	12.1	181.6	
1630			5.21	0.203	2.0	1.69	12.1	182.4	
1640			5.21	0.203	2.0	1.45	12.0	180.6	
1650			5.21	0.203	2.0	1.29	11.9	180.8	
1700			5.21	0.202	2.1	1.17	11.9	197.5	
1710			5.21	0.202	1.9	0.97	12.0	191.9	
1720			5.21	0.202	2.0	1.04	11.8	204.3	
1730			5.21	0.202	2.1	0.78	11.8	195.4	
1740			5.21	0.202	2.1	0.67	11.7	191.9	
1750			5.21	0.202	2.0	0.61	11.7	199.3	
1800			5.21	0.202	2.0	0.63	11.7	201.6	END PURGE
	START SAMPLING		@ 1803						
	END SAMPLING		@ 1845						

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW6B1A99
Sample Location: MW6B (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA: 1.5

Date: 3-27-~~98~~99 Time: 1305	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Other ~~NA~~ ODOR
Method: DEDICATED BLADDER	CLEAR	6.44	0.525	18.4	9.4	5.25	99.8	NONE

PURGE DATA: 10.4

Date: 3-27-99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 5.7			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 16.5								
Static Water Level (WL): 5.35								
One Casing Volume (gal/L): 7.3								
Start Purge (hrs): 0857								
End Purge (hrs): 1300								
Total Purge Time (min): 243								
Total Vol. Purged (gal/L): 5.7								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

3' SCREEN

WATER LEVEL @ SAMPLE END 11.35'

Circle if Applicable:

MS/MSD — Duplicate ID No.:

Signature(s): K. Simpson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW 6B (SWL)
DATE: 3.27.99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0900	5.35	100	6.65	0.699	120	8.65	9.1	207.5	LT. YELLOW
0910	5.57	80	6.58	0.660	45	8.43	9.0	206.1	
0920	6.20		6.54	0.581	16	8.43	9.2	160.7	CLEARING
0930	6.60		6.54	0.549	12	7.20	9.6	139.8	
0940	6.91		6.53	0.542	11	7.60	9.7	132.7	
0950	7.21		6.53	0.543	10.4	7.13	9.7	130.7	
1000	7.49	100	6.53	0.542	10.2	7.12	9.7	129.4	
1010	7.80		6.53	0.542	10.6	7.68	9.7	130.8	
1020	8.12		6.53	0.539	10.3	7.47	9.7	129.3	
1030	8.49		6.53	0.536	10.5	7.21	9.8	134.2	
1040	8.72		6.54	0.535	10.5	7.54	9.7	137.4	
1050	9.01		6.53	0.536	9.7	7.66	9.8	133.5	
1100	9.25		6.53	0.536	9.5	7.48	9.8	130.1	
1110	9.49		6.53	0.537	9.6	7.64	10.0	129.6	
1120	9.73		6.53	0.536	9.5	7.09	10.1	126.2	
1130	9.95		6.52	0.535	9.5	6.54	10.1	120.9	
1140	10.21		6.52	0.535	9.4	6.98	10.2	118.7	
1150	10.30		6.51	0.533	9.4	6.54	10.3	114.9	
1200	10.48	80	6.49	0.530	9.4	6.58	10.4	110.6	
1210	10.61		6.48	0.529	9.4	6.42	10.4	107.5	
1220	10.70		6.48	0.528	9.4	6.12	10.4	105.8	
1230	10.82		6.46	0.527	9.6	5.78	10.4	102.2	
1240	10.90		6.45	0.525	9.5	5.56	10.4	101.7	
1250	10.98		6.44	0.524	9.4	5.26	10.5	100.3	
1300	11.15		6.44	0.524	9.4	5.25	10.4	99.8	END PURGE
	START SAMPLING @		1303						
	END SAMPLING @		1342						

SIGNATURE(S): K. S. Simpson

13.5' TOP OF SCREEN

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW7A1A99
Sample Location: MW7A (SWL)
Sampled By: K. SIMPSON
C.O.C. No.: 311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3.24.99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~ ODOR
Time: 1225	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~
Method: DEDICATED BLADDER	CLEAR	6.51	0.469	14.4	3.4	2.86	174.7	NONE

PURGE DATA:

Date: 3.24.99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DEDICATED BLADDER								
Monitor Reading (ppm): 0.5			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 43.6								
Static Water Level (WL): 30.16								
One Casing Volume (gal/L): 8.8								
Start Purge (hrs): 0825								
End Purge (hrs): 1222								
Total Purge Time (min): 237								
Total Vol. Purged (gal/L): 6.3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

2' SCREEN

END WATER LEVEL 30.45' @ 1257

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): K. S. Simpson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW7A (SWL)
DATE: 3-24-99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
0830	30.16	130	6.72	0.956	9.3	9.92	11.5	87.4	
0840	30.30	100	6.45	0.577	6.7	5.95	12.0	177.8	
0850	30.30	100	6.48	0.523	6.1	6.06	12.1	183.1	
0900	30.31	100	6.47	0.517	5.4	5.99	12.2	190.3	
0910	30.33		6.48	0.505	4.9	6.19	12.2	188.9	
0920	30.35		6.49	0.506	4.8	6.48	12.4	198.8	
0930	30.38		6.49	0.497	3.5	6.47	12.5	179.0	
0940	30.38		6.49	0.495	3.5	6.14	12.8	190.5	
0950	30.39		6.49	0.505	3.5	6.36	13.0	189.0	
1000	30.39		6.50	0.501	3.4	6.26	13.3	183.6	
1010	30.40		6.49	0.498	3.5	6.37	13.6	181.8	
1020	30.41		6.45	0.493	3.5	6.31	13.4	171.4	
1030	30.41		6.51	0.501	3.1	5.50	13.6	185.8	
1040	30.42		6.49	0.498	3.6	5.92	13.6	180.7	
1050	30.43		6.52	0.493	3.5	5.85	13.8	195.9	
1100	30.44		6.47	0.492	3.6	6.36	14.1	163.3	
1110	30.44		6.46	0.484	3.6	5.10	14.2	158.5	
1120	30.43		6.52	0.474	3.4	4.65	14.4	185.5	
1130	30.44		6.51	0.480	3.4	3.88	14.4	187.1	
1140	30.44		6.51	0.478	3.4	3.40	14.4	179.5	
1150	30.44		6.50	0.470	3.4	2.83	14.4	156.4	
1200	30.44		6.51	0.461	3.3	2.87	14.4	171.9	
1210	30.44		6.51	0.478	3.3	2.68	14.4	173.6	
1220	30.44		6.51	0.469	3.4	2.86	14.4	174.7	PURGED FOR 4 HRS
									START SAMPLING
	START	SAMPLING	@	1222					
	END	SAMPLING	@	1255					

SIGNATURE(S): [illegible] S. Simpson

GROUNDWATER SAMPLE LOG SHEET

Tetra Tech NUS, Inc.

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW201A1A99
Sample Location: SWL-MW201A
Sampled By: Scott Neil
C.O.C. No.: 00311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3/23/99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~
Time: 1230	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~ Odor
Method: Ded. Bladder Pump	Clear	7.49	0.383	6.5	1	3.63	118.1	None

PURGE DATA:

Date: 3/23/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Ded. Bladder Pump								
Monitor Reading (ppm): 0.0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 9.3 Ft.								
Static Water Level (WL): 3.03 Ft.								
One Casing Volume (gal/L): 4.1 gal.								
Start Purge (hrs): 0825								
End Purge (hrs): 1225								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 3.3 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500ML Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: Ammonia sample has light foam on sample surface.
Screen length = 2 Ft.
Top of the screen = 7.3 Ft.
Purged for four hours. Did not purge required volume. Sampled per FSP.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Scott Neil

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW201A (SWL)
DATE: 3/23/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
0825	3.03							→	Begin pursing.
0835	3.15	60	7.43	1.251	116	8.56	6.2	142.0	Water is clear.
0845	3.22	60	7.49	0.574	1	6.30	5.9	131.0	↓
0855	3.28	60	7.49	0.461	5	5.25	5.8	132.9	Adjust flow rate.
0905	3.35	55	7.51	0.419	4	5.93	5.7	127.9	
0915	3.41	51	7.52	0.397	3	5.44	5.9	130.0	
0925	3.42	51	7.52	0.394	2	5.65	5.9	134.8	
0935	3.43	51	7.53	0.393	2	4.95	5.9	123.6	
0945	3.43	51	7.53	0.392	1	5.37	5.8	125.9	
0955	3.45	51	7.52	0.391	1	5.05	5.7	123.2	
1005	3.48	~~5~~ 51	7.52	0.392	1	5.29	5.7	124.3	
1015	3.50	51	7.53	0.391	1	4.80	5.8	106.9	
1025	3.51	51	7.53	0.390	1	5.03	5.7	109.2	
1035	3.53	51	7.53	0.390	1	4.82	5.6	109.8	
1045	3.55	51	7.52	~~3~~ 0.389	1	4.33	5.7	112.2	
1055	3.57	51	7.52	0.389	1	4.77	5.7	114.2	
1105	3.58	51	7.52	0.387	1	4.64	5.7	113.3	
1115	3.59	51	7.51	0.386	1	5.00	5.7	112.1	
1125	3.59	51	7.52	0.386	1	4.23	5.7	113.0	
1135	3.62	51	7.51	0.385	1	3.94	5.7	117.1	
1145	3.65	51	7.50	0.385	1	4.13	5.9	115.6	
1155	3.70	51	7.50	0.386	1	4.00	6.0	115.4	
1205	3.73	51	7.50	0.384	1	3.86	6.2	120.4	
1215	3.75	51	7.49	0.385	1	4.24	6.4	118.7	
1225	3.76	51	7.49	0.383	1	3.63	6.5	118.1	End pursing - purged for four hours per FSP.
1230	Begin sampling - Sample # SMW201A1A99.								
1322	End sampling								

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SMW2031A99
Sample Location: SNL - MW203
Sampled By: Scott Neil & R. SIMPSON
C.O.C. No.: 00312
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3-24-99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1645	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	Odor
Method: DEDICATED BLADDER	Clear	7.19	0.402	17.6	4	8.31	132.1	None

PURGE DATA:

Date: 3/24/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: LOW FLOW (BLAD. PUMP)								
Monitor Reading (ppm): 1.4			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 9.43 FT								
Static Water Level (WL): 4.02 FT.								
One Casing Volume (gal/L): 3.5 gal								
Start Purge (hrs): 0815								
End Purge (hrs): 1230								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 2 GAL								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

Screen length = 2 FT.
Top of the screen = 7.43 FT.

WL @ 1725 5.65' (END SAMPLING)

Purged for 4 hours (per FSP) at a very low flow - each discharge yielded ≈ 50 mL (ordinarily yield ≈ 125 mL), from 0845 until the end of purging. Will allow to recharge and sample at the end of the day or tomorrow morning.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): R. E. Simpson, Scott W. Neil

1635 WL @ 4.71
START SAMPLING @ 1640
END SAMPLING @ 1725

WELL RECHARGED FOR 4 HRS & 10 MIN. THEN SAMPLING STARTED

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: MW203 (SivL)
DATE: 3/24/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0815	4.02							→	Begin purging.
0825	4.24	51	7.32	1.316	27	12.39	7.9	129.7	
0835	4.33	51	7.35	0.701	6	10.78	7.8	77.6	
0845	4.49	51	7.36	0.456	5	11.58	7.7	102.0	Adjust flow rate.
0855	4.74	48	7.37	0.411	7	12.06	8.1	119.1	Adjust flow rate.
0905	4.90	42	7.38	0.440	7	11.84	8.6	130.5	
0915	4.99	42	7.39	0.446	5	11.01	8.9	121.5	
0925	5.03	42	7.36	0.432	6	11.24	9.3	132.3	
0935	5.13	42	7.35	0.431	8	10.10	9.5	122.6	
0945	5.18	42	7.33	0.419	4	10.36	9.7	133.7	Stopped purging to allow recovery; .04 ft/15min.
1000	5.14							→	Restart purging.
1010	5.16	~~42~~ 20	7.34	0.427	5	10.21	11.0	148.1	
1020	5.21	20	7.32	0.418	4	10.68	11.4	143.1	Rising temperature due
1030	5.25	20	7.31	0.412	7	10.99	11.7	141.3	to rising temperature/
1040	5.29	20	7.30	0.409	6	10.73	11.9	146.4	sunshine and the long
1050	5.34	20	7.29	0.403	5	10.66	12.7	155.5	period between discharge
1100	5.36	20	7.28	0.399	5	10.88	13.3	147.9	and refill - one cycle
1110	5.39	20	7.26	0.397	5	10.65	13.9	152.3	equal to 170 seconds.
1120	5.41	20	7.25	0.391	5	10.81	14.6	157.1	Tried to shade tubing
1130	5.44	20	7.23	0.389	6	10.20	15.6	168.3	and flow-through cell
1140	5.46	20	7.22	0.386	4	9.07	16.0	165.9	as best as possible.
1150	5.47	20	7.20	0.385	7	8.00	16.3	171.2	
1200	5.48	20	7.20	0.400	4	8.46	16.7	130.8	
1210	5.50	20	7.20	0.402	4	8.35	17.1	135.0	
1220	5.51	20	7.19	0.401	5	8.21	17.4	136.3	
1230	5.52	20	7.19	0.402	4	8.31	17.6	132.1	End purging.

SIGNATURE(S): Scott W. Neil

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES14193 1A99
Sample Location: WES 14193 (SWL)
Sampled By: R. SIMPSON
C.O.C. No.: 00311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3.23.99 Time: 1620 Method: DED. BLADDER	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	~~Other~~ ODOR NA
	CLEAR	6.75	1.483	12.2	3	3.98	153.3	NONE

PURGE DATA:

Date: 3.23.99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: DED. BLADDER								
Monitor Reading (ppm): 0.7			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 45.17								
Static Water Level (WL): 27.37								
One Casing Volume (gal/L): 2.9								
Start Purge (hrs): 1420								
End Purge (hrs): 1618								
Total Purge Time (min): 118								
Total Vol. Purged (gal/L): 3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

10' SCREEN
TOP OF SCREEN = 35'±
FINAL WL = 27.85'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): R. Simpson

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48

WELL ID.: WES 14193 ~~KS~~ (SWC)
DATE: 3.23.99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mv)	Comments
1425	27.37	120	6.87	2,800	125	18.40	12.0	159.3	
1435	27.95	80	6.77	1.641	1	24.45	12.6	163.5	
1445	27.88	80	6.75	1.550	2	16.04	12.8	155.1	
1455	27.78	100	6.76	1.547	2	11.21	12.6	167.0	
1505	27.75	100	6.75	1.522	3	7.80	12.5	161.3	
1515	27.78	100	6.75	1.489	4	7.59	12.4	183.9	
1525	27.80	100	6.75	1.523	3	7.60	12.3	154.0	
1535	27.79	100	6.75	1.518	3	7.54	12.2	149.1	
1545	27.80	100	6.75	1.510	3	6.75	12.2	148.3	
1555	27.83	100	6.75	1.502	3	5.25	12.1	153.0	
1605	27.89	100	6.75	1.493	3	4.46	12.2	156.9	
1615	27.95	100	6.75	1.483	3	3.98	12.2	153.3	
	START	SAMPLING		1617					
	END	SAMPLING		1643					

SIGNATURE(S): K. S. Simpson

~~1645~~ 1610 : 1 vol

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWCS142931A99
Sample Location: SWL: WES-14-2-93
Sampled By: Scott Neil
C.O.C. No.: 00311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Other ~~Odor~~ ~~NA~~
Date: 3/22/99								
Time: 1545								
Method: Ded. Bladder Pump	Clear	6.54	3.050	12.6	4	4.17	106.7	None

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Date: 3/22/99								
Method: Ded. Bladder Pump								
Monitor Reading (ppm): 3.6			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 65.31 Ft.								
Static Water Level (WL): 53.02 Ft.								
One Casing Volume (gal/L): 2.0 gal.								
Start Purge (hrs): 1327								
End Purge (hrs): 1542								
Total Purge Time (min): 135								
Total Vol. Purged (gal/L): 2.1 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H2SO4/4°C	(1) 500ML Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: Slight effervescence in one VOC vial. Light foam in Ammonia Sample.

Screen length = 10 Ft.
Top of screen = 55.31 Ft.
End Sampling @ 1632.
Final H2O Level = 53.19 Ft.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Scott Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: WES-14-2-93 (SWL)
DATE: 3/22/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
1327	53.02								Begin purging
1337	53.25	60	6.59	3.331	233	5.99	12.6	153.9	Water is clear 600
1347	53.15	51	6.56	3.334	11	6.28	12.5	150.4	Reduced flow rate
1357	53.14	51	6.55	3.274	0	5.39	12.5	143.4	Water is clear.
1407	53.14	51	6.57	3.286	0	5.86	12.9	140.5	
1417	53.15	51	6.54	3.223	3	5.16	12.9	134.9	
1427	53.14	51	6.54	3.160	1	3.95	14.1	133.8	
1437	53.15	51	6.57	3.157	0	4.28	13.0	127.8	
1447	53.13	51	6.54	3.130	0	3.37	12.8	129.0	Adjust flow rate 3570
1457	53.13	55	6.55	3.119	0	5.26	12.9	129.6	Adjust flow rate. 580 3560
1507	53.15	60	6.54	3.055	0	4.34	12.9	131.0	Water is clear.
1517	53.17	60	6.52	3.059	0	3.93	12.9	135.2	
1527	53.18	60	6.52	3.052	3	3.55	12.7	64.2	
1537	53.17	60	6.54	3.040	3	4.41	12.7	86.7	
1542	53.17	60	6.54	3.050	4	4.17	12.6	106.7	End purging.

Begin sampling @ 1545 - sample # SWES14293 1A99.
End sampling @ 1632.

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES143931A99
Sample Location: WES 14 3 93 (SWL)
Sampled By: K. SIMPSON
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date:	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	NA
Time:								
Method:								

PURGE DATA:

Date: 3.22.99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method:								
Monitor Reading (ppm): 0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 44.4								
Static Water Level (WL): 43.98								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

NOT SAMPLED
DRY

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	
Sulfate, Chloride,TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	
Ammonia	H2SO4/4°C	(1) 500Ml Polyehtylene	

OBSERVATIONS / NOTES:

Reaction to Preservative:

DRY WELL NO SAMPLE
< 1/2' OF WATER

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): K. E. Simpson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES14493IA99
Sample Location: SWL-WES14493
Sampled By: Scott Neil
C.O.C. No.: 00311
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	~~Other~~ odor NA
Date: 3/23/99								
Time: 1735								
Method: Ded. Bladder Pump	Clear	6.47	1.884	10.5	4	6.61	162.1	None

PURGE DATA:

Date: 3/23/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: LOW-FLOW BLADDER PUMP								
Monitor Reading (ppm): 0.3			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 35.3 Ft.								
Static Water Level (WL): 20.80 Ft.								
One Casing Volume (gal/L): 2.4 gal								
Start Purge (hrs): 1430								
End Purge (hrs): 1730								
Total Purge Time (min): 180								
Total Vol. Purged (gal/L): 2.45 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: Light foam on surface of Ammonia sample.
Screen length = 10 Ft.
Top of the screen = 25.3 Ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	—

Signature(s): Scott Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: WES-14-4-93 (SWL)
DATE: 3/23/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP mV	Comments
1430	20.80								Begin purging.
1440	21.20	60	6.53	2.302	41	6.47	11.1	180.5	Water is clear.
1450	21.24	51	6.51	2.124	91	7.77	11.6	161.0	Adjust water flow rate
1500	21.28	51	6.50	1.879	7	7.19	11.6	166.9	
1510	21.32	51	6.49	1.902	4	7.46	11.2	175.1	
1520	21.34	51	6.49	1.832	5	7.88	11.0	170.6	
1530	21.35	51	6.47	1.881	2	5.15	10.7	170.9	
1540	21.36	51	6.49	1.819	4	7.59	10.6	179.0	
1550	21.36	51	6.48	1.793	4	6.68	10.6	179.8	
1600	21.37	51	6.48	1.887	1	6.83	10.6	176.9	
1610	21.37	51	6.51	1.896	2	6.56	10.6	167.1	
1620	21.38	51	6.47	1.893	3	5.83	10.7	178.0	
1630	21.38	51	6.46	1.900	3	5.84	10.5	171.7	
1640	21.38	51	6.47	1.900	1	6.28	10.4	163.0	
1650	21.40	51	6.48	1.888	1	6.53	10.7	164.7	
1700	21.41	51	6.48	1.899	1	6.14	10.5	163.0	
1710	21.44	51	6.47	1.891	3	6.49	10.4	166.3	
1720	21.46	51	6.48	1.886	2	6.54	10.5	163.5	
1730	21.49	51	6.47	1.884	4	6.61	10.5	162.1	End of purging.
1735	Begin sampling - sample # SWES14493 1A99.								
1821	End sampling								

SIGNATURE(S): Scott W. Neal

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES14S93IA99
Sample Location: SWL: WES-14-S-93
Sampled By: Scott Neil
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~ ODOR ~~NA~~
	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Date: 3/27/99								
Time: 1723								
Method: Ded. Bladder Pump	Clear							None

PURGE DATA:

	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Date: 3/27/99								
Method: Low Flow (Bladder Pump)								
Monitor Reading (ppm): 6.0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 42.78 FT.								
Static Water Level (WL): 28.25 FT.								
One Casing Volume (gal/L): 2.4 gal.								
Start Purge (hrs): 1458								
End Purge (hrs): 1718								
Total Purge Time (min): 140								
Total Vol. Purged (gal/L): 2.6 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) ~~500ml~~ Polyehtylene (1000 mL)	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE
Screen Length = 10 FT.
Top of Screen = 32.78 FT.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Scott Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: WES-14-7-93 (SWL)
DATE: 3/27/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments	
1458	28.25							→	Begin purging.	
1508	28.31	47	4.58	1.362	8	8.02	13.9	235.9	water is clear.	
1518	28.33	47	4.57	0.599	6	6.64	13.2	233.5	↓	
1528	28.31	47	4.53	0.485	3	7.59	12.7	243.9	Adjust flow rate.	1410
1538	28.33	54	4.51	0.459	5	5.95	12.8	253.5	Adjust flow rate.	540
1548	28.35	60	4.48	0.456	8	4.91	12.7	267.3	Adjust flow rate.	600
1558	28.35	75	4.45	0.453	9	5.52	12.7	276.9	water is clear.	
1608	28.35	75	4.44	0.453	7	6.73	12.7	282.2	↓	
1618	28.35	75	4.44	0.453	3	7.80	12.6	282.4	Adjust flow rate.	2250
1628	28.36	83	4.44	0.455	2	7.16	12.5	277.8	water is clear	
1638	28.36	83	4.44	0.455	2	7.92	12.4	278.2		
1648	28.36	83	4.45	0.457	1	7.93	12.3	264.2		
1658	28.37	83	4.45	0.456	2	4.83	12.3	274.0		
1708	28.37	83	4.44	0.457	3	6.03	12.3	271.0	↓	
1718	28.37	83	4.43	0.457	1	5.05	12.3	281.0	End purging.	
1723	Begin sampling - sample # SWES14593 1A99.									
1751	End sampling.									

SIGNATURE(S): Scott L. [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES14693 1A99
Sample Location: SWL WES14693
Sampled By: R. SIMPSON
C.O.C. No.: 00317
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3.22.99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~ ODOR
Time: 1450	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: OED. BLADDER	CLEAR	5.61	0.834	13.4	2.2	0.87	192.8	NONE

PURGE DATA:

Date: 3.22.99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: OED. BLADDER								
Monitor Reading (ppm): 1.5			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 51.42								
Static Water Level (WL): 36.01								
One Casing Volume (gal/L): 2.5								
Start Purge (hrs): 1326								
End Purge (hrs): 1446								
Total Purge Time (min): 80								
Total Vol. Purged (gal/L): 2.7+								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Metals	HNO_3/4°C	(1) 1000mL Polyethylene	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500Ml Polyehtylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

10' SCREEN
TOP OF SCREEN = 41.4'
FINAL WL = 36.15'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): R. S. Simpson

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48
WELL ID.: WES 14 6 93
DATE: 3.22.99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (ml/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/l)	Temp. (Celsius)	ORP (mV)	Comments
1329	36.01	200	5.97	1.614	47.7	7.53	13.4	209.7	
1335	36.23	130	5.67	1.104	4.3	2.84	13.5	208.8	
1340	36.20	130	5.65	1.000	3.1	3.02	13.1	209.6	
1350	36.14	130	5.59	0.921	3.0	3.79	13.4	206.7	
1400	36.15	130	5.60	0.905	2.8	3.17	13.4	206.5	
1405	↓	130	5.59	0.882	2.8	2.65	13.4	204.7	
1410	↓	↓	5.59	0.885	3.0	2.56	13.3	201.1	
1415	↓	↓	5.61	0.874	2.9	1.64	13.3	186.6	
1425	↓	↓	5.60	0.855	2.5	1.33	13.4	195.5	
1435	↓	↓	5.61	0.825	2.3	1.00	13.4	194.7	
1440	↓	↓	5.61	0.839	2.4	0.89	13.3	196.8	
1445	↓	↓	5.61	0.834	2.2	0.87	13.4	192.8	
	START SAMPLING @ 1457 END @ 1530								

SIGNATURE: [illegible]

t = 72 MIN
1445

PAGE 2 OF

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: 7769/CTO 48

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: SWES147931A99
Sample Location: SWL-WES-14-7-93
Sampled By: Scott Neil
C.O.C. No.: 00313
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 3/27/99	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	~~Other~~ Odor
Time: 1035	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	~~NA~~
Method: Ded. Bladder Pump	Clear	6.71	0.750	12.9	5	6.84	69.2	None

PURGE DATA:

Date: 3/27/99	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: Low Flow (Bladder Pump)								
Monitor Reading (ppm): 2.2			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 45.33 FT.								
Static Water Level (WL): 28.79 FT.								
One Casing Volume (gal/L): 2.7 gal								
Start Purge (hrs): 0750								
End Purge (hrs): 1030								
Total Purge Time (min): 160								
Total Vol. Purged (gal/L): 3.1 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Volatile Organic Compounds (VOC)	HCl/4°C (12)	(3) 40 mL Glass Vials (SN)	✓
Dissolved Metals	HNO_3/4°C (4)	(1) 1000mL Polyethylene (SN)	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C (4)	(1) 1000mL Polyethylene (SN)	✓
Ammonia	H2SO4/4°C (4)	~~(1) 500Ml~~ Polyehtylene (1000mL) (SN)	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE
Screen length = 10 FT.
Top of Screen = 35.33 FT.

