Appendix C

Data Validation Report by Laboratory Data Consultants, Inc.

Volatiles
Metals
Wet Chemistry
Hexavalent Chromium
Dissolved Metals
Methane-Ethane-Ethene

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

Haley & Aldrich, Inc.
9040 Friars Road, Suite 202
San Diego, CA 92108
ATTN: Mr. Michael McDowell

June 4, 2001

SUBJECT: Boeing C-6 Site, Data Validation

Dear Mr. McDowell,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on May 4, 2001. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 6395:

SDG #	Fraction
E1A190286, E1A290172,	Volatiles, Metals, Dissolved Metals, Methane-Ethane-Ethene, Wet Chemistry, Hexavalent Chromium

The data validation was performed under Tier 2 and Tier 3 guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

Completion of the following sample delivery group fractions are pending the arrival of additional data which has been requested from Orange Coast Analytical Service. The completed validation report for this fraction will be sent following receipt and review of this data.

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LDC Project # 6395:

SDG #	Fraction
KJC10770, KJC10776, KJC10779, KJC10298, KJC10299, KJC10301, KJC10304, KJC10307, KJC11587, KJC11589, KJC11594, KJC11598	Volatiles, Semivolatiles, Chlorinated Pesticides, Metals, Total Volatile Fuel Hydrocarbons, TPH as Extractables, Hexavalent Chromium

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

Sincerely,

Richard M. Amano
President/Principal Chemist

Attachment 1

LDC #6395 (Haley & Aldrich/Boeing C-6 Site)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		SVOA (8270)		Pest. (8080)		Metals (SW846)		Diss. Metals (SW846)		TVPH (8015)		TPH-E (8015)		Methane Ethane Ethene		ALK (2320)		Cl, SO_4 (300.0)		NO_2-N NO_3-N (300.0)		Ferrous Iron (3500)		TOC (415.1)		CRVI (7196A)							
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	E1A190286	5-4-01	5-18-01	3	0	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0	Tier 3					
B	E1A290172	5-4-01	5-18-01	7	0	-	-	-	-	9	0	6	0	-	-	-	-	6	0	6	0	6	0	6	0	6	0	6	0	9	0	Tier 2					
C	KJC10770	5-4-01	5-18-01																													Tier 1					
D	KJC10776	5-4-01	5-18-01																													Tier 1					
E	KJC10779	5-4-01	5-18-01																													Tier 1					
F	KJC10298	5-4-01	5-18-01																													Tier 1					
G	KJC10299	5-4-01	5-18-01																													Tier 1					
H	KJC10301	5-4-01	5-18-01																													Tier 1					
I	KJC10304	5-4-01	5-18-01																													Tier 1					
J	KJC10307	5-4-01	5-18-01																													Tier 1					
K	KJC11587	5-4-01	5-18-01																													Tier 1					
L	KJC11589	5-4-01	5-18-01																													Tier 1					
M	KJC11594	5-4-01	5-18-01																													Tier 1					
N	KJC11598	5-4-01	5-18-01																													Tier 1					
Total				10	0	0	0	0	0	12	0	6	0	0	0	0	0	6	0	6	0	6	0	6	0	6	0	6	0	12	0	0	0	0	0	0	0

These sample counts do not inclute MS/MSD, and DUPs

6395ST1.HA

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Volatiles

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 19, 2001

LDC Report Date: May 11, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: Tier 3

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A190286

Sample Identification

BL-2-W-011901
TMW-10-W-011901
WCC-95-W-011901

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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

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

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
10/13/00	Acetone Acrolein Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.01842 (≥0.05) 0.00569 (≥0.05) 0.01530 (≥0.05) 0.03386 (≥0.05) 0.02200 (≥0.05) 0.01625 (≥0.05)	All samples in SDG E1A190286	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

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

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

Date	Compound	%D	Associated Samples	Flag	A or P
1/24/01	Bromomethane 2-Butanone 2-Hexanone	25.2 25.2 29.7	All samples in SDG E1A190286	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
1/24/01	Acrolein 2-Chloroethylvinyl ether	0.00472 (≥0.05) 0.01279 (≥0.05)	All samples in SDG E1A190286	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A
1/24/01	Acetone Acrylonitrile 2-Butanone Tetrahydrofuran	0.01486 (≥0.05) 0.01414 (≥0.05) 0.02533 (≥0.05) 0.01953 (≥0.05)	All samples in SDG E1A190286	J (all detects) UJ (all non-detects)	A

V. Blanks

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

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
1025358BLK	1/24/01	Carbon disulfide	0.69 ug/L	All samples in SDG E1A190286

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Volatiles - Data Qualification Summary - SDG E1A190286

SDG	Sample	Compound	Flag	A or P	Reason
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	Acetone Acrolein Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	Bromomethane 2-Butanone 2-Hexanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	Acrolein 2-Chloroethylvinyl ether	J (all detects) R (all non-detects) J (all detects) R (all non-detects)	A	Continuing calibration (RRF)
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	Acetone Acrylonitrile 2-Butanone Tetrahydrofuran	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

Boeing Redevelopment Corp., C-6 Site
Volatiles - Laboratory Blank Data Qualification Summary - SDG E1A190286

No Sample Data Qualified in this SDG

6295A

TAIT ENVIRONMENTAL

Client Sample ID: BL-2-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-001 Work Order #...: DTXAL1AC Matrix.....: WATER
Date Sampled...: 01/19/01 10:40 Date Received..: 01/19/01 16:30 MS Run #.....: 1025176
Prep Date.....: 01/25/01 Analysis Date..: 01/25/01
Prep Batch #...: 1025358 Analysis Time..: 03:26
Dilution Factor: 1
Analyst ID.....: 004648 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Acetone	ND	10	ug/L	3.0	UJ
Benzene	ND	1.0	ug/L	0.30	
Bromobenzene	ND	1.0	ug/L	0.30	
Bromochloromethane	ND	1.0	ug/L	0.30	
Bromoform	ND	1.0	ug/L	0.30	
Bromomethane	ND	2.0	ug/L	1.0	UJ
Carbon tetrachloride	ND	0.50	ug/L	0.30	
2-Butanone	ND	5.0	ug/L	3.0	UJ
n-Butylbenzene	ND	1.0	ug/L	0.30	
sec-Butylbenzene	ND	1.0	ug/L	0.30	
tert-Butylbenzene	ND	1.0	ug/L	0.20	
Carbon disulfide	ND	1.0	ug/L	0.30	
Chlorobenzene	ND	1.0	ug/L	0.30	
Dibromochloromethane	ND	1.0	ug/L	0.30	
Dichlorodifluoromethane	**0.94 J**	**1.0**	**ug/L**	**0.40**	
Bromodichloromethane	ND	1.0	ug/L	0.30	
1,2-Dichloroethane	**1.0**	**0.50**	**ug/L**	**0.20**	
Chloroethane	ND	2.0	ug/L	0.30	
Chloroform	**1.3**	**1.0**	**ug/L**	**0.20**	
Chloromethane	ND	2.0	ug/L	0.30	
2-Chlorotoluene	ND	1.0	ug/L	0.30	
4-Chlorotoluene	ND	1.0	ug/L	0.30	
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60	
1,2-Dibromoethane	ND	1.0	ug/L	0.30	
Iodomethane	ND	2.0	ug/L	1.0	
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20	
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20	
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30	
1,1-Dichloroethane	ND	1.0	ug/L	0.20	
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30	
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20	
Vinyl chloride	ND	0.50	ug/L	0.30	
2,2-Dichloropropane	ND	1.0	ug/L	0.30	
1,1-Dichloropropene	ND	1.0	ug/L	0.30	
Ethylbenzene	ND	1.0	ug/L	0.20	
Hexachlorobutadiene	ND	1.0	ug/L	0.30	

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2-4-01

TAIT ENVIRONMENTAL

Client Sample ID: BL-2-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-001 Work Order #...: DTXAL1AC Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Hexanone	ND	5.0	ug/L	2.0 UJ
Isopropylbenzene	ND	1.0	ug/L	0.20
p-Isopropyltoluene	ND	1.0	ug/L	0.20
Methylene chloride	**1.0**	**1.0**	**ug/L**	**0.20**
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
n-Propylbenzene	ND	1.0	ug/L	0.40
Styrene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
Tetrachloroethene	ND	1.0	ug/L	0.70
Toluene	ND	1.0	ug/L	0.30
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40
1,2,4-Trichloro-benzene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**4.0**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	**0.72 J**	**2.0**	**ug/L**	**0.20**
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.50
Acrolein	ND	20	ug/L	12 R
Acrylonitrile	ND	20	ug/L	10 UJ
Vinyl acetate	ND	5.0	ug/L	1.0
Tetrahydrofuran	**ND**	**10**	**ug/L**	**2.0 UJ**
2-Chloroethyl vinyl ether	ND	5.0	ug/L	2.0 R

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	115	(65 - 130)
Toluene-d8	104	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW-10-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-002 Work Order #...: DTXAQ1AC Matrix.....: WATER
Date Sampled...: 01/19/01 11:40 Date Received..: 01/19/01 16:30 MS Run #.....: 1025176
Prep Date.....: 01/25/01 Analysis Date..: 01/25/01
Prep Batch #...: 1025358 Analysis Time..: 03:56
Dilution Factor: 12.5
Analyst ID.....: 004648 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Acetone	ND	120	ug/L	38	UJ
Benzene	ND	12	ug/L	3.8	
Bromobenzene	ND	12	ug/L	3.8	
Bromochloromethane	ND	12	ug/L	3.8	
Bromoform	ND	12	ug/L	3.8	
Bromomethane	ND	25	ug/L	12	UJ
Carbon tetrachloride	ND	6.2	ug/L	3.8	
2-Butanone	ND	62	ug/L	38	UJ
n-Butylbenzene	ND	12	ug/L	3.8	
sec-Butylbenzene	ND	12	ug/L	3.8	
tert-Butylbenzene	ND	12	ug/L	2.5	
Carbon disulfide	ND	12	ug/L	3.8	
Chlorobenzene	ND	12	ug/L	3.8	
Dibromochloromethane	ND	12	ug/L	3.8	
Dichlorodifluoromethane	ND	12	ug/L	5.0	
Bromodichloromethane	ND	12	ug/L	3.8	
1,2-Dichloroethane	ND	6.2	ug/L	2.5	
Chloroethane	ND	25	ug/L	3.8	
Chloroform	3.3 J	12	ug/L	2.5	
Chloromethane	ND	25	ug/L	3.8	
2-Chlorotoluene	ND	12	ug/L	3.8	
4-Chlorotoluene	ND	12	ug/L	3.8	
1,2-Dibromo-3-chloro-propane	ND	25	ug/L	7.5	
1,2-Dibromoethane	ND	12	ug/L	3.8	
Iodomethane	ND	25	ug/L	12	
1,2-Dichlorobenzene	ND	12	ug/L	2.5	
1,3-Dichlorobenzene	ND	12	ug/L	2.5	
1,4-Dichlorobenzene	ND	12	ug/L	3.8	
1,1-Dichloroethane	ND	12	ug/L	2.5	
cis-1,2-Dichloroethene	ND	12	ug/L	3.8	
trans-1,2-Dichloroethene	ND	12	ug/L	2.5	
Vinyl chloride	ND	6.2	ug/L	3.8	
2,2-Dichloropropane	ND	12	ug/L	3.8	
1,1-Dichloropropene	ND	12	ug/L	3.8	
Ethylbenzene	ND	12	ug/L	2.5	
Hexachlorobutadiene	ND	12	ug/L	3.8	

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A
6-4-M

TAIT ENVIRONMENTAL

Client Sample ID: TMW-10-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-002 Work Order #...: DTXAQ1AC Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
2-Hexanone	ND	62	ug/L	25	UJ
Isopropylbenzene	ND	12	ug/L	2.5	
p-Isopropyltoluene	ND	12	ug/L	2.5	
Methylene chloride	ND	12	ug/L	2.5	
4-Methyl-2-pentanone	ND	62	ug/L	25	
Methyl tert-butyl ether	ND	12	ug/L	6.2	
n-Propylbenzene	ND	12	ug/L	5.0	
Styrene	ND	12	ug/L	3.8	
1,1,1,2-Tetrachloroethane	ND	12	ug/L	3.8	
1,1,2,2-Tetrachloroethane	ND	12	ug/L	3.8	
Tetrachloroethene	ND	12	ug/L	8.8	
Toluene	**13**	**12**	**ug/L**	**3.8**	
1,2,3-Trichlorobenzene	ND	12	ug/L	5.0	
1,2,4-Trichloro-benzene	ND	12	ug/L	3.8	
1,1,1-Trichloroethane	ND	12	ug/L	2.5	
1,1,2-Trichloroethane	ND	12	ug/L	3.8	
Trichloroethene	**850**	**12**	**ug/L**	**3.8**	
Trichlorofluoromethane	ND	25	ug/L	2.5	
1,2,3-Trichloropropane	ND	12	ug/L	3.8	
1,1,2-Trichlorotrifluoro-ethane	ND	12	ug/L	2.5	
1,2,4-Trimethylbenzene	ND	12	ug/L	2.5	
1,3,5-Trimethylbenzene	ND	12	ug/L	2.5	
Xylenes (total)	ND	12	ug/L	6.2	
Acrolein	ND	250	ug/L	150	R
Acrylonitrile	ND	250	ug/L	120	UJ
Vinyl acetate	ND	62	ug/L	12	
Tetrahydrofuran	ND	120	ug/L	25	UJ
2-Chloroethyl vinyl ether	ND	62	ug/L	25	R

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	104	(75 - 120)
1,2-Dichloroethane-d4	110	(65 - 130)
Toluene-d8	105	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: WCC-95-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-003 Work Order #...: DTXAT1AC Matrix.....: WATER
Date Sampled...: 01/19/01 00:55 Date Received..: 01/19/01 16:30 MS Run #.....: 1025176
Prep Date.....: 01/25/01 Analysis Date..: 01/25/01
Prep Batch #...: 1025358 Analysis Time..: 04:26
Dilution Factor: 1
Analyst ID.....: 004648 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	3.0 UJ
Benzene	ND	1.0	ug/L	0.30
Bromobenzene	ND	1.0	ug/L	0.30
Bromochloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0 UJ
Carbon tetrachloride	ND	0.50	ug/L	0.30
2-Butanone	ND	5.0	ug/L	3.0 UJ
n-Butylbenzene	ND	1.0	ug/L	0.30
sec-Butylbenzene	ND	1.0	ug/L	0.30
tert-Butylbenzene	ND	1.0	ug/L	0.20
Carbon disulfide	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.30
Dichlorodifluoromethane	**0.98 J**	**1.0**	**ug/L**	**0.40**
Bromodichloromethane	ND	1.0	ug/L	0.30
1,2-Dichloroethane	ND	0.50	ug/L	0.20
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**6.8**	**1.0**	**ug/L**	**0.20**
Chloromethane	ND	2.0	ug/L	0.30
2-Chlorotoluene	ND	1.0	ug/L	0.30
4-Chlorotoluene	ND	1.0	ug/L	0.30
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	0.60
1,2-Dibromoethane	ND	1.0	ug/L	0.30
Iodomethane	ND	2.0	ug/L	1.0
1,2-Dichlorobenzene	ND	1.0	ug/L	0.20
1,3-Dichlorobenzene	ND	1.0	ug/L	0.20
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	**1.3**	**1.0**	**ug/L**	**0.20**
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.20
Vinyl chloride	ND	0.50	ug/L	0.30
2,2-Dichloropropane	ND	1.0	ug/L	0.30
1,1-Dichloropropene	ND	1.0	ug/L	0.30
Ethylbenzene	ND	1.0	ug/L	0.20
Hexachlorobutadiene	ND	1.0	ug/L	0.30

