N00164.AR.001676
NSA CRANE
5090.3a

SAMPLING AND ANALYSIS PLAN REPORT FOR UPGRADIENT MONITORING EVENT NUMBER 1 AT SANITARY WASTE LANDFILL MAY 20 1999 WITH TRANSMITTAL NSA CRANE IN
7/1/2001
TETRA TECH

7769-3.5-31

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT 08-9-105

August 6, 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 Upgradient Monitoring Event Number 1 (May 20, 1999) for
Naval Surface Warfare Center (NSWC)
Crane, Indiana

Dear Mr. Johns:

Upgradient Monitoring Event No. 1 has been completed. During this monitoring event ground water was collected at the upgradient wells of the Sanitary Waste Landfill (SWL) and analyzed. Enclosed is the Report for Upgradient 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.

Due to the low water levels detected in well MW1A, this well was not sampled during this event. This is the second quarter for which sampling was not performed at this well due to low water levels.

GROUND WATER POTENTIOMETRIC MAPS

Upgradient monitoring is being performed at the SWL to gain information on background contamination levels. Groundwater potentiometric maps are not required as part of this effort.

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.

Results of the laboratory analysis of the ground water samples are also included in this report. Table 1 presents a list of those compounds detected in the ground water samples at least once in any sample. A complete listing of all laboratory results is included as Attachment 4.

No organic compounds were detected in the upgradient wells. Calcium, lithium, magnesium, potassium, and sodium were detected in the filtered samples.

Please contact Ralph Basinski at 412/921-8308 (e-mail basinskir@ttnus.com), or Michael Leger at 412/912-7108 (e-mail legerm@ttnus.com) regarding questions and or comments.

Sincerely,

Michael Leger

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)

TABLE 1

LISTING OF ALL COMPOUNDS DETECTED AT LEAST ONCE
UPGRADIENT MONITORING EVENT 1
SANITARY WASTE LANDFILL
NSWC CRANE, INDIANA

nsample	SMW1B2A99	SMW1B2A99-D	SMW1B2A99-AVG	SMW2012A99	TB05209901
sample	SMW1B2A99	FD05209901	SMW1B2A99	SMW2012A99	TB05209901
sacode	DUP	DUP	AVG	NORMAL	QC
qc_type	NM	NM	NM	NM	TB
sample_dat	05/20/99	05/20/99	05/20/99	05/20/99	05/20/99
Dissolved Metals (ug/L)					
CALCIUM, FILTERED	221000	233000	221000	60500	
LITHIUM, FILTERED	57.0	56.3	57.0	11.1 U	
MAGNESIUM, FILTERED	101000	106000	101000	12100	
POTASSIUM, FILTERED	2500	2700	2500	2790	
SODIUM, FILTERED	95200	100000	95200	14100	
Miscellaneous Parameters (mg/L)					
ALKALINITY AS CACO3	380	380	380	190	
BICARBONATE ALKALINITY	380	380	380	190	
CHLORIDE	160	160	160	2.0	
SULFATE	540	540	540	33	
TOTAL DISSOLVED SOLIDS	1500	1500	1500	250	
TOTAL SOLIDS	1500	1600	1500	250	

Sampling and Analysis Report Upgradient Monitoring Event No. 1 at the Sanitary Waste Landfill May 20, 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

Sampling and Analysis Report Upgradient Monitoring Event No. 1 at the Sanitary Waste Landfill May 20, 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

August 1999

089905/P

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

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 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 Chains of Custody

NSWC CRANE
CRANE, INDIANA
SANITARY WASTE LANDFILL FIELD REPORT
UPGRADIENT MONITORING EVENT NO. 1, MAY 1999

The following is a summary of field activities conducted on May 20, 1999 at the NSWC Crane facility, Crane, Indiana. Upgradient monitoring event number one sampling was completed for all upgradient monitoring wells, except MW1A, at the Sanitary Waste Landfill (SWL). Well MW1A was not sampled due to insufficient water levels in the well.

Keith Simpson, of Tetra Tech NUS, Inc., completed groundwater sampling in accordance with the April 1999 Field Sampling Plan (FSP). A total of 2 monitoring wells were sampled. 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.

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, included in Appendix 1, includes a summary of the time and date each monitoring well was sampled. Also, the Groundwater Sample Log forms for each monitoring well are included in Appendix 1.

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.

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

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

   Equipment Calibration Log Sheets are included in Appendix 5. 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. Refer to the approved Field Sample Plan Appendix C for a complete list of equipment used to purge and sample the wells.

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

    Copies of the COCs are provided in Appendix 6.

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 reactions 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
UPGRADIENT MONITORING EVENT NUMBER 1

Well ID	Sample ID	Pump Installation	Date Sampled	Water Level (1)	Start Purge	Sample Time	Water Level Elevations (2)	Comments
MW1A	SMW1A2A99	NA	5/20/99	20.91	NA	NA	694.13	DRY
MW1B	SMW1B2A99	3/13/99	5/20/99	28.93	1346	1755	686.06	FD05209901
MW201	SMW2012A99	3/13/99	5/20/99	3.68	0810	1220	711.48	

(1) Measurements are from the top of the riser (inner case) to the nearest 0.01'

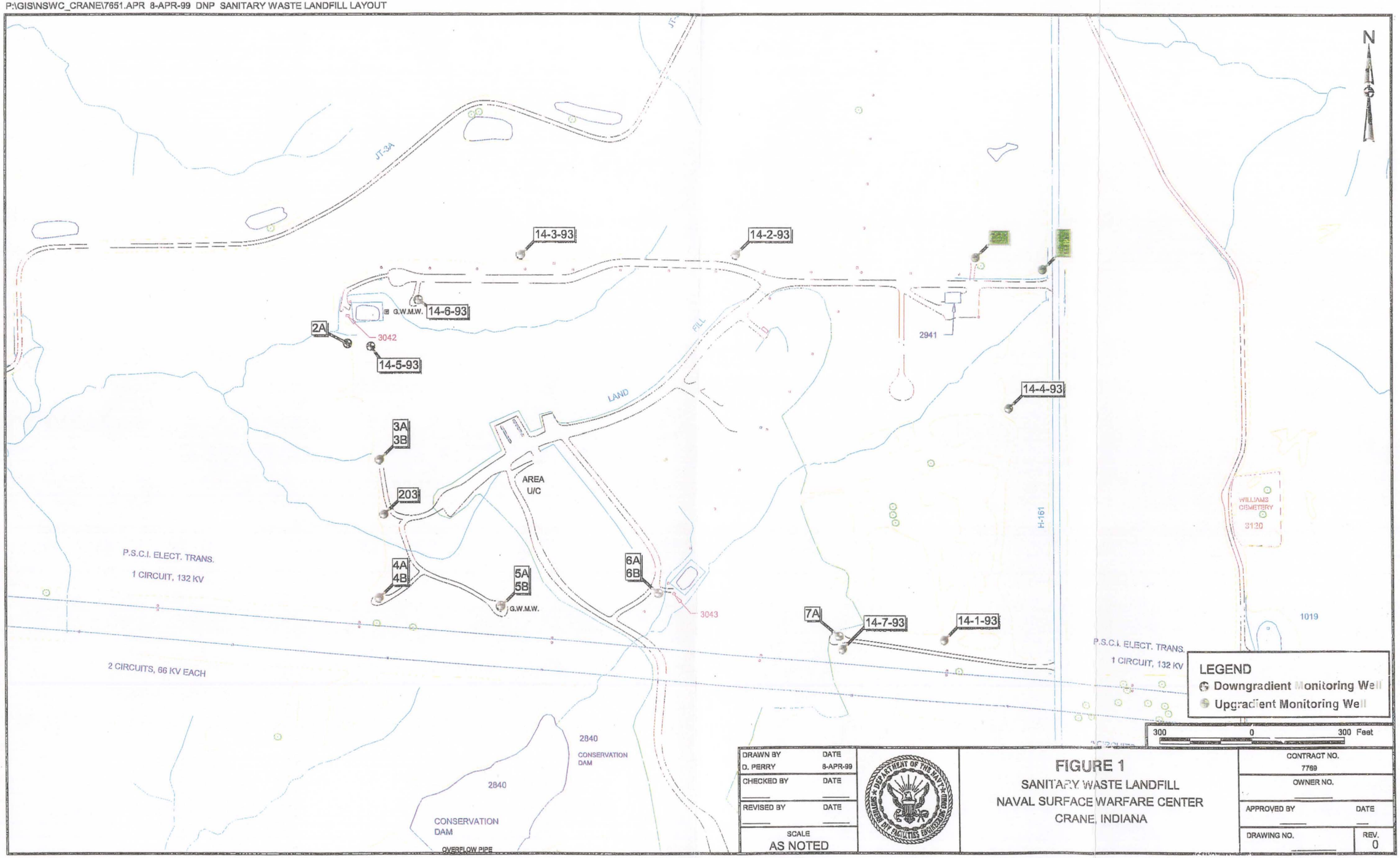
(2) Feet above mean sea level

FD = Field Duplicate

Samples from well MW1B were also analyzed for a MS.MSD

Wells MW1A, MW1B, and MW201 are Upgradient

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



DRAWN BY D. PERRY	DATE 8-APR-99	FIGURE 1 SANITARY WASTE LANDFILL NAVAL SURFACE WARFARE CENTER CRANE, INDIANA	CONTRACT NO. 7769
CHECKED BY	DATE		OWNER NO.
REVISED BY	DATE		APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. / REV. 0

APPENDIX 1

GROUND WATER SAMPLE LOG SHEETS/LOW FLOW PURGE DATA FORMS

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane, IN
Project No.: CTO 48 7769

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

Sample ID No.: SMW1A 2A99
Sample Location: SWL MW 1A
Sampled By: KEITH SIMPSON
C.O.C. No.: NA
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: / Time:	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: Dedicated Bladder pump								