Circle if Applicable:

MS/MSD

Duplicate ID No.: FD03279901

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA FORM

Tetra Tech NUS, Inc.

PROJECT SITE NAME: NSWC Crane
PROJECT NUMBER: 7769/CTO 48

WELL ID.: WES-14-7-93 (SWL)
DATE: 3/27/99

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments	
0750	28.79							→	Begin purging.	
0800	28.80	54	6.76	2.210	2	9.60	8.3	91.8		
0810	28.81	54	6.77	1.025	5	8.71	9.0	53.4		
0820	28.81	54	6.66	0.810	4	7.31	9.1	95.1	Cleaned flow-thru cell.	
0830	28.80	54	7.91	0.409	5	10.86	9.4	49.7	Adjust flow rate.	2160
0840	28.82	60	6.78	0.734	2	8.45	10.0	74.3		
0850	28.83	60	6.71	0.721	6	8.48	10.3	72.3		
0900	28.83	60	6.77	0.722	8	9.24	10.7	54.5		
0910	28.83	60	6.91	0.728	4	9.45	11.2	49.9	Adjust flow rate.	2400
0920	28.84	72	6.82	0.730	5	8.49	11.7	50.4		
0930	28.84	72	6.73	0.734	5	9.05	12.0	82.7		
0940	28.84	72	6.71	0.738	3	8.16	12.1	84.3	Adjust flow rate.	2160
0950	28.85	90	7.06	0.740	6	8.54	12.6	3.9	Erratic ph + ORP.	
1000	28.85	90	6.69	0.747	7	7.21	12.6	74.4		
1010	28.85	90	6.70	0.749	8	7.73	12.8	55.2	Adjust flow rate	2700
1020	28.85	120	6.73	0.752	3	7.81	12.9	57.9		
1030	28.86	120	6.71	0.750	5	6.84	12.9	69.2	End purging	2400
1035	Begin Sampling - Sample ID SWES 147931A99.									
1226	End Sampling.									

SIGNATURE(S): Scott W. Reid

APPENDIX 2

MONITORING WELL
INSPECTION FORMS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 1B

Time: 0927 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 1A

Time: 0929 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition KS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	—	—	NONE, NO PUMP INSTALLED
PVC Riser	Condition of riser & survey reference point	✓		

Comments: DRY WELL
< 2' OF WATER

Signature(s) K. & S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW201

Time: 0933 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14 293

Time: 0937 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

C.J 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14 3 93

Time: 0941 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	—		NONE, NO PUMP INSTALLED
PVC Riser	Condition of riser & survey reference point	✓		

Comments: DRY, < 2' OF WATER

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14 6 93

Time: 0948 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

C.0 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14 4 93

Time: 1015 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14193

Time: 1021 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14793

Time: 1024 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 7A

Time: 1027 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. E. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW6A

Time: 1036 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or ~~gravel~~ & condition KS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 6B

Time: 1038 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition RS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 5A

Time: 1042 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	~~Concrete or gravel~~ RS & condition	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW5B

Time: 1044 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition RS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

c. 2 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 4A

Time: 1046 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition KS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 4B

Time: 1048 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition KS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	—		NONE, NO PUMP IN WELL
PVC Riser	Condition of riser & survey reference point	✓		

Comments:
PUMP WILL BE INSTALLED
LATER THIS WEEK

Signature(s) K. S Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

C 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW203

Time: 1050 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	—		NONE, NO PUMP INSTALLED
PVC Riser	Condition of riser & survey reference point	✓		

Comments: PUMP WILL BE INSTALLED LATER THIS WEEK

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW3A

Time: 1052 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW3B

Time: 1054 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: WES 14 593

Time: 1057 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition	✓		
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	—		NONE, NO PUMP INSTALLED IN WELL
PVC Riser	Condition of riser & survey reference point	✓		

Comments: PUMP WILL BE INSTALLED LATER THIS WEEK

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

CTO 48

NSWC Crane
Field Form
Revision: 0
January 1999

MONITORING WELL INSPECTION FORM

Well ID: MW 2A

Time: 1059 **Date:** 3.22.99 **Inspector's Name:** K. SIMPSON & S. NEIL

Inspection Item	Types of Problems	Status		Observation
		S	U	
Well Tag	Is it in-place, legible	✓		
Well security	Condition protective case, cap, lock	✓		
Well pad	Concrete or gravel & condition KS	✓		CONCRETE
Well seal	Condition of...	✓		
Area Immediately around well pad	Record any evidence of/or standing water in area of well	✓		NONE
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. S. Simpson

Note: S= Satisfactory, U= Unsatisfactory
Check one, if unsatisfactory explain

APPENDIX 3

FIELD LOG BOOK PAGES

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

CTO 48 Log Book # 2448
SWL Round # 1
3/22-27/99

NSWC
CRANE
INDIANA

2448

CTO-048
JOB TITLE

Start: 3/22/99
End:

TABLE OF CONTENTS

SUBJECT	PAGE No.
CTO-048; Purging/Sampling 1st QTR 1999	1-23
QA/QC Summary; First QTR. 1999	23
Monitoring Point Summary; First QTR 1999	5

Scientific Binding Productions 1255 S. Wabash Chicago, IL 60605

TABLE OF CONTENTS

SUBJECT	PAGE

TITLE NSWC Crane

PROJECT NO. 7169

BOOK 2448

Work continued from Page

Weather: Sunny, low 30's.

0700 KS + SW arrive at trailer. Begin set-up for CSD-48 activities.

0735 KS + SW depart for Bldg 3260 to pick-up bottles / supplies for sampling event.

0744 Arrive at 3260 - no supplies. KS stayed to copy pages from Field Chemical Logbook. SW departed for building 41 for supplies.

0757 SW arrives at building 41. NO supplies yet.

0804 SW departs for trailer. Begins prep. for water levels. SW calibrates PID.

0832 SW + KS participate in a conference call w/ Ralph Basinski.

0856 Depart trailer for SWL for water level measurements / install dist. discharge tubing.

SW

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 2

SIGNATURE Scott W. Neil

DATE 3/22/99

WITNESS

DATE

Scientific Bindery Productions 1255 S. Wabash Chicago, IL 60605

TITLE NSWC Crane PROJECT NO. 77' BOOK 2448

Work continued from Page 1 Weather: Sunny, high 30's.

0920 Arrive at SWL to begin water levels.

0948 PID not functioning correctly - return to trailer for re-calibration.

1000 Depart trailer for SWL.

1015 Resume water levels. Total of 21 water levels completed out of 21 wells.

1110 Depart SWL for Buildings 411 and 3260 to check on sample bottles/equipment. Supplies have not arrived.

1133 Stop at NSWC Crane gas station.

1147 Lunch

1215 Arrive back at trailer, control box from QED has arrived at trailer. Begin prep for purging/sampling.

1247 Depart for purging/sampling @ well WES-14-2-93, SWL.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 3

SIGNATURE Scott W. Neo DATE 3/22/99

WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769 BOOK 2448

Work continued from Page 2 Weather: Sunny, breezy, low 40's

1308 Arrive at well WES-14-2-93. Set-up to purge/sample. Sample # SWES14293IA99.
PID = 3.6 ppm
H_2O Level = 53.02 FT.
One volume = 20 gal.
Screen length = 10 FT.

1327 Begin purging. Please refer to field notes pertaining to sample # SWES14293IA99, well # WES-14-2-93.

1542 End purging - 21 gallons removed. Total purge time was 135 minutes.

1545 Begin sampling; sample # SWES14293IA99; VOC, Dis. Metals, Alk, Carbonate, Bicarb, TDS, TS, Sulfate, Chloride, Ammonia.

1632 End sampling. Load van with equipment and iced samples.

1646 Depart SWL for trailer.

1703 Arrive at trailer. Unload van and place samples in the refrigerator.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 4

SIGNATURE Scott W. Neo DATE 3/22/99

WITNESS DATE

TITLE NSWC Crane **PROJECT NO.** 7769
BOOK 2448

Work continued from Page 3 Weather: Sunny, low 40's

1735 Begin prep for tomorrow's sampling events; review well development notes — list bottom measurements for each well and other pertinent info to aid in this first round sampling event at the SWL. Dump purge H2O parts.

1854 Depart for BOQ.

VOID
Sun
3/22/99

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page NA

SIGNATURE [signature] DATE 3/22/99
WITNESS DATE

TITLE NSWC Crane **PROJECT NO.** 7769
BOOK 2448

Work continued from Page NA FIRST QTR 1999 WELL SUMMARY

Well #	Sample ID	Date	QA/QC
WES-14-6-93	SWES146931A99	3/22/99	None
WES-14-2-93	SWES142931A99	3/22/99	None
MW201A	SMW201A1A99	3/23/99	None
MW1B	SMW1B1A99	3/23/99	None
~~MW203~~	~~SMW2031A99~~	~~3/24/99~~	~~None~~
~~MW4A~~	~~SMW4A1A99~~	~~3/24/99~~	~~None~~
~~MW7A~~	~~SMW7A1A99~~	~~3/24/99~~	~~None~~
WES14193	SWES141931A99	3/23/99	None
WES14493	SWES144931A99	3/23/99	None
MW203	SMW2031A99	3/24/99	None
MW4A	SMW4A1A99	3/24/99	None
MW7A	SMW7A1A99	3/24/99	None
MW4B	SMW4B1A99	3/25/99	None
MW2A	SMW2A1A99	3/25/99	Dup (FD032599-01)
MW3A	SMW3A1A99	3/25/99	None
MW5A	SMW5A1A99	3/26/99	None
MW5B	SMW5B1A99	3/26/99	None
MW6A	SMW6A1A99	3/26/99	None
MW3B	SMW3B1A99	3/26/99 - Purge 3/27/99 - Sample	None
MW6B	SMW6B1A99	3/27/99	None
WES14793	SWES147931A99	3/27/99	Dup (FD032799-01) MS/MSD
WES14593	SWES145931A99	3/27/99	None
MW1A	DRY WELL		

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page NA

SIGNATURE [signature] DATE 3/27/99
WITNESS DATE

TITLE WC Crane PROJECT NO. 7769 BOOK 2448

Work continued from Page Weather: Light rain/snow mix, low 30's.

0700 KS + SN arrive at trailer. Begin to get ready for purging/sampling activities.

0708 SN calibrates PID — problems w/ calibration. Display reads Fault 2, which indicate zero gas or span gas mixed; UV Lamp dirty/scratched.

0732 KS calls U.S. Environmental for technical support. Use the same PID until new one comes tomorrow.

0852 SN departs for SWL.

0804 Arrive at SWL - well # MW201A. Begin set-up for purging/sampling.

0825 Begin purging - sample # SMW201A1A99. Refer to field notes for specific purge/sample data/information.

0915 Flow rate has been decreased from 60mL/min to 51 mL/min. At these rates, will purge for 4 hours, then sample (per FSP).

SIGNATURE Scott W. Reid DATE 3/23/99

WITNESS DATE

TITLE NSWC Crane PROJECT 7769 BOOK 2448

Work continued from Page 6 Weather: Cloudy, upper 30's.

1225 End purging. Purged for 4 hours; 3.3 gallons purged - 4.1 gallons = one casing volume. Sampled per FSP.

1230 Begin sampling - VOC's, Ammonia, Dis. Metals, chloride, sulfate, Alkalinity, Bicarbonate, Carbonate, Total Solids, Total Dissolved Solids.

1322 End sampling. Load vehicle and depart SWL for trailer.

1348 Arrive at trailer. Place samples in refrigerator and prepare for next well.

1403 Depart trailer for SWL well # WES-14-4-93.

1415 Arrive at WES-14-4-93 and setup to purge/sample.

1430 Begin purging. Refer to field notes for specific information/data concerning well WES-14-4-93.

1730 End purging. Purged 2.45 gal.

SIGNATURE Scott W. Reid DATE 3/23/99

WITNESS DATE

TITLE NSWC Crane **PROJECT NO.** 7769 **BOOK** 2448

Work continued from Page 7 Weather: Cloudy, upper 30's

1735 Begin sampling - Sample # SWES K4493LA9. VOC, Ammonia, Dis. Metals, Alkalinity, Chloride, Sulfate, Bicarbonate, Carbonate, Total Solids, Total Dis. Solids.

1821 End sampling. Load van and depart SWL for trailer.

1833 SN arrives at trailer. Unloads vehicle - places samples in the refrigerator. Dump purge H_2O per FSP.

1900 Depart for BOQ.

VOID SN 3/23/99

Work continued to Page NA

SIGNATURE Scott W. Neil DATE 3/23/99

WITNESS DATE

TITLE NSWC Crane **PROJECT NO.** 7769 **BOOK** 2448

Work continued from Page Weather: Mostly sunny, mid 30's.

0655 SN + KS arrive at Building 41 to pick-up sample coolers/bottles.

0712 SN + KS arrive at trailer. Unpack coolers and prep/load vehicles for todays sampling activities.

0747 SN + KS arrive at well MW203 and install its pump. SN sets up equipment to begin purging/sampling this well.

0815 Purging begins on well MW203. PID = 1.4 ppm; static water level = 4.02; one casing volume = 3.5 gallons. Refer to field notes for specific data/information on purging/sampling activities for this well.

0915 Flow rate has been decreased from a start of 51 mL/min to its present flow rate of 42 mL/min. Water level continues to drop.

0945 Stopped purging due to volume of one squeeze of the bladder decreased from 120 mL to ≈ 50 mL. Rate of recovery = .04 Ft/15 min.

Work continued to Page 10

SIGNATURE Scott W. Neil DATE 3/24/99

WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page 9 Weather: Sunny, low 40's

1000 Restart purging. Will purge until dry, then let well recovery, then in order to sample. Flow rate is at 20 ml/min. Rising temps. of well water due to a combination of sunshine, rising ambient temp., and time of discharge/refill cycle (170 seconds).

1230 Purging ceased due to 4 hour purge limit per FSP. Will allow well to recharge before sampling. Load equipment into van and depart SWL for lunch.

1303 Arrive at trailer for bottles and labels to purge/sample well MW4A.

1308 Depart trailer for SWL.

1320 Arrive at well MW4A. Set up to sample and purge.

1345 Begin purging: PID = 2.8 ppm; water level = 5.04 ft; total depth = 27.52 ft; one casing volume = 14.6 gallons. Refer to field notes for specific data/info on well MW4A.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 11

SIGNATURE [signature] DATE 3/24/99
WITNESS DATE

TITLE NSWC Crane PROJECT N 7769
BOOK 2448

Work continued from Page 10 Weather: Sunny, low 50's.

1400 At present flow rate, 14.6 gallons will not be purged in the 4 hour period specified in the FSP.

1700 Purging ends. Purged 5.3 gallons of the required 14.6 gallons in 4 hours (per FSP) due to low flow rate.

1730 Begin sampling - sample ID SMW4A1A99. VOC, Ammonia, Dis. Metals, Alkalinity, Chloride, Sulfate, Bicarbonate, Carbonate, Total Solids, Total Dis. Solids.

1815 End sampling. Load van and depart SWL for trailer.

1848 Arrive at trailer. Unload van and place samples in the refrigerator. Dump purge H_2O per FSP.

1900 Depart trailer for BOQ.

VOID
SWN 3/24/99

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page NA

SIGNATURE [signature] DATE 3/24/99
WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page Weather: Sunny, upper 20's.

0650 Arrive at Building 41 to check on the arrival of a cooler w/ bottles from Laucks - did not arrive. Depart for Building 3260 to check if it had been sent there - not at 3260 either

0702 Arrive at trailer to prep for today's sampling events.

0724 Depart ~~SN~~ / trailer for SWL well MW4B.

0737 Arrive at well # MW4B and begin set-up for purging / sampling activities.

0754 Tried to begin purging, but control box not functioning properly.

0814 Depart SWL for trailer to call QED for technical support.

0830 Arrive at trailer. Call QED. Tech support member (Harvey) asked several questions then determined battery life (45%) was too low. SN departs trailer to purchase 8 AA batteries.

SIGNATURE Scott W. Neal DATE 3/25/99
WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page 12

Battery packs sent by QED for replacement were wrong size - D.

0920 Arrive back at SWL well MW4B. Replace batteries, set-up to begin purging.

0945 Begin purging. Water level = 22.32 FT, total depth = 49.5 FT, one casing volume = 17.7 gallons, flow rate = 53-54 mL/min. Refer to field notes for specific data and information on sampling and purging activities for well MW4B; sample # SMW4B1A99.

1345 End purging, purged 2.7 gallons out of 17.7 gallons (one casing volume) due to the 4 hour purge limit (per FSP) coupled with a very low flow rate of 42 mL/min. Even with this low flow rate water level continued to drop ≈0.12 FT/10 min.

1350 Begin sampling - VOC's, Ammonia, Dis. Metals, Alkalinity, Carbonate, Bicarbonate, Chloride, Sulfate, Total Solids, Total Dis. Solids.

SIGNATURE Scott W. Neal DATE 3/25/99
WITNESS DATE

TITLE SWC Crane **PROJECT NO.** 7769
BOOK 2448

Work continued from Page 13 Weather: Sunny, breezy, low 40's.

1446 End sampling. Load vehicle with equipment and samples. Depart SWL for trailer.

1521 Arrive at trailer. Unload samples and place in refrigerator.

1530 Depart for Buildings 41 + 3260 to look for missing cooler from Laucks.

1557 Arrive back at trailer. Message on answering machine from Hugh Prentice (Laucks). SN calls back and Hugh indicates that one cooler was received (from TtNus) but no COC accompanied. SN asked Hugh to check the cooler for a multiple shipper label. Hugh will call back.

1612 ~~1517~~ SN unloads equipment from vehicle
(SN) and does general straitening up of trailer including unpacking sample containers from boxes.

1630 Ralph Bazinski calls for info on SWL well with 3 FT. of water. SN tells him it is MWLA.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 15

SIGNATURE Scott W. Neal DATE 3/25/99

WITNESS DATE

TITLE NSWC Crane **PROJECT** 7769
BOOK 2448

Work continued from Page 14 Weather: Cloudy, breezy, upper 30's

1647 SN departs for SWL to ask KS about yesterdays cooler shipment.

1751 Return to trailer - call ~~Laucks Testing~~ FED EX (SN)
(SN) ~~Labs~~ to ~~in~~ SN track missing cooler. ~~FED~~ EX informed SN that cooler was held in Memphis due to a missing air bill.

1811 SN calls Laucks to inform them of the situation and that the cooler will be there tomorrow. Dump purge H_2O per FSP.

1852 Depart for BOQ.

Vol 15
SWN 3/25/99

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page NA

SIGNATURE Scott W. Neal DATE 3/25/99

WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page NA

0700 SN arrives at trailer and begins loading vehicle for todays sampling activities.

0717 Tom Brent calls. Informs SN of a package from Lanck's that was sent to the wrong building - he now has it at 3260.

0728 SN departs for SWL.

0741 SN arrives at SWL well MW5A and sets-up to begin purging / sampling.

0758 Begin purging. Total Depth = ~~40.0~~ 44.0 FT; Static water Level = 20.51 FT; PID = 2.1 ppm; One casing volume = 15.3 gallons. Please refer to field notes for specific data / information pertaining to well MW5A, sample ID SMW5A1A99.

1158 End purging. Volume removed = 4.5 gallons out of 15.3 gallons for one casing. Temp. readings fluctuated with rise in daytime temps, sunshine, and sun covered by clouds / breezy conditions.

Work continued to Page 17

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. Reid DATE 3/26/99
WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page 16

1203 Begin sampling. VOCs, Ammonia, Dis. Metals, Alkalinity, Bicarb Carbonate, chloride, Sulfate, Total Solids, Total Dis. Solids.

1221 End sampling. Load van with equipment and samples.

1231 Depart SWL for trailer / lunch.

1243 Arrive at trailer. Put samples in refrigerator. Go to lunch.

1310 Arrive back at trailer and prep for this afternoon's sampling.

1324 Depart for SWL well MW4B.

1335 Arrive at well MW4B and set-up for purging / sampling.

1350 Begin purging. Total Depth = 18.7 FT; Static water Level = 6.13 FT; One Casing Volume = 8.2 gallons; PID = 5.1 ppm Refer to field notes for data on MW4B.

Work continued to Page 18

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. Reid DATE 3/26/99
WITNESS DATE

TITLE NSWC Crane PROJECT NO. 7769
BOOK 2448

Work continued from Page 17

1750 End purging. Removed 4.7 gallons in 4 hours - began sampling per FSP.

1755 Begin sampling. Sample water and purge water are yellow. Filled VOC's, Ammonia, Dis. Metals, Alkalinity, Bicarb, Carbonate, Chloride, Sulfate, Total Solids, Total Dis. Solids.

1826 End sampling. Load van with equipment and samples.

1839 Depart SWL for trailer. Dump purge water per FSP.

1851 Arrive at trailer. Unload vehicle and place samples in refrigerator.

1905 Depart trailer for BOQ.

weather: Sunny, breezy, low 30's - Mid 40's.

3/26/99

Work continued to Page NA

SIGNATURE Scott W. Neil DATE 3/26/99

WITNESS DATE

TITLE NSWC Crane PROJECT 7769
BOOK 2448

Work continued from Page NA

0700 SN & KS arrive at trailer. Prepare for today's sampling events.

0726 SN departs trailer for SWL well WES-14-7-93.

0736 Arrive at well WES-14-7-93 and begin to set-up for purging / sampling activities.

0750 Begin purging. Total Depth = 45.33 FT, Static water Level = 28.79 FT, One casing volume = 2.7 gallons. Refer to field notes for data on purging and sampling of well WES-14-7-93, sample ID SWES147931A99.

1030 End purging. Removed 3.1 gallons of water. Little to no drop in water level.

1035 Begin sampling. Sample ID SWES147931A99 will do a duplicate and MS/MSD. Duplicate ID is FD03279901. Sample containers / analyses are VOCs,

Work continued to Page 20

SIGNATURE Scott W. Neil DATE 3/27/99

WITNESS DATE

Work continued from Page 19

Ammonia, Dis. Metals, Alkalinity, Bicarbonate, Carbonate, Chloride, Sulfate, Total Solids, Total Dis. Solids.

1226 End sampling - pack vehicle and depart SWL for trailer.

1248 Arrive at trailer. Place samples in refrigerator. Go to lunch.

1339 Arrive back at trailer. Prep for SWL well WES-14-5-93.

1406 Depart trailer for SWL.

1418 Arrive at well MW1A to assist KS with peristaltic pump tubing in this well. Only 1 foot of water in this well - KS will not attempt to sample.

1433 SW departs for WES-14-5-93.

1440 SW arrives at WES-14-5-93 and begins set-up for purging / sampling.

Work continued to Page 21

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. [illegible] DATE 3/27/99
WITNESS DATE

Work continued from Page 20

Total depth = 42.78 FT, Static water level = 28.25 FT. One casing volume = 2.4 gallons, PID = 6.0 ppm.

1455 Begin purging. Flowrate started at 47 mL/min - increased to 83 mL/min after 1.5 HRS. Please refer to field notes for purging / sampling data on well WES-14-5-93, sample ID SWES145931A99.

1718 End purging. Removed 2.6 gallons before sampling.

1723 Begin sampling. Sample ID SWES145931A99. Filled for analyses: VOC's, Ammonia, Dis. Metals, Alkalinity, Bicarbonate, Carbonate, Chloride, Sulfate, Total Solids, Total Dis. Solids.

1751 End sampling. Load vehicle with equipment and samples. Dump purge per ESD.

1808 Depart SWL for trailer.

Work continued to Page 22

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. [illegible] DATE 3/27/99
WITNESS DATE

TITLE NSWC Crane

PROJECT NO. 776

BOOK 2448

Work continued from Page 21

1823 Arrive back at trailer. Unload equipment and samples from vehicle. Place samples in refrigerator.

1900 Depart for BOQ.

WEATHER: Sunny, low 30's - high ~~60~~ 50's.

Void
Sam 3/27/99

Work continued to Page NA

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. Neil

WITNESS

DATE 3/27/99

DATE

TITLE NSWC Crane

PROJECT NO. 7769

BOOK 2448

Work continued from Page NA

FIRST QUARTER 1999 QA/QC Summary

Date	TYPE	WELL ID
3/22/99	Trip Blank	NA
3/23/99	Trip Blank	NA
3/24/99	Trip Blank	NA
3/25/99	Trip Blank	NA
3/26/99	Trip Blank	NA
3/27/99	Trip Blank	NA
3/25/99	Duplicate	MW2A (SMW2A1A99) FD03259901
3/27/99	Dup. MS/MSD	WCS-14-7-93 (SWCS147931A99) FD03279901

Void
Sam 3/27/99

Work continued to Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

SIGNATURE Scott W. Neil

WITNESS

DATE 3/27/99

DATE

CTO 48

LOG BOOK # 2449

3.22 → 27.99

SW/C ROUND 1 SAMPLING

NSWC
CRANE, IN
CTO 48

2449

START: 3-22-99

END:

TABLE OF CONTENTS

SUBJECT

NOTE: PRIOR TO 3-22-99 LOG BOOK NOTES FOR CTO 48 WERE KEPT IN LOG BOOK # 2397

3-22-99 WAS THE SAMPLE START DATE

PAGE **TITLE** NSWC CRANE **PROJECT** 7769

BOOK 2449

MONDAY 3-22-99

Work continued from Page WEATHER: 27-45°F MOSTLY SUNNY

SUNDAY PM: KEITH SIMPSON ~~FLY FROM~~ AND SCOTT NEIL FLY FROM PGH TO INDIANAPOLIS AND DRIVE TO NSWC CRANE, IN.