(Continued on next page)

A
6-457

TAIT ENVIRONMENTAL

Client Sample ID: WCC-95-W-011901

GC/MS Volatiles

Lot-Sample #...: E1A190286-003 Work Order #...: DTXAT1AC Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Hexanone	ND	5.0	ug/L	2.0 UJ
Isopropylbenzene	ND	1.0	ug/L	0.20
p-Isopropyltoluene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.20
4-Methyl-2-pentanone	ND	5.0	ug/L	2.0
Methyl tert-butyl ether	ND	1.0	ug/L	0.50
n-Propylbenzene	ND	1.0	ug/L	0.40
Styrene	ND	1.0	ug/L	0.30
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.30
Tetrachloroethene	ND	1.0	ug/L	0.70
Toluene	**8.7**	**1.0**	**ug/L**	**0.30**
1,2,3-Trichlorobenzene	ND	1.0	ug/L	0.40
1,2,4-Trichloro-benzene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**73**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	**0.54 J**	**2.0**	**ug/L**	**0.20**
1,2,3-Trichloropropane	ND	1.0	ug/L	0.30
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L	0.20
1,2,4-Trimethylbenzene	ND	1.0	ug/L	0.20
1,3,5-Trimethylbenzene	ND	1.0	ug/L	0.20
Xylenes (total)	ND	1.0	ug/L	0.50
Acrolein	ND	20	ug/L	12 R
Acrylonitrile	ND	20	ug/L	10 UJ
Vinyl acetate	ND	5.0	ug/L	1.0
Tetrahydrofuran	ND	10	ug/L	2.0 UJ
2-Chloroethyl vinyl ether	ND	5.0	ug/L	2.0 R

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	102	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
Toluene-d8	102	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

A 6-4-97

LDC #: 6395A1

VALIDATION COMPLETENESS WORKSHEET

SDG #: E1A190286

X Tier 3

Laboratory: Severn Trent Laboratories

Date: 5/7/01
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

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

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/19/01
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	Not reported.
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1	BL-2-W-011901 W	11		21		31	
2	TMW-10-W-011901	12		22		32	
3	WCC-95-W-011901	13		23		33	
4	1025358Bk	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
		19		29		39	
10		20		30		40	

VOA-SW.IV

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	YYY. Acetonitrile
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	ZZZ. Acrolein
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	~~AAAA~~ Acrylonitrile
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	BBBB. 1.4-Dioxane
				CCCC. Isobutyl alcohol
				DDDD. Methacrylonitrile
				EEEE. Propionitrile

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

Notes:

CO...PNDL.1SS

BOE-C6-0232686

LDC #: 6395A1
SDG #: E1A190286

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

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

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

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1	W	Y	1-19-01	NA	1-25-01		No Qual
2	↓	↓	↓	↓	↓		↓
3	↓	↓	↓	↓	↓		↓

TECHNICAL HOLDING TIME CRITERIA

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

HT.1SB

LDC #: 63950 1
SDG #: 21A190286

VALIDATION FINDINGS WORKSHEET
GC/MS Performance Check

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

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

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

Y N N/A Were the BFB performance results reviewed and found to be within the EPA Functional Guideline criteria?

Y N N/A Were all samples analyzed within the 12 hour clock criteria?

#	Laboratory ID	12 Hour Clock (Time/date)	Finding	Associated Samples	Qualifications

m/z	ION ABUNDANCE CRITERIA
50	15 - 40.0% of m/z 95
75	30.0 - 60.0% of m/z 95
95	Base peak, 100% relative abundance
96	5.0 - 9.0% of m/z 95
173	Less than 2.0% of m/z 174

m/z	ION ABUNDANCE CRITERIA
174	Greater than 50.0% of m/z 95
175	5.0 - 9.0% of mass 174
176	Greater than 95.0% but <101% of m/z 174
177	5.0 - 9.0% of m/z 176

PE[illegible] SB

BOE-C6-0232688

LDC #: 6395A1
SDG #: EH190286

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

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

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

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
Y N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?_____
Y N N/A Did the initial calibration meet the acceptance criteria?
Y N N/A Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	10/13/00	=CAL	F		0.01842	all	~~J~~/UJ/N *
			ZZZ		0.00569		
			AAAA		0.01530		
			M		0.03386		
			Tetrahydrofuran		0.02200		
			"		0.01625		
		* good response					

INICAL.1SB

BOE-C6-0232689

LDC #: 6395 A1
SDG #: ~~EHA190286~~

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

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

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	10/13/00	Methylene chloride (1st internal standard)	0.25878	0.25878	0.25859	0.25859	4.110	4.110
			~~Trichlorethene~~ AA (2nd internal standard)	0.72679	0.72679	0.64620	0.64620	9.059	9.059
			~~Toluene~~ (3rd internal standard)	1.32951	1.32951	1.20687	1.20687	9.998	9.998
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

INIC SB

BOE-C6-0232690

LDC #: 6395A1
SDG #: [illegible]190286

VALIDATION FINDINGS WORKSHEET
Continu[illegible] Calibration

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

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

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

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

(Y) N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Y (N) N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	*1/24/01	HS2375	B	25.2		All + BLK	J/UJ/A
			M	25.2			↓
			Z	29.7			↓
			ZZZ		0.00472		J/R/A
			F		0.01486		J/UJ/A *
			~~AAAA~~		0.01414		↓
			M		0.02533		↓
			Tetrahydrofuran		0.01953		↓
			11		0.01279		J/R/A

*good response

CONCAL.1SB

LDC #: 63958A1
SDG #: EHA190286

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

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

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	HS23T5	1/24/01	Methylene chloride (1st internal standard)	0.25859	0.25565	0.25565	1.1	1.1
			~~Trichlorethene~~ DB (2nd internal standard)	0.64620	0.65260	0.65260	1.0	1.0
			~~Toluene~~ BBL (3rd internal standard)	1.20887	1.26539	1.26539	4.8	4.8
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

BOE-C6-0232692

LDC #: 6395A1
SDG #: A190286

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

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

Blank analysis date: 1/24/01
Conc. units: µg/L
Associated Samples: All

Compound	Blank ID	Sample Identification								
	1025358BK									
Methylene chloride										
Acetone										
4	0.69									
CRQL										

Blank analysis date:
Conc. units:
Associated Samples:

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
CRQL										

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

BLANKS2.1SB

BOE-C6-0232693

LDC #: 6395A1
SDG #: ~~EHA~~ 190286

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

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

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

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

(Y) N N/A Were all surrogate %R within QC limits?

Y N (N/A) If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	QC Limits (Soil)	QC Limits (Water)
SMC1 (TOL) = Toluene-d8	81-117	88-110
SMC2 (BFB) = Bromofluorobenzene	74-121	86-115
SMC3 (DCE) = 1,2-Dichloroethane-d4	80-120	80-120
SMC4 (DFM) = Dibromofluoromethane	80-120	86-118

SUR.1SB

LDC #: 6395A1
SDG #: E1A190286

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: [illegible]

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

percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	10	10.3912	104	104	0
Bromofluorobenzene	↓	10.0642	101	101	↓
1,2-Dichloroethane-d4		11.4593	115	115	✓
~~Dibromofluoromethane~~					

Sample ID: _____

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

Sample ID: _____

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

Sample ID: _____

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

Sample ID: _____

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

SURRCALC.1SB

LDC #: 6395A1
SDG #: EIA190286

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

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

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

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

BOE-C6-0232696

LDC #: 65 -A1
SDG #: ~~EHA31~~ 90286

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer:
2nd Reviewer:

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

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSDC I * 2/(MSC + MSDC) MSC = Matrix spike percent recovery MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: NA

Compound	Spike Added ( )		Sample Concentration ( )	Spiked Sample Concentration ( )		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene											
Trichloroethene											
Benzene											
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

BOE-C6-0232697

LDC #: 6395A1
SDG #: ~~E1A190~~286

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: a
2nd Reviewer: ~

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

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

Y N N/A Was a LCS required?
Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

BOE-C6-0232698

LDC #: 63954

SDG #: E190286

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Page: 1 of 1

Reviewer: 9

2nd Reviewer: R

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

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 1025358 LCS

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	NA	11.7	NA	117	117				
Trichloroethene			9.41		94	94				
Benzene			9.18		92	92				
Toluene			8.93		89	89				
Chlorobenzene			8.62		86	86				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LCSCLC.1SB

BOE-C6-0232699

LDC #: 63951
SDG #: K1A190286

VALIDATION FINDINGS WORKSHEET
Internal Standards

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

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

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

Y N N/A Were all internal standard area counts within -50 to +100% of the associated calibration standard?

Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications

(BCM) = Bromochloromethane
(DFB) = 1,4-Difluorobenzene
(CBZ) = Chlorobenzene-d5
(PFB) = Pentafluorobenzene
(4DCB) = 1,4-Dichlorobenzene-d4
(2DCB) = 1,2-Dichlorobenzene-d4
(FBZ) = Fluorobenzene

INTST.1SB

BOE-C6-0232700

LDC #: 63[illegible]581
SDG #: E[illegible]90286

VALIDATION FIN[illegible]NGS WORKSHEET
Target Compound Identification

Pag[illegible] 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

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

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

Y N N/A Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?
Y N N/A Did compound spectra meet specified EPA "Functional Guidelines" criteria?
Y N N/A Were chromatogram peaks verified and accounted for?

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments: _____

TCI.1SB

BOE-C6-0232701

LDC #: 6395A1
SDG #: E1A190286

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and CRQLs

Page: 1 of 1
Reviewer:
2nd Reviewer:

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

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

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

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

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments: See sample calculation verification worksheet for recalculations

COMQUA.1SB

BOE-C6-0232702

LDC #: 6395A1
SDG #: Z1A190286

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

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

Compound results for ____ M ____ reported with a positive detect were recalculated and verified using the following equation:

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

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

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

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

RRF = Relative response factor of the calibration standard.

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

Df = Dilution factor.

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

Example:

Sample I.D. 1 . E :

Conc. = (25005)(10)(1) / (93616)(0.2585)( )( )

= 1.03 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
	1	W	0.94	0.94	✓
		L	1.0	1.0	
		K	1.3	1.3	
		E	1.0	1.0	
		S	4.0	4.0	
		KK	0.72	0.72	
	2 (12.5 x)	K	3.3	3.3	
		CC	13	13	
		S	850	850	
	3	W	0.98	0.98	
		E	6.8	6.8	
		I	1.3	1.3	
		CC	8.7	8.7	
		S	73	73	
		KK	0.54	0.54	

RECALC.1SB

LDC #: 6395A1
SDG #: ~~ELA~~190286

VALIDATION FINDINGS WORKSHEET
Tentatively Identified Compounds

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

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

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

Y N N/A Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?
Y N N/A Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?
Y N N/A Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments:

TIC.1SB

BOE-C6-0232704

LDC #: 63950A1
SDG #: 90286

VALIDATION FINDINGS WORKSHEET
System Performance

Reviewer: [illegible]
2nd Reviewer: [illegible]

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

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was the system performance acceptable?

Professional judgement was applied to assess system performance as there are no specific criteria for system performance evaluation.

#	Date	Lab ID/Reference	Finding	Associated Samples	Qualifications

Comments:

SYSP.1SB

BOE-C6-0232705

LDC #: 6395A1
SDG #: ZLA190286

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

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

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

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

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments:

OVR.1SB

BOE-C6-0232706

LDC #: 6395A1
SDG #: EHA190286

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd reviewer: [illegible]

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

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

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

FLDUP4.1SB

LDC #: 6395A1
SDG #: ELA190286

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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

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

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 29, 2001

LDC Report Date: May 11, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A290172

Sample Identification

TMW-6-W-012901
TMW-4-W-012901
TMW-4-D-012901
TMW-3-W-012901
TMW-9-W-012901
XMW-09-W-012901
TMW-1-W-012901

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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

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

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
10/13/00	Acetone Acrolein Acrylonitrile tert-Butanol 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.01842 (≥0.05) 0.00569 (≥0.05) 0.01530 (≥0.05) 0.00585 (≥0.05) 0.03386 (≥0.05) 0.02200 (≥0.05) 0.01625 (≥0.05)	All samples in SDG E1A290172	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

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

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

Date	Compound	%D	Associated Samples	Flag	A or P
1/30/01	Iodomethane	25.5	All samples in SDG E1A290172	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
1/30/01	Acetone Acrolein Acrylonitrile tert-Butanol 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.01711 (≥0.05) 0.00520 (≥0.05) 0.01484 (≥0.05) 0.00488 (≥0.05) 0.02788 (≥0.05) 0.01881 (≥0.05) 0.01324 (≥0.05)	All samples in SDG E1A290172	J (all detects) R (all non-detects)	A

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

Internal standard areas and retention times were not reviewed for Tier 2.

XI. Target Compound Identifications

Target compound identification (RT) data were not reviewed for Tier 2.

XII. Compound Quantitation and CRQLs

Compound quantitation and CRQLs were not reviewed for Tier 2.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds (TICs) were not reviewed for Tier 2.