PURGE DATA:

Date: 5.20.99								
Method: Dedicated Bladder pump								
Monitor Reading (ppm):			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 21.4								
Static Water Level (WL): 20.91								
One Casing Volume(gal):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (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) 1000 mL Polyethylene	
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000 mL Polyethylene	
Ammonia	H_2SO_4/4°C	(1) 500 mL Polyethylene	

DRY, NO SAMPLE

OBSERVATIONS / NOTES:

Reaction to Preservative: .5' OF WATER (DRY)

UPGRADIENT - DETECTION MONITORING

Circle if Applicable:

MS/MSD ___ Duplicate ID No.: ___

Signature(s): Keith E. Simpson

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane, IN
Project No.: CTO 48 7769

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

Sample ID No.: SMW1B2A99
Sample Location: SWL MW1B
Sampled By: KEITH SIMPSON
C.O.C. No.: 314
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	Odor
Date: 5-20-99 Time: 1755 Method: Dedicated Bladder pump	CLEAR	6.87	1.761	16.5	0	0.92	149.6	NONE

PURGE DATA:

Date:	5-20-99
Method:	Dedicated Bladder pump
Monitor Reading (ppm):	0
Well Casing Diameter & Material Type:	4" PVC
Total Well Depth (TD):	43.6
Static Water Level (WL):	28.93
One Casing Volume(gal):	9.6
Start Purge (hrs):	1246 KS (1346)
End Purge (hrs):	1750
Total Purge Time (min):	244
Total Vol. Purged (gal):	6.5

SEE LOW FLOW PURGE DATA SHEET

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) 1000 mL Polyethylene FILTERED	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000 mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

PURGED FOR 4 HRS THEN SAMPLED AS PER FSP

END WL = 30.71'

4" = 0.653 GAL/FT

TOP OF SCREEN @ 40.5'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	FD 052099 01

Signature(s): K. S. Simpson

UPGRADIENT DETECTION MONITORING

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 48
WELL ID.: SWL MW 1B
DATE: 5-20-99

Time (Hrs.)	Water Level (Ft below TOPVC)	Pump Rate (ml/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
1350	28.93	100	6.92	2.131	67	6.83	18.9	201.3	
1400	29.08		6.84	2.090	21	2.66	18.9	193.4	
1410	29.17		6.83	1.901	3.6	1.79	18.7	192.1	
1420	29.28		6.84	1.889	2.4	1.99	18.8	177.6	TEMP. CHANGES
1430	29.33		6.84	1.868	2	1.65	18.5	177.1	DUE TO SUN SHINE
1440	29.38		6.84	1.855	2	2.19	18.5	175.5	ON FLOW THRU CELL
1450	29.50		6.85	1.868	0	2.24	18.5	171.8	
1500	29.55		6.85	1.855	0	1.72	18.5	166.6	
1510	29.61		6.85	1.827	0	1.56	18.5	167.0	
1520	29.68		6.85	1.819	0	1.24	18.5	168.2	
1530	29.75		6.86	1.835	0	0.96	18.4	163.7	
1540	29.81		6.85	1.805	0	1.00	18.2	163.5	
1550	29.87		6.86	1.802	0	0.74	17.9	166.4	
1600	29.93		6.85	1.765	0	0.47	17.4	166.6	
1610	29.99		6.85	1.805	0	0.81	17.3	155.9	
1620	30.03		6.85	1.773	0	0.77	16.7	160.4	
1630	30.07		6.85	1.783	0	0.88	16.9	157.2	
1640	30.12		6.85	1.787	0	0.87	16.8	157.8	
1650	30.18		6.86	1.762	1	0.91	16.9	158.2	
1700	30.23		6.85	1.755	0	0.97	16.7	153.1	
1710	30.28		6.86	1.741	0	0.92	16.7	145.1	
1720	30.30		6.85	1.735	0	1.12	16.6	144.0	
1730	30.33		6.87	1.755	0	0.90	16.5	148.7	
1740	30.41		6.87	1.760	0	1.01	16.5	147.8	
1750	30.49		6.87	1.761	0	0.92	16.5	149.6	
		START	SAMPLING		1750				
		END	SAMPLING		1900				

SIGNATURE(S): [illegible]

PAGE 2 **OF** 2

NSWC Crane
Field Form
Revision: 0
January 1999

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane, IN
Project No.: CTO 48 7769

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

Sample ID No.: SMW 201 2A99
Sample Location: SWL MW201
Sampled By: KEITH SIMPSON
C.O.C. No.: 314
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	Odor
Date: 5.20.99 Time: 1220 Method: Dedicated Bladder pump	CLEAR	7.52	0.399	14.8	1	5.18	181.2	NONE

PURGE DATA:

Date:	5.20.99
Method:	Dedicated Bladder pump
Monitor Reading (ppm):	0
Well Casing Diameter & Material Type:	4" PVC
Total Well Depth (TD):	9.3
Static Water Level (WL):	3.68
One Casing Volume(gal):	3.7
Start Purge (hrs):	0810
End Purge (hrs):	1215
Total Purge Time (min):	245
Total Vol. Purged (gal):	3.2

SEE LOW FLOW PURGE DATA SHEET

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) 1000 mL Polyethylene (FILTERED)	✓
Sulfate, Chloride, TS, TDS, Alk, Bicarb, Carb	4°C	(1) 1000 mL Polyethylene	✓
Ammonia	H_2SO_4/4°C	(1) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

Reaction to Preservative: NONE

PURGED FOR 4 HRS & SAMPLED PER FSP
STABLE PARAMETERS

2' SCREEN
TOP OF SCREEN = 7.3'

4" = 0.653 GAL/FT

END WL = 5.81'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

— UPGRADIENT DETECTION MONITORING —

LOW FLOW PURGE DATA FORM

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 48

WELL ID.: SWL MW201
DATE: 5-20-99

Time (Hrs.)	Water Level (Ft. below TOC)	Pump Rate (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Comments
0815	3.68	80	7.47	0.974	3.2	4.09	14.6	167.5	
0825	3.91	65	7.46	0.579	2.6	2.32	14.6	164.3	
0835	4.06	50	7.46	0.485	1	2.93	14.7	166.7	
0845	4.19		7.47	0.466	1	2.45	14.7	174.3	
0855	4.28		7.50	0.449		3.18	14.7	178.6	
0955	4.46		7.56	0.425		4.64	14.7	182.6	
0915	4.58		7.61	0.413		4.82	14.8	170.1	
0925	4.68		7.64	0.408		5.70	14.8	170.2	
0935	4.75		7.64	0.403		6.67	14.8	151.8	
0945	4.86		7.63	0.401		6.17	14.8	174.8	
0955	4.97		7.63	0.402		6.51	14.8	175.6	
1005	5.07		7.62	0.399		6.65	14.8	179.5	
1015	5.15		7.60	0.398		6.11	14.8	186.7	
1025	5.21		7.58	0.397		6.64	14.8	191.2	
1035	5.26		7.57	0.400		6.02	14.8	188.0	
1045	5.35		7.56	0.397		5.74	14.8	191.1	
1055	5.39		7.57	0.397		5.65	14.8	182.8	
1105	5.42		7.54	0.398		5.61	14.8	185.5	
KS 1115	5.47		7.53	0.396		5.14	14.8	184.2	
1125	5.51		7.53	0.401		5.32	14.8	182.7	
1135	5.53		7.53	0.401		5.11	14.8	176.7	
1145	5.58		7.53	0.400		5.21	14.8	180.0	
1155	5.60		7.52	0.400		5.27	14.8	183.6	
1205	5.61		7.52	0.399		5.12	14.8	179.1	
1215	5.63		7.52	0.399		5.18	14.8	181.2	
	START	SAMPLING		1215					
	END	SAMPLING		1320					

SIGNATURE(S): K-1 S. Simp

APPENDIX 2

MONITORING WELL
INSPECTION FORMS

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

MONITORING WELL INSPECTION FORM

Well ID: SWL MW 1B

Time: 0755 **Date:** 5.20.99 **Inspector's Name:** KEITH SIMPSON

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	✓		
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) Keith S. Simpson

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

NSWC Crane
Field Form
Revision: 1
January: 1999

MONITORING WELL INSPECTION FORM

Well ID: SWL MW 1A

Time: 0750 **Date:** 5-20-99 **Inspector's Name:** KEITH SIMPSON

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	✓		
Dedicated sampling equipment	Condition of...	NA		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) K. E. Simpson

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

NSWC Crane
Field Form
Revision: 1
Janu- 1999

MONITORING WELL INSPECTION FORM

Well ID: SWL MW 201

Time: 0800 **Date:** 05/20/99 **Inspector's Name:** KEITH SIMPSON

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	✓		
Dedicated sampling equipment	Condition of...	✓		
PVC Riser	Condition of riser & survey reference point	✓		

Comments:

Signature(s) Keith E. Simpson

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

NSWC Crane
Field Form
Revision: 1
January: 1999

APPENDIX 3

FIELD LOG BOOK PAGES

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

TITLE "SWC CRANE

THUISDAY 5·20·99

PROJECT NO. 7769

BOOK 2449

Work continued from Page WEATHER: NICE, SUNNY 60-80°F

0705 AT TRAILER (KEITH SIMPSON)
LOAD TRUCK CAL. EQUIPMENT TO
SWC WATER LEVEL/INSPECTION
SET-UP AT WELL MW201
PURGING.
— UPGRADIENT DETECTION MONITORING —
1320 END SAMPLING TO TRAILER
PLACE SAMPLES IN FRIDGE RESTOCK
1330 TRUCK RETURN TO SWC SET-UP
AT WELL MW1B
~~RETURN~~ PURGING & SAMPLING
AT MW1B TOOK FD 052099 01 (DUP)
ALSO SAMPLED FOR MS/MSD
COMPLETE SAMPLING RETURN TO
1900 TRAILER. UNLOAD SUV
2010 DEPART SITE FOR HOTEL