0700 KS & SN @ TRAILER PREP FOR GW SAMPLING @ SWL

0740 KS & SN TO BLD 3260 PICK-UP BOTTLES AND SAMPLING SUPPLIES & RETURN TO TRAILER.
TO SWL FOR SITE WIDE WATER LEVELS.

1130 LUNCH
@ TRAILER LOAD TRUCKS FOR GW SAMPLING. TO SWL START SAMPLING KS COMPLETE WES 14-6-93 AND RETURN TO TRAILER, PAPER WORK AND PREP FOR 3-23-99 SAMPLING.
SN RETURNED TO TRAILER, SCOTT WORKING ON PREP FOR 3-23-99

1800 KS CALIBRATION OF BOTH YSI METERS

1855 DEPART TRAILER FOR BOQ
ON SITE: KEITH SIMPSON & SCOTT NEIL
TT NWS. WATER LEVELS/INSPECTIONS OF WELLS + SAMPLED 2 WELLS.
SEE ALSO LOG BOOK # 2448

SCIENTIFIC INDEPY PRODUCTION CHICAGO ATLANTA

Work continued to Page

SIGNATURE K S Simpson **DATE** 3-22-99

WITNESS **DATE**

TITLE NSWC CRANE **PROJECT NO.** 7769

TUESDAY 3.23.99 **BOOK** 2449

Work continued from Page

WEATHER: LT FZ RAIN 28°F

PM: RAIN ENDING ≈1200 HIGH 40°F

0645 KS & SN @ TRAILER PREP FOR GW SAMPLING

0740 SN TO SWL START GW SAMPLING KS TO BLD 3260 COPY NOTES THEN TO SWL START ON MW 1B

1300 KS & SN COMPLETE MW 1B & 201A AND RETURN TO TRAILER. STORE SAMPLES IN FRIDGE RESTOCK

1350 TRUCKS AND RETURN TO SWL FOR GW SAMPLING.

1700 KS RETURNS TO TRAILER, CHECK WITH LAUCKS LAB ON BOTTLE ORDER THEY SAY THE ORDER SHOULD BE HERE. IT'S TO LATE TO CHECK FOR BOTTLES @ BLD 41 WE WILL STOP 1ST THIN IN THE MORNING

1840 S.NEIL RETURNS TO TRAILER UN LOAD TRUCKS AND PAPER WORK

1855 DEPART TRAILER FOR BOQ

Work continued to Page 4

SIGNATURE [signature] DATE 3.23.99

WITNESS DATE

TITLE NSWC CRANE **PROJECT NO.** 7769

BOOK 2449

Work continued from Page

ROUND 1 SWL SAMPLING

WELL ID	SAMPLE DATE	QA	COMMENTS
MW 201A	3.23.99	—	4" WELL
MW 1A	—	—	DRY, NO SAMPLE
MW 1B	3.23.99	—	4" WELL
MW 203	3.24.99	—	4" WELL
MW 2A	3.25.99	DUP	4" WELL
MW 3A	3.25.99	—	4" WELL
MW 4A	3.24.99	—	4" WELL
MW 5A	3.26.99	—	4" WELL
MW 6A	3.26.99	—	4" WELL
MW 7A	3.24.99	—	4" WELL
MW 3B	3.27.99	—	4" WELL
MW 4B	3.25.99	—	4" WELL
MW 5B	3.26.99	—	4" WELL
MW 6B	3.27.99	—	4" WELL
WES 14.1.93	3.23.99	—	2" —
WES 14.2.93	3.22.99	—	2"
WES 14.3.93	—	—	DRY
WES 14.4.93	3.23.99	—	2" —
WES 14.5.93	3.27.99	—	2"
WES 14.6.93	3.22.99	—	2"
WES 14.7.93	3.27.99	DUP & MS/MSD	2"

Work continued to Page

SIGNATURE [signature] DATE 3.28.99

WITNESS DATE

TITLE NSWC CRANE
3·23·99

PROJECT NO. 77,
BOOK 2449

Work continued from Page 2

DAILY SUMMARY
ON SITE: R. SIMPSON & S. NEILTINGS
4 WELL SAMPLED @ THE SWL
SEE ALSO: LOG BOOK # 2448 &
FIELD NOTES

VOID

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE R. S. Simpson
WITNESS

DATE 3.23.99
DATE

TITLE NSWC CRANE
WEDNESDAY 3·24·99

PROJEC .O. 7769
BOOK 2449

Work continued from Page WEATHER: SUNNY 30-49°F

0650 KS @ BLD 41 MEET SCOTT N. AND LOAD 8 COOLERS OF BOTTLEWARE INTO TRUCKS

0705 TO TRAILER SORT BOTTLES CAL/CHECK EQUIPMENT

0740 SN & KS TO SWL INSTALL PUMP @ WELLS MW203 & MW4B START GW SAMPLING @ MW203 & MW7A

1235 COMPLETE SAMPLING LUNCH, RETURN TO TRAILER

1315 SN TO SWL TO START GW SAMPLING KS PACKS SAMPLES FOR FED EX SHIPMENT 2 COOLERS SHIPPED TO CALCKS.
TO BLD 3260 PICK-UP REPLACEMENT PID FROM US ENVIRONMENTAL.

1600 KS TO SWL SAMPLING MW203 SN PURGED MW203 AND IT DRIED OUT THIS MORNING.

1737 KS COMPLETES SAMPLING @ MW203 TO TRAILER, PAPER WORK, CLEAN EQ., PREP FOR 3.25.99 SAMPLING

1900 DEPART TRAILER FOR BOQ
SEE ALSO LOG BOOK # 2448

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE R. S. Simpson
WITNESS

DATE 3·24·99
DATE

TITLE NSWC CRANE **PROJECT NO.** 7769

THURSDAY 3-25-99 **BOOK** 2449

Work continued from Page WEATHER: SUNNY COOL, 28-44°F

0650 KS @ TRAILER LOAD TRUCK TO SWL
START SAMPLING @ MW 2A
SN TO BLD 4H & 3260 LOOKING FOR
THE LAST OF BOTTLE SHIPPMENT.
NO LUCK WILL CALL LAUCKS @ LUNCH
0720 SN TO SWL & GW SAMPLING
1230 KS COMPLETES SAMPLING @ MW2A
TO TRAILER. TALKED WITH RALPH B.
WE DECIDED TO ORDER A PERISTALTIC
PUMP AND TRY TO SAMPLE WELL
MW 1A. 1A DOES NOT HAVE
A BLADDER PUMP INSTALLED AND
ONLY CONTAINS 3' OF WATER.
CALL PGH WAREHOUSE AND ORDERED
PUMP.
GASSED UP TRUCK AND PICKED UP
ICE
1300 RETURNED TO SWL PURGING @ 3A
1830 COMPLETE SAMPLING RETURN TO
TRAILER.
CLEAN & CAL. EQUIPMENT
PAPER WORK
1900 KS & SN DEPART TRAILER FOR BOQ
SEE ALSO LOG BOOK 2448

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 3-25-99

WITNESS DATE

TITLE NSWC CRANE **PROJECT NO.** 7769

FRIDAY 3-26-99 **BOOK** 2449

Work continued from Page WEATHER: OVERCAST 35-47°F

0650 KS TO TRAILER, SN TO BLD 4H & 3260
CHECKING FOR MISSING COOLER WITH
EMPTY SAMPLE BOTTLES NO LUCK.
LAUCKS IS FED EX REPLACEMENT
TO ARRIVE TODAY @ 1200
KS CALL WORK HRS IN FOR KS/SN
UPDATE RALPH B. ON SURVEYOR'S
PROGRESS, CALLED FED EX FOR A
LATE PICK UP TODAY
0710 KS TO SWL SAMPLING @ MW 3B
MW 3B DRAW DOWN TO TOP OF SCREEN
END PURGE WILL ALLOW WELL TO RECHARGE
OVERNITE AND SAMPLE 3-7-99
1055 INSTALLED PUMP @ 14.5-93
RETURN TO TRAILER
CALLED LAUCKS 1 COOL SHIPPED WED.
IS MISSING. WE CALL FED EX AND
THEY ARE TRACKING IT. THE COOLER
CONTAINED 7 SETS OF VOC.
SHIPPED 2 COOLERS OF SAMPLES FED EX.
TO LAUCKS.
1335 RETURN TO SWL AND START SAMPLING
MW 6A
1845 COMPLETE SAMPLING RETURN TO TRAILER
1910 DEPART FOR BOQ - SEE ALSO LOG BOOK 2448

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 3-26-99

WITNESS DATE

TITLE NSWC CRANE

PROJECT NO. 7769

BOOK 2449

SATURDAY 3.27.99

Work continued from Page WEATHER NICE, SUNNY 30-58°F

0655 KS & SN @ TRAILER CALIBRATE EQUIPMENT LOAD TRUCKS

0720 TO SWC KS COMPLETE SAMPLING @ MW3B PURGED 3.26.99 SAMPLED 3.27.99 WELL PRODUCED VERY LITTLE WATER, RECOVERED ONLY 1.5' OVERNITE (≈ .9 GAL)

0850 TO WELL MW6B AND START PURGE

KS 1145 COMPLETE SAMPLING TO TRAILER

1345 LAUCKS CALL "LOST" COOLER WITH THE 7 SETS OF VOC'S ARRIVED AND THE TEMP. IS OK.

1420 KS & SN RETURN TO SWC @ WELL MW1A WE WERE GOING TO SAMPLE WELL USING A PERISTALTIC PUMP BUT THE WATER LEVEL DROPED SAMPLING WELL 1B WHICH IS ≈2' NORTH MAY HAVE CAUSE THE WATER LEVEL TO DROP FROM 3' TO 1.5' NO SAMPLE WAS TAKEN.

1430 SN TO WES 14S93 AND START PURGE, KS RETURN TO TRAILER DISCUSSED JOB PROGRESS WITH RALPH B. AND STARTED PACKING EQUIPMENT FOR RETURN.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 9

SIGNATURE [signature] DATE 3.27.99

WITNESS DATE

TITLE NSWC CRANE

PROJECT NO. 7769

BOOK 2449

3.27.99

Work continued from Page 8

KS TO ORR INSTALLED PUMPS @ WELL 19 & 19P2

1745 SN COMPLETE SAMPLING @ WELL 14S93 ALL WELLS COMPLETE 19 SAMPLED 2 WERE DRY TOTAL OF 21 @ SWC ALL PURGE & DECON WATER HAS BEEN DISCHARGED TO THE NSWC PERMITED SANITARY SEWER SYSTEM DAILY. ALL RENTED EQUIPMENT WILL BE PACK AND RETURNED VIA FED EX ON MONDAY 3.29.99 THE REMAINDER OF THE SHIFT WILL BE SPENT ON CTO 10 WELL INSPECTIONS LOG BOOK# 7141

1900 KS & SN DEPART TRAILER TO BWP

VOID

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE [signature] DATE 3.27.99

WITNESS DATE

APPENDIX 4

WATER LEVEL MEASUREMENT FORMS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

WATER LEVEL MEASUREMENT FORM

Project Name: NSWC Crane
Location: Crane, IN
Weather Conditions: Sunny, upper 30's

Project No.: 7769 / CTO-48
Personnel: K. Simpson / S. Neil
Measuring Device: Heron Dipper-T
Remarks: Sanitary Waste Landfill (SWL)

Well ID	Date	Time	Water Level *	Thickness of Free Product *	PID Reading ppm RP	PID Reading ppm BZ	Comments
MW1B	3/22/99	0927	28.61'	NA	2.3	0.0	
MW1A		0929	18.48 *		10.7	0.0	No pump in well. DRY
MW201		0933	3.03		0.0	0.0	
WES-14-2-93		0937	53.01		3.6	0.0	
WES-14-3-93		0941	43.98 *		0.0	0.0	No pump in well. DRY
WES 14-6-93		0948	35.99		1.5	0.0	PID not working/return to trailer for ~~repair~~ (SW) maintenance
WES-14-4-93		1015	20.89		0.3	0.0	
WES-14-1-93		1021	27.46		0.7	0.0	
WES-14-7-93		1024	28.68		1.3	0.0	
MW7A		1027	30.28		0.5	0.0	
MW6A		1036	7.45		4.8	0.0	
MW6B		1038	4.78		5.7	0.0	

* All measurements to the nearest 0.01 foot

Signature(s): Scott W. Neil

WATER LEVEL MEASUREMENT FORM

Project Name: NSWC Crane
Location: Crane, IN
Weather Conditions: Sunny, upper 30's
Project No.: 7769/CTO 48
Personnel: K. Simpson / S. Neil
Measuring Device: Heron Dipper-T
Remarks: Sanitary Waste Landfill (SWL)

Well ID	Date	Time	Water Level *	Thickness of Free Product *	PID Reading ppm RP	PID Reading ppm BZ	Comments
MW5A	3/22/99	1042	20.41'	NA	1.5	0.0	
MW5B	↓	1044	5.85	↓	5.8	0.0	
MW4A	↓	1046	5.18	↓	2.8	0.0	
MW4B	↓	1048	22.19	↓	17.0	0.0	NO pump in well.
MW203	↓	1050	4.29	↓	1.4	0.0	NO pump in well.
MW3A	↓	1052	37.68	↓	1.4	0.0	
MW3B	↓	1054	4.60	↓	1.9	0.0	
WES-14-5-93	↓	1057	28.23	↓	6.1	0.0	NO pump in well.
MW2A	↓	1059	26.38	↓	3.4	0.0	

* All measurements to the nearest 0.01 foot

Signature(s): Scott Neil

APPENDIX 5

PUMP CERTIFICATIONS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

SWL 2A
3.13.99
KES

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW1B
3.13.99
KES

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW3A
3-13-99
KES

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW3B
3.13.99
KES

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 4A
3.3.99
KES

QED
Ground Water Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager

OCT 20 1998
Date

Pump Model

Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
Ground Water Specialists

MW 4B SWL
3.24.99

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager

OCT 20 1998
Date

Pump Model

1098
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW5B
3.13.99
KES

QED
Ground Water Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

9304
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 5A
3.13.99
KES

QED
Ground Water Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

1098
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 6B
3.13.99
KES

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

T.W.C.

Quality Certification Manager

OCT 2 9 1998
Date

P1[illegible]

Pump Model

1 0 9 8 0 [illegible]
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 6A
3.13.99
KES

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

T.W.C.

Quality Certification Manager

OCT [illegible] 1998
Date

[illegible]

Pump Model

1 0 9 2 [illegible]
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 201
3.13.99
KES

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC.

Quality Certification Manager — Date: OCT 29 1998

Pump Model: P1150 — Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 7A
3.13.99
KES

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC.

Quality Certification Manager — Date: OCT 29 1998

Pump Model: P1150 — Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

MW203 PUMP CERTIFICATION

The Pump certification for the pump that was installed in monitoring well 203 was lost. The pump original slated for use in MW203 was used to replace a broken pump in Ammunition Burning Grounds monitoring well 03C08P2. After the pump, that was in-need of repair, was removed from MW 03C08P2 it was decontaminated on-site then sent to the manufacture for repair. The manufacture then repaired, decontaminated and returned the pump to the site. Tetra Tech NUS then installed the pump into MW203.

Also, MW1A and 14 3 93 were dry and no pumps were installed in these two wells.

SWC 14.1.93
3.13.99
KES

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

QED INC.

Quality Certification Manager

OCT 20 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL 14.4.93
3.13.99
KES

QED
Ground Water Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

T.W.C.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL 14-2-93
3.13.99
KES

QED
Ground Water Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

T.W.C.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL 14-6-93
3.13.99
KES

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 20 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL
WES 14-5-93
3-26-99

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: MAR 10 1999
Pump Model	Batch Serial Number: 089901

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

SWL MW 14-7-~~95~~ KS 93
3-13-99
KES

MW 14.7.93

QED
Ground Water
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	OCT 1998 Date
P1150 Pump Model	10980 Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

APPENDIX 6

EQUIPMENT CALIBRATION LOGS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : THERMO ENVIRONMENTAL

PROJECT NAME : NSWC CRANE

MANUFACTURER : MODEL 580B OVM

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
3.24.99	—	100 PPM	AS PER MANUF.	100 PPM	OK	RES	ISOBUTYLENE
3.25.99	—	"	"	"	OK	RES	
3.26.99	—	"	"	"	OK	RES	
3.27.99	—	"	"	"	OK	RES	
3.28.99							
3.29.99							

Instrument Rented From: US ENVIRONMENTAL

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PID 2020

PROJECT NAME : NSWC CRANE

MANUFACTURER : PE

PROJECT NUMBER : 7769/CTO 48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
3/22/99	0.0	ISO: 100 ppm AIR	PER MAN.	None	100 ppm	[illegible]	100 ppm STD (EXP. 1/02).
3/23/99	0.0	"	"			[illegible]	Fault 2
							RETURNED FOR
							REPAIR 3-24-99

EQUIPMENT CALIBR ON LOG

INSTRUMENT NAME/MODEL : YSI 610-D

PROJECT NAME : NSWC CRANE

MANUFACTURER : YSI SER# 217714 R

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
3.22.99		ALL: PH	AS PER MANUF.	CAL. ALL PAR.		[illegible]	PH, TURB, O_2, S. COND.
3.23.99		BUFFER, S. COND		CHECK		[illegible]	
3.24.99						[illegible]	
3.25.99						[illegible]	
3.26.99						[illegible]	
3.27.99						[illegible]	
							USED: PH BUFFER
							7.00 LOT 81113
							EX DATE 11/2000
							4.00 LOT 81021
							EX DATE 10/2000
							CONDUCTIVITY STANDARD
							718 US
							LOT # 81130
							EX DATE 11/2000
							TURBIDITY STANDARD
							100 NTU
							LOT # 98J38101K
							EX DATE 9/2000
							ZOBELL SOLUTION
							231 MV
							LOT # 99B0060
							EX DATE 2/2001

Instrument Rented From: QED

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 610-D

MANUFACTURER : YSI SER. # 217711R

PROJECT NAME : NSWC CRANE

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
3.22.99		ALL	AS PER MANUF.	CAL. ALL PAR.		RSS	PH, TURB, O_2, S. COND.
3.23.99		SEE	↓	CHECK ↓		RSS	
3.24.99		CAL. SHEET				RSS	
3.25.99		FOR METER				RSS	
3.26.99		# 217714R				RSS	
3.27.99						RSS	

Instrument Rented From: QED

APPENDIX 7

CHAIN OF CUSTODY RECORDS

DETECTION MONITORING EVENT NO. 1
MARCH 1999
SANITARY WASTE LANDFILL

CHAIN OF CUSTODY RECORD

003_1

PROJECT NO.: CTO 48 7769

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): [signature] / [signature]

STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC HCL 40 ML VIAL	DIS METALS & PB HNO3 FILTERED	AMMONIA H2SO4	SULFATE CHLORIDE TSS, TDS ALK, BICARB, CARB			REMARKS
SWL	3/22	1450		✓	SWES146931A99	6	3	1	1	1			
	↓	1545		✓	SWES142931A99	6	3	1	1	1			
	3/23	1230		✓	SMW201A1A99	6	3	1	1	1			
		1255		✓	SMW1B1A99	6	3	1	1	1			
		1620		✓	SWES141931A99	6	3	1	1	1			
		1735		✓	SWES144931A99	6	3	1	1	1			
	3/24	1225		✓	SMW7A1A99	6	3	1	1	1			
TB	3/22	1100		✓	TB 032299 01	2	2						TRIP BLANK
TB	3/23	0710		✓	TB 032399 01	2	2						TRIP BLANK
TB	3/24	0710		✓	TB 032499 01	2	2						TRIP BLANK

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	3-24-99 1600	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132712	

Order No. 70440 (0693)

00312

CHAIN OF CUSTODY RECORD

PROJECT NO.: CTO 48 7769

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): [illegible]

STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC HCL	AQ MC VIAL	DIS. METALS L PE HNO3	FILTERED AMMONIA H2SO4	SULFATE, CHLORIDE, TSS, TDS ALK, BICARB, CARB L PE			REMARKS
TB	3/24	1300		✓	TB 03249902	2	2							
TB	3/25	0715		✓	TB 03259901	2	2							
SWL	3/24	1645		✓	SMW2031A99	6	3 ~~2~~ KS	1	1	1				
	3/24	1750		✓	SMW4A1A99	6	3	1	1	1				
	3/25	1350		✓	SMW4B1A99	6	3	1	1	1				
	3/25	1130		✓	SMW2A1A99	6	3	1	1	1				
	3/25	1735		✓	SMW3A1A99	6	3	1	1	1				
	3/25	[illegible]		✓	FD 03259901	6	3	1	1	1				SMW2A1A99
	3/26	1203		✓	SMW5A1A99	6	3	1	1	1				

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[illegible]	3-26-99 ~~1600~~ KS 1600	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132620	

Order No. 7044( )

CHAIN CUSTODY RECORD

PROJECT NO.: 7769/CTO 48

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): [signature] / [signature]

STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC	Ammonia	Dissolved Metals	Alk, Bicarb, Carb, Chloride, Sulfate, TDS			REMARKS
TB	3/26	0700		✓	TB03269901	2	2 X						
SWL	3/26	1755		✓	SMWSB1A99	6	3 X	1	1	1			
SWL	3/26	1805		✓	SMW6A1A99	6	3 X	1	1	1			
TB	3/27	0718		✓	TB03279901	2	2						
SWL	3/27	1035		✓	SWES147931A99	18	9	3	3	3			DO MS/MSD
↓	3/27	0000		✓	FD03279901	6	3	1	1	1			Duplicate of SWES147931A99
	3/27	0745		✓	SMW3B1A99	6	3	1	1	1			
	3/27	1305		✓	SMW6B1A99	6	3	1	1	1			
↓	3/27	1723		✓	SWES145931A99	6	3	1	1	1			

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
[signature]	3.29.99 1830	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132723	

Order No. 70440 (0693)

ATTACHMENT 2

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

To: TETRA TECH
Project No. : CTO 48 7769
Laboratory Nos.: 9903676
SDG No. : CRA07
Date of Report: April 26, 1999

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

Client Sample Identification	Laucks Sample Identification	Testing Analytical Request
TB03269901	9903676-01	VOA
SMW5B1A99	9903676-02	VOA/DMET/INO
SMW6A1A99	9903676-03	VOA/DMET/INO
TB03279901	9903676-04	VOA
SWES147931A99	9903676-05	VOA/DMET/INO
FD03279901	9903676-06	VOA/DMET/INO
SMW3B1A99	9903676-07	VOA/DMET/INO
SMW6B1A99	9903676-08	VOA/DMET/INO
SWES145931A99	9903676-09	VOA/DMET/INO

Analytical Request Key:

VOA =	Volatile Organics (8260B)
DMET =	Dissolved Metals (6010B/6020)
INO =	Bicarbonate Alkalinity, Carbonate Alkalinity, and Total Alkalinity (310.1mod.), Chloride (9056), Ammonia (350.1), Sulfate (9056), Total Dissolved Solids (160.1), Total Solids (160.2)

Sample Receipt Comments:

Samples were received with low temperatures ranging from 0.3 -1.8 degrees C which caused one VOA bottle to be broken (SMW6A1A99 - 1 of 3 bottles). Air bubbles were observed in bottles for the following samples and are further discussed on the cooler receipt form which was FAXed to the client: FD03279901 (1 of 3 <1/4) SMW6A1A99 (1 of 3 >1/4"), SWES147931A99 (1 of 9 >1/4"), SMW3B1A99 (1 of 3 >1/4"), TB03269901 (2 of 2 =1.4"), and TB03279901 (2 of 2, 1=1/4", 1>1/4").

Revised 6-18-9

Sample Identification on Forms:

When completing forms created through the CLP software, every attempt is made to use both your sample IDs as well as the laboratory sample IDs. The forms have varied default sizes to their sample identification fields, and are not amenable to alteration or editing. When it is not possible to use your complete sample ID because of field length limitations, Laucks will usually do one of two things: 1) use as much of your ID as will fit, beginning from the RIGHT hand side of the sample ID number; or 2) select some sub-set of your sample identifier if it is clearly a discrete number. In addition, all forms will contain our sample IDs, which can be cross-referenced from the table above.

GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

Manual Integration:
One or more analytes may have been manually integrated on the data system quantitation reports. The manual integrations have been flagged, initialed and dated by the analyst. A list of the manual integration flags are detailed below.

M Manual integration due to irregular peak shape.
MS Manual integration due to split peak.
MR Manual integration due to retention time shift.
MI Manual integration of correct isomer or peak.
MT Manual integration due to peak tailing.
MB Manual integration due to irregular baseline.

All GC/MS Fractions:

The computerized printout for sample analysis may tabulate values for target analytes that are not reported on the relevant Form I. In that case, we have manually searched the mass spectral data and have eliminated the compound(s) as reportable based on this search.

Volatile Fraction:

One instrument was used in the determination of volatile organic compounds in this SDG. This instrument was fitted with the following column and trap:

Instrument	Column Name	ID, mm	Film thickness, µm	Trap
Flipper	DB-624	0.45	2.55	OI Vocarb 3000

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940 S. Harney
Seattle, WA 98108

SPECIFIC REMARKS ON ORGANIC ANALYSES:

Holding Time Compliance:

Following the Contract Laboratory Program (CLP) model, Laucks calculates holding time compliance for organic determinations based on the first injection and/or analysis of an extract or sample. Subsequent analyses (for instance, for the purpose of dilution) are not tabulated.

Volatile Organic Compounds:

The holding time is 14 days calculated from date of collection in both soil and water samples. All samples were analyzed within holding time.

Volatile Fraction:

Initial Calibration Standards:
The levels of the initial calibration standards are 1, 5,10, 25, and 50 µg/L for all analytes.

Sample Reporting Limits:
The most current version of SW 846 requires that the low level standard define the reporting limit. The laboratory's low level standard is 1 µg/L which is the approved reporting limit for the project

Sample Analysis:
Sample SMW5B1A99 was diluted by a factor of 10 prior to analysis because of an inability to purge an undiluted aliquot due to excessive foaming and ultimately the loss of sample into the sample concentrator. The diluted analysis resulted in elevated reporting limits for this sample.

Quality Control Limits:
The control limits submitted for the surrogate and spikes are default limits. Due to constraints of the laboratory's database, these control limits are used to track all recoveries. However, the surrogate and spike recoveries have been reviewed and compared to the control limits in the QAPP. All surrogate and spiking analyte recovery values have met the required control limits.

Quality Control Analyses:
MS/MSD analyses performed on sample SWES147931A99 yielded all spiking analyte recovery values and RPDs within the control limits.

Revised 6-18-

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Seattle, WA 98108

GENERAL REMARKS ON INORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON INORGANIC ANALYSES."