XIV. System Performance

System performance data were not reviewed for Tier 2.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples TMW-4-W-012901 and TMW-4-D-012901 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
1,2-Dichloroethane	12	25U	200
1,1-Dichloroethene	1100	1200	9
Chloroform	14	15	7
1,1-Dichloroethane	19	20	5
cis-1,2-Dichloroethene	29	31	7
trans-1,2-Dichloroethene	21	23	9
Trichloroethene	2000	2000	0

Compound	Concentration (ug/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
Toluene	50U	15	200

XVII. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Volatiles - Data Qualification Summary - SDG E1A290172

SDG	Sample	Compound	Flag	A or P	Reason
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901 TMW-1-W-012901	Acetone Acrolein Acrylonitrile tert-Butanol 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901 TMW-1-W-012901	Iodomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901 TMW-1-W-012901	Acetone Acrolein Acrylonitrile tert-Butanol 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) R (all non-detects)	A	Continuing calibration (RRF)

Boeing Redevelopment Corp., C-6 Site
Volatiles - Laboratory Blank Data Qualification Summary - SDG E1A290172

No Sample Data Qualified in this SDG

6395B

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-001 **Work Order #...:** DVAAX1C1 **Matrix.....:** WATER
Date Sampled...: 01/29/01 08:40 **Date Received..:** 01/29/01 17:35 **MS Run #.....:** 1031234
Prep Date.....: 01/31/01 **Analysis Date..:** 01/31/01
Prep Batch #...: 1031488 **Analysis Time..:** 03:02
Dilution Factor: 5
Analyst ID.....: 015590 **Instrument ID..:** MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Acetone	ND	50	ug/L	15	R
Benzene	ND	5.0	ug/L	1.5	
Bromobenzene	ND	5.0	ug/L	1.5	
Bromochloromethane	ND	5.0	ug/L	1.5	
2-Butanone	ND	25	ug/L	15	R
Bromoform	ND	5.0	ug/L	1.5	
Bromomethane	ND	10	ug/L	5.0	
Carbon tetrachloride	ND	2.5	ug/L	1.5	
n-Butylbenzene	ND	5.0	ug/L	1.5	
1,2-Dibromo-3-chloro-propane	ND	10	ug/L	3.0	
sec-Butylbenzene	ND	5.0	ug/L	1.5	
tert-Butylbenzene	ND	5.0	ug/L	1.0	
Carbon disulfide	ND	5.0	ug/L	1.5	
Chlorobenzene	ND	5.0	ug/L	1.5	
Dibromochloromethane	ND	5.0	ug/L	1.5	
Dichlorodifluoromethane	ND	5.0	ug/L	2.0	
Bromodichloromethane	ND	5.0	ug/L	1.5	
1,2-Dichloroethane	ND	2.5	ug/L	1.0	
1,1-Dichloroethene	**7.0**	**5.0**	**ug/L**	**1.0**	
Chloroethane	ND	10	ug/L	1.5	
Chloroform	**270**	**5.0**	**ug/L**	**1.0**	
Chloromethane	ND	10	ug/L	1.5	
2,2-Dichloropropane	ND	5.0	ug/L	1.5	
2-Chlorotoluene	ND	5.0	ug/L	1.5	
4-Chlorotoluene	ND	5.0	ug/L	1.5	
Trichlorofluoromethane	ND	10	ug/L	1.0	
1,2-Dibromoethane	ND	5.0	ug/L	1.5	
Iodomethane	ND	10	ug/L	5.0	UJ
1,2-Dichlorobenzene	ND	5.0	ug/L	1.0	
1,3-Dichlorobenzene	ND	5.0	ug/L	1.0	
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5	
1,1-Dichloroethane	ND	5.0	ug/L	1.0	
cis-1,2-Dichloroethene	ND	5.0	ug/L	1.5	
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.0	
1,2,4-Trimethylbenzene	ND	5.0	ug/L	1.0	
Vinyl acetate	ND	2.5	ug/L	5.0	

(Continued on next page)

A 6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-001 **Work Order #...:** DVAAX1C1 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	5.0	ug/L	1.5
Ethylbenzene	ND	5.0	ug/L	1.0
Hexachlorobutadiene	ND	5.0	ug/L	1.5
2-Hexanone	ND	25	ug/L	10
Isopropylbenzene	ND	5.0	ug/L	1.0
p-Isopropyltoluene	ND	5.0	ug/L	1.0
Methylene chloride	ND	5.0	ug/L	1.0
4-Methyl-2-pentanone	ND	25	ug/L	10
Methyl tert-butyl ether	ND	5.0	ug/L	2.5
n-Propylbenzene	ND	5.0	ug/L	2.0
Styrene	ND	5.0	ug/L	1.5
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L	1.5
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	1.5
Tetrachloroethene	ND	5.0	ug/L	3.5
Toluene	**14**	**5.0**	**ug/L**	**1.5**
1,2,3-Trichlorobenzene	ND	5.0	ug/L	2.0
1,2,4-Trichlorobenzene	ND	5.0	ug/L	1.5
1,1,1-Trichloroethane	ND	5.0	ug/L	1.0
1,1,2-Trichloroethane	ND	5.0	ug/L	1.5
Trichloroethene	**81**	**5.0**	**ug/L**	**1.5**
1,2,3-Trichloropropane	ND	5.0	ug/L	1.5
1,1,2-Trichlorotrifluoroethane	ND	5.0	ug/L	1.0
1,3,5-Trimethylbenzene	ND	5.0	ug/L	1.0
Vinyl chloride	ND	10	ug/L	1.5
Xylenes (total)	ND	5.0	ug/L	2.5
Tert-amyl methyl ether	ND	10	ug/L	2.5
Tert-butyl ethyl ether	ND	10	ug/L	2.5
t-Butanol	ND	120	ug/L	30 R
Isopropyl ether	ND	10	ug/L	2.5
Acrolein	ND	100	ug/L	60 R
Acrylonitrile	ND	100	ug/L	50
Tetrahydrofuran	ND	50	ug/L	10
2-Chloroethyl vinyl ether	ND	25	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	80	(65 - 130)
Toluene-d8	92	(80 - 130)

A
6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-002 Work Order #...: DVAA01C2 Matrix.....: WATER
Date Sampled...: 01/29/01 10:00 Date Received..: 01/29/01 17:35 MS Run #.....: 1031234
Prep Date.....: 01/31/01 Analysis Date..: 01/31/01
Prep Batch #...: 1031488 Analysis Time..: 03:32
Dilution Factor: 50
Analyst ID.....: 015590 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	500	ug/L	150 R
Benzene	ND	50	ug/L	15
Bromobenzene	ND	50	ug/L	15
Bromochloromethane	ND	50	ug/L	15
2-Butanone	ND	250	ug/L	150 R
Bromoform	ND	50	ug/L	15
Bromomethane	ND	100	ug/L	50
Carbon tetrachloride	ND	25	ug/L	15
n-Butylbenzene	ND	50	ug/L	15
1,2-Dibromo-3-chloro-propane	ND	100	ug/L	30
sec-Butylbenzene	ND	50	ug/L	15
tert-Butylbenzene	ND	50	ug/L	10
Carbon disulfide	ND	50	ug/L	15
Chlorobenzene	ND	50	ug/L	15
Dibromochloromethane	ND	50	ug/L	15
Dichlorodifluoromethane	ND	50	ug/L	20
Bromodichloromethane	ND	50	ug/L	15
1,2-Dichloroethane	**12 J**	**25**	**ug/L**	**10**
1,1-Dichloroethene	**1100**	**50**	**ug/L**	**10**
Chloroethane	ND	100	ug/L	15
Chloroform	**14 J**	**50**	**ug/L**	**10**
Chloromethane	ND	100	ug/L	15
2,2-Dichloropropane	ND	50	ug/L	15
2-Chlorotoluene	ND	50	ug/L	15
4-Chlorotoluene	ND	50	ug/L	15
Trichlorofluoromethane	ND	100	ug/L	10
1,2-Dibromoethane	ND	50	ug/L	15
Iodomethane	ND	100	ug/L	50 UJ
1,2-Dichlorobenzene	ND	50	ug/L	10
1,3-Dichlorobenzene	ND	50	ug/L	10
1,4-Dichlorobenzene	ND	50	ug/L	15
1,1-Dichloroethane	**19 J**	**50**	**ug/L**	**10**
cis-1,2-Dichloroethene	**29 J**	**50**	**ug/L**	**15**
trans-1,2-Dichloroethene	21 J	50	ug/L	10
1,2,4-Trimethylbenzene	ND	50	ug/L	10
Vinyl acetate	ND	250	ug/L	50

(Continued on next page)

A 1/4/01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-002 **Work Order #...:** DVAA01C2 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	50	ug/L	15
Ethylbenzene	ND	50	ug/L	10
Hexachlorobutadiene	ND	50	ug/L	15
2-Hexanone	ND	250	ug/L	100
Isopropylbenzene	ND	50	ug/L	10
p-Isopropyltoluene	ND	50	ug/L	10
Methylene chloride	ND	50	ug/L	10
4-Methyl-2-pentanone	ND	250	ug/L	100
Methyl tert-butyl ether	ND	50	ug/L	25
n-Propylbenzene	ND	50	ug/L	20
Styrene	ND	50	ug/L	15
1,1,1,2-Tetrachloroethane	ND	50	ug/L	15
1,1,2,2-Tetrachloroethane	ND	50	ug/L	15
Tetrachloroethene	ND	50	ug/L	35
Toluene	ND	50	ug/L	15
1,2,3-Trichlorobenzene	ND	50	ug/L	20
1,2,4-Trichloro-benzene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	**2000**	**50**	**ug/L**	**15**
1,2,3-Trichloropropane	ND	50	ug/L	15
1,3,5-Trimethylbenzene	ND	50	ug/L	10
Vinyl chloride	ND	25	ug/L	15
Xylenes (total)	ND	50	ug/L	25
Tert-amyl methyl ether	ND	100	ug/L	25
Tert-butyl ethyl ether	ND	100	ug/L	25
t-Butanol	ND	1200	ug/L	300 R
Isopropyl ether	ND	100	ug/L	25
Acrolein	ND	1000	ug/L	600 R
Acrylonitrile	ND	1000	ug/L	500
Tetrahydrofuran	ND	500	ug/L	100
2-Chloroethyl vinyl ether	ND	250	ug/L	100

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
1,2-Dichloroethane-d4	91	(65 - 130)
Toluene-d8	93	(80 - 130)

NOTE(S):

R Estimated result. Result is less than RL.

A 6/4/07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-003 **Work Order #...:** DVAA11C2 **Matrix.....:** WATER
Date Sampled...: 01/29/01 10:05 **Date Received..:** 01/29/01 17:35 **MS Run #.....:** 1031234
Prep Date.....: 01/31/01 **Analysis Date..:** 01/31/01
Prep Batch #...: 1031488 **Analysis Time..:** 04:01
Dilution Factor: 50
Analyst ID.....: 015590 **Instrument ID..:** MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	500	ug/L	150 R
Benzene	ND	50	ug/L	15
Bromobenzene	ND	50	ug/L	15
Bromochloromethane	ND	50	ug/L	15
2-Butanone	ND	250	ug/L	150 R
Bromoform	ND	50	ug/L	15
Bromomethane	ND	100	ug/L	50
Carbon tetrachloride	ND	25	ug/L	15
n-Butylbenzene	ND	50	ug/L	15
1,2-Dibromo-3-chloro-propane	ND	100	ug/L	30
sec-Butylbenzene	ND	50	ug/L	15
tert-Butylbenzene	ND	50	ug/L	10
Carbon disulfide	ND	50	ug/L	15
Chlorobenzene	ND	50	ug/L	15
Dibromochloromethane	ND	50	ug/L	15
Dichlorodifluoromethane	ND	50	ug/L	20
Bromodichloromethane	ND	50	ug/L	15
1,2-Dichloroethane	ND	25	ug/L	10
1,1-Dichloroethene	**1200**	**50**	**ug/L**	**10**
Chloroethane	ND	100	ug/L	15
Chloroform	**15 J**	**50**	**ug/L**	**10**
Chloromethane	ND	100	ug/L	15
2,2-Dichloropropane	ND	50	ug/L	15
2-Chlorotoluene	ND	50	ug/L	15
4-Chlorotoluene	ND	50	ug/L	15
Trichlorofluoromethane	ND	100	ug/L	10
1,2-Dibromoethane	ND	50	ug/L	15
Iodomethane	ND	100	ug/L	50 UJ
1,2-Dichlorobenzene	ND	50	ug/L	10
1,3-Dichlorobenzene	ND	50	ug/L	10
1,4-Dichlorobenzene	ND	50	ug/L	15
1,1-Dichloroethane	**20 J**	**50**	**ug/L**	**10**
cis-1,2-Dichloroethene	**31 J**	**50**	**ug/L**	**15**
trans-1,2-Dichloroethene	**23 J**	**50**	**ug/L**	**10**
1,2,4-Trimethylbenzene	ND	50	ug/L	10
Vinyl acetate	ND	250	ug/L	50

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AJ 6.4.01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-003 **Work Order #...:** DVAA11C2 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	50	ug/L	15
Ethylbenzene	ND	50	ug/L	10
Hexachlorobutadiene	ND	50	ug/L	15
2-Hexanone	ND	250	ug/L	100
Isopropylbenzene	ND	50	ug/L	10
p-Isopropyltoluene	ND	50	ug/L	10
Methylene chloride	ND	50	ug/L	10
4-Methyl-2-pentanone	ND	250	ug/L	100
Methyl tert-butyl ether	ND	50	ug/L	25
n-Propylbenzene	ND	50	ug/L	20
Styrene	ND	50	ug/L	15
1,1,1,2-Tetrachloroethane	ND	50	ug/L	15
1,1,2,2-Tetrachloroethane	ND	50	ug/L	15
Tetrachloroethene	ND	50	ug/L	35
Toluene	**15 J**	**50**	**ug/L**	**15**
1,2,3-Trichlorobenzene	ND	50	ug/L	20
1,2,4-Trichloro-benzene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	**2000**	**50**	**ug/L**	**15**
1,2,3-Trichloropropane	ND	50	ug/L	15
1,3,5-Trimethylbenzene	ND	50	ug/L	10
Vinyl chloride	ND	25	ug/L	15
Xylenes (total)	ND	50	ug/L	25
Tert-amyl methyl ether	ND	100	ug/L	25
Tert-butyl ethyl ether	ND	100	ug/L	25
t-Butanol	ND	1200	ug/L	300 R
Isopropyl ether	ND	100	ug/L	25
Acrolein	ND	1000	ug/L	600 R
Acrylonitrile	ND	1000	ug/L	500
Tetrahydrofuran	ND	500	ug/L	100
2-Chloroethyl vinyl ether	ND	250	ug/L	100

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	90	(75 - 120)
1,2-Dichloroethane-d4	98	(65 - 130)
Toluene-d8	93	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

A
6.4.09

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-004 Work Order #...: DVAA31CC Matrix.....: WATER
Date Sampled...: 01/29/01 11:25 Date Received..: 01/29/01 17:35 MS Run #.....: 1031234
Prep Date.....: 01/31/01 Analysis Date..: 01/31/01
Prep Batch #...: 1031488 Analysis Time..: 04:31
Dilution Factor: 50
Analyst ID.....: 015590 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	500	ug/L	150 R
Benzene	ND	50	ug/L	15
Bromobenzene	ND	50	ug/L	15
Bromochloromethane	ND	50	ug/L	15
2-Butanone	ND	250	ug/L	150 R
Bromoform	ND	50	ug/L	15
Bromomethane	ND	100	ug/L	50
Carbon tetrachloride	ND	25	ug/L	15
n-Butylbenzene	ND	50	ug/L	15
1,2-Dibromo-3-chloro-propane	ND	100	ug/L	30
sec-Butylbenzene	ND	50	ug/L	15
tert-Butylbenzene	ND	50	ug/L	10
Carbon disulfide	ND	50	ug/L	15
Chlorobenzene	ND	50	ug/L	15
Dibromochloromethane	ND	50	ug/L	15
Dichlorodifluoromethane	ND	50	ug/L	20
Bromodichloromethane	ND	50	ug/L	15
1,2-Dichloroethane	ND	25	ug/L	10
1,1-Dichloroethene	**76**	**50**	**ug/L**	**10**
Chloroethane	ND	100	ug/L	15
Chloroform	ND	50	ug/L	10
Chloromethane	ND	100	ug/L	15
2,2-Dichloropropane	ND	50	ug/L	15
2-Chlorotoluene	ND	50	ug/L	15
4-Chlorotoluene	ND	50	ug/L	15
Trichlorofluoromethane	ND	100	ug/L	10
1,2-Dibromoethane	ND	50	ug/L	15
Iodomethane	ND	100	ug/L	50 UJ
1,2-Dichlorobenzene	ND	50	ug/L	10
1,3-Dichlorobenzene	ND	50	ug/L	10
1,4-Dichlorobenzene	ND	50	ug/L	15
1,1-Dichloroethane	ND	50	ug/L	10
cis-1,2-Dichloroethene	ND	50	ug/L	15
trans-1,2-Dichloroethene	ND	50	ug/L	10
1,2,4-Trimethylbenzene	ND	50	ug/L	10
Vinyl acetate	ND	25	ug/L	50