THIS COMPLETES THE
UPGRADIENT DETECTION MONITORING
@ THE SWC
3 WELLS
2 WELLS SAMPLED, 1 DRY

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

WITNESS

DATE 5·20·99

DATE

TITLE

PROJECT NO

BOOK

Work continued from Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

WITNESS

DATE

DATE

APPENDIX 4

WATER LEVEL MEASUREMENT FORMS

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

WATER LEVEL MEASUREMENT FORM

Project Name: NSWC Crane
Location: Crane, IN
Weather Conditions: SUNNY 60°F

Project No.: CTO 48
Personnel: KEITH SIMPSON
Measuring Device: HERON NU10818
Remarks:

Well ID	Date	Time	Water Level *	Thickness of Free Product *	PID Reading ppm		Comments
					RP	BZ	
SWL MW 1A	5.20.99	0750	20.91	—	0	0	BTM 21.4; .5' WATER
SWL MW201	↓	0800	3.68	—	0	0	
SWL MW 1B	↓	0755	28.93	—	0	0	

* All measurements to the nearest 0.01 foot

Signature(s): K S Simpson

NSWC Crane
Field Form
Revision: 0
January 1999

APPENDIX 5

EQUIPMENT CALIBRATION LOGS

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PHOTOVAC 2020 PID PROJECT NAME : NSWC Crane

SERIAL NUMBER: ED HF 348 PROJECT NUMBER : 7651

MANUFACTURER : PE PHOTOVAC

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
5-17-99	100 ppm	ISOBUTYLENE	AUTO	NONE	100ppm	SWR	
		AIR 100ppm	CAL.				
5-18-99	"	"	"	"	"	SWR	
5.19.99	"	"	"	"	"	RSP	
5-21-99	"	"	"	"	"	SWN	
5/22/99	"	"	"	"	"	SWN	
5.23.99	"	"	"	"	"	RSP	
5/24/99	"	"	"	"	"	SWN	
5/25/99	"	"	"	"	"	SWN	

Instrument Rented From: US ENV. RENTAL CORP.

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : 6820 SONDE w/610-D

PROJECT NAME : NSWC Crane

SERIAL NUMBER: 98J1342 / 217711

PROJECT NUMBER : 7651

MANUFACTURER : YSI

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED *	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
5-17-99			MANUFACTURES	PROCEDURES: TWO PT. PH CAL			*pH 7.0 BUFFER (QED)
				: TWO PT		TURB. CAL	- EXP DATE 11/13/2000
				ONE PT		FOR	-LOT NO. 81113
				ORP, DO		SPCOND.	*pH 4.0 BUFFER QED
						RJR	- EXP. DATE 10/21/2000
5.18.99	CHECKED/CAL. AS		NEEDED	ALL PARAMETERS		RJR	-LOT NO. 81021
5.19.99		SAME				RJR	*CONDUCTIVITY STANDARD
5.20.99		SAME				RJR	- EXP DATE 1-12-2001
5.21.99		SAME	+ CAL	DO		RJR	-71803
5.22.99		SAME				RJR	* YSI TURB. STD. 6073
5.23.99		SAME				RJR	100 NTU OPENED 3/10/99
5-24-99		"				SWR	*AMCO AEPA-1 TURB. STD.
5-25-99		"					0.0 NTU
							* YSI 3682 ZOBELL SOL.
							LOT # 9900571 EXP 4/1
							LOT # 99B0060 EXP 2/1

Instrument Rented From: QED

APPENDIX 6

CHAIN OF CUSTODY RECORDS

UPGRADIENT MONITORING EVENT NO. 1
MAY 20, 1999
SANITARY WASTE LANDFILL

CHAIN OF CUSTODY RECORD

PROJECT NO.: 7769 CTO 48

SITE NAME: NSWC CRANE

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE 1999	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC	AMMONIA	DISSOLVED METALS	ALK, BICARB, CARB, CHLORIDE, SULFATE, TDS, TSS			REMARKS
SWL	5/20	0705		✓	TB 052099 01	2	2						TRIP BLANK
SWL	↓	1220		✓	SMW 2012A 99	6	3	1	1	1			
SWL	↓	1755		✓	SMW1B2A99	18	9	3	3	3			RUN ALSO MS/MSD
FD	↓	0000		✓	FD 052099 01	6	3	1	1	1			DUP = SMW1B2A99

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
[signature]	5-21-99 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: AB # 8104-31413817 TO LAUCKS LAB	

Order No. 70440 (0693)

ATTACHMENT 2

FORMS SUMMARY

SDG CRA09

METALS

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: ASMW20

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

Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

Matrix (soil/water): WATER Lab Sample ID: 05542-02

Level (low/med): LOW Date Received: 05/24/99

% 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	60500.			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	12100.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2790.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	14100.			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:

ENT ID: SMW2012A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: BSMW1B

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

Matrix (soil/water): WATER Lab Sample ID: 05542-03

Level (low/med): LOW Date Received: 05/24/99

% 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	221000.			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	101000.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2500.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	95200.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	57.			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: __

Comments:

CLIENT ID: SMW1B2A99

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.: CFD052

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Matrix (soil/water): WATER Lab Sample ID: 05542-04

Level (low/med): LOW Date Received: 05/24/99

% 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	233000.			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	106000.			P
7439-96-5	Manganese	16.7	U		P
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	2700.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	100000.			P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.2	U		P
7439-93-2	Lithium	56.3			M

Color Before: COLORLESS Clarity Before: CLEAR Texture: ___

Color After: COLORLESS Clarity After: CLEAR Artifacts: _

Comments:

CLIENT ID: FD05209901

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

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	292.00	97.3	250.0	259.10	103.6	254.90	102.0	P
Calcium	30000.0	29872.82	99.6	25000.0	26035.20	104.1	25778.00	103.1	P
Chromium	600.0	601.00	100.2	500.0	515.00	103.0	507.30	101.5	P
Cobalt									
Copper	1500.0	1492.10	99.5	1250.0	1222.90	97.8	1225.70	98.1	P
Iron	6000.0	5767.30	96.1	5000.0	5087.00	101.7	5058.00	101.2	P
Lead									
Magnesium	30000.0	30601.10	102.0	25000.0	24876.70	99.5	24845.00	99.4	P
Manganese	900.0	867.60	96.4	750.0	763.60	101.8	756.50	100.9	P
Mercury									
Nickel									
Potassium	30000.0	30335.01	101.1	25000.0	24338.80	97.4	24299.00	97.2	P
Selenium									
Silver									
Sodium	30000.0	30570.97	101.9	25000.0	24305.30	97.2	24493.70	98.0	P
Thallium									
Vanadium									
Zinc	1200.0	1201.80	100.2	1000.0	1015.20	101.5	998.30	99.8	P
Lithium	100.0	99.60	99.6	100.0	96.90	96.9	99.10	99.1	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.: CRA09_

nitial Calibration Source: _____

Continuing Calibration Source: _____

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	261.60	104.6	259.50	103.8	P
Calcium				25000.0	26289.20	105.2	26246.20	105.0	P
Chromium				500.0	516.00	103.2	517.00	103.4	P
Cobalt									
Copper				1250.0	1216.60	97.3	1222.70	97.8	P
Iron				5000.0	5109.80	102.2	5113.70	102.3	P
Lead									
Magnesium				25000.0	24846.60	99.4	24840.30	99.4	P
Manganese				750.0	768.30	102.4	769.20	102.6	P
Mercury									
Nickel									
Potassium				25000.0	24123.70	96.5	24124.30	96.5	P
Selenium									
Silver									
Sodium				25000.0	24229.10	96.9	24306.70	97.2	P
Thallium									
Vanadium									
Zinc				1000.0	1004.80	100.5	993.10	99.3	P
Lithium				100.0	103.20	103.2	100.90	100.9	M

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

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Initial Calibration Source: _____

Continuing Calibration Source: _____

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	254.50	101.8	260.10	104.0	P
Calcium				25000.0	25897.40	103.6	26206.20	104.8	P
Chromium				500.0	514.70	102.9	517.20	103.4	P
Cobalt									
Copper				1250.0	1227.80	98.2	1220.40	97.6	P
Iron				5000.0	5077.80	101.6	5116.30	102.3	P
Lead									
Magnesium				25000.0	24964.00	99.9	24864.60	99.5	P
Manganese				750.0	762.30	101.6	767.70	102.4	P
Mercury									
Nickel									
Potassium				25000.0	24094.70	96.4	24050.60	96.2	P
Selenium									
Silver									
Sodium				25000.0	24577.40	98.3	24310.80	97.2	P
Thallium									
Vanadium									
Zinc				1000.0	989.30	98.9	986.70	98.7	P
Lithium				100.0	101.40	101.4			M

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

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

La. ode: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Initial Calibration Source: _____

Continuing Calibration Source: _____

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	261.50	104.6			P
Calcium				25000.0	26568.50	106.3			P
Chromium				500.0	526.90	105.4			P
Cobalt									
Copper				1250.0	1223.20	97.9			P
Iron				5000.0	5154.50	103.1			P
Lead									
M sium				25000.0	24938.10	99.8			P
Manganese				750.0	773.80	103.2			P
Mercury									
Nickel									
Potassium				25000.0	24119.90	96.5			P
Selenium									
Silver									
Sodium				25000.0	24287.60	97.2			P
Thallium									
Vanadium									
Zinc				1000.0	996.20	99.6			P
Lithium									