ICP and ICP-MS Metals:

EPA SW846 method 3015 was used for the digestion of the samples. Method 6010B was used for the determination of cadmium, calcium, chromium, copper, iron, magnesium, manganese, potassium, sodium and zinc, and method 6020 was used for the determination of lithium.

On the first timed and dated page of each ICP and ICP-MS run, the data to be reported or rejected will be tabulated for that run.

The true value of the calcium, potassium, magnesium, and sodium initial calibration verification (ICV) solution is 300,000 µg/L. This value is larger than the available field size on Form 2A. Therefore, a "true value" of 30,000 µg/L (1/10 the actual true value) has been entered and results for these elements have similarly been entered at 1/10 the actual value on Form 2A.

SPECIFIC REMARKS ON INORGANIC ANALYSES:

Holding Time Compliance:

Laucks calculates holding time compliance for inorganic determinations using the date on which reportable data were acquired.

Metals:

The holding time for metals is six months from the date of collection, excepting mercury, which is 28 days. All analyses were performed within holding time.

Miscellaneous:

The holding times tabulated below derive from the relevant EPA methods and are applicable when the sample was appropriately preserved and/or cooled. All samples submitted followed the preservation guidelines unless explicitly noted otherwise.

Analyte	Holding Time	Violations
Alkalinity	14 days	None
Chloride	28 days	None
Ammonia	28 days	None
Sulfate	7 days	None

Total Dissolved Solids	7 days	None
Total Solids	7 days	None

Metals:

The matrix spike sample percent recoveries of calcium, magnesium and sodium were outside of the established control limits of 75-125% for sample SWES147931A99. However the sample concentration exceeds the spike concentration by a factor of four or more. No further corrective action was required.

The serial dilution for calcium did not agree within 10% of the original determination after correction for dilution for sample SWES147931A99. No further corrective action was required. All relevant data have been flagged with an "E" on the applicable Forms I and IX.

Conventionals:

No comments.

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

ABBREVIATIONS

Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

U The analyte of interest was not detected to the limit of detection indicated.

SDL Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.

PQL Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.

DB Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.

AR As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

B When used in relation to organics fractions, the "B" flag indicates the analyte of was detected in the method blank associated with the sample, as well as in the sample itself. The "B" flag is applied without regard to the relative Concentrations detected in the blank and sample. When used in relation to inorganics fractions, the "B" flag indicates that the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

J The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

T The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.

E The flagged value was reported from an analysis which exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.

D The value reported derives from analysis of a diluted sample or sample extract.

P When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the lower value.

C The flagged analyte has been confirmed by GC/MS Analysis. The value reported may be derived from either the initial of confirmatory (GC/MS) analysis. See specific report comments for details.

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Seattle, WA 98108

CRQL Client Requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.

INORGANIC ANALYSES:

B The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" shall be entered.

E The reported value is estimated because of the presence of interference. An explanatory note shall be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific Form I-IN (if it is an isolated problem).

M Duplicate injection precision not met.

N Spiked sample recovery not within control limits.

S The reported value was determined by the Method of Standard Additions (MSA)

W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50 % of spike absorbance.

* Duplicate analysis not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W" or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

CRDL Client Requested Detection Limit, usually the limit of detection specified at your request. Might also be referred to as Contract required Detection Limit.

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

RELEASE OF DATA

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,

Hugh Prentice	Mike Nelson
Project Manager	Technical Director
27 April 99	27 April 99
(DATE)	(DATE)

HOW TO CONTACT US:

All Laucks Testing Laboratories staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

	Primary Contact	Alternate
Technical	Mike Nelson	
Administrative/billing	Hugh Prentice	
Package	Tom Marino	Rebecca V. James

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Laucks will accommodate your request at a fee of twenty five cents ($0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

ATTACHMENT A

Chain-of-Custody Copies

CHAIN OF CUSTODY RECORD

9903610

00313

11

PROJECT NO.:	SITE NAME:
7769/CTO 48	NSWC CRANE

SAMPLERS (SIGNATURE): [signature] / [signature]

	STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC	Ammonia	Dissolved Metals	Alk, Bicarb, Carb, Chloride, Sulfate, TDS			REMARKS
1)	TB	3/26	0700		✓	TB03269901	2	2 X						
2)	SWL	3/26	1755		✓	SMW5B1A99	6	3 X	1	1	1			
3)	SWL	3/26	1805		✓	SMW6A1A99	6	3 X	1	1	1			
4)	TB	3/27	0718		✓	TB03279901	2	2						
5)	SWL	3/27	1035		✓	SWES147931A99	18	9	3	3	3			DO MS/MSD
6)	↓	3/27	0000		✓	FD03279901	6	3	1	1	1			
7)	↓	3/27	0745		✓	SMW3B1A99	6	3	1	1	1			
8)	↓	3/27	1305		✓	SMW6B1A99	6	3	1	1	1			
9)	↓	3/27	1723		✓	SWES145931A99	6	3	1	1	1			

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
[signature]	3-29-99 1830	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# 807470132723	
		[signature]	3/30/99 0830		

Order No. 70440 (0693)

FORMS SUMMARY

SDG# CRA07

Metals

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: ASMW5B

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix (soil/water): WATER Lab Sample ID: 03676-02

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	58400.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	2930.			P
7439-92-1	Lead				
7439-95-4	Magnesium	13400.			P
7439-96-5	Manganese	491.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	44300.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	25.			P
7439-93-2	Lithium	48.			M

Color Before: YELLOW Clarity Before: CLEAR Texture: ___

Color After: YELLOW Clarity After: CLEAR Artifacts: _

nments:

CLIENT ID: SMW5B1A99

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: BSMW6A

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Matrix (soil/water): WATER Lab Sample ID: 03676-03_

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	12100.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	4940.			P
7439-96-5	Manganese	195.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	15700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	24.8			P
7439-93-2	Lithium	11.1	U		M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SMW6A1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: CSWES1

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix (soil/water): WATER Lab Sample ID: 03676-05

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	80300.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	42700.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	27800.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	21.3			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SWES147931A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: DFD032

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix (soil/water): WATER Lab Sample ID: 03676-06

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	82200.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	43800.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	28700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	21.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: FD03279901

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

ESMW3B

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix (soil/water): WATER Lab Sample ID: 03676-07

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	131000.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	59900.			P
7439-96-5	Manganese	113.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1320.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	74400.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	90.1			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

mments:

CLIENT ID: SMW3B1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: FSMW6B

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix (soil/water): WATER Lab Sample ID: 03676-08

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	55700.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	2700.			P
7439-92-1	Lead				
7439-95-4	Magnesium	21700.			P
7439-96-5	Manganese	618.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1420.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	18700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	11.1	U		M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SMW6B1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: GSWES1

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Matrix (soil/water): WATER Lab Sample ID: 03676-09_

Level (low/med): LOW Date Received: 03/30/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	21800.		E	P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	12800.			P
7439-92-1	Lead				
7439-95-4	Magnesium	16800.			P
7439-96-5	Manganese	3750.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	4710.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	22700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	440.			P
7439-93-2	Lithium	94.2			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

mments:

CLIENT ID: SWES145931A99

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: LAUCKS TESTING LABS, INC. Contract: _____

ab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

itial Calibration Source: EPA-LV/SPEX

ontinuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
luminum									
ntimony									
rsenic									
arium									
eryllium									
admium	300.0	284.10	94.7	250.0	245.50	98.2	248.70	99.5	P
alcium	30000.0	29978.20	99.9	25000.0	25267.40	101.1	25531.00	102.1	P
hromium	600.0	600.30	100.0	500.0	499.60	99.9	504.30	100.9	P
obalt									
opper	1500.0	1542.20	102.8	1250.0	1259.20	100.7	1264.90	101.2	P
ron	6000.0	5806.80	96.8	5000.0	5053.40	101.1	5095.70	101.9	P
ead									
agnesium	30000.0	31995.80	106.7	25000.0	25378.40	101.5	25467.10	101.9	P
anganese	900.0	876.80	97.4	750.0	750.70	100.1	755.50	100.7	P
ercury									
ickel									
otassium	30000.0	32169.70	107.2	25000.0	25358.40	101.4	25379.50	101.5	P
elenium									
ilver									
odium	30000.0	32237.90	107.5	25000.0	25496.00	102.0	25608.20	102.4	P
hallium									
anadium									
inc	1200.0	1195.10	99.6	1000.0	1000.70	100.1	1002.30	100.2	P
ithium	100.0	102.30	102.3	100.0	103.20	103.2	100.30	100.3	M

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

at ne: LAUCKS TESTING LABS, INC. Contract: _____

ab Code: LAUCKS Case No.: __ SAS No.: ___ SDG No.: CRA07_

ıitial Calibration Source: EPA-LV/SPEX

ntinuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
luminum									
ntimony									
rsenic									
arium									
llium									
mium				250.0	247.50	99.0	255.00	102.0	P
alcium				25000.0	25298.40	101.2	26048.20	104.2	P
hromium				500.0	501.10	100.2	512.20	102.4	P
obalt									
opper				1250.0	1263.20	101.1	1267.70	101.4	P
ron				5000.0	5057.70	101.2	5149.50	103.0	P
e									
agnesium				25000.0	25390.80	101.6	25623.60	102.5	P
anganese				750.0	752.80	100.4	767.30	102.3	P
ercury									
ickel									
otassium				25000.0	25311.40	101.2	25399.80	101.6	P
elenium									
ilver									
odium				25000.0	25616.60	102.5	25545.50	102.2	P
hallium									
anadium									
				1000.0	1003.10	100.3	1021.00	102.1	P
n				100.0	101.50	101.5	102.00	102.0	M

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

.ab Name: LAUCKS TESTING LABS, INC. Contract: _____

.ab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

nitial Calibration Source: EPA-LV/SPEX

ontinuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium				250.0	255.40	102.2			P
Calcium				25000.0	26115.30	104.5			P
Chromium				500.0	512.90	102.6			P
Cobalt									
Copper				1250.0	1268.20	101.5			P
Iron				5000.0	5155.10	103.1			P
Lead									
Magnesium				25000.0	25732.70	102.9			P
Manganese				750.0	766.80	102.2			P
Mercury									
Nickel									
Potassium				25000.0	25403.40	101.6			P
Selenium									
Silver									
Sodium				25000.0	25638.50	102.6			P
Thallium									
Vanadium									
Zinc				1000.0	1028.20	102.8			P
ithium				100.0	100.80	100.8			M

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2B

CRDL STANDARD FOR AA AND ICP

ab ne: LAUCKS TESTING LABS, INC. Contract: _____

ab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

A CRDL Standard Source: IV_____

CP CRDL Standard Source: SPEX____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	Initial True	Found	%R	Final Found	%R
luminum								
ntimony								
rsenic								
arium								
eryllium								
admium				10.0	7.90	79.0	8.70	87.0
alcium					10.40		5.10	
hromium				20.0	19.70	98.5	18.30	91.5
obalt								
opper				50.0	48.90	97.8	47.70	95.4
on					-0.30		1.60	
ead								
agnesium					4.50		-6.90	
anganese				30.0	28.40	94.7	28.60	95.3
ercury								
ickel								
otassium					-23.00		81.20	
elenium								
ilver								
odium					12.50		20.60	
hallium								
anadium								
inc				40.0	39.60	99.0	39.60	99.0
ithium				200.0	200.80	100.4	199.70	99.8

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BLANKS

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.600	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Chromium	50.0	U	50.0	U	50.0	U	50.0	U	55.600	U	P
Cobalt											
Copper	25.0	U	25.0	U	25.0	U	25.0	U	27.800	U	P
Iron	100.0	U	100.0	U	100.0	U	100.0	U	111.100	U	P
Lead											
Magnesium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Manganese	15.0	U	15.0	U	15.0	U	15.0	U	16.700	U	P
Mercury											
Nickel											
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Selenium											
Silver											
Sodium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Thallium											
Vanadium											
Zinc	20.0	U	20.0	U	20.0	U	20.0	U	22.200	U	P
Lithium	10.0	U	10.0	U	10.0	U	10.0	U	11.100	U	M

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3

BLANKS

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium			5.0	U	5.0	U					P
Calcium			1000.0	U	1000.0	U					P
Chromium			50.0	U	50.0	U					P
Cobalt											
Copper			25.0	U	25.0	U					P
Iron			100.0	U	100.0	U					P
Lead											
Magnesium			1000.0	U	1000.0	U					P
Manganese			15.0	U	15.0	U					P
Mercury											
Nickel											
Potassium			1000.0	U	1000.0	U					P
Selenium											
Silver											
Sodium			1000.0	U	1000.0	U					P
Thallium											
Vanadium											
Zinc			20.0	U	20.0	U					P
Lithium			10.0	U	10.0	U					M

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

ICP ID Number: ENVIRO36 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium		1000	-1	893.0	89.3	-1	917.4	91.7
Calcium	500000	500000	505981	510640.6	102.1	520870	525266.8	105.1
Chromium		500	2	454.6	90.9	-1	462.7	92.5
Cobalt								
Copper		500	1	508.7	101.7	1	506.3	101.3
Iron	200000	200000	189652	190252.6	95.1	192560	193286.3	96.6
Lead								
Magnesium	500000	500000	542835	544902.5	109.0	549046	549188.5	109.8
Manganese		500	-5	463.9	92.8	-4	473.0	94.6
Mercury								
Nickel								
Potassium			147	138.9		104	55.2	
Selenium								
Silver								
Sodium			80	67.0		79	75.2	
Thallium								
Vanadium								
Zinc		1000	-5	944.2	94.4	-4	965.9	96.6
Lithium								

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4

ICP INTERFERENCE CHECK SAMPLE

b Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

ICP ID Number: ELAN5000 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
anganese								
ercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Molybdenum								
thium			0	0.0		0	0.1	

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5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

CSWES1S

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix: WATER Level: LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium	75-125	17.8889		5.5556	U	22.22	80.5		P
Calcium		84506.4440		80349.8880		2222.22	187.0		P
Chromium	75-125	205.3333		55.5556	U	222.22	92.4		P
Cobalt									NR
Copper	75-125	205.6667		27.7778	U	222.22	92.6		P
Iron	75-125	1998.7778		111.1111	U	2222.22	89.9		P
Lead									NR
Magnesium		46555.5550		42660.8880		2222.22	175.3		P
Manganese	75-125	199.8889		16.6667	U	222.22	90.0		P
Mercury									NR
Nickel									NR
Potassium	75-125	3283.6667		1087.4444		2222.22	98.8		P
Selenium									NR
Silver									NR
Sodium		31361.1110		27776.5550		2222.22	161.3		P
Thallium									NR
Vanadium									NR
Zinc	75-125	391.6667		22.2222	U	444.44	88.1		P
Lithium	75-125	629.3333		21.3333		555.55	109.4		P

Comments:

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5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

CSWES1A

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Matrix: WATER Level: LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Lithium		245.30		19.20		250.0	90.4		M

Comments:

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DUPLICATES

EPA SAMPLE NO.

CSWES1D

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Matrix: WATER Level: LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight: UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium	5.6	5.5556	U	5.5556	U			P
Calcium		80349.8880		82114.3330		2.2		P
Chromium	55.6	55.5556	U	55.5556	U			P
Cobalt								
Copper	27.8	27.7778	U	27.7778	U			P
Iron		111.1111	U	111.1111	U			P
Lead								
Magnesium		42660.8880		44596.4440		4.4		P
Manganese	16.7	16.6667	U	16.6667	U			P
Mercury								
Nickel								
Potassium		1111.1111	U	1111.1111	U			P
Selenium								
Silver								
Sodium		27776.5550		29645.8880		6.5		P
Thallium								
Vanadium								
Zinc		22.2222	U	22.2222	U			P
Lithium	11.1	21.3333		21.1111		1.0		M

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LABORATORY CONTROL SAMPLE

b Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Solid LCS Source: IV

Aqueous LCS Source: IV

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	22.2	17.67	79.6						
Calcium	2222.2	2166.56	97.5						
Chromium	222.2	199.44	89.8						
Cobalt									
Copper	222.2	201.67	90.8						
Iron	2222.2	1989.44	89.5						
Lead									
Magnesium	2222.2	2177.00	98.0						
anganese	222.2	197.89	89.1						
Mercury									
Nickel									
Potassium	2222.2	2205.56	99.3						
Selenium									
Silver									
Sodium	2222.2	2265.44	101.9						
Thallium									
Vanadium									
Zinc	444.4	379.22	85.3						
Lithium	555.6	615.56	110.8						

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ICP SERIAL DILUTIONS

EPA SAMPLE NO.

CSWES1L

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ . SAS No.: ___ SDG No.: CRA07_

Matrix (soil/water) : WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Differ-ence	Q	M
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium	5.00	U	25.00	U			P
Calcium	72314.90		83795.50		15.9	E	P
Chromium	50.00	U	250.00	U			P
Cobalt							
Copper	25.00	U	125.00	U			P
Iron	100.00	U	500.00	U			P
Lead							
Magnesium	38394.80		44394.50		15.6		P
Manganese	15.00	U	75.00	U			P
Mercury							
Nickel							
Potassium	1000.00	U	5000.00	U			P
Selenium							
Silver							
Sodium	24998.90		28467.50		13.9		P
Thallium							
Vanadium							
Zinc	20.00	U	100.00	U			P
Lithium	19.20		50.00	U	100.0		M

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PREPARATION LOG

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Method: P_

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASMW5B	04/02/99	45	50
BSMW6A	04/02/99	45	50
CSWES1	04/02/99	45	50
CSWES1D	04/02/99	45	50
CSWES1S	04/02/99	45	50
DFD032	04/02/99	45	50
ESMW3B	04/02/99	45	50
FSMW6B	04/02/99	45	50
GSWES1	04/02/99	45	50
LCSW1	04/02/99	45	50
PBW1	04/02/99	45	50

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PREPARATION LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Method: M

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASMW5B	04/02/99	45	50
BSMW6A	04/02/99	45	50
CSWES1	04/02/99	45	50
CSWES1D	04/02/99	45	50
CSWES1S	04/02/99	45	50
DFD032	04/02/99	45	50
ESMW3B	04/02/99	45	50
FSMW6B	04/02/99	45	50
GSWES1	04/02/99	45	50
LCSW1	04/02/99	45	50
PBW1	04/02/99	45	50

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Instrument ID Number: ENVIRO36 Method: P_

Start Date: 04/05/99 End Date: 04/05/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
S0	1.00	1118							X	X	X		X	X		X	X			X			X			X	
S	1.00	1121							X	X	X		X	X		X	X			X			X			X	
ICV1	1.00	1124							X	X	X		X	X		X	X			X			X			X	
ICB1	1.00	1127							X	X	X		X	X		X	X			X			X			X	
CCV1	1.00	1130							X	X	X		X	X		X	X			X			X			X	
CCB1	1.00	1133							X	X	X		X	X		X	X			X			X			X	
CRI1	1.00	1137							X	X	X		X	X		X	X			X			X			X	
ICSAI1	1.00	1140							X	X	X		X	X		X	X			X			X			X	
ICSABI1	1.00	1143							X	X	X		X	X		X	X			X			X			X	
CCV2	1.00	1146							X	X	X		X	X		X	X			X			X			X	
CCB2	1.00	1149							X	X	X		X	X		X	X			X			X			X	
PBW1	1.00	1152							X	X	X		X	X		X	X			X			X			X	
CSW1	1.00	1155							X	X	X		X	X		X	X			X			X			X	
ASMW5B	1.00	1201							X	X	X		X	X		X	X			X			X			X	
BSMW6A	1.00	1204							X	X	X		X	X		X	X			X			X			X	
CSWES1	1.00	1207							X	X	X		X	X		X	X			X			X			X	
CSWES1D	1.00	1210							X	X	X		X	X		X	X			X			X			X	
CSWES1S	1.00	1213							X	X	X		X	X		X	X			X			X			X	
CSWES1L	5.00	1216							X	X	X		X	X		X	X			X			X			X	
DFD032	1.00	1219							X	X	X		X	X		X	X			X			X			X	
ESMW3B	1.00	1222							X	X	X		X	X		X	X			X			X			X	
CCV3	1.00	1226							X	X	X		X	X		X	X			X			X			X	
CCB3	1.00	1229							X	X	X		X	X		X	X			X			X			X	
FSMW6B	1.00	1232							X	X	X		X	X		X	X			X			X			X	
GSWES1	1.00	1235							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1238																									
ZZZZZZ	1.00	1241																									
ZZZZZZ	1.00	1244																									
ZZZZZZ	1.00	1247																									
ZZZZZZ	1.00	1251																									
ZZZZZZ	1.00	1254																									
ZZZZZZ	1.00	1257																									

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Instrument ID Number: ENVIRO36 Method: P

Start Date: 04/05/99 End Date: 04/05/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
ZZZZZZ	1.00	1300																									
CCV4	1.00	1303							X	X	X		X	X		X	X			X			X			X	
CCB4	1.00	1306							X	X	X		X	X		X	X			X			X			X	
CRIF1	1.00	1309							X	X	X		X	X		X	X			X			X			X	
ICSAF1	1.00	1313							X	X	X		X	X		X	X			X			X			X	
ICSABF1	1.00	1316							X	X	X		X	X		X	X			X			X			X	
CCV5	1.00	1319							X	X	X		X	X		X	X			X			X			X	
CCB5	1.00	1322							X	X	X		X	X		X	X			X			X			X	

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

Instrument ID Number: ELAN5000 Method: M

Start Date: 04/08/99 End Date: 04/08/99

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
S0	1.00	1035																									X
S1	1.00	1038																									X
S2	1.00	1040																									X
S3	1.00	1043																									X
ICV1	1.00	1045																									X
ICB1	1.00	1048																									X
CCV1	1.00	1050																									X
CCB1	1.00	1053																									X
CRII1	1.00	1055																									X
ICSAI2	1.00	1058																									X
ICSABI2	1.00	1100																									X
CCV2	1.00	1103																									X
CB2	1.00	1105																									X
PBW1	1.00	1111																									X
LCSW1	2.00	1113																									X
CSWES1	1.00	1116																									X
CSWES1D	1.00	1118																									X
CSWES1S	2.00	1121																									X
CSWES1A	1.00	1123																									X
CSWES1L	5.00	1126																									X
CCV3	1.00	1128																									X
CCB3	1.00	1131																									X
ASMW5B	1.00	1134																									X
BSMW6A	1.00	1136																									X
DFD032	1.00	1139																									X
ESMW3B	1.00	1141																									X
FSMW6B	1.00	1144																									X
GSWES1	1.00	1146																									X
CCV4	1.00	1149																									X
CCB4	1.00	1151																									X
CRIF1	1.00	1154																									X
ICSAF2	1.00	1156																									X

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

Instrument ID Number: ELAN5000 Method: M

Start Date: 04/08/99 End Date: 04/08/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
ICSABF2	1.00	1159																									X
CCV5	1.00	1202																									X
CCB5	1.00	1204																									X

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Instrument Detection Limits (Quarterly)

ɔ Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

ICP ID Number: Enviro36__ Date: 02/16/99

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20				
Antimony	206.80				
Arsenic	193.60				
Barium	493.40				
Beryllium	313.00				
Cadmium	226.50		5	5.0	P
Calcium	315.80		1000	1000.0	P
Chromium	267.70		50	50.0	P
Cobalt	228.60				
Copper	324.70		25	25.0	P
Iron	259.90		100	100.0	P
Lead	220.30				
Magnesium	279.00		1000	1000.0	P
Manganese	257.60		15	15.0	P
Mercury					
Nickel	231.60				
Potassium	766.40		1000	1000.0	P
Selenium	196.00				
Silver	328.00				
Sodium	588.90		1000	1000.0	P
Thallium	190.80				
Vanadium	292.40				
Zinc	213.80		20	20.0	P
Lithium			10		

Comments:

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Instrument Detection Limits (Quarterly)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07

ICP ID Number: ELAN5000 Date: 03/26/99

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Mass (amu)	Background	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium			5		
Calcium			1000		
Chromium			50		
Cobalt					
Copper			25		
Iron			100		
Lead					
Magnesium			1000		
Manganese			15		
Mercury					
Nickel					
Potassium			1000		
Selenium					
Silver					
Sodium			1000		
Thallium					
Vanadium					
Zinc			20		
Lithium	7.00		10	10.0	M

Comments:

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11A

ICP Interelement Correction Factors (Annually)

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

ICP ID Number: Enviro36 Date: 01/12/99

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	V
Aluminum	308.22		0.0000000	0.0000000	0.0000000	0.0174880
Antimony	206.84	0.0000000	0.0000000	0.0001650	0.0000000	-0.0047170
Arsenic	193.70	0.0035990	0.0000000	0.0002510	0.0000000	0.0110960
Barium	493.41	0.0000000	0.0000000	0.0000130	0.0000000	0.0000020
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0007800
Cadmium	226.50	-0.0000710	0.0000000	-0.0000990	0.0000000	0.0000000
Calcium	315.89	0.0000000		0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	-0.0000650	0.0001550	0.0000000	0.0010770
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	-0.0001100	0.0000000	0.0000000
Iron	259.94	0.0001890	0.0000000		0.0000000	0.0000000
Lead	220.35	0.0007920	0.0000000	0.0000020	0.0000000	-0.0000280
Magnesium	279.08	0.0000000	0.0000000	0.0000000		0.0000000
Manganese	257.61	0.0000100	0.0000000	0.0000400	0.0000000	-0.0001070
Mercury	253.65	0.0000000	0.0000000	0.0088400	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	-0.0001070	0.0000000	-0.0000170
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	-0.0011840
Selenium	196.03	0.0000000	0.0000000	0.0003830	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000190	0.0000000	-0.0033250
Sodium	589.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.86	-0.0000900	0.0000000	0.0013400	0.0000780	0.0042240
Vanadium	292.40	-0.0000020	0.0000000	-0.0000100	0.0000000	
Zinc	213.86	0.0000500	0.0000000	0.0000350	0.0000000	0.0001530

Comments:

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ICP Interelement Correction Factors (Annually)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