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Ar 5-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-004 Work Order #...: DVAA31CC Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	50	ug/L	15
Ethylbenzene	ND	50	ug/L	10
Hexachlorobutadiene	ND	50	ug/L	15
2-Hexanone	ND	250	ug/L	100
Isopropylbenzene	ND	50	ug/L	10
p-Isopropyltoluene	ND	50	ug/L	10
Methylene chloride	ND	50	ug/L	10
4-Methyl-2-pentanone	ND	250	ug/L	100
Methyl tert-butyl ether	ND	50	ug/L	25
n-Propylbenzene	ND	50	ug/L	20
Styrene	ND	50	ug/L	15
1,1,1,2-Tetrachloroethane	ND	50	ug/L	15
1,1,2,2-Tetrachloroethane	ND	50	ug/L	15
Tetrachloroethene	ND	50	ug/L	35
Toluene	**20 J**	**50**	**ug/L**	**15**
1,2,3-Trichlorobenzene	ND	50	ug/L	20
1,2,4-Trichlorobenzene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	**2200**	**50**	**ug/L**	**15**
1,2,3-Trichloropropane	ND	50	ug/L	15
1,1,2-Trichlorotrifluoroethane	ND	50	ug/L	10
1,3,5-Trimethylbenzene	ND	50	ug/L	10
Vinyl chloride	ND	100	ug/L	15
Xylenes (total)	ND	50	ug/L	25
Tert-amyl methyl ether	ND	100	ug/L	25
Tert-butyl ethyl ether	ND	100	ug/L	25
t-Butanol	ND	1200	ug/L	300 R
Isopropyl ether	ND	100	ug/L	25
Acrolein	ND	1000	ug/L	600 R
Acrylonitrile	ND	1000	ug/L	500
Tetrahydrofuran	ND	500	ug/L	100
2-Chloroethyl vinyl ether	ND	250	ug/L	100

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	93	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	94	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

A 6/4/09

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-005 Work Order #...: DVAA51CC Matrix.....: WATER
Date Sampled...: 01/29/01 12:25 Date Received..: 01/29/01 17:35 MS Run #.....: 1031234
Prep Date.....: 01/31/01 Analysis Date..: 01/31/01
Prep Batch #...: 1031488 Analysis Time..: 05:01
Dilution Factor: 12.5
Analyst ID.....: 015590 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	120	ug/L	38 R
Benzene	ND	12	ug/L	3.8
Bromobenzene	ND	12	ug/L	3.8
Bromochloromethane	ND	12	ug/L	3.8
2-Butanone	ND	62	ug/L	38 R
Bromoform	ND	12	ug/L	3.8
Bromomethane	ND	25	ug/L	12
Carbon tetrachloride	ND	6.2	ug/L	3.8
n-Butylbenzene	ND	12	ug/L	3.8
1,2-Dibromo-3-chloro-propane	ND	25	ug/L	7.5
sec-Butylbenzene	ND	12	ug/L	3.8
tert-Butylbenzene	ND	12	ug/L	2.5
Carbon disulfide	ND	12	ug/L	3.8
Chlorobenzene	ND	12	ug/L	3.8
Dibromochloromethane	ND	12	ug/L	3.8
Dichlorodifluoromethane	ND	12	ug/L	5.0
Bromodichloromethane	ND	12	ug/L	3.8
1,2-Dichloroethane	ND	6.2	ug/L	2.5
1,1-Dichloroethene	**170**	**12**	**ug/L**	**2.5**
Chloroethane	ND	25	ug/L	3.8
Chloroform	ND	12	ug/L	2.5
Chloromethane	ND	25	ug/L	3.8
2,2-Dichloropropane	ND	12	ug/L	3.8
2-Chlorotoluene	ND	12	ug/L	3.8
4-Chlorotoluene	ND	12	ug/L	3.8
Trichlorofluoromethane	ND	25	ug/L	2.5
1,2-Dibromoethane	ND	12	ug/L	3.8
Iodomethane	ND	25	ug/L	12 UJ
1,2-Dichlorobenzene	ND	12	ug/L	2.5
1,3-Dichlorobenzene	ND	12	ug/L	2.5
1,4-Dichlorobenzene	ND	12	ug/L	3.8
1,1-Dichloroethane	ND	12	ug/L	2.5
cis-1,2-Dichloroethene	ND	12	ug/L	3.8
trans-1,2-Dichloroethene	ND	12	ug/L	2.5
1,2,4-Trimethylbenzene	ND	12	ug/L	2.5
Vinyl acetate	ND	6.2	ug/L	12

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6/4/01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-005 **Work Order #...:** DVAA51CC **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	12	ug/L	3.8
Ethylbenzene	ND	12	ug/L	2.5
Hexachlorobutadiene	ND	12	ug/L	3.8
2-Hexanone	ND	62	ug/L	25
Isopropylbenzene	ND	12	ug/L	2.5
p-Isopropyltoluene	ND	12	ug/L	2.5
Methylene chloride	ND	12	ug/L	2.5
4-Methyl-2-pentanone	ND	62	ug/L	25
Methyl tert-butyl ether	ND	12	ug/L	6.2
n-Propylbenzene	ND	12	ug/L	5.0
Styrene	ND	12	ug/L	3.8
1,1,1,2-Tetrachloroethane	ND	12	ug/L	3.8
1,1,2,2-Tetrachloroethane	ND	12	ug/L	3.8
Tetrachloroethene	ND	12	ug/L	8.8
Toluene	**19**	**12**	**ug/L**	**3.8**
1,2,3-Trichlorobenzene	ND	12	ug/L	5.0
1,2,4-Trichloro-benzene	ND	12	ug/L	3.8
1,1,1-Trichloroethane	ND	12	ug/L	2.5
1,1,2-Trichloroethane	ND	12	ug/L	3.8
Trichloroethene	**850**	**12**	**ug/L**	**3.8**
1,2,3-Trichloropropane	ND	12	ug/L	3.8
1,1,2-Trichlorotrifluoro-ethane	ND	12	ug/L	2.5
1,3,5-Trimethylbenzene	ND	12	ug/L	2.5
Vinyl chloride	ND	25	ug/L	3.8
Xylenes (total)	ND	12	ug/L	6.2
Tert-amyl methyl ether	ND	25	ug/L	6.2
Tert-butyl ethyl ether	ND	25	ug/L	6.2
t-Butanol	ND	310	ug/L	75 R
Isopropyl ether	ND	25	ug/L	6.2
Acrolein	ND	250	ug/L	150 R
Acrylonitrile	ND	250	ug/L	120
Tetrahydrofuran	ND	120	ug/L	25
2-Chloroethyl vinyl ether	ND	62	ug/L	25

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	103	(65 - 130)
Toluene-d8	93	(80 - 130)

A 6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-006 Work Order #...: DVAA71CE Matrix.....: WATER
Date Sampled...: 01/29/01 14:10 Date Received..: 01/29/01 17:35 MS Run #.....: 1031234
Prep Date.....: 01/31/01 Analysis Date..: 01/31/01
Prep Batch #...: 1031488 Analysis Time..: 05:31
Dilution Factor: 50
Analyst ID.....: 015590 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Acetone	ND	500	ug/L	150	R
Benzene	ND	50	ug/L	15	
Bromobenzene	ND	50	ug/L	15	
Bromochloromethane	ND	50	ug/L	15	
2-Butanone	ND	250	ug/L	150	R
Bromoform	ND	50	ug/L	15	
Bromomethane	ND	100	ug/L	50	
Carbon tetrachloride	ND	25	ug/L	15	
n-Butylbenzene	ND	50	ug/L	15	
1,2-Dibromo-3-chloro-propane	ND	100	ug/L	30	
sec-Butylbenzene	ND	50	ug/L	15	
tert-Butylbenzene	ND	50	ug/L	10	
Carbon disulfide	**40 J**	**50**	**ug/L**	**15**	
Chlorobenzene	**160**	**50**	**ug/L**	**15**	
Dibromochloromethane	ND	50	ug/L	15	
Dichlorodifluoromethane	ND	50	ug/L	20	
Bromodichloromethane	ND	50	ug/L	15	
1,2-Dichloroethane	ND	25	ug/L	10	
1,1-Dichloroethene	ND	50	ug/L	10	
Chloroethane	ND	100	ug/L	15	
Chloroform	**2400**	**50**	**ug/L**	**10**	
Chloromethane	ND	100	ug/L	15	
2,2-Dichloropropane	ND	50	ug/L	15	
2-Chlorotoluene	ND	50	ug/L	15	
4-Chlorotoluene	ND	50	ug/L	15	
Trichlorofluoromethane	ND	100	ug/L	10	
1,2-Dibromoethane	ND	50	ug/L	15	
Iodomethane	ND	100	ug/L	50	UJ
1,2-Dichlorobenzene	ND	50	ug/L	10	
1,3-Dichlorobenzene	ND	50	ug/L	10	
1,4-Dichlorobenzene	ND	50	ug/L	15	
1,1-Dichloroethane	ND	50	ug/L	10	
cis-1,2-Dichloroethene	ND	50	ug/L	15	
trans-1,2-Dichloroethene	ND	50	ug/L	10	
1,2,4-Trimethylbenzene	ND	50	ug/L	10	
Vinyl acetate	ND	25	ug/L	50	

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6/4/02

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-006 Work Order #...: DVAA71CE Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,1-Dichloropropene	ND	50	ug/L	15
Ethylbenzene	ND	50	ug/L	10
Hexachlorobutadiene	ND	50	ug/L	15
2-Hexanone	ND	250	ug/L	100
Isopropylbenzene	ND	50	ug/L	10
p-Isopropyltoluene	ND	50	ug/L	10
Methylene chloride	ND	50	ug/L	10
4-Methyl-2-pentanone	ND	250	ug/L	100
Methyl tert-butyl ether	ND	50	ug/L	25
n-Propylbenzene	ND	50	ug/L	20
Styrene	ND	50	ug/L	15
1,1,1,2-Tetrachloroethane	ND	50	ug/L	15
1,1,2,2-Tetrachloroethane	ND	50	ug/L	15
Tetrachloroethene	**59**	**50**	**ug/L**	**35**
Toluene	ND	50	ug/L	15
1,2,3-Trichlorobenzene	ND	50	ug/L	20
1,2,4-Trichloro-benzene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	ND	50	ug/L	15
1,2,3-Trichloropropane	ND	50	ug/L	15
1,1,2-Trichlorotrifluoro-ethane	ND	50	ug/L	10
1,3,5-Trimethylbenzene	ND	50	ug/L	10
Vinyl chloride	ND	100	ug/L	15
Xylenes (total)	ND	50	ug/L	25
Tert-amyl methyl ether	ND	100	ug/L	25
Tert-butyl ethyl ether	ND	100	ug/L	25
t-Butanol	ND	1200	ug/L	300 R
Isopropyl ether	ND	100	ug/L	25
Acrolein	ND	1000	ug/L	600 R
Acrylonitrile	ND	1000	ug/L	500
Tetrahydrofuran	ND	500	ug/L	100
2-Chloroethyl vinyl ether	ND	250	ug/L	100

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	85	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	90	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

A 6/4/07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-009 Work Order #...: DVACE1AX Matrix.....: WATER
Date Sampled...: 01/29/01 11:43 Date Received..: 01/29/01 17:35 MS Run #.....: 1031234
Prep Date.....: 01/31/01 Analysis Date..: 01/31/01
Prep Batch #...: 1031488 Analysis Time..: 06:01
Dilution Factor: 5
Analyst ID.....: 015590 Instrument ID..: MSH
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
Acetone	ND	50	ug/L	15	R
Benzene	ND	5.0	ug/L	1.5	
Bromobenzene	ND	5.0	ug/L	1.5	
Bromochloromethane	ND	5.0	ug/L	1.5	
2-Butanone	ND	25	ug/L	15	R
Bromoform	ND	5.0	ug/L	1.5	
Bromomethane	ND	10	ug/L	5.0	
Carbon tetrachloride	ND	2.5	ug/L	1.5	
n-Butylbenzene	ND	5.0	ug/L	1.5	
1,2-Dibromo-3-chloro-propane	ND	10	ug/L	3.0	
sec-Butylbenzene	ND	5.0	ug/L	1.5	
tert-Butylbenzene	ND	5.0	ug/L	1.0	
Carbon disulfide	ND	5.0	ug/L	1.5	
Chlorobenzene	ND	5.0	ug/L	1.5	
Dichlorodifluoromethane	ND	5.0	ug/L	2.0	
Dibromochloromethane	ND	5.0	ug/L	1.5	
Bromodichloromethane	ND	5.0	ug/L	1.5	
1,2-Dichloroethane	ND	2.5	ug/L	1.0	
1,1-Dichloroethene	**140**	**5.0**	**ug/L**	**1.0**	
Chloroethane	ND	10	ug/L	1.5	
Chloroform	**4.3 J**	**5.0**	**ug/L**	**1.0**	
Chloromethane	ND	10	ug/L	1.5	
2,2-Dichloropropane	ND	5.0	ug/L	1.5	
2-Chlorotoluene	ND	5.0	ug/L	1.5	
4-Chlorotoluene	ND	5.0	ug/L	1.5	
Trichlorofluoromethane	**26**	**10**	**ug/L**	**1.0**	
1,2-Dibromoethane	ND	5.0	ug/L	1.5	
Iodomethane	ND	10	ug/L	5.0	UJ
1,2-Dichlorobenzene	ND	5.0	ug/L	1.0	
1,3-Dichlorobenzene	ND	5.0	ug/L	1.0	
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5	
1,1-Dichloroethane	ND	5.0	ug/L	1.0	
cis-1,2-Dichloroethene	ND	5.0	ug/L	1.5	
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.0	
1,2,4-Trimethylbenzene	ND	5.0	ug/L	1.0	
Vinyl acetate	ND	2.5	ug/L	5.0	

(Continued on next page)