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

U.S. EPA - CLP

2B

CRDL STANDARD FOR AA AND ICP

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

AA CRDL Standard Source: IV_____

ICP 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
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium				10.0	9.10	91.0	11.40	114.0
Calcium					54.90		50.20	
Chromium				20.0	18.30	91.5	19.00	95.0
Cobalt								
Copper				50.0	50.90	101.8	48.70	97.4
Iron					13.20		11.50	
Lead								
Magnesium					4.30		11.30	
Manganese				30.0	31.40	104.7	31.30	104.3
Mercury								
Nickel								
Potassium					-62.50		37.70	
Selenium								
Silver								
Sodium					-5.80		14.40	
Thallium								
Vanadium								
Zinc				40.0	42.80	107.0	55.60	139.0
Lithium					0.00	0.0	0.40	

U.S. EPA - CLP

3

BLANKS

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

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

U.S. EPA - CLP

3

BLANKS

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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			P
Calcium			1000.0	U	1000.0	U	1000.0	U			P
Chromium			50.0	U	50.0	U	50.0	U			P
Cobalt											
Copper			25.0	U	25.0	U	25.0	U			P
Iron			100.0	U	100.0	U	100.0	U			P
Lead											
Magnesium			1000.0	U	1000.0	U	1000.0	U			P
Manganese			15.0	U	15.0	U	15.0	U			P
Mercury											
Nickel											
Potassium			1000.0	U	1000.0	U	1000.0	U			P
Selenium											
Silver											
Sodium			1000.0	U	1000.0	U	1000.0	U			P
Thallium											
Vanadium											
Zinc			20.0	U	20.0	U	20.0	U			P
Lithium			10.0	U	10.0	U					M

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3

BLANKS

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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							P
Calcium			1000.0	U							P
Chromium			50.0	U							P
Cobalt											
Copper			25.0	U							P
Iron			100.0	U							P
Lead											
Magnesium			1000.0	U							P
Manganese			15.0	U							P
Mercury											
Nickel											
Potassium			1000.0	U							P
Selenium											
Silver											
Sodium			1000.0	U							P
Thallium											
Vanadium											
Zinc			20.0	U							P
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.: CRA09

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	6	970.5	97.0	3	979.4	97.9
Calcium	500000	500000	471604	508259.7	101.7	478333	521609.1	104.3
Chromium		500	-5	473.0	94.6	-8	480.2	96.0
Cobalt								
Copper		500	1	510.6	102.1	2	508.8	101.8
Iron	200000	200000	177507	189586.7	94.8	179643	192843.6	96.4
Lead								
Magnesium	500000	500000	493766	519442.9	103.9	492915	524810.9	105.0
Manganese		500	-4	483.0	96.6	-3	491.2	98.2
Mercury								
Nickel								
Potassium			-45	5.4		-55	-125.8	
Selenium								
Silver								
Sodium			19	39.3		19	41.7	
Thallium								
Vanadium								
Zinc		1000	-4	977.6	97.8	-5	976.5	97.6
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.: CRA09

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								
Lithium			0	-0.1		0	0.4	

U.S. EPA - CLP

5A

SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

CFD052S

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

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	43.1111		5.5556	U	44.44	97.0		P
Calcium		219654.1100		232507.0000		2222.20	-578.4		P
Chromium	75-125	451.6667		55.5556	U	444.44	101.6		P
Cobalt									NR
Copper	75-125	443.4444		27.7778	U	444.44	99.8		P
Iron	75-125	4358.0000		111.1111	U	4444.44	98.1		P
Lead									NR
Magnesium		101934.440		106132.220		2222.20	-188.9		P
Manganese	75-125	441.7778		16.6667	U	444.44	99.4		P
Mercury									NR
Nickel									NR
Potassium	75-125	4647.1111		2704.1111		2222.22	87.4		P
Selenium									NR
Silver									NR
Sodium		97039.3330		100009.000		2222.22	-133.6		P
Thallium									NR
Vanadium									NR
Zinc	75-125	832.4444		22.2222	U	888.88	93.7		P
Lithium	75-125	611.4444		56.3333		555.56	99.9		M

Comments:

U.S. EPA - CLP

5B

POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

CFD052A

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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		913.30		50.70		1000.0	86.3		M

Comments:

U.S. EPA - CLP

6

DUPLICATES

EPA SAMPLE NO.

CFD052D

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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		232507.0000		220953.3300		5.1		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		106132.2200		103915.7700		2.1		P
Manganese	16.7	16.6667	U	16.6667	U			P
Mercury								
Nickel								
Potassium	1111.1	2704.1111		2588.2222		4.4		P
Selenium								
Silver								
Sodium		100009.0000		99819.0000		0.2		P
Thallium								
Vanadium								
Zinc		22.2222	U	22.2222	U			P
Lithium		56.3333		57.8889		2.7		M

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7

LABORATORY CONTROL SAMPLE

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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	44.4	40.56	91.4						
Calcium	2222.2	2136.44	96.1						
Chromium	444.4	420.44	94.6						
Cobalt									
Copper	444.4	411.67	92.6						
Iron	4444.4	4192.22	94.3						
Lead									
Magnesium	2222.2	2041.78	91.9						
Manganese	444.4	419.56	94.4						
Mercury									
Nickel									
Potassium	2222.2	2106.22	94.8						
Selenium									
Silver									
Sodium	2222.2	2131.56	95.9						
Thallium									
Vanadium									
Zinc	888.9	802.22	90.2						
Lithium	555.6	536.11	96.5						

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9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

CFD052L

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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	209256.30		217225.00		3.8		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	95519.00		96287.00		0.8		P
Manganese	15.00	U	75.00	U			P
Mercury							
Nickel							
Potassium	2433.70		5000.00	U	100.0		P
Selenium							
Silver							
Sodium	90008.10		87854.50		2.4		P
Thallium							
Vanadium							
Zinc	20.00	U	100.00	U			P
Lithium	50.70		50.00	U	100.0		M

FORM IX - IN

U.S. EPA - CLP

13

PREPARATION LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

Method: P

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASMW20	06/09/99	45	50
BSMW1B	06/09/99	45	50
CFD052	06/09/99	45	50
CFD052D	06/09/99	45	50
CFD052S	06/09/99	45	50
LCSW1	06/09/99	45	50
PBW1	06/09/99	45	50

FORM XIII - IN

U.S. EPA - CLP

13

PREPARATION LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

Method: M

EPA Sample No.	Preparation Date	Volume (mL) Initial	Volume (mL) Final
ASMW20	06/09/99	45	50
BSMW1B	06/09/99	45	50
CFD052	06/09/99	45	50
CFD052D	06/09/99	45	50
CFD052S	06/09/99	45	50
LCSW1	06/09/99	45	50
PBW1	06/09/99	45	50

FORM XIII - IN

U.S. EPA - CLP

14

ANALYSIS RUN LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Instrument ID Number: ENVIRO36__ Method: P_

Start Date: 06/10/99 End Date: 06/10/99

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	0925							X	X	X		X	X		X	X			X			X			X	
S	1.00	0928							X	X	X		X	X		X	X			X			X			X	
ICV1	1.00	1219							X	X	X		X	X		X	X			X			X			X	
ICB1	1.00	1222							X	X	X		X	X		X	X			X			X			X	
CCV1	1.00	1226							X	X	X		X	X		X	X			X			X			X	
CCB1	1.00	1229							X	X	X		X	X		X	X			X			X			X	
CRII1	1.00	1232							X	X	X		X	X		X	X			X			X			X	
ICSAI1	1.00	1235							X	X	X		X	X		X	X			X			X			X	
ICSABI1	1.00	1238							X	X	X		X	X		X	X			X			X			X	
CCV2	1.00	1241							X	X	X		X	X		X	X			X			X			X	
CCB2	1.00	1244							X	X	X		X	X		X	X			X			X			X	
PBW1	1.00	1248							X	X	X		X	X		X	X			X			X			X	
CSW1	1.00	1251							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1254																									
ZZZZZZ	1.00	1257																									
ZZZZZZ	1.00	1300																									
ZZZZZZ	1.00	1303																									
ZZZZZZ	1.00	1306																									
ZZZZZZ	1.00	1309																									
ASMW20	1.00	1313							X	X	X		X	X		X	X			X			X			X	
BSMW1B	1.00	1316							X	X	X		X	X		X	X			X			X			X	
CCV3	1.00	1319							X	X	X		X	X		X	X			X			X			X	
CCB3	1.00	1322							X	X	X		X	X		X	X			X			X			X	
CFD052	1.00	1325							X	X	X		X	X		X	X			X			X			X	
CFD052D	1.00	1328							X	X	X		X	X		X	X			X			X			X	
CFD052S	1.00	1331							X	X	X		X	X		X	X			X			X			X	
CFD052L	5.00	1334							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1338																									
ZZZZZZ	1.00	1341																									
ZZZZZZ	1.00	1344																									
ZZZZZZ	1.00	1347																									
ZZZZZZ	1.00	1350																									

U.S. EPA - CLP

14

ANALYSIS RUN LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Instrument ID Number: ENVIRO36 Method: P

Start Date: 06/10/99 End Date: 06/10/99

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	1353																									
CCV4	1.00	1356							X	X	X		X	X		X	X			X			X			X	
CCB4	1.00	1400							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1403																									
ZZZZZZ	1.00	1406																									
ZZZZZZ	1.00	1409																									
ZZZZZZ	1.00	1412																									
ZZZZZZ	1.00	1415																									
ZZZZZZ	1.00	1418																									
ZZZZZZ	1.00	1421																									
ZZZZZZ	1.00	1425																									
ZZZZZZ	1.00	1428																									
ZZZZZZ	1.00	1431																									
CCV5	1.00	1434							X	X	X		X	X		X	X			X			X			X	
CCB5	1.00	1437							X	X	X		X	X		X	X			X			X			X	
ZZZZZZ	1.00	1440																									
CCV6	1.00	1443							X	X	X		X	X		X	X			X			X			X	
CCB6	1.00	1447							X	X	X		X	X		X	X			X			X			X	
CRIF1	1.00	1450							X	X	X		X	X		X	X			X			X			X	
ICSAF1	1.00	1453							X	X	X		X	X		X	X			X			X			X	
ICSABF1	1.00	1458							X	X	X		X	X		X	X			X			X			X	
CCV7	1.00	1501							X	X	X		X	X		X	X			X			X			X	
CCB7	1.00	1504							X	X	X		X	X		X	X			X			X			X	