ICP ID Number: ENVIRO36 Date: 01/12/99

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Cu	Cr	Mn	Ni	Zn
Aluminum	308.22	0.0003010	0.0000000	0.0005210	0.0000000	0.0000000
Antimony	206.84	-0.0000150	0.0074260	0.0000000	-0.0022810	-0.0002520
Arsenic	193.70	0.0000000	0.0011540	0.0002970	0.0006380	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000070	0.0000190	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	-0.0000040	0.0000000	-0.0064580	0.0000000
Calcium	315.89	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000		0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75		0.0000000	-0.0001490	0.0000000	0.0000000
Iron	259.94	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0003290	0.0000000
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0000000		0.0000000	0.0000340
Mercury	253.65	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000170		0.0001370
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0001670	0.0000000	0.0000000
Sodium	559.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.86	-0.0001400	0.0008210	-0.0067500	0.0022330	0.0000000
Vanadium	292.40	0.0000000	-0.0035460	-0.0001360	0.0000000	0.0000000
Zinc	213.86	0.0021280	0.0001100	0.0000000	0.0034510	

Comments:

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ICP Linear Ranges (Quarterly)

ab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA07_

ICP ID Number: Enviro36__ Date: 03/23/99

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	3.00	600000.0	P
Antimony	3.00	200000.0	P
Arsenic	3.00	300000.0	P
Barium	3.00	100000.0	P
Beryllium	3.00	10000.0	P
Cadmium	3.00	100000.0	P
Calcium	3.00	600000.0	P
Chromium	3.00	200000.0	P
Cobalt	3.00	200000.0	P
Copper	3.00	200000.0	P
Iron	3.00	600000.0	P
Lead	3.00	200000.0	P
Magnesium	3.00	600000.0	P
Manganese	3.00	100000.0	P
Mercury	3.00	10000.0	P
Nickel	3.00	200000.0	P
Potassium	3.00	1000000.0	P
Selenium	3.00	200000.0	P
Silver	3.00	200000.0	P
Sodium	3.00	600000.0	P
Thallium	3.00	10000.0	P
Vanadium	3.00	200000.0	P
Zinc	3.00	200000.0	P

Comments:

CTO 048
SDG CRA07

FORMS SUMMARY

Volatiles

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA07

	SAMPLE NO.	SMC1 #	SMC2 #	SMC3 DFM #	SMC4 #	TOT OUT
01	VBLKF2	94	82	96	94	0
02	VBLKSPKWF2	92	84	97	94	0
03	SMW5B1A99	95	85	97	95	0
04	TB03269901	100	81	100	96	0
05	TB03279901	98	81	101	97	0
06	SMW6A1A99	100	82	100	93	0
07	FD03279901	99	81	98	96	0
08	SMW3B1A99	100	82	101	93	0
09	SMW6B1A99	97	84	95	96	0
10	SWES145931A99	101	81	103	93	0
11	SWES147931A99	98	82	99	92	0
12	SWES147931A99MS	99	82	98	92	0
13	SWES147931A99MSD	101	84	99	92	0

				QC LIMITS
SMC1		=	1,2-Dichloroethane-d4	(60-140)
SMC2		=	Toluene-d8	(60-140)
SMC3	DFM	=	Dibromofluoromethane	(60-140)
SMC4		=	4-Bromofluorobenzene	(60-140)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

Blank Spike Report

Lab Name : LAUCKS TESTING LABS

Description : SW 8260
Lab ID : S040199MVOWF1
Matrix : W
Units : UG/L

(Database Reference: S040199_MVOW01)

Analyte	Spike Added	Amount Found	% Rec	Recovery Limits	
1,1-Dichloroethene----------	10.00	9.7900	98	70	130
Trichloroethene----------	10.00	10.020	100	70	130
Benzene----------	10.00	10.750	108	70	130
Toluene----------	10.00	9.5100	95	70	130
Chlorobenzene----------	10.00	9.6400	96	70	130

* = Recovery exceeded control limit

Form BLKSPK-1

Blank Spike Report

Lab Sample ID: S040199MVOWF1
Description : SW 8260
Matrix : W
Units : UG/L

(Database Reference: S040199_MVOW01)

Work Orders Verified

Work Order	Sample Fractions Verified
9903633	8,9
9903676	1-9

Form BLKSPK-2

MS/MSD Report

Lab Name : LAUCKS TESTING LABS

Client ID : SWES147931A99

Lab ID : 9903676-05
Matrix : WATER
Units : UG/L

Description : Bechtel VOA 10/92 Compounds

(Database Reference: K033099_MVOW02)

Matrix Spike Data

Analyte	Spike Added	Sample Found	MS Found	MS Rec	Recovery Limits
Chloromethane----------	10.000	0	11.030	110	60 140
Vinyl chloride----------	10.000	0	9.9900	100	60 140
Bromomethane----------	10.000	0	9.5500	96	60 140
Chloroethane----------	10.000	0	8.4700	85	60 140
1,1-Dichloroethene----------	10.000	0	8.6100	86	60 140
Methylene chloride----------	10.000	0	8.5000	85	60 140
trans-1,2-Dichloroethene------	10.000	0	9.6000	96	60 140
1,1-Dichloroethane----------	10.000	0	9.2800	93	60 140
cis-1,2-Dichloroethene--------	10.000	0	9.6600	97	60 140
Chloroform----------	10.000	0	9.2900	93	60 140
1,1,1-Trichloroethane---------	10.000	0	8.5000	85	60 140
Carbon tetrachloride----------	10.000	0	8.8300	88	60 140
Benzene----------	10.000	0	9.5400	95	60 140
1,2-Dichloroethane----------	10.000	0	9.3300	93	60 140
Trichloroethene----------	10.000	0	9.1400	91	60 140
1,2-Dichloropropane----------	10.000	0	10.290	103	60 140
cis-1,3-Dichlropropene--------	10.000	0	10.800	108	60 140
Toluene----------	10.000	0	8.5000	85	60 140
trans-1,3-Dichlropropene------	10.000	0	10.450	104	60 140
1,1,2-Trichloroethane---------	10.000	0	9.7800	98	60 140
Tetrachloroethene----------	10.000	0	8.1200	81	60 140
Chlorobenzene----------	10.000	0	9.2300	92	60 140
Ethylbenzene----------	10.000	0	8.7300	87	60 140
Styrene----------	10.000	0	9.6100	96	60 140
1,1,2,2-Tetrachloroethane-----	10.000	0	10.240	102	60 140
1,4-Dichlorobenzene----------	10.000	0	9.8000	98	60 140
1,2-Dichlorobenzene----------	10.000	0	9.7900	98	60 140
Total xylenes----------	30.000	0	27.300	91	60 140

Matrix Spike Duplicate Data

Analyte	Spike Added	MSD Found	MSD Rec	RPD	Control Limits Recov	Control Limits RPD
Chloromethane----------	10.000	10.950	110	1	60 140	30
Vinyl chloride----------	10.000	10.020	100	0	60 140	30
Bromomethane----------	10.000	9.7600	98	2	60 140	30
Chloroethane----------	10.000	9.0800	91	7	60 140	30
1,1-Dichloroethene----------	10.000	8.9300	89	4	60 140	30
Methylene chloride----------	10.000	8.5600	86	1	60 140	30
trans-1,2-Dichloroethene------	10.000	9.8400	98	2	60 140	30

1,1-Dichloroethane----------	10.000	9.5200	95	3	60	140	30
cis-1,2-Dichloroethene--------	10.000	9.8500	98	2	60	140	30
Chloroform----------	10.000	9.3100	93	0	60	140	30
1,1,1-Trichloroethane---------	10.000	8.8400	88	4	60	140	30
Carbon tetrachloride----------	10.000	9.2500	92	5	60	140	30
Benzene----------	10.000	9.6300	96	1	60	140	30
1,2-Dichloroethane----------	10.000	9.5600	96	2	60	140	30
Trichloroethene----------	10.000	9.5100	95	4	60	140	30
1,2-Dichloropropane----------	10.000	10.540	105	2	60	140	30
cis-1,3-Dichlropropene--------	10.000	10.920	109	1	60	140	30
Toluene----------	10.000	9.0800	91	7	60	140	30
trans-1,3-Dichlropropene------	10.000	11.020	110	5	60	140	30
1,1,2-Trichloroethane---------	10.000	10.640	106	8	60	140	30
Tetrachloroethene----------	10.000	8.8900	89	9	60	140	30
Chlorobenzene----------	10.000	9.8200	98	6	60	140	30
Ethylbenzene----------	10.000	9.1900	92	5	60	140	30
Styrene----------	10.000	10.320	103	7	60	140	30
1,1,2,2-Tetrachloroethane-----	10.000	10.460	105	2	60	140	30
1,4-Dichlorobenzene----------	10.000	9.8400	98	0	60	140	30
1,2-Dichlorobenzene----------	10.000	10.120	101	3	60	140	30
Total xylenes----------	30.000	29.170	97	7	60	140	30

Comments

Form MS/MSD-1

* = Recovery or RPD exceeded control limit

Form MS/MSD-1

MS/MSD Report

Client ID : SWES147931A99
Spike Sample: 9903676-05
Description : Bechtel VOA 10/92 Compounds
Matrix : WATER
Units : UG/L

(Database Reference: K033099_MVOW02)

Work Orders Verified

Work Order	Sample Fractions Verified
9903676	1-9

Form MS/MSD-2

4A
VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLKF2

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Lab File ID: F0401007.D

Lab Sample ID: B040199MVOWF1

Date Analyzed: 04/01/99

Time Analyzed: 08:53

GC Column: DB-624 ID: 0.45 (mm)

Heated Purge: (Y/N) N

Instrument ID: Flipper

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKSPKWF2	S040199MVOWF1	F0401008.D	09:23
02	SMW5B1A99	9903676-02	F0401009.D	09:54
03	TB03269901	9903676-01	F0401012.D	11:29
04	TB03279901	9903676-04	F0401013.D	12:01
05	SMW6A1A99	9903676-03	F0401014.D	12:34
06	FD03279901	9903676-06	F0401015.D	13:06
07	SMW3B1A99	9903676-07	F0401016.D	13:39
08	SMW6B1A99	9903676-08	F0401017.D	14:11
09	SWES145931A99	9903676-09	F0401018.D	14:44
10	SWES147931A99	9903676-05	F0401019.D	15:16
11	SWES147931A99MS	9903676-05MS	F0401020.D	15:49
12	SWES147931A99MSD	9903676-05MSD	F0401021.D	16:21

COMMENTS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Lab SAS No.: SDG No.: CRA07

Lab File ID: F0209006.D BFB Injection Date: 02/09/99

Instrument ID: Flipper BFB Injection Time: 09:33

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.8
75	30.0 - 66.0% of mass 95	44.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	69.2
175	4.0 - 9.0% of mass 174	4.7 (6.8)1
176	93.0 - 101.0% of mass 174	67.1 (97.0)1
177	5.0 - 9.0% of mass 176	5.0 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	1 UG/L STD	F0209007.D	02/09/99	10:11
02	VSTD005	5 UG/L STD	F0209008.D	02/09/99	10:44
03	VSTD010	10 UG/L STD	F0209009.D	02/09/99	11:17
04	VSTD025	25 UG/L STD	F0209010.D	02/09/99	11:49
05	VSTD050	50 UG/L STD	F0209011.D	02/09/99	12:22

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Lab SAS No.: _____ SDG No.: CRA07

Lab File ID: F0401004.D BFB Injection Date: 04/01/99

Instrument ID: Flipper BFB Injection Time: 07:11

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.0
75	30.0 - 66.0% of mass 95	49.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	72.1
175	4.0 - 9.0% of mass 174	5.3 (7.4)1
176	93.0 - 101.0% of mass 174	70.4 (97.7)1
177	5.0 - 9.0% of mass 176	5.1 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	10 UG/L STD	F0401005.D	04/01/99	07:42
02	VBLKF2	B040199MVOWF1	F0401007.D	04/01/99	08:53
03	VBLKSPKWF2	S040199MVOWF1	F0401008.D	04/01/99	09:23
04	SMW5B1A99	9903676-02	F0401009.D	04/01/99	09:54
05	TB03269901	9903676-01	F0401012.D	04/01/99	11:29
06	TB03279901	9903676-04	F0401013.D	04/01/99	12:01
07	SMW6A1A99	9903676-03	F0401014.D	04/01/99	12:34
08	FD03279901	9903676-06	F0401015.D	04/01/99	13:06
09	SMW3B1A99	9903676-07	F0401016.D	04/01/99	13:39
10	SMW6B1A99	9903676-08	F0401017.D	04/01/99	14:11
11	SWES145931A99	9903676-09	F0401018.D	04/01/99	14:44
12	SWES147931A99	9903676-05	F0401019.D	04/01/99	15:16
13	SWES147931A99MS	9903676-05MS	F0401020.D	04/01/99	15:49
14	SWES147931A99MSD	9903676-05MSD	F0401021.D	04/01/99	16:21

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA07

Lab File ID (Standard): F0401005.D Date Analyzed: 04/01/99

Instrument ID: Flipper Time Analyzed: 07:42

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	198942	9.32	143808	14.03	82670	17.72
UPPER LIMIT	397884	9.82	287616	14.53	165340	18.22
LOWER LIMIT	99471	8.82	71904	13.53	41335	17.22
SAMPLE NO.						
01 VBLKF2	201821	9.34	145448	14.03	79151	17.70
02 VBLKSPKWF2	201143	9.30	148004	14.01	79066	17.72
03 SMW5B1A99	200516	9.34	143387	14.03	79947	17.70
04 TB03269901	196947	9.31	151724	14.01	81028	17.72
05 TB03279901	200845	9.32	153356	14.00	81221	17.72
06 SMW6A1A99	198995	9.32	151315	14.00	83461	17.70
07 FD03279901	200771	9.32	151287	14.01	81848	17.70
08 SMW3B1A99	197863	9.32	148586	14.03	82758	17.70
09 SMW6B1A99	204491	9.32	146484	14.04	82266	17.72
10 SWES145931A99	199253	9.31	153665	14.03	84916	17.73
11 SWES147931A99	205722	9.31	150298	14.03	85078	17.73
12 SWES147931A99MS	207920	9.30	154517	14.01	84360	17.73
13 SWES147931A99MSD	210532	9.31	150404	14.02	84974	17.72

IS1 = Fluorobenzene
IS2 = Chlorobenzene-d5
IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03269901

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-01

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401012.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW5B1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-02

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401009.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-09-2	Methylene chloride	10	U
156-60-5	trans-1,2-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
108-90-7	Chlorobenzene	10	U
630-20-6	1,1,1,2-Tetrachloroethane	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-47-6	Xylene (total)	10	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW6A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-03

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401014.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

TB03279901

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-04

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401013.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

FORM I VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SWES147931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-05

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401019.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

FD03279901

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-06

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401015.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW3B1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-07

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401016.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW6B1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-08

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401017.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SWES145931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-09

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401018.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

FORM I VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA07

Instrument ID: Flipper Calibration Date(s): 02/09/99 02/09/99

Heated Purge (Y/N): N Calibration Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

LAB FILE ID: RRF1 = F0209007.D RRF5 = F0209008.D

RRF10 = F0209009.D RRF25 = F0209010.D RRF50 = F0209011.D

COMPOUND	RRF1	RRF5	RRF10	RRF25	RRF50	$\overline{RRF}$	% RSD
Chloromethane	0.132	0.145	0.146	0.138	0.145	0.141	4.2
Vinyl chloride	0.170	0.204	0.206	0.185	0.195	0.192	7.6
Bromomethane	0.247	0.278	0.282	0.270	0.269	0.269	5.0
Chloroethane	0.125	0.135	0.132	0.120	0.120	0.126	5.2
Trichlorofluoromethane	0.590	0.770	0.834	0.772	0.806	0.754	12.6
1,1-Dichloroethene	0.246	0.272	0.294	0.277	0.280	0.274	6.5
Methylene chloride	0.368	0.247	0.230	0.219	0.213	0.255	25.2
trans-1,2-Dichloroethene	0.283	0.305	0.314	0.305	0.308	0.303	3.9
1,1-Dichloroethane	0.419	0.501	0.520	0.524	0.511	0.495	8.8
cis-1,2-Dichloroethene	0.250	0.291	0.286	0.284	0.279	0.278	5.9
Chloroform	0.550	0.647	0.662	0.685	0.666	0.642	8.3
1,1,1-Trichloroethane	0.551	0.654	0.688	0.703	0.695	0.658	9.5
Carbon tetrachloride	0.436	0.544	0.589	0.606	0.593	0.554	12.6
1,2-Dichloroethane-d4	0.231	0.245	0.241	0.228	0.224	0.234	3.8
Benzene	0.569	0.723	0.700	0.685	0.698	0.675	9.0
1,2-Dichloroethane	0.220	0.234	0.238	0.240	0.232	0.233	3.3
Trichloroethene	0.362	0.400	0.431	0.414	0.401	0.402	6.3
1,2-Dichloropropane	0.202	0.227	0.228	0.220	0.216	0.219	4.7
cis-1,3-Dichloropropene	0.255	0.274	0.289	0.298	0.292	0.281	6.2
Toluene-d8	1.341	1.409	1.381	1.419	1.371	1.384	2.3
Toluene	0.628	0.736	0.729	0.726	0.723	0.709	6.4
trans-1,3-Dichloropropene	0.221	0.277	0.288	0.306	0.300	0.278	12.2
1,1,2-Trichloroethane	0.143	0.170	0.168	0.173	0.159	0.163	7.6
Tetrachloroethene	0.563	0.697	0.730	0.743	0.687	0.684	10.5
Dibromofluoromethane	0.613	0.644	0.630	0.628	0.629	0.629	1.8
Chlorobenzene	0.665	0.818	0.890	0.905	0.844	0.824	11.6
1,1,1,2-Tetrachloroethane	0.364	0.403	0.405	0.411	0.399	0.396	4.7
Ethylbenzene	1.261	1.542	1.534	1.524	1.522	1.476	8.2
m,p-Xylene	0.416	0.527	0.543	0.531	0.527	0.509	10.3
o-Xylene	0.369	0.460	0.472	0.475	0.476	0.450	10.3
Styrene	0.573	0.705	0.712	0.737	0.724	0.690	9.6
4-Bromofluorobenzene	1.421	1.445	1.472	1.438	1.460	1.447	1.4
1,1,2,2-Tetrachloroethane	0.363	0.380	0.373	0.369	0.359	0.369	2.2
1,4-Dichlorobenzene	1.049	1.235	1.324	1.323	1.315	1.249	9.4
1,2-Dichlorobenzene	0.770	0.974	1.031	0.977	0.934	0.937	10.6

FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA07

Instrument ID: Flipper Calibration Date(s): 02/09/99 02/09/99

Heated Purge (Y/N): N Calibration Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

LAB FILE ID: RRF1 = F0209007.D RRF5 = F0209008.D

RRF10 = F0209009.D RRF25 = F0209010.D RRF50 = F0209011.D

COMPOUND	RRF1	RRF5	RRF10	RRF25	RRF50	$\overline{RRF}$	% RSD	
Average % RSD								7.6

FORM VI VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA07

Instrument ID: Flipper Calibration Date: 04/01/99 Time: 07:42

Lab File ID: F0401005.D Init. Calib. Date(s): 02/09/99 02/09/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

COMPOUND	RRF	RRF10	MIN RRF	% D	MAX % D
Chloromethane	0.141	0.149	0.100	-5.4	
Vinyl chloride	0.192	0.177		7.5	20
Bromomethane	0.269	0.248		8.0	
Chloroethane	0.126	0.115		8.8	
Trichlorofluoromethane	0.754	0.687		9.0	
1,1-Dichloroethene	0.274	0.229		16.2	20
Methylene chloride	0.255	0.224		12.4	
trans-1,2-Dichloroethene	0.303	0.291		4.1	
1,1-Dichloroethane	0.495	0.467	0.100	5.5	
cis-1,2-Dichloroethene	0.278	0.277		0.4	
Chloroform	0.642	0.619		3.6	20
1,1,1-Trichloroethane	0.658	0.588		10.7	
Carbon tetrachloride	0.554	0.533		3.8	
1,2-Dichloroethane-d4	0.234	0.236		-0.9	
Benzene	0.675	0.710		-5.1	
1,2-Dichloroethane	0.233	0.212		9.0	
Trichloroethene	0.402	0.369		8.1	
1,2-Dichloropropane	0.219	0.221		-1.0	20
cis-1,3-Dichloropropene	0.281	0.302		-7.1	
Toluene-d8	1.384	1.175		15.1	
Toluene	0.709	0.693		2.2	20
trans-1,3-Dichloropropene	0.278	0.282		-1.3	
1,1,2-Trichloroethane	0.163	0.163		-0.5	
Tetrachloroethene	0.684	0.611		10.7	
Dibromofluoromethane	0.629	0.639		-1.6	
Chlorobenzene	0.824	0.803	0.300	2.6	
1,1,1,2-Tetrachloroethane	0.396	0.407		-2.6	
Ethylbenzene	1.476	1.449		1.8	20
m,p-Xylene	0.509	0.507		0.5	
o-Xylene	0.450	0.448		0.5	
Styrene	0.690	0.736		-6.7	
4-Bromofluorobenzene	1.447	1.321		8.7	
1,1,2,2-Tetrachloroethane	0.369	0.364	0.300	1.3	
1,4-Dichlorobenzene	1.249	1.193		4.5	
1,2-Dichlorobenzene	0.937	0.891		4.9	

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKF2

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: B040199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401007.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLKSPKWF2

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: S040199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401008.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	9.8	
75-09-2	Methylene chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	9.5	
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	9.6	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SWES147931A99MS

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-05MS

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401020.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	11	
75-01-4	Vinyl chloride	10	
74-83-9	Bromomethane	9.6	
75-00-3	Chloroethane	8.5	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	8.6	
75-09-2	Methylene chloride	8.5	
156-60-5	trans-1,2-Dichloroethene	9.6	
75-34-3	1,1-Dichloroethane	9.3	
156-59-2	cis-1,2-Dichloroethene	9.7	
67-66-3	Chloroform	9.3	
71-55-6	1,1,1-Trichloroethane	8.5	
56-23-5	Carbon tetrachloride	8.8	
71-43-2	Benzene	9.5	
107-06-2	1,2-Dichloroethane	9.3	
79-01-6	Trichloroethene	9.1	
78-87-5	1,2-Dichloropropane	10	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	8.5	
10061-02-6	trans-1,3-Dichloropropene	10	
79-00-5	1,1,2-Trichloroethane	9.8	
127-18-4	Tetrachloroethene	8.1	
108-90-7	Chlorobenzene	9.2	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	8.7	
100-42-5	Styrene	9.6	
79-34-5	1,1,2,2-Tetrachloroethane	10	
106-46-7	1,4-Dichlorobenzene	9.8	
95-50-1	1,2-Dichlorobenzene	9.8	
95-47-6	Xylene (total)	27	

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SWES147931A99MSD

Lab Name: Laucks Testing Lab

SDG No.: CRA07

Matrix: (soil/water) WATER

Lab Sample ID: 9903676-05MSD

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401021.D

Level: (low/med) LOW

Date Received: 03/30/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	11	
75-01-4	Vinyl chloride	10	
74-83-9	Bromomethane	9.8	
75-00-3	Chloroethane	9.1	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	8.9	
75-09-2	Methylene chloride	8.6	
156-60-5	trans-1,2-Dichloroethene	9.8	
75-34-3	1,1-Dichloroethane	9.5	
156-59-2	cis-1,2-Dichloroethene	9.8	
67-66-3	Chloroform	9.3	
71-55-6	1,1,1-Trichloroethane	8.8	
56-23-5	Carbon tetrachloride	9.2	
71-43-2	Benzene	9.6	
107-06-2	1,2-Dichloroethane	9.6	
79-01-6	Trichloroethene	9.5	
78-87-5	1,2-Dichloropropane	11	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	9.1	
10061-02-6	trans-1,3-Dichloropropene	11	
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	8.9	
108-90-7	Chlorobenzene	9.8	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	9.2	
100-42-5	Styrene	10	
79-34-5	1,1,2,2-Tetrachloroethane	10	
106-46-7	1,4-Dichlorobenzene	9.8	
95-50-1	1,2-Dichlorobenzene	10	
95-47-6	Xylene (total)	29	

CTO 048
SDG CRA07

FORMS SUMMARY

SDG CRA07

Miscellaneous Inorganics

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SMW5B1A99
Lab Sample ID: 9903676-02
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	160.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	160.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	9.		mg/L		04/22/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.39		mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	120.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	400.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	420.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SMW6A1A99
Lab Sample ID: 9903676-03
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	23.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	23.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	46.		mg/L		04/22/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	1.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	160.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	160.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SWES147931A99
Lab Sample ID: 9903676-05
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	330.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	330.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	33.		mg/L		04/22/99	1.	EPA 9056 1
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	50.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	470.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	490.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : FD03279901
Lab Sample ID: 9903676-06
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	330.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	330.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	33.		mg/L		04/22/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	50.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	460.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	480.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SMW3B1A99
Lab Sample ID: 9903676-07
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	420.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	420.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	20.		mg/L		04/22/99	1.	EPA 9056 1
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/21/99	04/21/99	0.01	EPA 350.1
Sulfate (SO4) EPA 9056	300.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	870.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids.	920.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SMW6B1A99
Lab Sample ID: 9903676-08
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	190.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	190.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	25.		mg/L		04/22/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.06		mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	53.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	310.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	330.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA07
Matrix : WATER

Sample ID : SWES145931A99
Lab Sample ID: 9903676-09
Date Received: 03/30/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	2.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	2.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	21.		mg/L		04/22/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.17		mg/L	04/21/99	04/21/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	180.		mg/L		04/22/99	1.	EPA 9056
Total Dissolved Solids	350.		mg/L	04/02/99	04/07/99	2.	EPA 160.1
Total Solids	380.		mg/L	04/02/99	04/07/99	2.	EPA 160.3

FORM 2-A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No: CRA07 Concentration Units: MG/L

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	TRUE	FOUND	%R
Cl	30.0	27.7	92	5.0	5.03	101	5.0	5.23	105
SO4	150.	159.	106	10.	10.09	101	10.	10.10	101
NH3 as N	12.0	12.22	102	0.500	0.492	98	0.500	0.494	99

FORM 3-A

BLANKS

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No.CRA07 Preparation Blank Concentration Units: MG/L

ANALYTE	INITIAL CALIB. (MG/L)		CONTINUING CALIBRATION (MG/L)						PREPARATION BLANK	
	Value	C		C		C		C	Value	C
Cl	1.	U	1.	U	1.	U				
SO4	1.	U	1.	U	1.	U				
NH3 as N	0.010	U	0.01	U	0.01	U				