A 2/4/07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_W_012901

GC/MS Volatiles

Lot-Sample #...: E1A290172-009 **Work Order #...:** DVACE1AX **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL	
1,1-Dichloropropene	ND	5.0	ug/L	1.5	
Ethylbenzene	ND	5.0	ug/L	1.0	
Hexachlorobutadiene	ND	5.0	ug/L	1.5	
2-Hexanone	ND	25	ug/L	10	
Isopropylbenzene	ND	5.0	ug/L	1.0	
p-Isopropyltoluene	ND	5.0	ug/L	1.0	
Methylene chloride	ND	5.0	ug/L	1.0	
4-Methyl-2-pentanone	ND	25	ug/L	10	
Methyl tert-butyl ether	ND	5.0	ug/L	2.5	
n-Propylbenzene	ND	5.0	ug/L	2.0	
Styrene	ND	5.0	ug/L	1.5	
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L	1.5	
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	1.5	
Tetrachloroethene	ND	5.0	ug/L	3.5	
Toluene	**5.3**	**5.0**	**ug/L**	**1.5**	
1,2,3-Trichlorobenzene	ND	5.0	ug/L	2.0	
1,2,4-Trichloro-benzene	ND	5.0	ug/L	1.5	
1,1,1-Trichloroethane	ND	5.0	ug/L	1.0	
1,1,2-Trichloroethane	ND	5.0	ug/L	1.5	
Trichloroethene	**380**	**5.0**	**ug/L**	**1.5**	
1,2,3-Trichloropropane	ND	5.0	ug/L	1.5	
1,1,2-Trichlorotrifluoro-ethane	**1.2 J**	**5.0**	**ug/L**	**1.0**	
1,3,5-Trimethylbenzene	ND	5.0	ug/L	1.0	
Vinyl chloride	ND	10	ug/L	1.5	
Xylenes (total)	ND	5.0	ug/L	2.5	
Tert-amyl methyl ether	ND	10	ug/L	2.5	
Tert-butyl ethyl ether	ND	10	ug/L	2.5	
t-Butanol	ND	120	ug/L	30	R
Isopropyl ether	ND	10	ug/L	2.5	
Acrolein	ND	100	ug/L	60	R
Acrylonitrile	ND	100	ug/L	50	↓
Tetrahydrofuran	ND	50	ug/L	10	↓
2-Chloroethyl vinyl ether	ND	25	ug/L	10	↓

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 120)
1,2-Dichloroethane-d4	101	(65 - 130)
Toluene-d8	91	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

A 6/4/07

LDC #: 6395B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 5/8/01

SDG #: E1A290172 X Tier 2 Page: 1 of 1

Laboratory: Severn Trent Laboratories Reviewer: 9

2nd Reviewer: L

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

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/01
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	E1A290161-003
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 2+3
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

MHOs

1	TMW-6-W-012901	11		21		31	
2	TMW-4-W-012901	12		22		32	
3	TMW-4-D-012901	13		23		33	
4	TMW-3-W-012901	14		24		34	
5	TMW-9-W-012901	15		25		35	
6	XMW-09-W-012901	16		26		36	
7	TMW-1-W-012901	17		27		37	
8	1031488 BK	18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

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

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

Notes:

COMPNDL.1SB

BOE-C6-0232731

LDC #: [illegible]
SDG #: EKA290172

VALIDATION FINDINGS WORKSHEET
Initial Calibration

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

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

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

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
Y N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?_____
Y N N/A Did the initial calibration meet the acceptance criteria?
Y N N/A Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	10/13/00	ICAL	F		0.01842	MI + BK	~~J~~ UJ ~~R~~ / A *
			ZZZ		0.00569		
			AAAA		0.01530		
			YYY		0.00585		
			M		0.03386		
			BBBB		0.02200		
			II		0.01625		
		good response (see a)					

INIC[illegible]SB

BOE-C6-0232732

LDC #: 6395B1
SDG #: E[illegible]2901T2

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
Y N N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	1/30/01	HS2386	Iodomethane	25.5		M + BK	J/UI/A
			F		0.01711		J/R/A
			~~ZZZ~~		0.00520		
			~~AAAA~~		0.01484		
			XYY		0.00488		
			M		0.02788		
			BBBB		0.01881		
			11		0.01324		

CONCAL1SB

BOE-C6-0232733

LDC #: 63953I
SDG #: E1A2901T2

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

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

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

Compound	Concentration (µg/L)		RPD
	2	3	
L	12	25 U	200
H	1100	1200	9
K	14	15	7
I	19	20	5
QQQ	29	31	7
PPP	21	23	9

Compound	Concentration ( )		RPD
S	2000	2000	0
CC	50 U	15	200

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

FLDUP4.1SB

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Metals

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 19, 2001

LDC Report Date: May 11, 2001

Matrix: Water

Parameters: Metals

Validation Level: Tier 1

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A190286

Sample Identification

BL-2-W-011901
TMW-10-W-011901
WCC-95-W-011901

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010 and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG E1A190286	All TAL metals	No MS associated with these samples.	MS required.	None	P

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG E1A190286	All TAL metals	No DUP analysis associated with these samples.	DUP analysis required.	None	P

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Metals - Data Qualification Summary - SDG E1A190286

SDG	Sample	Analyte	Flag	A or P	Reason
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	All TAL metals	None	P	Matrix spike/Matrix spike duplicates
E1A190286	BL-2-W-011901 TMW-10-W-011901 WCC-95-W-011901	All TAL metals	None	P	Duplicate analysis

Boeing Redevelopment Corp., C-6 Site
Metals - Laboratory Blank Data Qualification Summary - SDG E1A190286

No Sample Data Qualified in this SDG

TAIT ENVIRONMENTAL

Client Sample ID: BL-2-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-001
Date Sampled...: 01/19/01 10:40 Date Received..: 01/19/01 16:30
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1019347						
Mercury	ND	0.00020	mg/L	SW846 7470A	01/23-01/24/01	DTXAL1AX
		Dilution Factor: 1		Analysis Time..: 11:25	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1024179	MDL.....: 0.00010	
Prep Batch #...: 1022419						
Aluminum	61.7	0.20	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AD
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.080	
Arsenic	0.066	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AE
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Antimony	0.0063 B	0.060	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AF
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	
Barium	0.43	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AG
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AH
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Chromium	0.18	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AJ
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Beryllium	0.0018 B	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AK
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Lead	0.019	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AL
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	

(Continued on next page)

A
6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: BL-2-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AM
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AN
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cobalt	0.032 B	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AP
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Copper	0.077	0.025	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AQ
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Molybdenum	0.0047 B	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AR
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Nickel	0.082	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AT
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AU
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0050	
Vanadium	0.17	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AV
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Zinc	0.32	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAL1AW
		Dilution Factor: 1		Analysis Time..: 00:03	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

A 2-04-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW-10-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-002
Date Sampled...: 01/19/01 11:40 Date Received..: 01/19/01 16:30
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1019347						
Mercury	0.00034	0.00020	mg/L	SW846 7470A	01/23-01/24/01	DTXAQ1AX
		Dilution Factor: 1		Analysis Time..: 11:27	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1024179	MDL.....: 0.00010	
Prep Batch #...: 1022419						
Aluminum	47.9	0.20	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AD
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.080	
Arsenic	0.017	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AE
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Antimony	0.0056 B	0.060	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AF
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	
Barium	0.46	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AG
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AH
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Chromium	0.17	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AJ
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Beryllium	0.0015 B	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AK
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Lead	0.052	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AL
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	

(Continued on next page)

6-04-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW-10-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-002

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AM
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AN
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cobalt	0.030 B	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AP
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Copper	0.12	0.025	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AQ
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Molybdenum	0.011 B	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AR
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Nickel	0.083	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AT
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AU
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0050	
Vanadium	0.14	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AV
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Zinc	0.26	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAQ1AW
		Dilution Factor: 1		Analysis Time..: 00:11	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

AL
6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: WCC-95-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-003
Date Sampled...: 01/19/01 00:55 Date Received..: 01/19/01 16:30
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1019347						
Mercury	ND	0.00020	mg/L	SW846 7470A	01/23-01/24/01	DTXAT1AX
		Dilution Factor: 1		Analysis Time..: 11:29	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1024179	MDL.....: 0.00010	
Prep Batch #...: 1022419						
Aluminum	2.1	0.20	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AD
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AE
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Antimony	ND	0.060	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AF
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	
Barium	0.24	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AG
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cadmium	0.0013 B	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AH
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Chromium	0.026	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AJ
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AK
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.00050	
Lead	0.021	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AL
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0020	

(Continued on next page)

A
6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: WCC-95-W-011901

TOTAL Metals

Lot-Sample #...: E1A190286-003

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AM
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AN
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AP
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Copper	0.010 B	0.025	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AQ
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AR
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Nickel	0.0054 B	0.040	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AT
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AU
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0050	
Vanadium	0.0076 B	0.050	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AV
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.0010	
Zinc	0.087	0.020	mg/L	SW846 6010B	01/22-01/24/01	DTXAT1AW
		Dilution Factor: 1		Analysis Time..: 00:19	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1022230	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

A
6-04-01

LDC #: 6395A4

VALIDATION COMPLETENESS WORKSHEET

SDG #: E1A190286

X Tier 3

Laboratory: Severn Trent Laboratories

Date: 5-10-01

Page: 1 of 1

Reviewer: A

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-19-01
II.	Calibration	A	
III.	Blanks	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	N	NO MS/MSD NO HR IP
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	NOT UTILIZED
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	NOT REQUIRED
XI.	Sample Result Verification	A	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	A	
XIV.	Field Blanks	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ALL AQ

1	BL-2-W-011901	11		21		31	
2	TMW-10-W-011901	12		22		32	
3	WCC-95-W-011901	13		23		33	
4	13	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 6395A4
SDG #: GLA190286

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Parameter
1	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
2	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
3	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___

Analysis Method	
ICP	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
ICP Trace	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
ICP-MS	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___
GFAA	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN-, ___, ___, ___, ___

Comments: Mercury by CVAA if performed

LDC #: 635AY
SDG #: G1A19028

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

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

METHOD: EPA SW 846 Method 6010/7000		(CVAA) Hg	(ICP) Al, Sb, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Mg, Mn, Ni, K, Ag, Na, V, Zn	(GFAA) —	(GFAA) —	(GFAA) —	(GFAA) —	
Sample ID:	Sampling Date	Analysis Date	Analysis Date	Analysis Date	Analysis Date	Analysis Date	Analysis Date	Qualifier
1-3	1-19-01	1-24-01	1-24-01					NUBUN

Technical Holding Time Criteria
Mercury: 28 days preserved pH <2
All other metals 6 months preserved pH <2
Cyanide: 14 days preserved pH >12
Organic lead Extracted within 14 days for soils and 7 days for waters, analyzed within 40 days of extraction. (no preservation)

HT.4S2

LDC #: 6355A4
SDG #: 61A190286

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer: MJB

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N N/A Was a midrange cyanide standard distilled?

Y N N/A Are all correlation coefficients ≥0.995?

Y N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data

Comments:

CAL.4SW

BOE-C6-0232750

LDC #: 6395AY
SDG #: 180A190286

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 6 of 7
Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Pb	0.99402	1.0	99.4	N.R	Y
	GFAA (Initial calibration)						
ICV	CVAA (Initial calibration)	Hg	2.58	2.5	103.2	N.R.	Y
CCV3	ICP (Continuing calibration)	Co	2.0242	2.0	101.2	N.R.	Y
	GFAA (Continuing calibration)						
CCV1	CVAA (Continuing calibration)	Hg	5.18	5.0	103.6	N.R.	Y
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CA SW

BOE-C6-0232751

LDC #: 6375A4
SDG #: A1A150286

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied: MIA
Sample Concentration units, unless otherwise noted: _____ Associated Samples: ALL

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit											
Al															Al
Sb															Sb
As															As
Ba															Ba
Be															Be
Cd															Cd
Ca															Ca
Cr	ND	FINDINGS													Cr
Co															Co
Cu															Cu
Fe															Fe
Pb															Pb
Mg															Mg
Mn															Mn
Hg															Hg
Ni															Ni
K															K
Se															Se
Ag															Ag
Na															Na
Tl															Tl
V															V
Zn															Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4S2

BOE-C6-0232752

LDC #: 6375A4
SDG #: R1AP0286

Reviewer:
2nd Reviewer: [signature]

VALIDATION FINDINGS WORKSHEET
ICP Interference Check Sample

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Were ICP interference check samples performed as required?

(Y) N N/A Were the AB solution percent recoveries (%R) within the control limits of 80-120% ?

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	ICS Identification	Analyte	Finding	Associated Samples	Qualifications

Comments:

ICS

LDC #: 6395A4
SDG #: 12[illegible]190286

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 8 of [illegible]
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Was a post digestion spike analyzed for ICP elements that did not meet the required criteria for matrix spike recovery?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
				NO MS	ALL	NONE/P

Comments:

MS.4S2

BOE-C6-0232754

LDC #: 6355A4
SDG #: 121A10W286

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Page: 6 of 7
Reviewer:
2nd Reviewer: ny

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤ 35% for soil samples? If no, see qualifications below. A control limit of ±R.L. (±2X R.L. for soil) was used for sample values that were <5X the R.L., including the case when only one of the duplicate sample values was <5X R.L.. If field blanks were used for laboratory duplicates, note in the Overall Assessment.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Duplicate ID	Matrix	Analyte	RPD (Limits)	Difference (Limits)	Associated Samples	Qualifications
				NO DUP		ALL	NONE (P

Comments:

DUP

LDC #: 635A4
SDG #: [illegible]90286

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y N N/A Were all aqueous LCS percent recoveries (%R) within the control limits of 80-120% and all soil LCS %R within laboratory established control limits.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS ID	Matrix	Analyte	%R (limits)	Associated Samples	Qualifications

Comments:

LCS.4S2

BOE-C6-0232756

LDC #: 639 SA4
SDG #: E1A150286

VALIDATION FINDINGS WORKSHEET
Furnace Atomic Absorption QC

Page: 1 of 1
Reviewer:
2nd Reviewer: MM

METHOD: Trace metals (EPA SW 846 Method 6010/7000)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A If MSA was performed was the correlation coefficients ≥0.995 ?

LEVEL IV ONLY:

Y N N/A Do all applicable analyses have duplicate injections?
Y N N/A For sample concentrations > CRDL, are applicable duplicate injection RSD values <20% ?
Y N N/A Are analytical spike recoveries with in the control limits of 85-115% ?