FORM XIV - IN

U.S. EPA - CLP

14

ANALYSIS RUN LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

Instrument ID Number: ELAN5000__ Method: P_

Start Date: 06/16/99 End Date: 06/16/99

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	0831																									X
S1	1.00	0836																									X
S2	1.00	0841																									X
S3	1.00	0846																									X
ICV1	1.00	0851																									X
ICB1	1.00	0857																									X
CCV1	1.00	0902																									X
CCB1	1.00	0907																									X
CRII1	1.00	0912																									X
ICSAI2	1.00	0917																									X
ICSABI2	1.00	0922																									X
CCV2	1.00	0928																									X
CB2	1.00	0933																									X
BW1	1.00	0938																									X
ZZZZZZ	1.00	0943																									
ZZZZZZ	1.00	0952																									
ZZZZZZ	1.00	0957																									
ZZZZZZ	1.00	1002																									
ZZZZZZ	1.00	1007																									
ZZZZZZ	1.00	1013																									
ZZZZZZ	1.00	1018																									
ZZZZZZ	1.00	1023																									
ZZZZZZ	1.00	1028																									
CCV3	1.00	1034																									X
CCB3	1.00	1039																									X
CCV3	1.00	1046																									
CCB3	1.00	1051																									
ASMW20	1.00	1056																									X
BSMW1B	1.00	1102																									X
CFD052	1.00	1107																									X
CFD052D	1.00	1112																									X
CFD052S	1.00	1117																									X

FORM XIV - IN

U.S. EPA - CLP

14

ANALYSIS RUN LOG

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

Instrument ID Number: ELAN5000 Method: P

Start Date: 06/16/99 End Date: 06/16/99

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
CFD052A	1.00	1122																									X
CFD052L	5.00	1127																									X
LCSW1	5.00	1136																									X
ZZZZZZ	5.00	1142																									
CCV4	1.00	1147																									X
ZZZZZZ	1.00	1152																									
CCB4	1.00	1200																									X
ZZZZZZ	1.00	1205																									
ZZZZZZ	1.00	1211																									
ZZZZZZ	10.00	1216																									
CRIF1	1.00	1221																									X
ICSAF2	1.00	1226																									X
ICSABF2	1.00	1231																									X
CCV5	1.00	1237																									X
CCB5	1.00	1242																									X

FORM XIV - IN

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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
Molybdenum	202.00			20.0	P

Comments:

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10

Instrument Detection Limits (Quarterly)

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09

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:

FORM X - IN

U.S. EPA - CLP

11A

ICP Interelement Correction Factors (Annually)

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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.: CRA09_

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:

U.S. EPA - CLP

12

ICP Linear Ranges (Quarterly)

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

Lab Code: LAUCKS Case No.: ___ SAS No.: ___ SDG No.: CRA09_

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:

FORMS SUMMARY

SDG CRA09

MISCELLANEOUS INORGANICS

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : SMW2012A99
SDG No. : CRA09 Lab Sample ID: 9905542-02
Matrix : WATER Date Received: 05/24/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chloride (Cl) EPA 9056	2.		mg/L		05/28/99	5.	EPA 9056
Ammonia as N (EPA 350.1)	0.05	U	mg/L		06/08/99	0.05	EPA 350 1
Bicarb. Alkalinity, HCO3	190.		mg/L	06/01/99	06/01/99	2.	SM 2320B
Carb. Alkalinity, CO3	2.	U	mg/L	06/01/99	06/01/99	2.	SM 2320B
Alkalinity, Total as CaCO3	190.		mg/L	06/01/99	06/01/99	2.	SM ~~2430B~~ 2320B
Sulfate (SO4) EPA 9056	33.		mg/L		05/28/99	1.	EPA 9056
Total Dissolved Solids	250.		mg/L	05/26/99	05/26/99	2.	EPA 160.1
Total Solids	250.		mg/L	05/26/99	05/26/99	2.	EPA 160.3

DCR 7/23/99

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs
SDG No. : CRA09
Matrix : WATER

Sample ID : SMW1B2A99
Lab Sample ID: 9905542-03
Date Received: 05/24/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chloride (Cl) EPA 9056	160.		mg/L		05/28/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.05	U	mg/L		06/08/99	0.05	EPA 350 1
Bicarb. Alkalinity, HCO3	380.		mg/L	06/01/99	06/01/99	2.	SM 2320B
Carb. Alkalinity, CO3	2.	U	mg/L	06/01/99	06/01/99	2.	SM 2320B
Alkalinity, Total as CaCO3	380.		mg/L	06/01/99	06/01/99	2.	SM ~~3430B~~ 2320B
Sulfate (SO4) EPA 9056	540.		mg/L		05/28/99	1.	EPA 9056
Total Dissolved Solids	1500.		mg/L	05/26/99	05/26/99	2.	EPA 160.1
Total Solids	1500.		mg/L	05/26/99	05/26/99	2.	EPA 160.3

DCK ~~2320B~~ 7/23/99

508
~~310~~

INORGANICS ANALYSIS DATA SHEET

Lab Name: Laucks Testing Labs Sample ID : FD05209901
SDG No. : CRA09 Lab Sample ID: 9905542-04
Matrix : WATER Date Received: 05/24/99

Analyte	Result		Units	Prepped	Analyzed	Limit	Method
Chloride (Cl) EPA 9056	160.		mg/L		05/28/99	1.	EPA 9056
Ammonia as N (EPA 350.1)	0.05	U	mg/L		06/08/99	0.05	EPA 350 1
Bicarb. Alkalinity, HCO3	380.		mg/L	06/01/99	06/01/99	2.	SM 2320B
Carb. Alkalinity, CO3	2.	U	mg/L	06/01/99	06/01/99	2.	SM 2320B
Alkalinity, Total as CaCO3	380.		mg/L	06/01/99	06/01/99	2.	SM ~~2430B~~ 2320B
Sulfate (SO4) EPA 9056	540.		mg/L		05/28/99	1.	EPA 9056
Total Dissolved Solids	1500.		mg/L	05/26/99	05/26/99	2.	EPA 160.1
Total Solids	1600.		mg/L	05/26/99	05/26/99	2.	EPA 160.3

DCR 7/23/99

509
~~311~~

FORM 2-A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No: CRA09 Concentration Units: MG/L

ANALYTE	INITIAL CALIBRATION			CONTINUING CALIBRATION					
	TRUE	FOUND	%R	TRUE	FOUND	%R	TRUE	FOUND	%R
Cl	30.1	33.0	110	5.0	4.87	97			
SO4	150.	163.	110	10.	9.66	97			
NH3 as N	12.0	13.0	109	0.500	0.486	97	0.500	0.482	96

FORM 3-A

BLANKS

Lab Name: LAUCKS TESTING LABORATORIES, INC.

SDG No.CRA09 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						
SO4	1.	U	1.	U						
NH3 as N	0.01	U	0.01	U	0.01	U				

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B052699_TDS_W01 Preparation Date : 05/26/99

Analyte	Reported	Units	Limit
TDS	4.0	mg/L	4.0

Form BLANK-1

Preparation Blanks Database Report

Lab Name : LAUCKS TESTING LABS

Lab Sample ID : B052699_TS_W01 Preparation Date : 05/26/99

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 : B052899_IAI_W01 Preparation Date : 05/28/99

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 : B060199_ALK_W01 Preparation Date : 06/01/99

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 : B060899_NH3_W01 Preparation Date : 06/08/99

Analyte	Reported	Units	Limit
NH3_SPEC	0.010 U	mg/L	0.020

Form BLANK-1

MS/Duplicate Database

Laucks Testing Labs

Record name: M052899_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 05/28/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Fluoride (EPA 300.0)	0	5.000	4.930	99	66	121
Chloride (EPA 300.0)	2.250	10.00	11.31	91	73	121
Nitrate (EPA 300.0)	2.560	5.000	7.220	93	79	117
Sulfate (EPA 300.0)	33.05	20.00	52.15	96	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: M060899_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 06/08/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Spike Added	Spike Found	% Recov	LCL	UCL
Ammonia as N (EPA 350.1)	0	2.500	2.317	93	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: M052899_IAIW01

Spike Frac : DIONEX
Description: Anions by Ion Chromatography
QC Fraction: IAI
Date Prep'd: 05/28/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
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)	2.250	2.210	0.040	L	5.0
Nitrate (EPA 300.0)	2.560	2.540	0.784	P	10
Sulfate (EPA 300.0)	33.05	32.22	2.54	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: M060899_NH3W01

Spike Frac : NH3
Description: Ammonia, Lachat phenate method
QC Fraction: NH3
Date Prep'd: 06/08/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
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: D052699_TDSW01

Spike Frac : TDS
Description: Total Dissolved Solids, 160.1
QC Fraction: TDS
Date Prep'd: 05/26/99 Spk Sample: 9905387-18
Matrix : WATER Client ID : Minerals Lot #24763,24764
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Total Dissolved Solids	132	126	4.7 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: D052699_TSW01

Spike Frac : TS
Description: Total Solids
QC Fraction: TS
Date Prep'd: 05/26/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
Sequence No: 01 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD		Limit
Total Solids	247	245	0.81	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: D060199_ALKW03

Spike Frac : ALKALINITY
Description: Alkalinity
QC Fraction: ALK
Date Prep'd: 06/01/99 Spk Sample: 9905542-02
Matrix : WATER Client ID : SMW2012A99
Sequence No: 03 Units : MG/L

Analyte	Conc(1)	Conc(2)	RPD	Limit
Alkalinity	193	196	1.5 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: R052699_RESW01)

Analyte Name	Result	True Value	LCL	UCL
Total Dissolved Solids	327	355	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: F,CL,NO3,SO4,PO4 by IC,#981028
Rep. Units : MG/L

(Database reference: R052899_IAIW01)

Analyte Name	Result	True Value	LCL	UCL
Fluoride	19.9	20.1	18.1	22.1
Chloride	33.0	30.0	27.0	33.0
Nitrate	24.2	22.8	20.5	25.1
Sulfate	163	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: Alk by tit. on APG 22469-22470
Rep. Units : MG/L

(Database reference: R060199_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: Ammonia as N in H2O, APG 20495
Rep. Units : MG/L

(Database reference: R060899_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

FORMS SUMMARY

SDG CRA09

VOLATILE ANALYSIS

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

TB05209901

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-01

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

Lab File ID: F0525015.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec. _____

Date Analyzed: 05/25/99

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 ~~0.9~~	U ~~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	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

MTB 6/23/99

FORM I VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW2012A99

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-02

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

Lab File ID: F0525020.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec.