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B040199_ALK_W02 Preparation Date : 04/01/99

Analyte	Reported	Units	Limit
ALK	2.0	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B040299_TDS_W01 Preparation Date : 04/02/99

Analyte	Reported		Units	Limit
TDS	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B040299_TS_W02 Preparation Date : 04/02/99

Analyte	Reported		Units	Limit
TS	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B042199_NH3_W01 Preparation Date : 04/21/99

Analyte	Reported	Units	Limit
NH3_SPEC	0.010 U	mg/L	0.020

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B042299_IAI_W01 Preparation Date : 04/22/99

Analyte	Reported		Units	Limit
F_IC	0.20	U	mg/L	0.40
CL_IC	1.0	U	mg/L	2.0
NO3_IC	0.20	U	mg/L	0.40
SO4_IC	1.0	U	mg/L	2.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B040199_ALK_W02 Preparation Date : 04/01/99

Analyte	Reported	Units	Limit
ALK	2.0	mg/L	4.0

Form BLANK-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M042199_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 04/21/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Ammonia as N (EPA 350.1)	0	0.5000	0.396	79	53	120

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M042299_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/22/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Chloride (EPA 300.0)	33.00	10.00	43.35	104	73	121
Sulfate (EPA 300.0)	50.19	20.00	68.81	93	81	115

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M042199_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 04/21/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Ammonia as N (EPA 350.1)	0	0	0 L	0.050

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M042299_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/22/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Chloride (EPA 300.0)	33.00	31.34	5.16 P	11
Sulfate (EPA 300.0)	50.19	47.76	4.96 P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D040199_ALKW03

Spike Frac : ALKALINITY
Description: Alkalinity
QC Fraction: ALK
Date Prep'd: 04/01/99
Matrix : WATER
Sequence No: 03

Spk Sample: 9903676-05
Client ID : SWES147931A99
Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Alkalinity	330	324	1.8	P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D040299_TDSW01

Spike Frac : TDS
Description: Total Dissolved Solids, 160.1
QC Fraction: TDS
Date Prep'd: 04/02/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Total Dissolved Solids	468	473	1.1	P-	30

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D040299_TSW02

Spike Frac : TS
Description: Total Solids
QC Fraction: TS
Date Prep'd: 04/02/99 Spk Sample: 9903676-05
Matrix : WATER Client ID : SWES147931A99
Sequence No: 02 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Total Solids	490	489	0.20 P	30

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: Alk by tit. on APG 22469-22470
Rep. Units : MG/L

(Database reference: R040199_ALKW02)

Analyte Name	Result	True Value	LCL	UCL
Alkalinity	43.0	38.9	34.5	43.3

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: TDS on APG MIN 22469-22470
Rep. Units : MG/L

(Database reference: R040299_RESW01)

Analyte Name	Result	True Value	LCL	UCL
Total Dissolved Solids	343	353	292	413

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: Ammonia as N in H2O, APG 20495
Rep. Units : MG/L

(Database reference: R042199_NH3W01)

Analyte Name	Result	True Value	LCL	UCL
Ammonia	12.2	12.0	9.94	14.1

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: F,CL,NO3,SO4,PO4 by IC,#981028
Rep. Units : MG/L

(Database reference: R042299_IAIW01)

Analyte Name	Result	True Value	LCL	UCL
Fluoride	18.3	20.1	18.1	22.1
Chloride	27.7	30.0	27.0	33.0
Nitrate	22.2	22.8	20.5	25.1
Sulfate	159	150	135	165

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

To: TETRA TECH
Project No. : CTO 48 7769
Laboratory Nos.: 9903633, 9903645
SDG No. : CRA06
Date of Report: April 26, 1999

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

Client Sample Identification	Laucks Sample Identification	Testing Analytical Request
SWES146931A99	9903633-01	VOA/DMET/INO
SWES142931A99	9903633-02	VOA/DMET/INO
SMW201A1A99	9903633-03	VOA/DMET/INO
SMW1B1A99	9903633-04	VOA/DMET/INO
SWES141931A99	9903633-05	VOA/DMET/INO
SWES144931A99	9903633-06	VOA/DMET/INO
SMW7A1A99	9903633-07	VOA/DMET/INO
TB03229901	9903633-08	VOA
TB03239901	9903633-09	VOA
TB03249901	9903633-10	VOA
TB03249902	9903645-01	VOA
TB03259901	9903645-02	VOA
SMW2031A99	9903645-03	VOA/DMET/INO
SMW4A1A99	9903645-04	VOA/DMET/INO
SMW4B1A99	9903645-05	VOA/DMET/INO
SMW2A1A99	9903645-06	VOA/DMET/INO
SMW3A1A99	9903645-07	VOA/DMET/INO
FD03259901	9903645-08	VOA/DMET/INO
SMW5A1A99	9903645-09	VOA/DMET/INO

Analytical Request Key:

VOA =	Volatile Organics (8260B)
DMET =	Dissolved Metals (6010B/6020)
INO =	Bicarbonate Alkalinity, Carbonate Alkalinity, and Total Alkalinity (310.1mod.), Chloride (9056), Ammonia (350.1), Sulfate (9056), Total Dissolved Solids (160.1), Total Solids (160.2)

Revised 6-18-99

LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

Manual Integration:
One or more analytes may have been manually integrated on the data system quantitation reports. The manual integrations have been flagged, initialed and dated by the analyst. A list of the manual integration flags are detailed below.

M Manual integration due to irregular peak shape.
MS Manual integration due to split peak.
MR Manual integration due to retention time shift.
MI Manual integration of correct isomer or peak.
MT Manual integration due to peak tailing.
MB Manual integration due to irregular baseline.

All GC/MS Fractions:

The computerized printout for sample analysis may tabulate values for target analytes that are not reported on the relevant Form I. In that case, we have manually searched the mass spectral data and have eliminated the compound(s) as reportable based on this search.

Volatile Fraction:

One instrument was used in the determination of volatile organic compounds in this SDG. This instrument was fitted with the following column and trap:

Instrument	Column Name	ID, mm	Film thickness, µm	Trap
Flipper	DB-624	0.45	2.55	OI Vocarb 3000

SPECIFIC REMARKS ON ORGANIC ANALYSES:

Holding Time Compliance:

Following the Contract Laboratory Program (CLP) model, Laucks calculates holding time compliance for organic determinations based on the first injection and/or analysis of an extract or sample. Subsequent analyses (for instance, for the purpose of dilution) are not tabulated.

Volatile Organic Compounds:

The holding time is 14 days calculated from date of collection in both soil and water samples. All samples were analyzed within holding time.

Volatile Fraction:

Quality Control Limits:
The control limits submitted for the surrogate and spikes are default limits. Due to constraints of the laboratory's database, these control limits are used to track all recoveries. However, the surrogate and spike recoveries have been reviewed and compared to the control limits in the QAPP. All surrogate and spiking analyte recovery values have met the required control limits.

Initial Calibration Standards:
The levels of the initial calibration standards are 1, 5,10, 25, and 50 µg/L for all analytes.

Sample Reporting Limits:
The most current version of SW 846 requires that the low level standard define the reporting limit. The laboratory's low level standard is 1 µg/L which is the approved reporting limit.

Matrix Spike/Matrix Spike Duplicate Analyses:
Due to insufficient sample volume provided MS/MSD analyses were not performed. Instead BS/BSD analyses were performed using deionized water. All spiking analyte recovery values were within the control limits.

GENERAL REMARKS ON INORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON INORGANIC ANALYSES."

ICP and ICP-MS Metals:

EPA SW846 method 3015 was used for the digestion of the samples. Method 6010B was used for the determination of cadmium, calcium, chromium, copper, iron, magnesium, manganese, potassium,sodium and zinc, and method 6020 was used for the determination of lithium.

On the first timed and dated page of each ICP and ICP-MS run, the data to be reported or rejected will be tabulated for that run.

The true value of the calcium, potassium, magnesium, and sodium initial calibration verification (ICV) solution is 300,000 µg/L. This value is larger than the available field size on Form 2A. Therefore, a "true value" of 30,000 µg/L (1/10 the actual true value) has been entered and results for these elements have similarly been entered at 1/10 the actual value on Form 2A.

Revised 6-18-99

has been entered and results for these elements have similarly been entered at 1/10 the actual value on Form 2A.

SPECIFIC REMARKS ON INORGANIC ANALYSES:

Holding Time Compliance:

Laucks calculates holding time compliance for inorganic determinations using the date on which reportable data were acquired.

Metals:

The holding time for metals is six months from the date of collection, excepting mercury, which is 28 days. All analyses were performed within holding time.

Miscellaneous:

The holding times tabulated below derive from the relevant EPA methods and are applicable when the sample was appropriately preserved and/or cooled. All samples submitted followed the preservation guidelines unless explicitly noted otherwise.

Analyte	Holding Time	Violations
Alkalinity	14 days	None
Chloride	28 days	None
Ammonia	28 days	None
Sulfate	7 days	None
Total Dissolved Solids	7 days	None
Total Solids	7 days	None

Metals:

The matrix spike sample percent recoveries of calcium, magnesium, manganese and sodium were outside of the established control limits of 75-125% for sample SWES146931A99. However the sample concentration exceeds the spike concentration by a factor of four or more. No further corrective action was required.

Conventionals:

On the IC run of 4/12/99, the data system flagged the SRM for chloride as being out of control. The value does in fact round down to 110%, which is in control..

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Seattle, WA 98108

Sample Receipt Comments:

One of two coolers for the first work order arrived on March 25, 1999 without a COC or an airbill. The second cooler with the COC's and airbill arrived on Saturday March 27, 1999 within proper temperature along with the shipment for the second work order. The Fed-Ex letter accompanying the lost cooler was in the lost cooler and has been provided with the COC documentation. Air bubles <1/4" were observed in bottles for the following samples and are further discussed on the cooler receipt form which was faxed to the client: SWES142931A99 (3 of 3), SWES141931A99 (3 of 3 with 1>1/4"), SMW7A1A99 (1 of 3), TB03229901 (2 of 2), and TB03239901 (2 of 2). Sample SMW1B1A99 had 1 of 3 bottle with bubbles >1/4". Some samples were received with low temperatures, but no samples were received frozen or broken due to freezing.

Sample Storage Comments:

On Monday, March 29, 1999 at 7:05 am, the Laucks GCMS Volatiles analyst observed that the GC/MS Volatiles refrigerator and the GC extract refrigerator were malfunctioning. The temperature had climbed to 16 °C. It was determined that the outlet thtat these refrigerators were plugged into was not working. The refrigerators were immediately plugged into a new outlet, and began cooling back down. The refrigerators reached the appropriate temperature range before 12:00 noon that same day. An electrician was called in and repairs were made. There was a 5 hour period of time Monday morning when the refrigerator temperatures were not at 4 °C ± 2 °C. There is no way to determine how long the refrigerator temperature had exceeded 4 degrees C. It is our opinion that they were probably not malfunctioning longer than overnight. Laucks believes that this short amount of time should not adversely affect the samples and that it is very possible that the samples themselves maintained the proper temperature during the time the refrigerators' wall outlet was malfunctioning.

All samples in this SDG were affected. However, since the samples were stored in vials with zero headspace, and these vials were not opened (the autosampler withdraws an aliquot prior to purging) the potential for loss of volatiles is minimal.

Sample Identification on Forms:

When completing forms created through the CLP software, every attempt is made to use both your sample IDs as well as the laboratory sample IDs. The forms have varied default sizes to their sample identification fields, and are not amenable to alteration or editing. When it is not possible to use your complete sample ID because of field length limitations, Laucks will usually do one of two things: 1) use as much of your ID as will fit, beginning from the RIGHT hand side of the sample ID number; or 2) select some sub-set of your sample identifier if it is clearly a discrete number. In addition, all forms will contain our sample IDs, which can be cross-referenced from the table above.

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ABBREVIATIONS

Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

U The analyte of interest was not detected to the limit of detection indicated.

SDL Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.

PQL Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.

DB Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.

AR As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

B When used in relation to organics fractions, the "B" flag indicates the analyte of was detected in the method blank associated with the sample, as well as in the sample itself. The "B" flag is applied without regard to the relative Concentrations detected in the blank and sample. When used in relation to inorganics fractions, the "B" flag indicates that the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).

J The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

T The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.

E The flagged value was reported from an analysis which exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.

D The value reported derives from analysis of a diluted sample or sample extract.

P When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the lower value.

C The flagged analyte has been confirmed by GC/MS Analysis. The value reported may be derived from either the initial of confirmatory (GC/MS) analysis. See specific report comments for details.

CRQL Client Requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.

INORGANIC ANALYSES:

B The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" shall be entered.

E The reported value is estimated because of the presence of interference. An explanatory note shall be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific Form I-IN (if it is an isolated problem).

M Duplicate injection precision not met.

N Spiked sample recovery not within control limits.

S The reported value was determined by the Method of Standard Additions (MSA)

W Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50 % of spike absorbance.

* Duplicate analysis not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

Entering "S", "W" or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

CRDL Client Requested Detection Limit, usually the limit of detection specified at your request. Might also be referred to as Contract required Detection Limit.

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RELEASE OF DATA

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,

Hugh Prentice
Project Manager

27 April 99
(DATE)

Mike Nelson
Technical Director

27 April 99
(DATE)

HOW TO CONTACT US:

All Laucks Testing Laboratories staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

	Primary Contact	Alternate
Technical	Mike Nelson	
Administrative/billing	Hugh Prentice	
Package	Tom Marino	Rebecca V. James

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Laucks will accommodate your request at a fee of twenty five cents ($0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.

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Seattle, WA 98108

ATTACHMENT A

Chain-of-Custody Copies

CHAIN OF CUSTODY RECORD

9903633

003

PROJECT NO.: CTO 48 7769

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson / [illegible]

	STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC, HCL 40 ML VIAL	DIS METALS FILTERED L PE HNO3	AMMONIA H2SO4	SULFATE, CHLORIDE, TSS, TDS, ALK, BICARB, CARB 500 ML PE			REMARKS
1)	SWL	3/22	1450		✓	SWES146931A99	6	3	1	1	1			
2)		↓	1545		✓	SWES142931A99	6	3	1	1	1			
3)		3/23	1230		✓	SMW201A1A99	6	3	1	1	1			
4)			1255		✓	SMW1B1A99	6	3	1	1	1			
5)			1620		✓	SWES141931A99	6	3	1	1	1			
6)		↓	1735		✓	SWES144931A99	6	3	1	1	1			
7)	↓	3/24	1225		✓	SMW7A1A99	6	3	1	1	1			
8)	TB	3/22	1100		✓	TB 032299 01	2	2						TRIP BLANK
9)	TB	3/23	0710		✓	TB 032399 01	2	2						TRIP BLANK
10)	TB	3/24	0710		✓	TB 032499 01	2	2						TRIP BLANK

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Simpson	3-24-99 1600	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132712	
		[illegible]	3/27/99 0930		

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

9903645

00012

PROJECT NO.: CTO 48 7769

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): [signature]

	STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	DOC, HCL 40 ml VIAL	DIS. METALS L PE HNO3	AMMONIA H2SO4	SULFATE, CHLORIDE, TDS, ALK, BIGRB, CNB	L PE			REMARKS
1)	TB	3/24	1300		✓	TB 03249902	2	2							
2)	TB	3/25	0715		✓	TB 03259901	2	2							
3)	SWL	3/24	1645		✓	SMW2031A99	6	3 ~~2~~ KS	1	1	1				
4)		3/24	1750		✓	SMW4A1A99	6	3	1	1	1				
5)		3/25	1350		✓	SMW4B1A99	6	3	1	1	1				
6)		3/25	1130		✓	SMW2A1A99	6	3	1	1	1				
7)		3/25	1735		✓	SMW3A1A99	6	3	1	1	1				
8)		3/25	0000		✓	FD 03259901	6	3	1	1	1				DUP
9)		3/26	1203		✓	SMW5A1A99	6	3	1	1	1				

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	3-26-99 ~~1600~~ KS 1600	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
		[signature]			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132620	
		[signature]	3/27/99 930		

Order No. 7044(

20

FORMS SUMMARY

SDG# CRA06

Metals

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: ASWES1

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-01

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	84100.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	263.			P
7439-92-1	Lead				
7439-95-4	Magnesium	50700.			P
7439-96-5	Manganese	851.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2490.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	38400.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	71.9			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	46.7			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

nments:

CLIENT ID: SWES146931A99

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

BSWES1

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-02

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	477000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	293000.			P
7439-96-5	Manganese	3550.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	5230.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	73000.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	47.1			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	141.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: __

Comments:

CLIENT ID: SWES142931A99

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: CSMW20

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Matrix (soil/water): WATER Lab Sample ID: 03633-03_

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	54100.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	11000.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2610.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	13300.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	11.1	U		M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

mments:

CLIENT ID: SMW201A1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

DSMW1B

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-04

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	237000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	111000.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2770.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	102000.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	48.9			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: __

Comments:

CLIENT ID: SMW1B1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: ESWES1

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-05

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	155000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	79800.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	14000.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	65100.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	80.1			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SWES141931A99

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: FSWES1

Lab Name: LAUCKS TESTING LABS, INC. Contract: ____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-06

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	154000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	109000.			P
7439-96-5	Manganese	40.8			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2580.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	173000.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	37.6			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SWES144931A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: GSMW7A

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03633-07

Level (low/med): LOW Date Received: 03/25/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	55300.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	24600.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	21800.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	21.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

ıments:

CLIENT ID: SMW7A1A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

HSMW20

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Matrix (soil/water): WATER Lab Sample ID: 03645-03_

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	42500.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	168.			P
7439-92-1	Lead				
7439-95-4	Magnesium	9140.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	14700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	11.1	U		M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SMW2031A99

FORM I - IN

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: ISMW4A

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03645-04

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	18900.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	6110.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1110.	U		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	5180.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	11.1	U		M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

ments:

CLIENT ID: SMW4A1A99

FORM I - IN

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: JSMW4B

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03645-05

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	215000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	143000.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	5120.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	73600.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-98-7	Molybdenum				
7439-93-2	Lithium	98.8			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: __

Comments:

CLIENT ID: SMW4B1A99

Matrix (soil/water): WATER
Level (low/med): LOW
% Solids: 0.0

Lab Sampl
Date Rece

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentratio	C	Q	M
		.6	U		P
		0.			P
7429-90-5	Aluminum	.6	U		P
7440-36-0	Antimony				
7440-38-2	Arsenic	.8	U		P
7440-39-3	Barium	1.	U		P
7440-41-7	Beryllium				
7440-43-9	Cadmium	50.			P
7440-70-2	Calcium	611 50.			P
7440-47-3	Chromium	5			
7440-48-4	Cobalt				
7440-50-8	Copper	20.			P
7439-89-6	Iron	11			
7439-92-1	Lead				
7439-95-4	Magnesium	3466 50.			P
7439-96-5	Manganese	26			
7439-97-6	Mercury				
7440-02-0	Nickel	7.			P
7440-09-7	Potassium	29			
7782-49-2	Selenium	5.			M
7440-22-4	Silver				
7440-23-5	Sodium	525			
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	3			
7439-98-7	Molybdenum				
7439-93-2	Lithium				

Texture: ___
Artifacts: _

497

Color Before: COLORLESS Clarity Before: CLEAR
Color After: COLORLESS Clarity After: CLEAR

Comments:

CLIENT ID: SMW2A1A99

—ATA SHEET

FORM I - IN

EPA SAMPLE NO.:
KSMW2A

—No.: ___

SDG No.: CRA06

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e ID: 03645-06
ived: 03/27/99

INORGANIC ANALYSIS D

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: SAS

	C	Q	M

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

KSMW2A

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Matrix (soil/water): WATER Lab Sample ID: 03645-06_

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	61100.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	34600.			P
7439-96-5	Manganese	2600.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2920.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	52500.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	327.			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	95.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

nments:

CLIENT ID: SMW2A1A99

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: LSMW3A

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Matrix (soil/water): WATER Lab Sample ID: 03645-07_

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	72300.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	14000.			P
7439-92-1	Lead				
7439-95-4	Magnesium	36800.			P
7439-96-5	Manganese	1670.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2630.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	67700.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	41.3			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	108.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: SMW3A1A99

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: MFD032

Name: LAUCKS TESTING LABS, INC. Contract: ____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03645-08

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	58600.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	111.	U		P
7439-92-1	Lead				
7439-95-4	Magnesium	33600.			P
7439-96-5	Manganese	2500.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2810.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	51400.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	316.			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	97.1			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

mments:

CLIENT ID: FD03259901

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.:

NSMW5A

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water): WATER Lab Sample ID: 03645-09

Level (low/med): LOW Date Received: 03/27/99

% Solids: 0.0

ConcentrationUnits (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium	5.6	U		P
7440-70-2	Calcium	94000.			P
7440-47-3	Chromium	55.6	U		P
7440-48-4	Cobalt				
7440-50-8	Copper	27.8	U		P
7439-89-6	Iron	296.			P
7439-92-1	Lead				
7439-95-4	Magnesium	29200.			P
7439-96-5	Manganese	2650.			P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2370.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	45400.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	26.6			P
7439-98-7	Molybdenum				
7439-93-2	Lithium	215.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: __

Comments:

CLIENT ID: SMW5A1A99

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Initial Calibration Source: EPA-LV/SPEX

Continuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	300.0	290.40	96.8	250.0	254.40	101.8	251.50	100.6	P
Calcium	30000.0	30604.20	102.0	25000.0	25874.00	103.5	25786.00	103.1	P
Chromium	600.0	610.00	101.7	500.0	510.40	102.1	507.70	101.5	P
Cobalt									
Copper	1500.0	1533.50	102.2	1250.0	1250.60	100.0	1248.60	99.9	P
Iron	6000.0	5871.20	97.9	5000.0	5105.20	102.1	5081.50	101.6	P
Lead									
Magnesium	30000.0	32060.90	106.9	25000.0	25357.10	101.4	25224.20	100.9	P
Manganese	900.0	885.60	98.4	750.0	761.20	101.5	757.60	101.0	P
Mercury									
Nickel									
Potassium	30000.0	32021.10	106.7	25000.0	25002.60	100.0	24948.40	99.8	P
Selenium									
Silver									
Sodium	30000.0	31886.90	106.3	25000.0	25096.90	100.4	25109.80	100.4	P
Thallium									
Vanadium									
Zinc	1200.0	1208.10	100.7	1000.0	1010.70	101.1	1007.20	100.7	P
Molybdenum									
Lithium	100.0	102.70	102.7	100.0	100.10	100.1	100.80	100.8	M

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: LAUCKS TESTING LABS, INC. Contract: _____

ab Code: LAUCKS Case No.: __ SAS No.: ___ SDG No.: CRA06_

ıitial Calibration Source: EPA-LV/SPEX

:ontinuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
luminum									
ntimony									
rsenic									
arium									
eryllium									
admium				250.0	248.60	99.4	252.60	101.0	P
alcium				25000.0	25194.80	100.8	25406.90	101.6	P
hromium				500.0	505.10	101.0	509.70	101.9	P
obalt									
opper				1250.0	1246.90	99.8	1256.00	100.5	P
on				5000.0	4996.20	99.9	5029.70	100.6	P
ead									
agnesium				25000.0	25087.10	100.3	25301.50	101.2	P
anganese				750.0	745.80	99.4	752.70	100.4	P
ercury									
ickel									
otassium				25000.0	24827.80	99.3	24933.20	99.7	P
elenium									
ilver									
odium				25000.0	25181.20	100.7	25310.00	101.2	P
hallium									
anadium									
inc				1000.0	1000.80	100.1	1015.50	101.6	P
olybdenum									
ithium				100.0	107.90	107.9	106.90	106.9	M

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

La ame: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: __ SAS No.: ___ SDG No.: CRA06_

Initial Calibration Source: EPA-LV/SPEX

Continuing Calibration Source: SPEX/VWR

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium				250.0	246.80	98.7			P
Calcium				25000.0	25035.60	100.1			P
Chromium				500.0	505.90	101.2			P
Cobalt									
Copper				1250.0	1267.60	101.4			P
Iron				5000.0	4995.30	99.9			P
L									
Magnesium				25000.0	25206.10	100.8			P
Manganese				750.0	744.80	99.3			P
Mercury									
Nickel									
Potassium				25000.0	24973.00	99.9			P
Selenium									
Silver									
Sodium				25000.0	25622.40	102.5			P
Thallium									
Vanadium									
Zinc				1000.0	1006.10	100.6			P
Molybdenum									
Lithium				100.0	105.60	105.6			M

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2B

CRDL STANDARD FOR AA AND ICP

ab Name: LAUCKS TESTING LABS, INC. Contract: _____

ab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

A CRDL Standard Source: IV_____

CP CRDL Standard Source: SPEX____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
luminum								
ntimony								
rsenic								
arium								
eryllium								
admium				10.0	10.30	103.0	8.20	82.0
alcium					11.40		8.80	
hromium				20.0	20.10	100.5	15.50	77.5
obalt								
opper				50.0	46.60	93.2	46.80	93.6
on					1.20		23.80	
ead								
agnesium					3.80		-1.50	
anganese				30.0	28.20	94.0	28.10	93.7
ercury								
ickel								
otassium					147.50		12.10	
elenium								
ilver								
odium					19.80		-18.00	
hallium								
anadium								
inc				40.0	39.00	97.5	39.70	99.2
olybdenum								
ithium				200.0	172.20	86.1	185.40	92.7

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BLANKS

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.600	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Chromium	50.0	U	50.0	U	50.0	U	50.0	U	55.600	U	P
Cobalt											
Copper	25.0	U	25.0	U	25.0	U	25.0	U	27.800	U	P
Iron	100.0	U	100.0	U	100.0	U	100.0	U	111.100	U	P
Lead											
Magnesium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Manganese	15.0	U	15.0	U	15.0	U	15.0	U	16.700	U	P
Mercury											
Nickel											
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Selenium											
Silver											
Sodium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1111.100	U	P
Thallium											
Vanadium											
Zinc	20.0	U	20.0	U	20.0	U	20.0	U	22.200	U	P
Molybdenum											
Lithium	10.0	U	10.0	U	10.0	U	10.0	U	11.100	U	M