Sample ID	Findings				Criteria	Qualifications
	As	Pb	Se	Tl		

Comments:

FUR 4SW

BOE-C6-0232757

LDC #: 6 35 SA4
SDG #: [illegible]90 286

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Reviewer:
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A If analyte concentrations were > 50X the IDL, was an ICP serial dilution analyzed?
Y N N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Diluted Sample ID	Matrix	Analyte	%D	Associated Samples	Qualifications

Comments:

SDIL.4S2

LDC #: 639SAY
SDG #: E1AF0286

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recaluculated using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Tl	0.10639	0.1	106.39	N.R	Y
LCS	Laboratory control sample	Al	2.02	2.0	101	101	Y
N/A	Matrix spike		(SSR-SR)				
	Duplicate						
	ICP serial dilution						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOT 4SW

BOE-C6-0232759

LDC #: 6 JTSA4
SDG #: [illegible]

VALIDATION FINDINGS WORKSHEET
Sample Re[illegible] Verification

Page: 1 of 1
Re[illegible]ver:
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW-846 6010/7000)

#	Sample ID	Analyte	Result (units)	RL (units)	Finding	Qualifications

Comments:

ABVRD.4C5

BOE-C6-0232760

LDC #: 63 5A4
SDG #: 121A190 286

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 1 were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)(%S)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

Recalculation:

FROM RAW DATA

Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	Al	61.7	61.706	Y
	As	0.066	0.06649	
	Sb	0.0063	0.00628	
	Ba	0.43	0.42558	
	Cr	0.18	0.18054	
	Be	0.0018	0.00180	
	Pb	0.019	0.01910	
	Co	0.032	0.03165	
	Cu	0.077	0.07742	
	Mo	0.0047	0.00467	
	Ni	0.082	0.08185	
	V	0.17	0.17211	
	Zn	0.32	0.32196	

RECALC.4S2

LDC #: 63SAY
SDG #: R1A190286

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer:
2nd Reviewer: MJ

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	Sample ID	Finding	Associated Samples	Qualification

Comments:

OVR.4SW

BOE-C6-0232762

LDC #: 63954

SDG #: E1A190286

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer:
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Analyte	Concentration ( )		RPD (Limits)	Difference (Limits)	Qualifications
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Mercury					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Thallium					
Vanadium					
Zinc					
Cyanide					
Boron					
Molybdenum					
Strontium					
Silicon					

Notes:

FLDUP.4S2

LDC #: 6395A4
SDG #: R1A190286

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 6 of
Reviewer:
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____(circle one)

Analyte	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

FLDBLK2.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 29, 2001

LDC Report Date: May 12, 2001

Matrix: Water

Parameters: Dissolved Metals

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A290172

Sample Identification

TMW-6-W-012901
TMW-4-W-012901
TMW-4-D-012901
TMW-3-W-012901
TMW-9-W-012901
XMW-09-W-012901
WCC-11S-W-012901
WCC-5S-W-012901
TMW-1-W-012901

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010 and 7000 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony Selenium	0.0038 mg/L 0.0044 mg/L	All samples in SDG E1A290172

Sample concentrations were compared to the maximum contaminant concentrations detected in the PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TMW-6-W-012901	Antimony	0.0035 mg/L	0.0035U mg/L
TMW-4-W-012901	Antimony	0.0037 mg/L	0.0037U mg/L
TMW-4-D-012901	Antimony	0.0044 mg/L	0.0044U mg/L
TMW-3-W-012901	Antimony	0.0023 mg/L	0.0023U mg/L
TMW-9-W-012901	Antimony	0.0045 mg/L	0.0045U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
XMW-09-W-012901	Antimony	0.0023 mg/L	0.0023U mg/L
WCC-11S-W-012901	Antimony	0.0030 mg/L	0.0030U mg/L
WCC-5S-W-012901	Antimony	0.0024 mg/L	0.0024U mg/L
TMW-1-W-012901	Antimony	0.0057 mg/L	0.0057U mg/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG E1A290172	All TAL metals	No MS associated with these samples.	MS required.	None	P

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG E1A290172	All TAL metals	No DUP analysis associated with these samples.	DUP analysis required.	None	P

VII. Laboratory Control Samples (LCS)

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

BOE-C6-0232768

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

Sample result verification data were not reviewed for Tier 2.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples TMW-4-W-012901 and TMW-4-D-012901 were identified as field duplicates. No dissolved metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
Aluminum	0.12	0.083	36
Antimony	0.0037	0.0044	17
Barium	0.13	0.13	0
Calcium	171	169	1
Chromium	0.021	0.020	5
Copper	0.025U	0.0054	200
Iron	0.24	0.21	13
Magnesium	32.0	31.1	3
Manganese	0.0050	0.0042	17
Selenium	0.0062	0.0050U	200

Analyte	Concentration (mg/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
Sodium	107	107	0
Vanadium	0.0021	0.0016	27
Zinc	0.020U	0.011	200

XIV. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Dissolved Metals - Data Qualification Summary - SDG E1A290172

SDG	Sample	Analyte	Flag	A or P	Reason
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901 WCC-11S-W-012901 WCC-5S-W-012901 TMW-1-W-012901	All TAL metals	None	P	Matrix spike analysis
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901 WCC-11S-W-012901 WCC-5S-W-012901 TMW-1-W-012901	All TAL metals	None	P	Duplicate analysis

Boeing Redevelopment Corp., C-6 Site
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG E1A290172

SDG	Sample	Analyte	Modified Final Concentration	A or P
E1A290172	TMW-6-W-012901	Antimony	0.0035U mg/L	A
E1A290172	TMW-4-W-012901	Antimony	0.0037U mg/L	A
E1A290172	TMW-4-D-012901	Antimony	0.0044U mg/L	A
E1A290172	TMW-3-W-012901	Antimony	0.0023U mg/L	A
E1A290172	TMW-9-W-012901	Antimony	0.0045U mg/L	A
E1A290172	XMW-09-W-012901	Antimony	0.0023U mg/L	A
E1A290172	WCC-11S-W-012901	Antimony	0.0030U mg/L	A
E1A290172	WCC-5S-W-012901	Antimony	0.0024U mg/L	A
E1A290172	TMW-1-W-012901	Antimony	0.0057U mg/L	A

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-001
Date Sampled...: 01/29/01 08:40 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVAAX1CH
		Dilution Factor: 1		Analysis Time..: 16:00	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	0.10 B	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AW
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AX
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0035 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1[illegible]
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 003119[illegible]	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.18	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A1
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A2
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.023	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A3
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A4
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A5
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

(Continued on next page)

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6.457

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	**0.0043 B**	**0.0050**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAAX1A6**
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A7
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A8
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1A9
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CA
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CC
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CD
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	**0.0014 B**	**0.050**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAAX1CE**
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	ND	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CF
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

(Continued on next page)

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	177	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CU
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	0.19	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CV
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	32.6	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CW
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.0037 B	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1CX
		Dilution Factor: 1		Analysis Time..: 17:30	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	109	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAAX1
		Dilution Factor: 1		Analysis Time..: 15:15	Analyst ID.....: 003119	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

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6.45

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-002
Date Sampled...: 01/29/01 10:00 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVAA01CK
		Dilution Factor: 1		Analysis Time..: 16:02	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	0.12 B	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A8
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A9
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0037 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AA
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.13	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AC
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AD
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.021	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AE
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AF
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AG
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-002

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	0.0062	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AH
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AJ
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AK
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA01AL
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA01
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CE
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CF
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.0021 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CG
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	ND	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CH
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

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6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-002

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	171	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CW
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	0.24	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAA01CX
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	32.0	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA01C0
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.0050 B	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAA01C1
		Dilution Factor: 1		Analysis Time..: 17:38	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	107	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAA01CA
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031199	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

A 5-4-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

TOTAL Metals

Lot-Sample #...: E1A290172-003
Date Sampled...: 01/29/01 10:05 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A Analysis Time..: 16:04 MS Run #.....: 1032100	02/01-02/02/01 Analyst ID.....: 021088 MDL.....: 0.00010	DVAA11CK
		Dilution Factor: 1 Instrument ID..: M04				
Prep Batch #...: 1032411						
Aluminum	0.083 B	0.20	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031190 MDL.....: 0.080	DVAA11A8
		Dilution Factor: 1 Instrument ID..: M01				
Arsenic	ND	0.010	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.0040	DVAA11A9
		Dilution Factor: 1 Instrument ID..: M01				
Antimony	0.0044 B U	0.060	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.0020	DVAA11A
		Dilution Factor: 1 Instrument ID..: M01				
Barium	0.13	0.020	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.0010	DVAA11AC
		Dilution Factor: 1 Instrument ID..: M01				
Cadmium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.00050	DVAA11AD
		Dilution Factor: 1 Instrument ID..: M01				
Chromium	0.020	0.010	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.0010	DVAA11AE
		Dilution Factor: 1 Instrument ID..: M01				
Beryllium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.00050	DVAA11AF
		Dilution Factor: 1 Instrument ID..: M01				
Lead	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 17:46 MS Run #.....: 1032209	02/01-02/02/01 Analyst ID.....: 0031199 MDL.....: 0.0020	DVAA11AG
		Dilution Factor: 1 Instrument ID..: M01				

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A 6/1/01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

TOTAL Metals

Lot-Sample #...: E1A290172-003

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AH
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AJ
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AK
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	0.0054 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AL
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CD
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CE
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CF
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.0016 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CG
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	0.011 B	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CH
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

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6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

TOTAL Metals

Lot-Sample #...: E1A290172-003

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	169	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CW
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	0.21	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAA11CX
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	31.1	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA11C0
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.0042 B	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAA11C1
		Dilution Factor: 1		Analysis Time..: 17:46	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	107	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAA11
		Dilution Factor: 1		Analysis Time..: 15:34	Analyst ID.....: 0031199	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

000080

6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-004
Date Sampled...: 01/29/01 11:25 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVAA31CK
		Dilution Factor: 1		Analysis Time..: 16:05	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	8.6	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A8
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	0.0050 B	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A9
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0023 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AA
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.16	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AC
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AD
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.098	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AE
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AF
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	0.0047 B	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AG
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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CA 6.4.01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-004

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	0.0043 B	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AH
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AJ
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	0.0042 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AK
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	0.024 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA31AL
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	0.0083 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA31
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	0.048	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CE
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CF
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.021 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CG
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	0.13	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CH
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

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6.4.02

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-004

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	114	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CW
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	8.2	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAA31CX
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	30.1	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA31C0
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.14	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAA31C1
		Dilution Factor: 1		Analysis Time..: 17:54	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	104	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAA31CA
		Dilution Factor: 1		Analysis Time..: 15:39	Analyst ID.....: 0031199	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

AL
6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-005
Date Sampled...: 01/29/01 12:25 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	0.00039	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVAA51CK
		Dilution Factor: 1		Analysis Time..: 16:07	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	10.0	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A8
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	0.014	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A9
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0045 B	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA51
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.38	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AC
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	0.0012 B	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AD
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.15	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AE
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AF
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	0.45	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AG
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-005

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	0.0061	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AH
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AJ
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	0.0065 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AK
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	0.061	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AL
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	0.0084 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CD
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	0.039 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CE
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CF
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.031 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CG
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	0.39	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CH
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

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A
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TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-005

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	143	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CW
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	15.5	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAA51CX
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	29.7	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA51C0
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.21	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAA51C1
		Dilution Factor: 1		Analysis Time..: 18:02	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	99.4	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAA5[illegible]
		Dilution Factor: 1		Analysis Time..: 15:44	Analyst ID.....: 0031199	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

A 6-4-9

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-006
Date Sampled...: 01/29/01 14:10 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVAA71CM
		Dilution Factor: 1		Analysis Time..: 16:09	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	1.0	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AK
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AL
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0023 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AM
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.45	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AN
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AP
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.012	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AQ
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AR
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AT
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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A
6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	0.0059	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AU
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AV
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AW
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	0.0051 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AX
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	0.0030 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA71
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 003119	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	0.016 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CG
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CH
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.0043 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CJ
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	ND	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CK
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

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TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	213	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA71C0
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.050	
Iron	1.6	0.10	mg/L	SW846 6010B	02/01-02/02/01	DVAA71C1
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.030	
Magnesium	55.2	5.0	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CA
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.020	
Manganese	0.025	0.015	mg/L	SW846 6010B	02/01-02/02/01	DVAA71CC
		Dilution Factor: 1		Analysis Time..: 18:10	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Sodium	107	5.0	mg/L	SW846 6010B	02/01-02/05/01	DVAA71CD
		Dilution Factor: 1		Analysis Time..: 15:49	Analyst ID.....: 0031199	
		Instrument ID..: M06		MS Run #.....: 1032209	MDL.....: 0.40	

NOTE(S):

B Estimated result. Result is less than RL.

6-4-07

TAIT ENVIRONMENTAL

Client Sample ID: WCC_11S_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-007
Date Sampled...: 01/29/01 08:45 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	**0.00015 B**	**0.00020**	**mg/L**	**SW846 7470A**	**02/01-02/02/01**	**DVAA91AW**
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	ND	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AC
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AD
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	**0.0030 B** U	**0.060**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAA91A**
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	**0.090**	**0.020**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAA91AF**
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AG
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	**0.016**	**0.010**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAA91AH**
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AJ
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AK
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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TAIT ENVIRONMENTAL

Client Sample ID: WCC_11S_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-007

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	**0.0057**	**0.0050**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAA91AL**
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AM
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AN
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AP
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AQ
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AR
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AT
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	**0.0040 B**	**0.050**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVAA91AU**
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	ND	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA91AV
		Dilution Factor: 1		Analysis Time..: 18:32	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

A 6-4-09

TAIT ENVIRONMENTAL

Client Sample ID: WCC_5S_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-008
Date Sampled...: 01/29/01 09:45 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVACD1AW
		Dilution Factor: 1		Analysis Time..: 16:16	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	ND	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AC
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AD
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	**0.0024 B** U	**0.060**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVACD1A[illegible]**
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 003119[illegible]	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	**0.24**	**0.020**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVACD1AF**
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AG
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	**0.0092 B**	**0.010**	**mg/L**	**SW846 6010B**	**02/01-02/02/01**	**DVACD1AH**
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AJ
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AK
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

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TAIT ENVIRONMENTAL

Client Sample ID: WCC_5S_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-008 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AL
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AM
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AN
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AP
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AQ
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AR
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AT
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.0025 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AU
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	ND	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVACD1AV
		Dilution Factor: 1		Analysis Time..: 18:40	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

A 6-1-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-009
Date Sampled...: 01/29/01 11:43 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032273						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/01-02/02/01	DVACE1AW
		Dilution Factor: 1		Analysis Time..: 16:18	Analyst ID.....: 021088	
		Instrument ID..: M04		MS Run #.....: 1032100	MDL.....: 0.00010	
Prep Batch #...: 1032411						
Aluminum	5.4	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AC
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031190	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AD
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Antimony	0.0057 B	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AE
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	
Barium	0.35	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AF
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AG
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Chromium	0.045	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AH
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AJ
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.00050	
Lead	0.0028 B	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AK
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0020	

(Continued on next page)

An 6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_W_012901

TOTAL Metals

Lot-Sample #...: E1A290172-009

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	0.0090	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AL
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AM
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Cobalt	0.0026 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AN
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Copper	0.0087 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AP
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0040	
Molybdenum	0.0042 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AQ
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Nickel	0.020 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AR
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AT
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0050	
Vanadium	0.012 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AU
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.0010	
Zinc	0.026	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVACE1AV
		Dilution Factor: 1		Analysis Time..: 18:48	Analyst ID.....: 0031199	
		Instrument ID..: M01		MS Run #.....: 1032209	MDL.....: 0.010	

NOTE(S):

B Estimated result. Result is less than RL.

A 6-4-07

LDC #: 6395B4

VALIDATION COMPLETENESS WORKSHEET

SDG #: E1A290172

X Tier 2

Laboratory: Severn Trent Laboratories

Date: 5-11-07

Page: 1 of 1

Reviewer:

2nd Reviewer:

METHOD: Metals (EPA SW 846 Method 6010/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-07
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	AN	} NO MS/DUP NONE /P
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	} NOT UTILIZED
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	NOT REQUIRED
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(2,3)
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ALL AQ

1	TMW-6-W-012901	11		21		31	
2	TMW-4-W-012901	12		22		32	
3	TMW-4-D-012901	13		23		33	
4	TMW-3-W-012901	14		24		34	
5	TMW-9-W-012901	15		25		35	
6	XMW-09-W-012901	16		26		36	
7	WCC-11S-W-012901	17		27		37	
8	WCC-5S-W-012901	18		28		38	
9	TMW-1-W-012901	19		29		39	
10	RD	20		30		40	

Notes:

LDC #: 63554
SDG #: K1B290172

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of ___
Reviewer: AF
2nd reviewer: MG

All circled elements are applicable to each sample.