Date Analyzed: 05/25/99

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

SMW1B2A99

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-03

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

Lab File ID: F0525021.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec. _____

Date Analyzed: 05/25/99

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

FD05209901

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-04

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

Lab File ID: F0525024.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec. _____

Date Analyzed: 05/25/99

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

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Laucks Testing Labs Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA09

	SAMPLE NO.	SMC1 DCE) #	SMC2 (TOL) #	SMC3 DFM #	SMC4 (BFB) #	TOT OUT
01	VBLKF1	78	88	84	98	0
02	VBLKSPKF1	85	87	89	96	0
03	TB05209901	84	85	87	104	0
04	SMW2012A99	84	85	88	103	0
05	SMW1B2A99	89	85	91	100	0
06	FD05209901	89	83	90	99	0
07	VBLKF2	83	83	89	101	0
08	VBLKSPKF2	86	85	88	95	0
09	SMW1B2A99MS	94	85	93	97	0
10	SMW1B2A99MSD	93	84	93	100	0

				QC LIMITS
SMC1	(DCE)	=	1,2-Dichloroethane-d4	(62-139)
SMC2	(TOL)	=	Toluene-d8	(75-125)
SMC3	DFM	=	Dibromofluoromethane	(60-140)
SMC4	(BFB)	=	4-Bromofluorobenzene	(75-125)

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 : TCE Degradation Cmpnds CTO 38
Lab ID : S052599MVOWF1
Matrix : W
Units : UG/L

(Database Reference: S052599_MVOW04)

Analyte	Spike Added	Amount Found	% Rec	Recovery Limits	
Vinyl chloride----------	10.00	10.820	108	46	134
Chloroethane----------	10.00	9.3200	93	65	125
1,1-Dichloroethene----------	10.00	10.380	104	71	130
Methylene chloride----------	10.00	9.6700	97	75	125
trans-1,2-Dichloroethene------	10.00	10.370	104	75	125
1,1-Dichloroethane----------	10.00	10.700	107	75	125
cis-1,2-Dichloroethene--------	10.00	10.210	102	75	125
Chloroform----------	10.00	9.0900	91	74	125
1,1,1-Trichloroethane---------	10.00	8.2600	83	75	125
Carbon tetrachloride----------	10.00	8.5700	86	62	125
Benzene----------	10.00	11.110	111	85	122
1,2-Dichloroethane----------	10.00	8.5300	85	68	127
Trichloroethene----------	10.00	9.9700	100	86	117
Toluene----------	10.00	11.240	112	80	120
Tetrachloroethene----------	10.00	8.8200	88	71	125
Ethylbenzene----------	10.00	10.600	106	75	125
Total xylenes----------	30.00	32.570	109	75	125

* = Recovery exceeded control limit

Form BLKSPK-1

Blank Spike Report

Lab Sample ID: S052599MVOWF1
Description : TCE Degradation Cmpnds CTO 38
Matrix : W
Units : UG/L

(Database Reference: S052599_MVOW04)

Work Orders Verified

Work Order	Sample Fractions Verified
9905540	5-10
9905542	1-4

Form BLKSPK-2

Blank Spike Report

Lab Name : LAUCKS TESTING LABS

Description : TCE Degradation Cmpnds CTO 38
Lab ID : S052799MVOWF1
Matrix : W
Units : UG/L

(Database Reference: S052799_MVOW02)

Analyte	Spike Added	Amount Found	% Rec	Recovery Limits	
Vinyl chloride----------	10.00	9.7600	98	46	134
Chloroethane----------	10.00	9.5900	96	65	125
1,1-Dichloroethene----------	10.00	10.290	103	71	130
Methylene chloride----------	10.00	9.8700	99	75	125
trans-1,2-Dichloroethene------	10.00	9.9900	100	75	125
1,1-Dichloroethane----------	10.00	10.630	106	75	125
cis-1,2-Dichloroethene--------	10.00	10.100	101	75	125
Chloroform----------	10.00	9.3500	94	74	125
1,1,1-Trichloroethane---------	10.00	8.4000	84	75	125
Carbon tetrachloride----------	10.00	9.1800	92	62	125
Benzene----------	10.00	11.180	112	85	122
1,2-Dichloroethane----------	10.00	8.5400	85	68	127
Trichloroethene----------	10.00	10.100	101	86	117
Toluene----------	10.00	10.210	102	80	120
Tetrachloroethene----------	10.00	8.7400	87	71	125
Ethylbenzene----------	10.00	10.450	104	75	125
Total xylenes----------	30.00	32.360	108	75	125

* = Recovery exceeded control limit

Form BLKSPK-1

Blank Spike Report

Lab Sample ID: S052799MVOWF1
Description : TCE Degradation Cmpnds CTO 38
Matrix : W
Units : UG/L

(Database Reference: S052799_MVOW02)

Work Orders Verified

Work Order	Sample Fractions Verified
9905542	3MS,MSD
9905568	1-3,5,6
9905585	3

Form BLKSPK-2

MS/MSD Report

Lab Name : LAUCKS TESTING LABS

Client ID : SMW1B2A99

Lab ID : 9905542-03
Matrix : WATER
Units : UG/L

Description : Crane CTO48 VOA 10/92 Cmpds

(Database Reference: K052799_MVOW01)

Matrix Spike Data

Analyte	Spike Added	Sample Found	MS Found	MS Rec	Recovery Limits	
Chloromethane----------	10.000	0	10.500	105	75	125
Vinyl chloride----------	10.000	0	10.000	100	46	134
Bromomethane----------	10.000	0	9.5200	95	72	175
Chloroethane----------	10.000	0	9.6700	97	65	125
1,1-Dichloroethene----------	10.000	0	10.600	106	59	145
Methylene chloride----------	10.000	0	9.6500	96	75	125
trans-1,2-Dichloroethene------	10.000	0	10.100	101	75	125
1,1-Dichloroethane----------	10.000	0	10.800	108	72	125
cis-1,2-Dichloroethene--------	10.000	0	10.200	102	75	125
Chloroform----------	10.000	0	9.6500	96	74	125
1,1,1-Trichloroethane---------	10.000	0	8.4200	84	75	125
Carbon tetrachloride----------	10.000	0	9.3300	93	62	12[illegible]
Benzene----------	10.000	0	11.400	114	62	1[illegible]
1,2-Dichloroethane----------	10.000	0	9.0600	91	68	12[illegible]
Trichloroethene----------	10.000	0	10.300	103	54	141
1,2-Dichloropropane----------	10.000	0	12.100	121	70	125
cis-1,3-Dichlropropene--------	10.000	0	11.400	114	74	125
Toluene----------	10.000	0	10.100	101	59	139
trans-1,3-Dichlropropene------	10.000	0	10.900	109	66	125
1,1,2-Trichloroethane---------	10.000	0	11.000	110	75	127
Tetrachloroethene----------	10.000	0	8.2300	82	71	125
Chlorobenzene----------	10.000	0	9.9800	100	62	135
Ethylbenzene----------	10.000	0	10.300	103	75	125
Styrene----------	10.000	0	10.800	108	75	125
1,1,2,2-Tetrachloroethane-----	10.000	0	12.500	125	74	125
1,4-Dichlorobenzene----------	10.000	0	10.900	109	60	140
1,2-Dichlorobenzene----------	10.000	0	10.900	109	60	140
Total xylenes----------	30.000	0	31.300	104	75	125

Matrix Spike Duplicate Data

Analyte	Spike Added	MSD Found	MSD Rec	RPD	Control Limits Recov		RPD
Chloromethane----------	10.000	10.000	100	5	75	125	20
Vinyl chloride----------	10.000	9.6900	97	3	46	134	20
Bromomethane----------	10.000	9.4400	94	1	72	175	
Chloroethane----------	10.000	9.5500	96	1	65	125	
1,1-Dichloroethene----------	10.000	10.300	103	3	59	145	20
Methylene chloride----------	10.000	9.6700	97	1	75	125	20
trans-1,2-Dichloroethene------	10.000	9.9500	100	1	75	125	20