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BLANKS

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium			5.0	U	5.0	U					P
Calcium			1000.0	U	1000.0	U					P
Chromium			50.0	U	50.0	U					P
Cobalt											
Copper			25.0	U	25.0	U					P
Iron			100.0	U	100.0	U					P
Lead											
Magnesium			1000.0	U	1000.0	U					P
Manganese			15.0	U	15.0	U					P
Mercury											
Nickel											
Potassium			1000.0	U	1000.0	U					P
Selenium											
Silver											
Sodium			1000.0	U	1000.0	U					P
Thallium											
Vanadium											
Zinc			20.0	U	20.0	U					P
Molybdenum											
Lithium			10.0	U	10.0	U					M

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4

ICP INTERFERENCE CHECK SAMPLE

ıb Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

ICP ID Number: ENVIRO36 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium		1000	8	915.8	91.6	9	910.4	91.0
Calcium	500000	500000	513873	518093.4	103.6	511164	512344.7	102.5
Chromium		500	-1	461.4	92.3	-2	461.7	92.3
Cobalt								
Copper		500	-3	497.8	99.6	-3	502.7	100.5
Iron	200000	200000	190401	190858.5	95.4	188782	188809.6	94.4
Lead								
Magnesium	500000	500000	541846	540904.2	108.2	542664	542658.3	108.5
anganese		500	-4	466.8	93.4	-5	464.8	93.0
Mercury								
Nickel								
Potassium			23	33.5		63	-5.2	
Selenium								
Silver								
Sodium			51	58.1		41	65.6	
Thallium								
Vanadium								
Zinc		1000	-5	954.9	95.5	-6	965.2	96.5
Molybdenum								
Lithium								

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

ICP ID Number: ELAN5000__ ICS Source: SPEX____

Concentration Units: ug/L

Analyte	True		Initial Found			Final Found		
	Sol. A	Sol. AB	Sol. A	Sol. AB	%R	Sol. A	Sol. AB	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Molybdenum								
Lithium			0	0.0		0	0.0	

FORM IV - IN

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ASWES1S

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix: WATER Level: LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight: UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium	75-125	6.4444		5.5556	U	5.56	115.9		P
Calcium		82227.0000		84068.3330		2222.22	-82.9		P
Chromium	75-125	62.3333		55.5556	U	55.56	112.2		P
Cobalt									NR
Copper	75-125	56.2222		27.7778	U	55.56	101.2		P
Iron	75-125	793.8889		262.7778		555.56	95.6		P
Lead									NR
Magnesium		51287.4440		50742.4440		2222.22	24.5		P
Manganese		867.7778		850.8889		55.56	30.4		P
Mercury									NR
Nickel									NR
Potassium	75-125	4736.1111		2491.4444		2222.22	101.0		P
Selenium									NR
Silver									NR
Sodium		39907.8880		38417.5550		2222.22	67.1		P
Thallium									NR
Vanadium									NR
Zinc	75-125	175.2222		71.8889		111.11	93.0		P
Molybdenum									NR
~~Litjium~~ Lithium	75-125	642.0000		46.6667		555.55	107.2		M

27-9%

Comments:

509

U.S. EPA - CLP

5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ASWES1A

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Matrix: WATER Level: LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Molybdenum									NR
Lithium		258.30		42.00		250.0	86.5		M

Comments:

U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

ASWES1D

ıb Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: __ SAS No.: ___ SDG No.: CRA06_

Matrix: WATER Level: LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight: UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium	5.6	5.5556	U	5.5556	U			P
Calcium		84068.3330		79959.4440		5.0		P
Chromium	55.6	55.5556	U	55.5556	U			P
Cobalt								
Copper	27.8	27.7778	U	27.7778	U			P
Iron	111.1	262.7778		247.4444		6.0		P
' ead								
ıagnesium		50742.4440		48056.5550		5.4		P
Manganese		850.8889		804.4444		5.6		P
Mercury								
Nickel								
Potassium	1111.1	2491.4444		2258.8889		9.8		P
Selenium								
Silver								
Sodium		38417.5550		36170.3330		6.0		P
Thallium								
Vanadium								
Zinc	22.2	71.8889		67.7778		5.9		P
Molybdenum								
Lithium	11.1	46.6667		48.4444		3.7		M

FORM VI - IN

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7

LABORATORY CONTROL SAMPLE

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Solid LCS Source: IV_____

Aqueous LCS Source: IV_____

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium	5.6	6.56	117.1						
Calcium	2222.2	2370.22	106.7						
Chromium	55.6	59.78	107.5						
Cobalt									
Copper	55.6	58.67	105.5						
Iron	555.6	578.67	104.2						
Lead									
Magnesium	2222.2	2317.78	104.3						
Manganese	55.6	57.89	104.1						
Mercury									
Nickel									
Potassium	2222.2	2378.33	107.0						
Selenium									
Silver									
Sodium	2222.2	2383.22	107.2						
Thallium									
Vanadium									
Zinc	111.1	111.89	100.7						
Molybdenum									
Lithium	555.6	564.44	101.6						

U.S. EPA - CLP
9
ICP SERIAL DILUTIONS

EPA SAMPLE NO.
ASWES1L

Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Matrix (soil/water) : WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium	5.00	U	25.00	U			P
Calcium	75661.50		71433.00		5.6		P
Chromium	50.00	U	250.00	U			P
Cobalt							
Copper	25.00	U	125.00	U			P
Iron	236.50		500.00	U	100.0		P
Lead							
Magnesium	45668.20		43057.00		5.7		P
Manganese	765.80		715.50		6.6		P
Mercury							
Nickel							
Potassium	2242.30		5000.00	U	100.0		P
Selenium							
Silver							
Sodium	34575.80		32045.00		7.3		P
Thallium							
Vanadium							
Zinc	64.70		100.00	U	100.0		P
Molybdenum							
Lithium	42.00		50.00	U	100.0		M

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PREPARATION LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Method: P_

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASWES1	03/31/99	45	50
ASWES1D	03/31/99	45	50
ASWES1S	03/31/99	45	50
BSWES1	03/31/99	45	50
CSMW20	03/31/99	45	50
DSMW1B	03/31/99	45	50
ESWES1	03/31/99	45	50
FSWES1	03/31/99	45	50
GSMW7A	03/31/99	45	50
HSMW20	03/31/99	45	50
ISMW4A	03/31/99	45	50
JSMW4B	03/31/99	45	50
KSMW2A	03/31/99	45	50
LCSW1	03/31/99	45	50
LSMW3A	03/31/99	45	50
MFD032	03/31/99	45	50
NSMW5A	03/31/99	45	50
PBW1	03/31/99	45	50

FORM XIII - IN

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

b Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Method: M_

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASWES1	03/31/99	45	50
ASWES1D	03/31/99	45	50
ASWES1S	03/31/99	45	50
BSWES1	03/31/99	45	50
CSMW20	03/31/99	45	50
DSMW1B	03/31/99	45	50
ESWES1	03/31/99	45	50
FSWES1	03/31/99	45	50
GSMW7A	03/31/99	45	50
HSMW20	03/31/99	45	50
ISMW4A	03/31/99	45	50
JSMW4B	03/31/99	45	50
KSMW2A	03/31/99	45	50
LCSW1	03/31/99	45	50
LSMW3A	03/31/99	45	50
MFD032	03/31/99	45	50
NSMW5A	03/31/99	45	50
PBW1	03/31/99	45	50

FORM XIII - IN

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Instrument ID Number: ENVIRO36 Method: P

Start Date: 04/01/99 End Date: 04/01/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
S0	1.00	0810							X	X	X		X	X		X	X			X			X			X	
S	1.00	0813							X	X	X		X	X		X	X			X			X			X	
ICV1	1.00	0816							X	X	X		X	X		X	X			X			X			X	
ICB1	1.00	0819							X	X	X		X	X		X	X			X			X			X	
CCV1	1.00	0822							X	X	X		X	X		X	X			X			X			X	
CCB1	1.00	0825							X	X	X		X	X		X	X			X			X			X	
CRII1	1.00	0828							X	X	X		X	X		X	X			X			X			X	
ICSAI1	1.00	0831							X	X	X		X	X		X	X			X			X			X	
ICSABI1	1.00	0834							X	X	X		X	X		X	X			X			X			X	
CCV2	1.00	0837							X	X	X		X	X		X	X			X			X			X	
CCB2	1.00	0841							X	X	X		X	X		X	X			X			X			X	
PBW1	1.00	0845							X	X	X		X	X		X	X			X			X			X	
LCSW1	1.00	0848							X	X	X		X	X		X	X			X			X			X	
ASWES1	1.00	0851							X	X	X		X	X		X	X			X			X			X	
ASWES1D	1.00	0854							X	X	X		X	X		X	X			X			X			X	
ASWES1S	1.00	0857							X	X	X		X	X		X	X			X			X			X	
ASWES1L	5.00	0900							X	X	X		X	X		X	X			X			X			X	
BSWES1	1.00	0904							X	X	X		X	X		X	X			X			X			X	
CSMW20	1.00	0907							X	X	X		X	X		X	X			X			X			X	
DSMW1B	1.00	0910							X	X	X		X	X		X	X			X			X			X	
ESWES1	1.00	0913							X	X	X		X	X		X	X			X			X			X	
CCV3	1.00	0916							X	X	X		X	X		X	X			X			X			X	
CCB3	1.00	0919							X	X	X		X	X		X	X			X			X			X	
FSWES1	1.00	0922							X	X	X		X	X		X	X			X			X			X	
GSMW7A	1.00	0925							X	X	X		X	X		X	X			X			X			X	
HSMW20	1.00	0929							X	X	X		X	X		X	X			X			X			X	
ISMW4A	1.00	0932							X	X	X		X	X		X	X			X			X			X	
JSMW4B	1.00	0935							X	X	X		X	X		X	X			X			X			X	
KSMW2A	1.00	0938							X	X	X		X	X		X	X			X			X			X	
LSMW3A	1.00	0941							X	X	X		X	X		X	X			X			X			X	
MFD032	1.00	0944							X	X	X		X	X		X	X			X			X			X	
NSMW5A	1.00	0947							X	X	X		X	X		X	X			X			X			X	

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Instrument ID Number: ENVIRO36 Method: P

Start Date: 04/01/99 End Date: 04/01/99

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
ZZZZZZ	1.00	0950																									
CCV4	1.00	0954							X	X	X		X	X		X	X			X			X			X	
CCB4	1.00	0957							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1000																									
ZZZZZZ	1.00	1003																									
ZZZZZZ	1.00	1006																									
ZZZZZZ	1.00	1009																									
ZZZZZZ	1.00	1012																									
CRIF1	1.00	1015							X	X	X		X	X		X	X			X			X			X	
ICSAF1	1.00	1019							X	X	X		X	X		X	X			X			X			X	
ICSABF1	1.00	1022							X	X	X		X	X		X	X			X			X			X	
CCV5	1.00	1025							X	X	X		X	X		X	X			X			X			X	
CCB5	1.00	1028							X	X	X		X	X		X	X			X			X			X	

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

Instrument ID Number: ELAN5000__ Method: M_

Start Date: 04/05/99 End Date: 04/05/99

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
S0	1.00	1134																									X
S1	1.00	1137																									X
S2	1.00	1139																									X
S3	1.00	1142																									X
ICV1	1.00	1147																									X
ICB1	1.00	1149																									X
CCV1	1.00	1152																									X
CCB1	1.00	1154																									X
CRII1	1.00	1157																									X
ICSAI2	1.00	1200																									X
ICSABI2	1.00	1202																									X
CCV2	1.00	1205																									X
CCB2	1.00	1207																									X
PBW1	1.00	1210																									X
LCSW1	2.00	1212																									X
ASWES1	1.00	1215																									X
ASWES1D	1.00	1217																									X
ASWES1S	2.00	1220																									X
ASWES1A	1.00	1222																									X
ASWES1L	5.00	1225																									X
BSWES1	1.00	1227																									X
CSMW20	1.00	1230																									X
DSMW1B	1.00	1233																									X
CCV3	1.00	1235																									X
CCB3	1.00	1238																									X
ESWES1	1.00	1240																									X
FSWES1	1.00	1243																									X
GSMW7A	1.00	1245																									X
HSMW20	1.00	1248																									X
ISMW4A	1.00	1250																									X
JSMW4B	1.00	1253																									X
KSMW2A	1.00	1255																									X

FORM XIV - IN

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

Instrument ID Number: ELAN5000 Method: M

Start Date: 04/05/99 End Date: 04/05/99

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	LI
LSMW3A	1.00	1258																									X
MFD032	1.00	1301																									X
NSMW5A	1.00	1303																									X
CCV4	1.00	1306																									X
CCB4	1.00	1308																									X
CRIF1	1.00	1311																									X
ICSAF2	1.00	1313																									X
ICSABF2	1.00	1316																									X
CCV5	1.00	1318																									X
CCB5	1.00	1321																									X

FORM XIV - IN

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Instrument Detection Limits (Quarterly)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

ICP ID Number: Enviro36__ Date: 02/16/99

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20				
Antimony	206.80				
Arsenic	193.60				
Barium	493.40				
Beryllium	313.00				
Cadmium	226.50		5	5.0	P
Calcium	315.80		1000	1000.0	P
Chromium	267.70		50 ~~5~~	50.0	P
Cobalt	228.60				
Copper	324.70		25	25.0	P
Iron	259.90		100	100.0	P
Lead	220.30				
Magnesium	279.00		1000	1000.0	P
Manganese	257.60		15	15.0	P
Mercury					
Nickel	231.60				
Potassium	766.40		1000	1000.0	P
Selenium	196.00				
Silver	328.00				
Sodium	588.90		1000	1000.0	P
Thallium	190.80				
Vanadium	292.40				
Zinc	213.80		20	20.0	P
Litjium	202.00		10		

LAUT04109149

Comments:

FORM X - IN

Instrument Detection Limits (Quarterly)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

ICP ID Number: ELAN5000 Date: 03/26/99

Flame AA ID Number: _____

Furnace AA ID Number: _____

Analyte	Mass (amu)	Background	CRDL (ug/L)	IDL (ug/L)	M
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium			5		
Calcium			1000		
Chromium			~~5~~ 50		
Cobalt					
Copper			25		
Iron			100		
Lead					
Magnesium			1000		
Manganese			15		
Mercury					
Nickel					
Potassium			1000		
Selenium					
Silver					
Sodium			1000		
Thallium					
Vanadium					
Zinc			20		
Litjium	7.00		10	10.0	M

MM04/09/99

Comments:

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ICP Interelement Correction Factors (Annually)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

ICP ID Number: Enviro36 Date: 01/12/99

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Al	Ca	Fe	Mg	V
Aluminum	308.22		0.0000000	0.0000000	0.0000000	0.0174880
Antimony	206.84	0.0000000	0.0000000	0.0001650	0.0000000	-0.0047170
Arsenic	193.70	0.0035990	0.0000000	0.0002510	0.0000000	0.0110960
Barium	493.41	0.0000000	0.0000000	0.0000130	0.0000000	0.0000020
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0007800
Cadmium	226.50	-0.0000710	0.0000000	-0.0000990	0.0000000	0.0000000
Calcium	315.89	0.0000000		0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	-0.0000650	0.0001550	0.0000000	0.0010770
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	-0.0001100	0.0000000	0.0000000
Iron	259.94	0.0001890	0.0000000		0.0000000	0.0000000
Lead	220.35	0.0007920	0.0000000	0.0000020	0.0000000	-0.0000280
Magnesium	279.08	0.0000000	0.0000000	0.0000000		0.0000000
Manganese	257.61	0.0000100	0.0000000	0.0000400	0.0000000	-0.0001070
Mercury	253.65	0.0000000	0.0000000	0.0088400	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	-0.0001070	0.0000000	-0.0000170
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	-0.0011840
Selenium	196.03	0.0000000	0.0000000	0.0003830	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000190	0.0000000	-0.0033250
Sodium	589.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.86	-0.0000900	0.0000000	0.0013400	0.0000780	0.0042240
Vanadium	292.40	-0.0000020	0.0000000	-0.0000100	0.0000000	
Zinc	213.86	0.0000500	0.0000000	0.0000350	0.0000000	0.0001530

Comments:

U.S. EPA - CLP

11B

ICP Interelement Correction Factors (Annually)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06_

ICP ID Number: ENVIRO36 Date: 01/12/99

Analyte	Wave-length (nm)	Interelement Correction Factors for: Cu	Cr	Mn	Ni	Zn
Aluminum	308.22	0.0003010	0.0000000	0.0005210	0.0000000	0.0000000
Antimony	206.84	-0.0000150	0.0074260	0.0000000	-0.0022810	-0.0002520
Arsenic	193.70	0.0000000	0.0011540	0.0002970	0.0006380	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000070	0.0000190	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	-0.0000040	0.0000000	-0.0064580	0.0000000
Calcium	315.89	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000		0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75		0.0000000	-0.0001490	0.0000000	0.0000000
Iron	259.94	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0003290	0.0000000
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0000000		0.0000000	0.0000340
Mercury	253.65	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000170		0.0001370
Potassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0001670	0.0000000	0.0000000
Sodium	559.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.86	-0.0001400	0.0008210	-0.0067500	0.0022330	0.0000000
Vanadium	292.40	0.0000000	-0.0035460	-0.0001360	0.0000000	0.0000000
Zinc	213.86	0.0021280	0.0001100	0.0000000	0.0034510	

Comments:

12

ICP Linear Ranges (Quarterly)

Lab Name: LAUCKS TESTING LABS, INC. Contract: _____

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA06

ICP ID Number: Enviro36 Date: 03/23/99

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	3.00	600000.0	P
Antimony	3.00	200000.0	P
Arsenic	3.00	300000.0	P
Barium	3.00	100000.0	P
Beryllium	3.00	10000.0	P
Cadmium	3.00	100000.0	P
Calcium	3.00	600000.0	P
Chromium	3.00	200000.0	P
Cobalt	3.00	200000.0	P
Copper	3.00	200000.0	P
Iron	3.00	600000.0	P
Lead	3.00	200000.0	P
Magnesium	3.00	600000.0	P
Manganese	3.00	100000.0	P
Mercury	3.00	10000.0	P
Nickel	3.00	200000.0	P
Potassium	3.00	1000000.0	P
Selenium	3.00	200000.0	P
Silver	3.00	200000.0	P
Sodium	3.00	600000.0	P
Thallium	3.00	10000.0	P
Vanadium	3.00	200000.0	P
Zinc	3.00	200000.0	P

Comments:

CTO 048

SDC CRA06

FORMS SUMMARY

Volatiles

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA06

	SAMPLE NO.	SMC1 #	SMC2 #	SMC3 DFM #	SMC4 #	TOT OUT
01	VBLKF1	101	87	99	96	0
02	VBLKSPKWF1	100	84	99	95	0
03	VBLKSPKWF2	104	85	103	94	0
04	TB03229901	103	82	102	94	0
05	TB03239901	103	82	100	95	0
06	TB03249901	105	83	104	96	0
07	TB03249902	102	84	100	96	0
08	TB03259901	100	84	101	92	0
09	SWES146931A99	104	83	102	98	0
10	SWES142931A99	104	82	104	94	0
11	SMW201A1A99	98	82	97	93	0
12	SMW1B1A99	104	82	103	96	0
13	SWES141931A99	98	83	99	96	0
14	SWES144931A99	101	80	101	96	0
15	SMW7A1A99	104	81	100	93	0
16	SMW2031A99	102	85	99	95	0
17	SMW4A1A99	98	84	100	97	0
18	SMW4B1A99	102	81	101	93	0
19	SMW2A1A99	101	84	102	97	0
20	SMW3A1A99	101	82	100	95	0
21	VBLKF2	94	82	96	94	0
22	VBLKSPKWF3	92	84	97	94	0
23	FD03259901	95	85	96	97	0
24	SMW5A1A99	97	83	100	93	0

				QC LIMITS
SMC1		=	1,2-Dichloroethane-d4	(60-140)
SMC2		=	Toluene-d8	(60-140)
SMC3	DFM	=	Dibromofluoromethane	(60-140)
SMC4		=	4-Bromofluorobenzene	(60-140)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

BS/BSD Report

Lab Name : LAUCKS TESTING LABS

BS Sample : S033199MVOWF1
BSD Sample : S033199MVOWF2
Date : 03/31/99
(Reference : L033199_MVOW01)

Matrix : WATER
Units : UG/L

Blank Spike/Blank Spike Duplicate Data

Analyte	Blank Spike Added	Blank Spike Found	Blank Spike Rec	Blank Spike Dupe Added	Blank Spike Dupe Found	Blank Spike Dupe Rec	RPD	Limits LCL	Limits UCL	Limits RPD
,1-Dichloroethene	10.000	9.9500	100	10.000	9.5400	95	5	60	140	20
richloroethene	10.000	10.000	100	10.000	10.140	101	1	60	140	15
enzene	10.000	10.240	102	10.000	10.320	103	1	60	140	16
luene	10.000	9.7200	97	10.000	9.5100	95	2	60	140	26
hlorobenzene	10.000	9.8700	99	10.000	9.7000	97	2	60	140	15

Comments

* - Recovery or RPD exceeded control limit

Form BS/BSD-1

BS/BSD Report

Lab Name : LAUCKS TESTING LABS

BS Sample : S033199MVOWF1
BSD Sample : S033199MVOWF2
Date : 03/31/99
Reference : L033199_MVOW01

Matrix : WATER
Units : UG/L

Work Order	Samples
9903633	1-10
9903645	1-7

Comments

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* = Recovery or RPD exceeded control limit

Form BS/BSD-2

Blank Spike Report

Lab Name : LAUCKS TESTING LABS

Description : SW 8260
Lab ID : S040199MVOWF1
Matrix : W
Units : UG/L

(Database Reference: S040199_MVOW01)

Analyte	Spike Added	Amount Found	% Rec	Recovery Limits	
1,1-Dichloroethene----------	10.00	9.7900	98	70	130
Trichloroethene----------	10.00	10.020	100	70	130
Benzene----------	10.00	10.750	108	70	130
Toluene----------	10.00	9.5100	95	70	130
Chlorobenzene----------	10.00	9.6400	96	70	130

= Recovery exceeded control limit

Form BLKSPK-1

Blank Spike Report

Lab Sample ID: S040199MVOWF1
Description : SW 8260
Matrix : W
Units : UG/L

(Database Reference: S040199_MVOW01)

Work Orders Verified

Work Order	Sample Fractions Verified
9903633	8,9
9903676	1-9

Form BLKSPK-2

4A
VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLKF1

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Lab File ID: F0331006.D

Lab Sample ID: B033199MVOWF1

Date Analyzed: 03/31/99

Time Analyzed: 08:38

GC Column: DB-624 ID: 0.45 (mm)

Heated Purge: (Y/N) N

Instrument ID: Flipper

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKSPKWF1	S033199MVOWF1	F0331007.D	09:10
02	VBLKSPKWF2	S033199MVOWF2	F0331008.D	09:42
03	TB03229901	9903633-08	F0331009.D	10:15
04	TB03239901	9903633-09	F0331010.D	10:47
05	TB03249901	9903633-10	F0331011.D	11:20
06	TB03249902	9903645-01	F0331012.D	11:53
07	TB03259901	9903645-02	F0331013.D	12:25
08	SWES146931A99	9903633-01	F0331014.D	12:58
09	SWES142931A99	9903633-02	F0331015.D	13:30
10	SMW201A1A99	9903633-03	F0331016.D	14:03
11	SMW1B1A99	9903633-04	F0331017.D	14:35
12	SWES141931A99	9903633-05	F0331018.D	15:08
13	SWES144931A99	9903633-06	F0331019.D	15:40
14	SMW7A1A99	9903633-07	F0331020.D	16:13
15	SMW2031A99	9903645-03	F0331021.D	16:45
16	SMW4A1A99	9903645-04	F0331022.D	17:18
17	SMW4B1A99	9903645-05	F0331023.D	17:50
18	SMW2A1A99	9903645-06	F0331024.D	18:23
19	SMW3A1A99	9903645-07	F0331025.D	18:55

COMMENTS

4A
VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLKF2

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Lab File ID: F0401007.D

Lab Sample ID: B040199MVOWF1

Date Analyzed: 04/01/99

Time Analyzed: 08:53

GC Column: DB-624 ID: 0.45 (mm)

Heated Purge: (Y/N) N

Instrument ID: Flipper

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKSPKWF3	S040199MVOWF1	F0401008.D	09:23
02	FD03259901	9903645-08	F0401010.D	10:24
03	SMW5A1A99	9903645-09	F0401011.D	10:56

COMMENTS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Lab SAS No.: _____ SDG No.: CRA06

Lab File ID: F0209006.D BFB Injection Date: 02/09/99

Instrument ID: Flipper BFB Injection Time: 09:33

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.8
75	30.0 - 66.0% of mass 95	44.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	69.2
175	4.0 - 9.0% of mass 174	4.7 (6.8)1
176	93.0 - 101.0% of mass 174	67.1 (97.0)1
177	5.0 - 9.0% of mass 176	5.0 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD001	1 UG/L STD	F0209007.D	02/09/99	10:11
02	VSTD005	5 UG/L STD	F0209008.D	02/09/99	10:44
03	VSTD010	10 UG/L STD	F0209009.D	02/09/99	11:17
04	VSTD025	25 UG/L STD	F0209010.D	02/09/99	11:49
05	VSTD050	50 UG/L STD	F0209011.D	02/09/99	12:22

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Lab SAS No.: _____ SDG No.: CRA06