Sample ID	Parameter
1-6	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
7-9	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
Analysis Method	
ICP	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
ICP Trace	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
ICP-MS	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___
GFAA	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN^-, ___, ___, ___, ___

Comments: Mercury by CVAA if performed

LDC #: 63433 4
SDG #: G1A2W172

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

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

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied: MLA
Sample Concentration units, unless otherwise noted: mg/L Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] mg/L ~~(ug/L)~~	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	Sample Identification 1	2	3	4	5	6	7	8	9		
Al															Al
Sb		0.0038			0.0035	0.0037	0.0044	0.0023	0.0045	0.0023	0.0024	0.0057	0.0030		Sb
As											30	24	57		As
Ba															Ba
Be															Be
Cd															Cd
Ca															Ca
Cr															Cr
Co															Co
Cu															Cu
Fe															Fe
Pb															Pb
Mg															Mg
Mn															Mn
Hg															Hg
Ni															Ni
K															K
Se		0.0044													Se
Ag															Ag
Na															Na
Tl															Tl
V															V
Zn															Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLN .4S2

BOE-C6-0232798

LDC #: 63584
SDG #: MIA29472

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer:
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Analyte	Concentration (mg/L) 2	3	RPD (Limits)	Difference (Limits)	Qualifications
Aluminum	0.12	0.083	36		
Antimony	0.0037	0.0044	17		
Arsenic					
Barium	0.13	0.13	0		
Beryllium					
Cadmium					
Calcium	171	169	1		
Chromium	0.021	0.020	5		
Cobalt					
Copper	0.0254	0.0054	200		
Iron	0.24	0.21	13		
Lead					
Magnesium	32.0	31.1	3		
Manganese	0.0050	0.0042	17		
Mercury					
Nickel					
Potassium					
Selenium	0.0062	0.00504	200		
Silver					
Sodium	107	107	0		
Thallium					
Vanadium	0.0021	0.0016	27		
Zinc	0.0204	0.011	200		
Cyanide					
Boron					
Molybdenum					
Strontium					
Silicon					

Notes:

FLDUP.4S2

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Wet Chemistry

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 29, 2001

LDC Report Date: May 15, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A290172

Sample Identification

TMW-6-W-012901
TMW-4-W-012901
TMW-4-D-012901
TMW-3-W-012901
TMW-9-W-012901
XMW-09-W-012901
WCC-11S-W-012901
WCC-5S-W-012901
TMW-1-W-012901
TMW-6-W-012901MS
TMW-6-W-012901MSD
TMW-3-W-012901MS
TMW-3-W-012901MSD

Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen and Sulfate, EPA Method 415.1 for Total Organic Carbon, EPA SW 846 Method 7196A for Hexavalent Chromium, Standard Method 2320 for Alkalinity, and Standard Method 3500 for Ferrous Iron.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

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

b. Calibration Verification

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

III. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB	Alkalinity Total organic carbon	2.1 mg/L 0.83 mg/L	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901
ICB/CCB	Total organic carbon	0.639 mg/L	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
TMW-6-W-012901	Total organic carbon	1.6 mg/L	1.6U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
TMW-3-W-012901	Total organic carbon	2.2 mg/L	2.2U mg/L
TMW-9-W-012901	Total organic carbon	2.1 mg/L	2.1U mg/L
XMW-09-W-012901	Total organic carbon	3.6 mg/L	3.6U mg/L

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

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

Sample	Analyte	Finding	Criteria	Flag	A or P
TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901	Chloride Ferrous iron Nitrate as N Sulfate	No MS associated with these samples.	MS required.	None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901	Chloride Ferrous iron Nitrate as N Sulfate	No DUP associated with these samples.	DUP required.	None None None None	P

Results were within QC limits.

b. Laboratory Control Samples

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

V. Sample Result Verification

Sample result verification data were not reviewed for Tier 2.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples TMW-4-W-012901 and TMW-4-D-012901 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
Chloride	369	381	3
Hexavalent chromium	0.017	0.018	6
Nitrate as N	2.7	2.8	4
Sulfate	23.3	23.4	0.4
Alkalinity	244	242	0.4
Total organic carbon	4.7	8.7	60

VIII. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Wet Chemistry - Data Qualification Summary - SDG E1A290172

SDG	Sample	Analyte	Flag	A or P	Reason
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901	Chloride Ferrous iron Nitrate as N Sulfate	None None None None	P	Matrix spike analysis
E1A290172	TMW-6-W-012901 TMW-4-W-012901 TMW-4-D-012901 TMW-3-W-012901 TMW-9-W-012901 XMW-09-W-012901	Chloride Ferrous iron Nitrate as N Sulfate	None None None None	P	Duplicate analysis

Boeing Redevelopment Corp., C-6 Site
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG E1A290172

SDG	Sample	Analyte	Modified Final Concentration	A or P
E1A290172	TMW-6-W-012901	Total organic carbon	1.6U mg/L	A
E1A290172	TMW-3-W-012901	Total organic carbon	2.2U mg/L	A
E1A290172	TMW-9-W-012901	Total organic carbon	2.1U mg/L	A
E1A290172	XMW-09-W-012901	Total organic carbon	3.6U mg/L	A

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

General Chemistry

Lot-Sample #...: E1A290172-001 Work Order #...: DVAAX Matrix.....: WATER
Date Sampled...: 01/29/01 08:40 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	350	10.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 10		Analysis Time..: 14:07	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 2.0	
Ferrous Iron	ND	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:02	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	0.017 B	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 20:46	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	6.4	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 11:07	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 11:07	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....	MDL.....: 0.15	
Sulfate	71.8	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 11:07	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	247	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 18:23	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....	MDL.....: 1.0	
Total Organic Carbon (TOC)	1.6 U	1.0	mg/L	MCAWW 415.1	01/30/01	1031212
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031082	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

Am 6.4.01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

General Chemistry

Lot-Sample #...: E1A290172-002 Work Order #...: DVAA0 Matrix.....: WATER
Date Sampled...: 01/29/01 10:00 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	369	10.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 10		Analysis Time..: 14:19	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 2.0	
Ferrous Iron	ND	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:04	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	0.017 B	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 20:52	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	2.7	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 11:19	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 11:19	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....:	MDL.....: 0.15	
Sulfate	23.3	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 11:19	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	244	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 18:34	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....:	MDL.....: 1.0	
Total Organic Carbon (TOC)	4.7	1.0	mg/L	MCAWW 415.1	01/30/01	1031212
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031082	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

6-407

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

General Chemistry

Lot-Sample #...: E1A290172-003 Work Order #...: DVAA1 Matrix.....: WATER
Date Sampled...: 01/29/01 10:05 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	381	10.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 10		Analysis Time..: 16:43	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 2.0	
Ferrous Iron	ND	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:06	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	0.018 B	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 20:54	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	2.8	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 11:31	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 11:31	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....	MDL.....: 0.15	
Sulfate	23.4	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 11:31	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	242	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 18:44	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....	MDL.....: 1.0	
Total Organic Carbon (TOC)	8.7	1.0	mg/L	MCAWW 415.1	01/30/01	1031212
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031082	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

VA
6.4.01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

General Chemistry

Lot-Sample #...: E1A290172-004 Work Order #...: DVAA3 Matrix.....: WATER
Date Sampled...: 01/29/01 11:25 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	156	5.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 5		Analysis Time..: 11:43	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 1.0	
Ferrous Iron	0.14 B	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:08	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	0.037	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 20:56	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	5.2	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 11:43	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 11:43	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....:	MDL.....: 0.15	
Sulfate	83.3	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 11:43	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	267	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 18:54	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....:	MDL.....: 1.0	
Total Organic Carbon (TOC)	2.2 U	1.0	mg/L	MCAWW 415.1	01/31/01	1031283
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031118	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

A 6.407

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

General Chemistry

Lot-Sample #...: E1A290172-005 Work Order #...: DVAA5 Matrix.....: WATER
Date Sampled...: 01/29/01 12:25 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	300	10.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 10		Analysis Time..: 15:07	Analyst ID.....: 0612658	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 2.0	
Ferrous Iron	2.3	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:10	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	0.031	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 20:58	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	5.2	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 11:55	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 11:55	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....	MDL.....: 0.15	
Sulfate	25.7	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 11:55	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	197	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 19:04	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....	MDL.....: 1.0	
Total Organic Carbon (TOC)	2.1 U	1.0	mg/L	MCAWW 415.1	01/31/01	1031283
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031118	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

A 8-4-02

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

General Chemistry

Lot-Sample #...: E1A290172-006 Work Order #...: DVAA7 Matrix.....: WATER
Date Sampled...: 01/29/01 14:10 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	330	10.0	mg/L	MCAWW 300.0A	01/30/01	1031426
		Dilution Factor: 10		Analysis Time..: 15:19	Analyst ID.....: 0612658	
		Instrument ID..: W01		MS Run #.....: 1031211	MDL.....: 2.0	
Ferrous Iron	ND	1.0	mg/L	SM18 3500-FE D	01/29/01	1029458
		Dilution Factor: 1		Analysis Time..: 21:12	Analyst ID.....: 0001351	
		Instrument ID..: W06		MS Run #.....: 1031256	MDL.....: 0.10	
Hexavalent Chromium	ND	0.020	mg/L	SW846 7196A	01/29/01	1030508
		Dilution Factor: 1		Analysis Time..: 21:00	Analyst ID.....: 0001356	
		Instrument ID..: W06		MS Run #.....: 1031162	MDL.....: 0.010	
Nitrate as N	4.3	0.50	mg/L	MCAWW 300.0A	01/30/01	1031432
		Dilution Factor: 5		Analysis Time..: 12:31	Analyst ID.....: 0612652	
		Instrument ID..: W01		MS Run #.....: 1031214	MDL.....: 0.15	
Nitrite as N	ND G	0.50	mg/L	MCAWW 300.0A	01/30/01	1031430
		Dilution Factor: 5		Analysis Time..: 12:31	Analyst ID.....: 0612654	
		Instrument ID..: W01		MS Run #.....:	MDL.....: 0.15	
Sulfate	29.5	5.0	mg/L	MCAWW 300.0A	01/30/01	1031433
		Dilution Factor: 5		Analysis Time..: 12:31	Analyst ID.....: 061265	
		Instrument ID..: W01		MS Run #.....: 1031215	MDL.....: 1.0	
Total Alkalinity	488	4.0	mg/L	SM18 2320 B	01/30/01	1031248
		Dilution Factor: 1		Analysis Time..: 19:17	Analyst ID.....: 9999955	
		Instrument ID..: W04		MS Run #.....:	MDL.....: 1.0	
Total Organic Carbon (TOC)	3.6 U	1.0	mg/L	MCAWW 415.1	01/31/01	1031283
		Dilution Factor: 1		Analysis Time..: 00:00	Analyst ID.....: 061265	
		Instrument ID..: W08		MS Run #.....: 1031118	MDL.....: 0.40	

NOTE(S):

RL Reporting Limit

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

A 1.4.01

TAIT ENVIRONMENTAL

Client Sample ID: WCC_11S_W_012901

General Chemistry

Lot-Sample #...: E1A290172-007 Work Order #...: DVAA9 Matrix.....: WATER
Date Sampled...: 01/29/01 08:45 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.013 B	0.020	mg/L	SW846 7196A	01/29/01	1030508
	Dilution Factor: 1			Analysis Time..: 21:02	Analyst ID.....: 0001358	
	Instrument ID..: W06			MS Run #.....: 1031162	MDL.....: 0.010	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

A
640

TAIT ENVIRONMENTAL

Client Sample ID: WCC_5S_W_012901

General Chemistry

Lot-Sample #...: E1A290172-008 Work Order #...: DVACD Matrix.....: WATER
Date Sampled...: 01/29/01 09:45 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	ND	0.020	mg/L	SW846 7196A	01/29/01	1030508

Dilution Factor: 1 Analysis Time..: 21:04 Analyst ID.....: 0001352
Instrument ID..: W06 MS Run #.....: 1031162 MDL.....: 0.010

A
6.457

TAIT ENVIRONMENTAL

Client Sample ID: TMW_1_W_012901

General Chemistry

Lot-Sample #...: E1A290172-009 Work Order #...: DVACE Matrix.....: WATER
Date Sampled...: 01/29/01 11:43 Date Received..: 01/29/01 17:35

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.027	0.020	mg/L	SW846 7196A	01/29/01	1030508

Dilution Factor: 1 Analysis Time..: 21:10 Analyst ID.....: 0001352
Instrument ID..: W06 MS Run #.....: 1031162 MDL.....: 0.010

A
6-4-01

000065

LDC #: 6395B6

SDG #: E1A290172

Laboratory: Severn Trent Laboratories

VALIDATION COMPLETENESS WORKSHEET

X Tier 2

Date: 5-11-01

Page: 1 of 1

Reviewer:

2nd Reviewer:

METHOD: (Analyte) Alkalinity (SM2320), Chloride, Nitrate-N, Nitrite-N, Sulfate (EPA Method 300.0), Ferrous Iron (SM3500), TOC (EPA Method 415.1), CRVI (EPA SW 846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-01
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	SW	
IVb.	Laboratory control samples	A	LCS/LCSD
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	SW	(2,3)
VIII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: All AK

1	TMW-6-W-012901	11	TMW-6-W-012901MSD	21		31	
2	TMW-4-W-012901	12	TMW-3-W-012901MS	22		32	
3	TMW-4-D-012901	13	TMW-3-W-012901MSD	23		33	
4	TMW-3-W-012901	14	~~TMW-1-012901~~	24		34	
5	TMW-9-W-012901	15	RB	25		35	
6	XMW-09-W-012901	16		26		36	
7	WCC-11S-W-012901	17		27		37	
8	WCC-5S-W-012901	18		28		38	
9	TMW-1-W-012901	19		29		39	
10	TMW-6-W-012901MS	20		30		40	

Notes:

MIN.IV

BOE-C6-023281 7

LDC #: 63956
SDG #: 121A290172

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 6 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

All circled methods are applicable to each sample.

Sample ID	Parameter																
1	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}	Fe^{+++}		
2	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
3	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
4	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
5	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
6	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
7	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
8	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
9	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
10	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
11	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
12	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
13	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			
	pH	TDS	Cl	F	NO_3	NO_2	SO_4	PO_4	ALK	CN^-	NH_3	TKN	TOC	CR^{6+}			

Comments:

LDC #: 63956
SDG #: A2S0172

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method SM CUVM

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were all samples associated with a given method blank?
Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/L **Associated Samples:** 1 - 6

Analyte	Blank ID	Maximum ICB/CCB	Blank Action Limit	Sample Identification								
	PB			1	4	5	6					
ALK	2.1		10.5									
TOC	0.83	0.639	4.15	1.6	2.2	2.1	3.6					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

BLANKS

BOE-C6-0232818

LDC #: [illegible]
SDG #: E1A250172

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 6 of [illegible]
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Inorganics, Method SW CUVA

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

Y (N) N/A Was a matrix spike analyzed for each matrix in this SDG?

(Y) N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125 (85-115% for Method 300.0)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
		AQ	Cl	NO MS	1-6	MUMR IP
			Fe^{+++}	PERMANGANATE		
			NO_3			
			SO_4			

Comments:

MS.6

BOE-C6-0232819

LDC #: 6355B6
SDG #: F1A290172

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Page: 6 of 6
Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method SW846 CVAAL

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

Y (N) N/A Was a duplicate sample analyzed for each matrix in this SDG?