1,1-Dichloroethane----------	10.000	10.800	108		0	72	125	20
cis-1,2-Dichloroethene--------	10.000	9.9700	100		2	75	125	20
Chloroform----------	10.000	9.5500	96		0	74	125	20
1,1,1-Trichloroethane---------	10.000	8.4200	84		0	75	125	20
Carbon tetrachloride----------	10.000	9.1700	92		1	62	125	20
Benzene----------	10.000	11.200	112		2	62	142	20
1,2-Dichloroethane----------	10.000	9.0500	90		1	68	127	20
Trichloroethene----------	10.000	10.300	103		0	54	141	20
1,2-Dichloropropane----------	10.000	12.200	122		1	70	125	20
cis-1,3-Dichlropropene--------	10.000	11.500	115		1	74	125	20
Toluene----------	10.000	10.100	101		0	59	139	20
trans-1,3-Dichlropropene------	10.000	10.800	108		1	66	125	20
1,1,2-Trichloroethane---------	10.000	11.000	110		0	75	127	20
Tetrachloroethene----------	10.000	8.4400	84		2	71	125	20
Chlorobenzene----------	10.000	9.8300	98		2	62	135	20
Ethylbenzene----------	10.000	10.200	102		1	75	125	20
Styrene----------	10.000	10.600	106		2	75	125	20
1,1,2,2-Tetrachloroethane-----	10.000	12.600	126	*	1	74	125	20
1,4-Dichlorobenzene----------	10.000	10.700	107		2	60	140	30
1,2-Dichlorobenzene----------	10.000	10.900	109		0	60	140	30
Total xylenes----------	30.000	31.500	105		1	75	125	20

Comments

Form MS/MSD-1

* = Recovery or RPD exceeded control limit

Form MS/MSD-1

MS/MSD Report

Client ID : SMW1B2A99
Spike Sample: 9905542-03
Description : Crane CTO48 VOA 10/92 Cmpds
Matrix : WATER
Units : UG/L

(Database Reference: K052799_MVOW01)

Work Orders Verified

Work Order	Sample Fractions Verified
9905542	1-4

Form MS/MSD-2

4A
VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLKF1

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Lab File ID: F0525008.D

Lab Sample ID: B052599MVOWF1

Date Analyzed: 05/25/99

Time Analyzed: 12:42

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	VBLKSPKF1	S052599MVOWF1	F0525009.D	13:15
02	TB05209901	9905542-01	F0525015.D	16:07
03	SMW2012A99	9905542-02	F0525020.D	18:34
04	SMW1B2A99	9905542-03	F0525021.D	19:04
05	FD05209901	9905542-04	F0525024.D	20:33

COMMENTS

4A
VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLKF2

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Lab File ID: F0527007.D

Lab Sample ID: B052799MVOWF1

Date Analyzed: 05/27/99

Time Analyzed: 12:18

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	VBLKSPKF2	S052799MVOWF1	F0527008.D	12:57
02	SMW1B2A99MS	9905542-03MS	F0527015.D	16:40
03	SMW1B2A99MSD	9905542-03MSD	F0527016.D	17:09

COMMENTS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Labs SAS No.: _____ SDG No.: CRA09

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 LAB STD	F0209007.D	02/09/99	10:11
02	VSTD005	5 UG/L LAB STD	F0209008.D	02/09/99	10:44
03	VSTD010	10 UG/L LAB STD	F0209009.D	02/09/99	11:17
04	VSTD025	25 UG/L LAB STD	F0209010.D	02/09/99	11:49
05	VSTD050	50 UG/L LAB STD	F0209011.D	02/09/99	12:22

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Labs SAS No.: _____ SDG No.: CRA09

Lab File ID: F0525003.D BFB Injection Date: 05/25/99

Instrument ID: FLIPPER BFB Injection Time: 10:08

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	21.2
75	30.0 - 66.0% of mass 95	52.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.4
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	52.1
175	4.0 - 9.0% of mass 174	4.0 (7.7)1
176	93.0 - 101.0% of mass 174	50.4 (96.6)1
177	5.0 - 9.0% of mass 176	3.7 (7.4)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 LAB STD	F0525006.D	05/25/99	11:37
02	VBLKF1	B052599MVOWF1	F0525008.D	05/25/99	12:42
03	VBLKSPKF1	S052599MVOWF1	F0525009.D	05/25/99	13:15
04	TB05209901	9905542-01	F0525015.D	05/25/99	16:07
05	SMW2012A99	9905542-02	F0525020.D	05/25/99	18:34
06	SMW1B2A99	9905542-03	F0525021.D	05/25/99	19:04
07	FD05209901	9905542-04	F0525024.D	05/25/99	20:33

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Laucks Testing Labs SAS No.: _____ SDG No.: CRA09

Lab File ID: F0527004.D BFB Injection Date: 05/27/99

Instrument ID: FLIPPER BFB Injection Time: 10:27

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	20.2
75	30.0 - 66.0% of mass 95	51.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.3
175	4.0 - 9.0% of mass 174	4.9 (6.7)1
176	93.0 - 101.0% of mass 174	69.2 (94.3)1
177	5.0 - 9.0% of mass 176	4.8 (7.0)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 LAB STD	F0527005.D	05/27/99	11:12
02	VBLKF2	B052799MVOWF1	F0527007.D	05/27/99	12:18
03	VBLKSPKF2	S052799MVOWF1	F0527008.D	05/27/99	12:57
04	SMW1B2A99MS	9905542-03MS	F0527015.D	05/27/99	16:40
05	SMW1B2A99MSD	9905542-03MSD	F0527016.D	05/27/99	17:09

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Laucks Testing Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Lab File ID (Standard): F0525006.D Date Analyzed: 05/25/99

Instrument ID: FLIPPER Time Analyzed: 11:37

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

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR ST	226886	9.31	151337	14.00	74154	17.70
UPPER LIMIT	453772	9.81	302674	14.50	148308	18.20
LOWER LIMI	113443	8.81	75669	13.50	37077	17.20
SAMPLE NO.						
01 VBLKF1	223943	9.31	146814	14.01	74081	17.70
02 VBLKSPKF1	216388	9.31	149433	14.00	76763	17.69
03 TB05209901	206111	9.31	142179	14.01	69228	17.70
04 SMW2012A99	201829	9.30	138387	14.01	66793	17.70
05 SMW1B2A99	194591	9.30	139252	14.01	69822	17.70
06 FD05209901	195868	9.31	139860	14.01	71289	17.69

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 Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Lab File ID (Standard): F0527005.D Date Analyzed: 05/27/99

Instrument ID: FLIPPER Time Analyzed: 11:12

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

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR ST	192544	9.32	135112	14.02	72995	17.72
UPPER LIMIT	385088	9.82	270224	14.52	145990	18.22
LOWER LIMI	96272	8.82	67556	13.52	36498	17.22
SAMPLE NO.						
01 VBLKF2	186449	9.31	133777	14.02	65176	17.72
02 VBLKSPKF2	190810	9.31	132822	14.03	67660	17.72
03 SMW1B2A99MS	179624	9.31	130286	14.03	65293	17.72
04 SMW1B2A99MSD	178251	9.31	131382	14.01	65606	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

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Laucks Testing Labs Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA09

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 Labs Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: CRA09

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

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Instrument ID: FLIPPER Calibration Date: 05/25/99 Time: 11:37

Lab File ID: F0525006.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	0.157	0.100	-10.9	
Vinyl chloride	0.192	0.191		0.2	20
Bromomethane	0.269	0.242		10.2	
Chloroethane	0.126	0.108		14.7	
Trichlorofluoromethane	0.754	0.547		27.4	
1,1-Dichloroethene	0.274	0.229		16.3	20
Methylene chloride	0.255	0.218		14.8	
trans-1,2-Dichloroethene	0.303	0.289		4.6	
1,1-Dichloroethane	0.495	0.443	0.100	10.4	
cis-1,2-Dichloroethene	0.278	0.270		2.9	
Chloroform	0.642	0.545		15.1	20
1,1,1-Trichloroethane	0.658	0.487		26.0	
Carbon tetrachloride	0.554	0.414		25.3	
1,2-Dichloroethane-d4	0.234	0.195		16.6	
Benzene	0.675	0.707		-4.8	
1,2-Dichloroethane	0.233	0.187		19.9	
Trichloroethene	0.402	0.388		3.4	
1,2-Dichloropropane	0.219	0.244		-11.7	20
cis-1,3-Dichloropropene	0.281	0.299		-6.3	
Toluene-d8	1.384	1.227		11.3	
Toluene	0.709	0.724		-2.1	20
trans-1,3-Dichloropropene	0.278	0.294		-5.5	
1,1,2-Trichloroethane	0.163	0.182		-12.0	
Tetrachloroethene	0.684	0.571		16.5	
Dibromofluoromethane	0.629	0.542		13.9	
Chlorobenzene	0.824	0.819	0.300	0.6	
1,1,1,2-Tetrachloroethane	0.396	0.391		1.4	
Ethylbenzene	1.476	1.484		-0.5	20
m,p-Xylene	0.509	0.542		-6.4	
o-Xylene	0.450	0.490		-8.8	
Styrene	0.690	0.731		-5.9	
4-Bromofluorobenzene	1.447	1.453		-0.4	
1,1,2,2-Tetrachloroethane	0.369	0.473	0.300	-28.3	
1,4-Dichlorobenzene	1.249	1.390		-11.2	
1,2-Dichlorobenzene	0.937	1.028		-9.7	

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Instrument ID: FLIPPER Calibration Date: 05/25/99 Time: 11:37

Lab File ID: F0525006.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	$\overline{RRF}$	RRF10	MIN RRF	% D	MAX % D
Average %D				10.7	

FORM VII VOA

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Instrument ID: FLIPPER Calibration Date: 05/27/99 Time: 11:12