Lab File ID: F0331003.D BFB Injection Date: 03/31/99

Instrument ID: Flipper BFB Injection Time: 06:56

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.6
75	30.0 - 66.0% of mass 95	56.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	75.2
175	4.0 - 9.0% of mass 174	5.1 (6.8)1
176	93.0 - 101.0% of mass 174	70.1 (93.3)1
177	5.0 - 9.0% of mass 176	5.2 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	10 UG/L STD	F0331004.D	03/31/99	07:28
02	VBLKF1	B033199MVOWF1	F0331006.D	03/31/99	08:38
03	VBLKSPKWF1	S033199MVOWF1	F0331007.D	03/31/99	09:10
04	VBLKSPKWF2	S033199MVOWF2	F0331008.D	03/31/99	09:42
05	TB03229901	9903633-08	F0331009.D	03/31/99	10:15
06	TB03239901	9903633-09	F0331010.D	03/31/99	10:47
07	TB03249901	9903633-10	F0331011.D	03/31/99	11:20
08	TB03249902	9903645-01	F0331012.D	03/31/99	11:53
09	TB03259901	9903645-02	F0331013.D	03/31/99	12:25
10	SWES146931A99	9903633-01	F0331014.D	03/31/99	12:58
11	SWES142931A99	9903633-02	F0331015.D	03/31/99	13:30
12	SMW201A1A99	9903633-03	F0331016.D	03/31/99	14:03
13	SMW1B1A99	9903633-04	F0331017.D	03/31/99	14:35
14	SWES141931A99	9903633-05	F0331018.D	03/31/99	15:08
15	SWES144931A99	9903633-06	F0331019.D	03/31/99	15:40
16	SMW7A1A99	9903633-07	F0331020.D	03/31/99	16:13
17	SMW2031A99	9903645-03	F0331021.D	03/31/99	16:45
18	SMW4A1A99	9903645-04	F0331022.D	03/31/99	17:18
19	SMW4B1A99	9903645-05	F0331023.D	03/31/99	17:50
20	SMW2A1A99	9903645-06	F0331024.D	03/31/99	18:23
21	SMW3A1A99	9903645-07	F0331025.D	03/31/99	18:55

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Lab SAS No.: SDG No.: CRA06

Lab File ID: F0401004.D BFB Injection Date: 04/01/99

Instrument ID: Flipper BFB Injection Time: 07:11

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.0
75	30.0 - 66.0% of mass 95	49.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	72.1
175	4.0 - 9.0% of mass 174	5.3 (7.4)1
176	93.0 - 101.0% of mass 174	70.4 (97.7)1
177	5.0 - 9.0% of mass 176	5.1 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	10 UG/L STD	F0401005.D	04/01/99	07:42
02	VBLKF2	B040199MVOWF1	F0401007.D	04/01/99	08:53
03	VBLKSPKWF3	S040199MVOWF1	F0401008.D	04/01/99	09:23
04	FD03259901	9903645-08	F0401010.D	04/01/99	10:24
05	SMW5A1A99	9903645-09	F0401011.D	04/01/99	10:56

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA06

Lab File ID (Standard): F0331004.D Date Analyzed: 03/31/99

Instrument ID: Flipper Time Analyzed: 07:28

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	155706	9.34	110857	14.03	62913	17.72
UPPER LIMIT	311412	9.84	221714	14.53	125826	18.22
LOWER LIMIT	77853	8.84	55429	13.53	31457	17.22
SAMPLE NO.						
01 VBLKF1	164085	9.35	119458	14.03	64149	17.72
02 VBLKSPKWF1	166666	9.32	119032	14.04	66798	17.73
03 VBLKSPKWF2	162502	9.32	120577	14.03	66605	17.73
04 TB03229901	162482	9.35	123128	14.03	68086	17.72
05 TB03239901	163689	9.32	124172	14.04	68558	17.74
06 TB03249901	163963	9.32	124804	14.03	67045	17.73
07 TB03249902	171374	9.34	128115	14.01	70132	17.72
08 TB03259901	172022	9.34	127981	14.03	71607	17.72
09 SWES146931A99	171749	9.32	128134	14.04	70916	17.73
10 SWES142931A99	173651	9.31	131547	14.03	72510	17.74
11 SMW201A1A99	181470	9.31	132897	14.01	72984	17.73
12 SMW1B1A99	176915	9.32	136737	14.01	73882	17.72
13 SWES141931A99	186780	9.34	136763	14.01	74656	17.72
14 SWES144931A99	179424	9.34	137497	14.03	74804	17.70
15 SMW7A1A99	179237	9.32	135549	14.04	76126	17.72
16 SMW2031A99	180442	9.32	130814	14.04	72955	17.73
17 SMW4A1A99	184803	9.32	136571	14.01	73182	17.73
18 SMW4B1A99	182959	9.34	138614	14.04	76834	17.73
19 SMW2A1A99	178316	9.34	136490	14.01	74566	17.72
20 SMW3A1A99	188904	9.34	143516	14.04	76335	17.74

IS1 = Fluorobenzene
IS2 = Chlorobenzene-d5
IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA06

Lab File ID (Standard): F0401005.D Date Analyzed: 04/01/99

Instrument ID: Flipper Time Analyzed: 07:42

GC Column: DB-624 ID: 0.45 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	198942	9.32	143808	14.03	82670	17.72
UPPER LIMIT	397884	9.82	287616	14.53	165340	18.22
LOWER LIMIT	99471	8.82	71904	13.53	41335	17.22
SAMPLE NO.						
01 VBLKF2	201821	9.34	145448	14.03	79151	17.70
02 VBLKSPKWF3	201143	9.30	148004	14.01	79066	17.72
03 FD03259901	201293	9.31	142809	14.03	76941	17.73
04 SMW5A1A99	199995	9.31	148073	14.01	82195	17.73

IS1 = Fluorobenzene
IS2 = Chlorobenzene-d5
IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SWES146931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-01

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331014.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SWES142931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-02

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331015.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SMW201A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-03

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331016.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

FORM I VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW1B1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-04

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331017.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SWES141931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-05

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331018.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SWES144931A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-06

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331019.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.4	
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW7A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-07

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331020.D

Level: (low/med) LOW

Date Received: 03/25/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03229901

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-08

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331009.D

Level: (low/med) LOW

Date Received: 03/26/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03239901

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-09

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331010.D

Level: (low/med) LOW

Date Received: 03/26/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03249901

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903633-10

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331011.D

Level: (low/med) LOW

Date Received: 03/26/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03249902

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-01

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331012.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB03259901

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-02

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331013.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW2031A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-03

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331021.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SMW4A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-04

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331022.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW4B1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-05

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331023.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW2A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-06

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331024.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SMW3A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-07

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331025.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

FD03259901

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-08

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401010.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW5A1A99

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: 9903645-09

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401011.D

Level: (low/med) LOW

Date Received: 03/27/99

% Moisture: not dec. _____

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg) UG/L		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA06

Instrument ID: Flipper Calibration Date(s): 02/09/99 02/09/99

Heated Purge (Y/N): N Calibration Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

LAB FILE ID: RRF1 = F0209007.D RRF5 = F0209008.D
RRF10 = F0209009.D RRF25 = F0209010.D RRF50 = F0209011.D

COMPOUND	RRF1	RRF5	RRF10	RRF25	RRF50	$\overline{RRF}$	% RSD
Chloromethane	0.132	0.145	0.146	0.138	0.145	0.141	4.2
Vinyl chloride	0.170	0.204	0.206	0.185	0.195	0.192	7.6
Bromomethane	0.247	0.278	0.282	0.270	0.269	0.269	5.0
Chloroethane	0.125	0.135	0.132	0.120	0.120	0.126	5.2
Trichlorofluoromethane	0.590	0.770	0.834	0.772	0.806	0.754	12.6
1,1-Dichloroethene	0.246	0.272	0.294	0.277	0.280	0.274	6.5
Methylene chloride	0.368	0.247	0.230	0.219	0.213	0.255	25.2
trans-1,2-Dichloroethene	0.283	0.305	0.314	0.305	0.308	0.303	3.9
1,1-Dichloroethane	0.419	0.501	0.520	0.524	0.511	0.495	8.8
cis-1,2-Dichloroethene	0.250	0.291	0.286	0.284	0.279	0.278	5.9
Chloroform	0.550	0.647	0.662	0.685	0.666	0.642	8.3
1,1,1-Trichloroethane	0.551	0.654	0.688	0.703	0.695	0.658	9.5
Carbon tetrachloride	0.436	0.544	0.589	0.606	0.593	0.554	12.6
1,2-Dichloroethane-d4	0.231	0.245	0.241	0.228	0.224	0.234	3.8
Benzene	0.569	0.723	0.700	0.685	0.698	0.675	9.0
1,2-Dichloroethane	0.220	0.234	0.238	0.240	0.232	0.233	3.3
Trichloroethene	0.362	0.400	0.431	0.414	0.401	0.402	6.3
1,2-Dichloropropane	0.202	0.227	0.228	0.220	0.216	0.219	4.7
cis-1,3-Dichloropropene	0.255	0.274	0.289	0.298	0.292	0.281	6.2
Toluene-d8	1.341	1.409	1.381	1.419	1.371	1.384	2.3
Toluene	0.628	0.736	0.729	0.726	0.723	0.709	6.4
trans-1,3-Dichloropropene	0.221	0.277	0.288	0.306	0.300	0.278	12.2
1,1,2-Trichloroethane	0.143	0.170	0.168	0.173	0.159	0.163	7.6
Tetrachloroethene	0.563	0.697	0.730	0.743	0.687	0.684	10.5
Dibromofluoromethane	0.613	0.644	0.630	0.628	0.629	0.629	1.8
Chlorobenzene	0.665	0.818	0.890	0.905	0.844	0.824	11.6
1,1,1,2-Tetrachloroethane	0.364	0.403	0.405	0.411	0.399	0.396	4.7
Ethylbenzene	1.261	1.542	1.534	1.524	1.522	1.476	8.2
m,p-Xylene	0.416	0.527	0.543	0.531	0.527	0.509	10.3
o-Xylene	0.369	0.460	0.472	0.475	0.476	0.450	10.3
Styrene	0.573	0.705	0.712	0.737	0.724	0.690	9.6
4-Bromofluorobenzene	1.421	1.445	1.472	1.438	1.460	1.447	1.4
1,1,2,2-Tetrachloroethane	0.363	0.380	0.373	0.369	0.359	0.369	2.2
1,4-Dichlorobenzene	1.049	1.235	1.324	1.323	1.315	1.249	9.4
1,2-Dichlorobenzene	0.770	0.974	1.031	0.977	0.934	0.937	10.6

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA06

Instrument ID: Flipper Calibration Date(s): 02/09/99 02/09/99

Heated Purge (Y/N): N Calibration Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

LAB FILE ID: RRF1 = F0209007.D RRF5 = F0209008.D

RRF10 = F0209009.D RRF25 = F0209010.D RRF50 = F0209011.D

COMPOUND	RRF1	RRF5	RRF10	RRF25	RRF50	$\overline{RRF}$	% RSD	
Average % RSD								7.6

FORM VI VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

.ab Name: Laucks Testing Lab Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA06

Instrument ID: Flipper Calibration Date: 03/31/99 Time: 07:28

Lab File ID: F0331004.D Init. Calib. Date(s): 02/09/99 02/09/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

COMPOUND	RRF	RRF10	MIN RRF	% D	MAX % D
Chloromethane	0.141	0.145	0.100	-2.9	
Vinyl chloride	0.192	0.173		9.9	20
Bromomethane	0.269	0.244		9.3	
Chloroethane	0.126	0.109		13.4	
Trichlorofluoromethane	0.754	0.678		10.1	
1,1-Dichloroethene	0.274	0.244		11.0	20
Methylene chloride	0.255	0.221		13.4	
trans-1,2-Dichloroethene	0.303	0.302		0.3	
1,1-Dichloroethane	0.495	0.465	0.100	6.1	
cis-1,2-Dichloroethene	0.278	0.280		-0.6	
Chloroform	0.642	0.615		4.2	20
1,1,1-Trichloroethane	0.658	0.614		6.8	
Carbon tetrachloride	0.554	0.553		0.2	
1,2-Dichloroethane-d4	0.234	0.249		-6.5	
Benzene	0.675	0.691		-2.5	
1,2-Dichloroethane	0.233	0.225		3.5	
Trichloroethene	0.402	0.389		3.2	
1,2-Dichloropropane	0.219	0.227		-3.7	20
cis-1,3-Dichloropropene	0.281	0.306		-8.6	
Toluene-d8	1.384	1.203		13.1	
Toluene	0.709	0.685		3.3	20
trans-1,3-Dichloropropene	0.278	0.300		-7.7	
1,1,2-Trichloroethane	0.163	0.166		-1.8	
Tetrachloroethene	0.684	0.623		9.0	
Dibromofluoromethane	0.629	0.649		-3.1	
Chlorobenzene	0.824	0.832	0.300	-0.9	
1,1,1,2-Tetrachloroethane	0.396	0.416		-4.9	
Ethylbenzene	1.476	1.477		-0.1	20
m,p-Xylene	0.509	0.527		-3.5	
o-Xylene	0.450	0.465		-3.3	
Styrene	0.690	0.733		-6.2	
4-Bromofluorobenzene	1.447	1.373		5.1	
1,1,2,2-Tetrachloroethane	0.369	0.378	0.300	-2.5	
1,4-Dichlorobenzene	1.249	1.254		-0.4	
1,2-Dichlorobenzene	0.937	0.970		-3.5	

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Lab Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA06

Instrument ID: Flipper Calibration Date: 04/01/99 Time: 07:42

Lab File ID: F0401005.D Init. Calib. Date(s): 02/09/99 02/09/99

Heated Purge: (Y/N) N Init. Calib. Times: 10:11 12:22

GC Column: DB-624 ID: 0.45 (mm)

COMPOUND	RRF	RRF10	MIN RRF	% D	MAX % D
Chloromethane	0.141	0.149	0.100	-5.4	
Vinyl chloride	0.192	0.177		7.5	20
Bromomethane	0.269	0.248		8.0	
Chloroethane	0.126	0.115		8.8	
Trichlorofluoromethane	0.754	0.687		9.0	
1,1-Dichloroethene	0.274	0.229		16.2	20
Methylene chloride	0.255	0.224		12.4	
trans-1,2-Dichloroethene	0.303	0.291		4.1	
1,1-Dichloroethane	0.495	0.467	0.100	5.5	
cis-1,2-Dichloroethene	0.278	0.277		0.4	
Chloroform	0.642	0.619		3.6	20
1,1,1-Trichloroethane	0.658	0.588		10.7	
Carbon tetrachloride	0.554	0.533		3.8	
1,2-Dichloroethane-d4	0.234	0.236		-0.9	
Benzene	0.675	0.710		-5.1	
1,2-Dichloroethane	0.233	0.212		9.0	
Trichloroethene	0.402	0.369		8.1	
1,2-Dichloropropane	0.219	0.221		-1.0	20
cis-1,3-Dichloropropene	0.281	0.302		-7.1	
Toluene-d8	1.384	1.175		15.1	
Toluene	0.709	0.693		2.2	20
trans-1,3-Dichloropropene	0.278	0.282		-1.3	
1,1,2-Trichloroethane	0.163	0.163		-0.5	
Tetrachloroethene	0.684	0.611		10.7	
Dibromofluoromethane	0.629	0.639		-1.6	
Chlorobenzene	0.824	0.803	0.300	2.6	
1,1,1,2-Tetrachloroethane	0.396	0.407		-2.6	
Ethylbenzene	1.476	1.449		1.8	20
m,p-Xylene	0.509	0.507		0.5	
o-Xylene	0.450	0.448		0.5	
Styrene	0.690	0.736		-6.7	
4-Bromofluorobenzene	1.447	1.321		8.7	
1,1,2,2-Tetrachloroethane	0.369	0.364	0.300	1.3	
1,4-Dichlorobenzene	1.249	1.193		4.5	
1,2-Dichlorobenzene	0.937	0.891		4.9	

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKF1

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: B033199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331006.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKF2

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: B040199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401007.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSPKWF1

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: S033199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331007.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	10	
75-09-2	Methylene chloride	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	10	
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	9.7	
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	9.9	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSPKWF2

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: S033199MVOWF2

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0331008.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 03/31/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	9.5	
75-09-2	Methylene chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	10	
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	9.5	
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	9.7	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSPKWF3

Lab Name: Laucks Testing Lab

SDG No.: CRA06

Matrix: (soil/water) WATER

Lab Sample ID: S040199MVOWF1

Sample wt/vol: 25.0 (g/ml) ML

Lab File ID: F0401008.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 04/01/99

GC Column: DB-624 ID: 0.45 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	9.8	
75-09-2	Methylene chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	9.5	
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	9.6	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
100-42-5	Styrene	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	1.0	U

CTO 048
SDG CRA06

FORMS SUMMARY

SDG CRA06

Miscellaneous Inorganics

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SWES146931A99
Lab Sample ID: 9903633-01
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	57.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	57.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	37.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/20/99	04/20/99	0.01	EPA 350 T
Sulfate (SO4) EPA 9056	320.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	620.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	680.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SWES142931A99
Lab Sample ID: 9903633-02
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	670.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	670.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	47.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.12		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	1500.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	3200.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	3400.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW201A1A99
Lab Sample ID: 9903633-03
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	160.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	160.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	2.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.02		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	26.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	220.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	230.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW1B1A99
Lab Sample ID: 9903633-04
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	380.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	380.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	160.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.15		mg/L	04/20/99	04/20/99	0.01	EPA 350 T
Sulfate (SO4) EPA 9056	520.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	1400.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	1700.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SWES141931A99
Lab Sample ID: 9903633-05
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	450.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	450.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	140.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	140.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	940.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	1000.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SWES144931A99
Lab Sample ID: 9903633-06
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	290.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	290.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	89.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.17		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	680.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	1500.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	1600.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW7A1A99
Lab Sample ID: 9903633-07
Date Received: 03/25/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	200.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	200.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	29.		mg/L		04/12/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.11		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	18.		mg/L		04/12/99	1.	EPA 9056
Total Dissolved Solids	300.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	320.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW2031A99
Lab Sample ID: 9903645-03
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	130.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	130.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	6.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.05		mg/L	04/20/99	04/20/99	0.01	EPA 350 T
Sulfate (SO4) EPA 9056	43.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	240.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	270.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW4A1A99
Lab Sample ID: 9903645-04
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	45.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	45.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	1.	U	mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.02		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	35.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	67.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	100.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW4B1A99
Lab Sample ID: 9903645-05
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	310.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	310.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	42.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	730.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	1500.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	1600.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW2A1A99
Lab Sample ID: 9903645-06
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	39.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	39.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	33.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/20/99	04/20/99	0.01	EPA 350 T
Sulfate (SO4) EPA 9056	280.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	550.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	620.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW3A1A99
Lab Sample ID: 9903645-07
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	89.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	89.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	29.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.14		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	300.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	630.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	700.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : FD03259901
Lab Sample ID: 9903645-08
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	40.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	40.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	33.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.01	U	mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	280.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	560.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	620.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA06
Matrix : WATER

Sample ID : SMW5A1A99
Lab Sample ID: 9903645-09
Date Received: 03/27/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Bicarb. Alkalinity, HCO3	280.		mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Carb. Alkalinity, CO3	2.	U	mg/L	04/01/99	04/01/99	2.	EPA 310 1mod
Alkalinity, Total as CaCO3	280.		mg/L	04/01/99	04/01/99	2.	EPA 310.1mod
Chloride (Cl) EPA 9056	16.		mg/L		04/20/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.10		mg/L	04/20/99	04/20/99	0.01	EPA 350 1
Sulfate (SO4) EPA 9056	140.		mg/L		04/14/99	1.	EPA 9056
Total Dissolved Solids	520.		mg/L	03/29/99	04/01/99	2.	EPA 160.1
Total Solids	590.		mg/L	03/29/99	04/02/99	2.	EPA 160.3

FORM 2-A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No: CRA06 Concentration Units: MG/L

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	TRUE	FOUND	%R
Cl	30.0	33.1	110	5.0	4.83	97	5.0	4.80	96
Cl	30.0	28.6	95	5.0	4.83	97			
SO4	150.	149.	99	10.	9.64	96	10.	9.68	97
SO4	150.	152.	101	10.	9.53	95	10.	9.79	98
				10.	9.52	95			
NH3 as N	12.0	13.0	108	0.500	0.493	99	0.500	0.490	98

FORM 3-A

BLANKS

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No.CRA06 Preparation Blank Concentration Units: MG/L

ANALYTE	INITIAL CALIB. (MG/L)		CONTINUING CALIBRATION (MG/L)						PREPARATION BLANK	
	Value	C		C		C		C	Value	C
Cl	1.	U	1.	U	1.	U				
Cl	1.	U	1.	U						
SO4	1.	U	1.	U	1.	U				
SO4	1.	U	1.	U	1.	U	1.	U		
NH3 as N	0.010	U	0.01	U	0.01	U				

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B032999_TDS_W01 Preparation Date : 03/29/99

Analyte	Reported		Units	Limit
TDS	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B032999_TS_W01 Preparation Date : 03/29/99

Analyte	Reported		Units	Limit
TS	2.0	U	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B040199_ALK_W01 Preparation Date : 04/01/99

Analyte	Reported	Units	Limit
ALK	2.0	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B041299_IAI_W01 Preparation Date : 04/12/99

Analyte	Reported		Units	Limit
F_IC	0.20	U	mg/L	0.40
CL_IC	1.0	U	mg/L	2.0
NO3_IC	0.20	U	mg/L	0.40
SO4_IC	1.0	U	mg/L	2.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B041499_IAI_W01 Preparation Date : 04/14/99

Analyte	Reported		Units	Limit
F_IC	0.20	U	mg/L	0.40
CL_IC	1.0	U	mg/L	2.0
NO3_IC	0.20	U	mg/L	0.40
SO4_IC	1.0	U	mg/L	2.0
NO2_IC	0.10	U	mg/L	0.20

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B042099_IAI_W01 Preparation Date : 04/20/99

Analyte	Reported		Units	Limit
CL_IC	1.0	U	mg/L	2.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B042099_NH3_W01 Preparation Date : 04/20/99

Analyte	Reported	Units	Limit
NH3_SPEC	0.010 U	mg/L	0.020

Form BLANK-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M041299_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/12/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Fluoride (EPA 300.0)	0	5.000	5.500	110	66	121
Chloride (EPA 300.0)	37.33	10.00	44.54	72	73	121
Nitrate (EPA 300.0)	0	5.000	4.600	92	79	117
Sulfate (EPA 300.0)	321.7	200.0	524.6	101	81	115

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M041499_IAIW02

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/14/99 Spk Sample: 9903645-03
Matrix : WATER Client ID : SMW2031A99
Sequence No: 02 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Sulfate (EPA 300.0)	42.94	20.00	63.89	105	81	115

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M042099_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/20/99 Spk Sample: 9903645-03
Matrix : WATER Client ID : SMW2031A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Chloride (EPA 300.0)	6.170	4.000	10.34	104	73	121

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M042099_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 04/20/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Ammonia as N (EPA 350.1)	0	0.5000	0.395	79	53	120

* = Value is outside control limit

If RECOV = -1 value could not be calculated.
If RECOV = 999 value exeeded 999%.

Form MS/Dupe-2

MS/Duplicate Database

Laucks Testing Labs

Record name: M041299_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/12/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Fluoride (EPA 300.0)	0	0	0 L	1.0
Chloride (EPA 300.0)	37.33	36.33	2.72 P	11
Nitrate (EPA 300.0)	0	0	0 L	1.0
Sulfate (EPA 300.0)	321.7	308.0	4.35 P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M041499_IAIW02

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/14/99 Spk Sample: 9903645-03
Matrix : WATER Client ID : SMW2031A99
Sequence No: 02 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Sulfate (EPA 300.0)	42.94	42.95	0.023 P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M042099_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 04/20/99 Spk Sample: 9903645-03
Matrix : WATER Client ID : SMW2031A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Chloride (EPA 300.0)	6.170	6.250	1.29 P	11

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M042099_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 04/20/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Ammonia as N (EPA 350.1)	0	0	0 L	0.050

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 value could not be calculated.

Form MS/DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D032999_TDSW01

Spike Frac : TDS
Description: Total Dissolved Solids, 160.1
QC Fraction: TDS
Date Prep'd: 03/29/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Total Dissolved Solids	622	629	1.1	P	30

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D032999_TSW02

Spike Frac : TS
Description: Total Solids
QC Fraction: TS
Date Prep'd: 03/29/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 02 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Total Solids	675	690	2.2	P	30

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D040199_ALKW01

Spike Frac : ALKALINITY
Description: Alkalinity
QC Fraction: ALK
Date Prep'd: 04/01/99 Spk Sample: 9903633-01
Matrix : WATER Client ID : SWES146931A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Alkalinity	57.0	55.0	3.6 P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

Duplicates Database

Laucks Testing Labs

Record name: D040199_ALKW02

Spike Frac : ALKALINITY
Description: Alkalinity
QC Fraction: ALK
Date Prep'd: 04/01/99 Spk Sample: 9903645-06
Matrix : WATER Client ID : SMW2A1A99
Sequence No: 02 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Alkalinity	39.0	41.0	5.0	P	10

* = Value is outside control limit
L = Control limit is 5x limit of detection; RPD value is difference of 2 sample values
P = Control limit is RPD; RPD value is calculated

If RPD = -1 or 99999 a value could not be calculated.

Form DUPE-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: TDS on APG MIN 22469-22470
Rep. Units : MG/L

(Database reference: R032999_RESW01)

Analyte Name	Result	True Value	LCL	UCL
Total Dissolved Solids	326	353	292	413

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: Alk by tit. on APG 22469-22470
Rep. Units : MG/L

(Database reference: R040199_ALKW01)

Analyte Name	Result	True Value	LCL	UCL
Alkalinity	42.0	38.9	34.5	43.3

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: F,CL,NO3,SO4,PO4 by IC,#981028
Rep. Units : MG/L

(Database reference: R041299_IAIW01)

Analyte Name	Result	True Value	LCL	UCL
Fluoride	21.2	20.1	18.1	22.1
Chloride	33.1 *	30.0	27.0	33.0
Nitrate	22.2	22.8	20.5	25.1
Sulfate	149	150	135	165

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: F,CL,NO3,SO4,PO4 by IC,#981028
Rep. Units : MG/L

(Database reference: R041499_IAIW01)

Analyte Name	Result	True Value	LCL	UCL
Fluoride	21.9	20.1	18.1	22.1
Chloride	31.8	30.0	27.0	33.0
Nitrate	22.5	22.8	20.5	25.1
Sulfate	152	150	135	165

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: F,CL,NO3,SO4,PO4 by IC,#981028
Rep. Units : MG/L

(Database reference: R042099_IAIW01)

Analyte Name	Result	True Value	LCL	UCL
Chloride	28.6	30.0	27.0	33.0

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

SRM Report

Lab Name : Laucks Testing Laboratories

Description: Ammonia as N in H2O, APG 20495
Rep. Units : MG/L

(Database reference: R042099_NH3W01)

Analyte Name	Result	True Value	LCL	UCL
Ammonia	13.0	12.0	9.94	14.1

* = Value is outside control limit
LCL = Lower Control Limit
UCL = Upper Control Limit

Form SRM-1

ATTACHMENT 3