Lab File ID: F0527005.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	0.163	0.100	-15.5	
Vinyl chloride	0.192	0.201		-4.6	20
Bromomethane	0.269	0.260		3.4	
Chloroethane	0.126	0.131		-3.5	
Trichlorofluoromethane	0.754	0.633		16.1	
1,1-Dichloroethene	0.274	0.250		8.7	20
Methylene chloride	0.255	0.252		1.5	
trans-1,2-Dichloroethene	0.303	0.314		-3.7	
1,1-Dichloroethane	0.495	0.495	0.100	0.0	
cis-1,2-Dichloroethene	0.278	0.295		-6.1	
Chloroform	0.642	0.600		6.6	20
1,1,1-Trichloroethane	0.658	0.573		13.0	
Carbon tetrachloride	0.554	0.502		9.3	
1,2-Dichloroethane-d4	0.234	0.210		10.1	
Benzene	0.675	0.740		-9.7	
1,2-Dichloroethane	0.233	0.204		12.5	
Trichloroethene	0.402	0.406		-1.0	
1,2-Dichloropropane	0.219	0.251		-14.9	20
cis-1,3-Dichloropropene	0.281	0.322		-14.2	
Toluene-d8	1.384	1.233		10.9	
Toluene	0.709	0.734		-3.6	20
trans-1,3-Dichloropropene	0.278	0.302		-8.6	
1,1,2-Trichloroethane	0.163	0.182		-11.7	
Tetrachloroethene	0.684	0.626		8.5	
Dibromofluoromethane	0.629	0.573		9.0	
Chlorobenzene	0.824	0.825	0.300	0.0	
1,1,1,2-Tetrachloroethane	0.396	0.412		-3.9	
Ethylbenzene	1.476	1.521		-3.0	20
m,p-Xylene	0.509	0.544		-6.8	
o-Xylene	0.450	0.489		-8.4	
Styrene	0.690	0.767		-11.1	
4-Bromofluorobenzene	1.447	1.362		5.9	
1,1,2,2-Tetrachloroethane	0.369	0.436	0.300	-18.4	
1,4-Dichlorobenzene	1.249	1.332		-6.6	
1,2-Dichlorobenzene	0.937	0.960		-2.5	

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Laucks Testing Labs Contract:

Lab Code: Case No.: SAS No.: SDG No.: CRA09

Instrument ID: FLIPPER Calibration Date: 05/27/99 Time: 11:12

Lab File ID: F0527005.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	$\overline{RRF}$	RRF10	MIN RRF	% D	MAX % D
Average %D				7.8	

FORM VII VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKF1

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: B052599MVOWF1

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

Lab File ID: F0525008.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 05/25/99

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

VBLKF2

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: B052799MVOWF1

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

Lab File ID: F0527007.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 05/27/99

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 ~~0.3~~	U ~~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	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

MTB 6/23/99

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSPKF1

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: S052599MVOWF1

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

Lab File ID: F0525009.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 05/25/99

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	12	
75-01-4	Vinyl chloride	11	
74-83-9	Bromomethane	10	
75-00-3	Chloroethane	9.3	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	10	
75-09-2	Methylene chloride	9.7	
156-60-5	trans-1,2-Dichloroethene	10	
75-34-3	1,1-Dichloroethane	11	
156-59-2	cis-1,2-Dichloroethene	10	
67-66-3	Chloroform	9.1	
71-55-6	1,1,1-Trichloroethane	8.3	
56-23-5	Carbon tetrachloride	8.6	
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	8.5	
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	12	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	10	
10061-02-6	trans-1,3-Dichloropropene	11	
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	8.8	
108-90-7	Chlorobenzene	10	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	11	
100-42-5	Styrene	11	
79-34-5	1,1,2,2-Tetrachloroethane	13	
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	33	

FORM I VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKSPKF2

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: S052799MVOWF1

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

Lab File ID: F0527008.D

Level: (low/med) LOW

Date Received:

% Moisture: not dec.

Date Analyzed: 05/27/99

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	10	
75-01-4	Vinyl chloride	9.8	
74-83-9	Bromomethane	9.3	
75-00-3	Chloroethane	9.6	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	10	
75-09-2	Methylene chloride	9.9	~~B~~
156-60-5	trans-1,2-Dichloroethene	10	
75-34-3	1,1-Dichloroethane	11	
156-59-2	cis-1,2-Dichloroethene	10	
67-66-3	Chloroform	9.3	
71-55-6	1,1,1-Trichloroethane	8.4	
56-23-5	Carbon tetrachloride	9.2	
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	8.5	
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	12	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	10	
10061-02-6	trans-1,3-Dichloropropene	11	
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	8.7	
108-90-7	Chlorobenzene	10	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	10	
100-42-5	Styrene	11	
79-34-5	1,1,2,2-Tetrachloroethane	12	
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
95-47-6	Xylene (total)	32	

MTB 6/23/99

FORM I VOA

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SMW1B2A99MS

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-03MS

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

Lab File ID: F0527015.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec. _____

Date Analyzed: 05/27/99

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	9.5	
75-00-3	Chloroethane	9.7	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	11	
75-09-2	Methylene chloride	9.7	~~B~~
156-60-5	trans-1,2-Dichloroethene	10	
75-34-3	1,1-Dichloroethane	11	
156-59-2	cis-1,2-Dichloroethene	10	
67-66-3	Chloroform	9.7	
71-55-6	1,1,1-Trichloroethane	8.4	
56-23-5	Carbon tetrachloride	9.3	
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	9.1	
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	12	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	10	
10061-02-6	trans-1,3-Dichloropropene	11	
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	8.2	
108-90-7	Chlorobenzene	10	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	10	
100-42-5	Styrene	11	
79-34-5	1,1,2,2-Tetrachloroethane	12	
106-46-7	1,4-Dichlorobenzene	11	
95-50-1	1,2-Dichlorobenzene	11	
95-47-6	Xylene (total)	31	

MTB 6/23/99

FORM I VOA

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SMW1B2A99MSD

Lab Name: Laucks Testing Labs

SDG No.: CRA09

Matrix: (soil/water) WATER

Lab Sample ID: 9905542-03MSD

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

Lab File ID: F0527016.D

Level: (low/med) LOW

Date Received: 05/24/99

% Moisture: not dec.

Date Analyzed: 05/27/99

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	10	
75-01-4	Vinyl chloride	9.7	
74-83-9	Bromomethane	9.4	
75-00-3	Chloroethane	9.6	
75-69-4	Trichlorofluoromethane	1.0	U
75-35-4	1,1-Dichloroethene	10	
75-09-2	Methylene chloride	9.7	~~B~~
156-60-5	trans-1,2-Dichloroethene	10	
75-34-3	1,1-Dichloroethane	11	
156-59-2	cis-1,2-Dichloroethene	10	
67-66-3	Chloroform	9.6	
71-55-6	1,1,1-Trichloroethane	8.4	
56-23-5	Carbon tetrachloride	9.2	
71-43-2	Benzene	11	
107-06-2	1,2-Dichloroethane	9.1	
79-01-6	Trichloroethene	10	
78-87-5	1,2-Dichloropropane	12	
10061-01-5	cis-1,3-Dichloropropene	11	
108-88-3	Toluene	10	
10061-02-6	trans-1,3-Dichloropropene	11	
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	8.4	
108-90-7	Chlorobenzene	9.8	
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
100-41-4	Ethylbenzene	10	
100-42-5	Styrene	11	
79-34-5	1,1,2,2-Tetrachloroethane	13	
106-46-7	1,4-Dichlorobenzene	11	
95-50-1	1,2-Dichlorobenzene	11	
95-47-6	Xylene (total)	31	

MTB 6/23/99

FORM I VOA

ATTACHMENT 3

ATTACHMENT 4

ATTACHMENT 4

DATABASE LISTING UPGRADIENT MONITORING EVENT 1
SANITARY WASTE LANDFILL
NSWC CRANE, INDIANA

nsample	SMW1B2A99	SMW1B2A99-D	SMW1B2A99-AVG	SMW2012A99	TB05209901
sample	SMW1B2A99	FD05209901	SMW1B2A99	SMW2012A99	TB05209901
sacode	DUP	DUP	AVG	NORMAL	QC
qc_type	NM	NM	NM	NM	TB
sample_dat	05/20/99	05/20/99	05/20/99	05/20/99	05/20/99
Volatile Organics (ug/L)					
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2,2-TETRACHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U
BENZENE	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U
STYRENE	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U
VINYL CHLORIDE	1 U	1 U	1 U	1 U	1 U
XYLENES, TOTAL	1 U	1 U	1 U	1 U	1 U
Dissolved Metals (ug/L)					
CADMIUM, FILTERED	5.6 U	5.6 U	5.6 U	5.6 U	
CALCIUM, FILTERED	221000	233000	221000	60500	
CHROMIUM, FILTERED	55.6 U	55.6 U	55.6 U	55.6 U	
COPPER, FILTERED	27.8 U	27.8 U	27.8 U	27.8 U	

ATTACHMENT 4

DATABASE LISTING UPGRADIENT MONITORING EVENT 1
SANITARY WASTE LANDFILL
NSWC CRANE, INDIANA

nsample	SMW1B2A99	SMW1B2A99-D	SMW1B2A99-AVG	SMW2012A99	TB05209901
sample	SMW1B2A99	FD05209901	SMW1B2A99	SMW2012A99	TB05209901
sacode	DUP	DUP	AVG	NORMAL	QC
qc_type	NM	NM	NM	NM	TB
sample_dat	05/20/99	05/20/99	05/20/99	05/20/99	05/20/99
IRON, FILTERED	111 U	111 U	111 U	111 U	
LITHIUM, FILTERED	57.0	56.3	57.0	11.1 U	
MAGNESIUM, FILTERED	101000	106000	101000	12100	
MANGANESE, FILTERED	16.7 U	16.7 U	16.7 U	16.7 U	
POTASSIUM, FILTERED	2500	2700	2500	2790	
SODIUM, FILTERED	95200	100000	95200	14100	
ZINC, FILTERED	22.2 U	22.2 U	22.2 U	22.2 U	
Miscellaneous Parameters (mg/L)					
ALKALINITY AS CACO3	380	380	380	190	
AMMONIA, AS NITROGEN	0.05 U	0.05 U	0.05 U	0.05 U	
BICARBONATE ALKALINITY	380	380	380	190	
CARBONATE ALKALINITY	2 U	2 U	2 U	2 U	
CHLORIDE	160	160	160	2.0	
SULFATE	540	540	540	33	
TOTAL DISSOLVED SOLIDS	1500	1500	1500	250	
TOTAL SOLIDS	1500	1600	1500	250	