(Y) N ~~N/A~~ Were all duplicate sample relative percent differences (RPD) ≤ 20% for water and ≤ 35% for soil samples (≤ 10% for Method 300.0)? If no, see qualification below. A control limit of ±CRDL (±2X CRDL for soil) was used for samples that were ≤5X the CRDL, including when only one of the duplicate sample values were ≤5X the CRDL. If field blanks were used for laboratory duplicates, see overall assessment.

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Duplicate ID	Matrix	Analyte	RPD (Limits)	Associated Samples	Qualifications
		AQ	Cl	NO DUPLICATE	1-6	NOTHING
			Fe^{+++}	PER SUMMARY		
			NO3			
			SO4			
			~~TDS~~			

Comments:

DUP 6

LDC #: 63586
SDG #: M1A240172

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of
Reviewer:
2nd reviewer:

METHOD: Inorganics, Method SW6 CUVAL

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

Analyte	Concentration (mg/L)		RPD (Limits)	Qualifier
	2	3		
Cl	369	381	3	
CrTB	0.017	0.018	6	
NO3	2.7	2.8	4	
SO4	23.3	23.4	0.4	
ALK	244	242	0.4	

Analyte	Concentration ( )		RPD (Limits)	Qualifier
	CONC			
TDS	4.7	8.7	60	

Analyte	Concentration ( )		RPD (Limits)	Qualifier

Analyte	Concentration ( )		RPD (Limits)	Qualifier

FLDUP4QL6

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Hexavalent Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 19, 2001

LDC Report Date: May 11, 2001

Matrix: Water

Parameters: Hexavalent Chromium

Validation Level: Tier 3

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A190286

Sample Identification

BL-2-W-011901
TMW-10-W-011901
WCC-95-W-011901
BL-2-W-011901MS
BL-2-W-011901MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

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

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

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

b. Laboratory Control Samples

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

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

VIII. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Hexavalent Chromium - Data Qualification Summary - SDG E1A190286

No Sample Data Qualified in this SDG

Boeing Redevelopment Corp., C-6 Site
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG E1A190286

No Sample Data Qualified in this SDG

TAIT ENVIRONMENTAL

Client Sample ID: BL-2-W-011901

General Chemistry

Lot-Sample #...: E1A190286-001 Work Order #...: DTXAL Matrix.....: WATER
Date Sampled...: 01/19/01 10:40 Date Received..: 01/19/01 16:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.012 B	0.020	mg/L	SW846 7196A	01/19/01	1022469

Dilution Factor: 1
Instrument ID..: W06
Analysis Time..: 21:34
MS Run #.....: 1022269
Analyst ID.....: 000135
MDL.....: 0.010

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

6/4/01

0 14

TAIT ENVIRONMENTAL

Client Sample ID: TMW-10-W-011901

General Chemistry

Lot-Sample #...: E1A190286-002 Work Order #...: DTXAQ Matrix.....: WATER
Date Sampled...: 01/19/01 11:40 Date Received..: 01/19/01 16:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.023	0.020	mg/L	SW846 7196A	01/19/01	1022469

Dilution Factor: 1 Analysis Time..: 21:40 Analyst ID.....: 0001359
Instrument ID..: W06 MS Run #.....: 1022269 MDL.....: 0.010

6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: WCC-95-W-011901

General Chemistry

Lot-Sample #...: E1A190286-003 Work Order #...: DTXAT Matrix.....: WATER
Date Sampled...: 01/19/01 00:55 Date Received..: 01/19/01 16:30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	0.018 B	0.020	mg/L	SW846 7196A	01/19/01	1022469

Dilution Factor: 1
Instrument ID..: W06
Analysis Time..: 21:42
MS Run #.....: 1022269
Analyst ID.....: 0001359
MDL.....: 0.010

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

6-4-01

LDC #: 6395A28 **VALIDATION COMPLETENESS WORKSHEET** Date: 5-10-01
SDG #: E1A190286 X Tier 3 Page: 1 of 1
Laboratory: Severn Trent Laboratories Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Hexavalent chromium (EPA SW 846 Method 7196)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-19-01
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	A	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:
AK AK

1	BL-2-W-011901	11		21		31	
2	TMW-10-W-011901	12		22		32	
3	WCC-95-W-011901	13		23		33	
4	BL-2-W-011901MS	14		24		34	
5	BL-2-W-011901 ~~DUP~~	15		25		35	
6	MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 6355A24
SDG #: [illegible]

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer:
2nd reviewer:

All circled dates have exceeded the technical holding time.
Y N N/A Were all samples preserved as applicable to each method ?
Y N N/A Were all cooler temperatures within validation criteria?

Method:		7196					
Parameters:		Cr+6					
Technical holding time:		24 (hr)					
Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1-5	1-19-01	1-19-01					NJ QJ/AC

HT.6

LDC #: 6395A28
SDG #: [illegible]

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of [illegible]
Revision: 3
2nd Reviewer: [illegible]

METHOD: Inorganics, EPA Method 7194

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

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?
Y N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% ?
Y N N/A Are all correlation coefficients ≥0.995 ?

LEVEL IV/D ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recaluculation Worksheet for recalulations.
Y N N/A Was a balance check conducted prior to the TDS analysis.?
Y N N/A Was the titrant normality checked?

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualifications

Comments:

CAL.6

BOE-C6-0232833

LDC #: 6395A28
SDG #: 6LA190286

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

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

METHOD: Inorganics, Method 7196

The correlation coefficient (r) for the calibration of Cr+6 was recalculated. Calibration date: 7-19-01

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte		(units)	(units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	Cr+6	Blank	0	0.000	0.9999	0.9999	Y
Calibration verification		Standard 1	0.01	0.009			
		Standard 2	0.02	0.018			
		Standard 3	0.05	0.046			
		Standard 4	0.1	0.094			
		Standard 5					
		Standard 6					
		Standard 7					
Calibration verification		ICV	0.0494	0.05 ~~0.0460~~	98.8	98.8	Y
Calibration verification		CCV	0.0483	0.05	96.6	96.6	Y
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CALCLOS

BOE-C6-0232834

LDC #: 1 5A6
SDG #: 12A19026

VALIDATION FINDINGS WORKSHEET
Blanks

Page 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method 7196

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were all samples associated with a given method blank?
Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units:_____ **Associated Samples:**_____

Analyte	Blank ID	Maximum ICB/CCB	Blank Action Limit	Sample Identification								
	MD	LIMITS										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

BOE-C6-0232835

LDC #: 63954A28
SDG #: F2CA150286

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer:
2nd Reviewer: MY

METHOD: Inorganics, EPA Method 7194

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

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications

Comments:

MSD.6

BOE-C6-0232836

LDC #: 6395A28
SDG #: B1A0286

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method 7196

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

Y N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y N N/A Were all LCS percent recoveries (%R) within the control limits of 80-120% (85-115% for Method 300.0)?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS ID	Matrix	Analyte	%R (limits)	Associated Samples	Qualifications

Comments:

BOE-C6-0232837

LDC #: 6195A28
SDG #: F1A190286

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method 7196

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Cr+6	0.0494	0.05	98.8	98.8	Y
4	Matrix spike sample	↓	(SSR-SR) 0.0501	0.050	100.2	100	Y
4/5	Duplicate sample	↓	0.0501	0.0512	2.17	N.R	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLO

BOE-C6-0232838

LDC #: 6395A28
SDG #: B1P30286

VALIDATION FINDINGS WORKSHEET
Sample Res Verification

Page: 1 of 1
Re er:
2nd Reviewer:

METHOD: Inorganics, Method 7194

#	Sample ID	Analyte	Lab Reporting Limit (units)	RDL (units)	Finding	Qualifications

Comments:

ABVCRDL.6

BOE-C6-0232839

LDC #: 6395A28
SDG #: 141B1W286

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method 7196

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for 2 reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

From curve

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	2	Cr+6	0.0280	0.0287	Y

Note:

LDC #: 6355A28
SDG #: E1L 228

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Page: 1 of 1
Reviewer: 2
2nd Reviewer: MJ

METHOD: Inorganics, Method 7196

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

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	Sample ID	Finding	Associated Samples	Qualifications

Comments:

OVR.6

BOE-C6-0232841

LDC #: 6955A28
SDG #: 61A190286

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: Inorganics, Method 7196

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

Analyte	Concentration ( )		RPD (Limits)	Qualifier

Analyte	Concentration ( )		RPD (Limits)	Qualifier

Analyte	Concentration ( )		RPD (Limits)	Qualifier

Analyte	Concentration ( )		RPD (Limits)	Qualifier

FLDUP4QL.6

LDC #: 635F28
SDG #: 61A190286

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of
Reviewer:
2nd reviewer:

M HOD: Inorganics, EPA Method 7196

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target anlytes detected in the field blanks?

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Dissolved Metals

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 29, 2001

LDC Report Date: May 12, 2001

Matrix: Water

Parameters: Dissolved Metals

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A290172

Sample Identification

TMW-6-W-012901
TMW-4-W-012901
TMW-4-D-012901
TMW-3-W-012901
TMW-9-W-012901
XMW-09-W-012901
TMW-6-W-012901MS
TMW-6-W-012901MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010 and 7000 for Dissolved Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony	0.0049 mg/L	All samples in SDG E1A290172

Sample concentrations were compared to the maximum contaminant concentrations detected in the PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TMW-6-W-012901	Antimony	0.0080 mg/L	0.0080U mg/L
TMW-4-W-012901	Antimony	0.0056 mg/L	0.0056U mg/L
TMW-4-D-012901	Antimony	0.0023 mg/L	0.0023U mg/L
TMW-3-W-012901	Antimony	0.0051 mg/L	0.0051U mg/L
TMW-9-W-012901	Antimony	0.0048 mg/L	0.0048U mg/L
XMW-09-W-012901	Antimony	0.0044 mg/L	0.0044U mg/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

Sample result verification data were not reviewed for Tier 2.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples TMW-4-W-012901 and TMW-4-D-012901 were identified as field duplicates. No dissolved metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	TMW-4-W-012901	TMW-4-D-012901	
Antimony	0.0056	0.0023	84
Barium	0.26	0.76	98
Chromium	0.020	0.020	0
Selenium	0.0050U	0.0081	200
Vanadium	0.0014	0.0012	15
Zinc	0.052	0.22	123
Molybdenum	0.0034	0.040	169

XIV. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Dissolved Metals - Data Qualification Summary - SDG E1A290172

No Sample Data Qualified in this SDG

Boeing Redevelopment Corp., C-6 Site
Dissolved Metals - Laboratory Blank Data Qualification Summary - SDG E1A290172

SDG	Sample	Analyte	Modified Final Concentration	A or P
E1A290172	TMW-6-W-012901	Antimony	0.0080U mg/L	A
E1A290172	TMW-4-W-012901	Antimony	0.0056U mg/L	A
E1A290172	TMW-4-D-012901	Antimony	0.0023U mg/L	A
E1A290172	TMW-3-W-012901	Antimony	0.0051U mg/L	A
E1A290172	TMW-9-W-012901	Antimony	0.0048U mg/L	A
E1A290172	XMW-09-W-012901	Antimony	0.0044U mg/L	A

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-001
Date Sampled...: 01/29/01 08:40 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AC
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 003119	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AD
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Antimony	0.0080 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AE
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Barium	0.70	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AF
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AG
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Chromium	0.021	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AH
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AJ
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AK
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Selenium	0.0098	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AL
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AM
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AN
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	0.0054 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AP
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AQ
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AR
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 003119	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AT
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0012 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AU
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.29	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAAX1AV
		Dilution Factor: 1		Analysis Time..: 14:14	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	
Prep Batch #...: 1033406						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAAX1CG
		Dilution Factor: 1		Analysis Time..: 15:50	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-002
Date Sampled...: 01/29/01 10:00 Date Received..: 01/29/01 17:35 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 003119 MDL.....: 0.080	DVAA01AN
		Dilution Factor: 1 Instrument ID..: M01				
Arsenic	ND	0.010	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA01AP
		Dilution Factor: 1 Instrument ID..: M01				
Antimony	0.0056 B	0.060	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA01AQ
		Dilution Factor: 1 Instrument ID..: M01				
Barium	0.26	0.020	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA01AR
		Dilution Factor: 1 Instrument ID..: M01				
Cadmium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA01AT
		Dilution Factor: 1 Instrument ID..: M01				
Chromium	0.020	0.010	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA01AU
		Dilution Factor: 1 Instrument ID..: M01				
Beryllium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA01AV
		Dilution Factor: 1 Instrument ID..: M01				
Lead	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA01AW
		Dilution Factor: 1 Instrument ID..: M01				
Selenium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 14:46 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA01AX
		Dilution Factor: 1 Instrument ID..: M01				

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-002 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A0
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A1
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A2
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	0.0034 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A3
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA01[illegible]
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 003119[illegible]	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A5
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0014 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A6
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.052	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA01A7
		Dilution Factor: 1		Analysis Time..: 14:46	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	
Prep Batch #...: 1033406						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAA01CJ
		Dilution Factor: 1		Analysis Time..: 15:59	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-003
Date Sampled...: 01/29/01 10:05 Date Received..: 01/29/01 17:35 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AN
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 003119	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AP
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Antimony	0.0023 B	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AQ
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Barium	0.76	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AR
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AT
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Chromium	0.020	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AU
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AV
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AW
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Selenium	0.0081	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11AX
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-003

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A0
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A1
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A2
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A3
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A5
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0012 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A6
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.22	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA11A7
		Dilution Factor: 1		Analysis Time..: 14:54	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	

Prep Batch #...: 1033406

Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAA11CJ
		Dilution Factor: 1		Analysis Time..: 16:00	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-004
Date Sampled...: 01/29/01 11:25 Date Received..: 01/29/01 17:35
Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 003119 MDL.....: 0.080	DVAA31AN
		Dilution Factor: 1 Instrument ID..: M01				
Arsenic	ND	0.010	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA31AP
		Dilution Factor: 1 Instrument ID..: M01				
Antimony	0.0051 B U	0.060	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA31AQ
		Dilution Factor: 1 Instrument ID..: M01				
Barium	0.59	0.020	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA31AR
		Dilution Factor: 1 Instrument ID..: M01				
Cadmium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA31AT
		Dilution Factor: 1 Instrument ID..: M01				
Chromium	0.018	0.010	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA31AU
		Dilution Factor: 1 Instrument ID..: M01				
Beryllium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA31AV
		Dilution Factor: 1 Instrument ID..: M01				
Lead	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA31AW
		Dilution Factor: 1 Instrument ID..: M01				
Selenium	0.0047 B	0.0050	mg/L	SW846 6010B Analysis Time..: 15:20 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA31AX
		Dilution Factor: 1 Instrument ID..: M01				

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TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-004

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A0
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A1
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	0.0051 B	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A2
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A3
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A[illegible]
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A5
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0023 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A6
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.22	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA31A7
		Dilution Factor: 1		Analysis Time..: 15:20	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	
Prep Batch #...: 1033406						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAA31CJ
		Dilution Factor: 1		Analysis Time..: 16:02	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

A
of 4

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-005
Date Sampled...: 01/29/01 12:25 Date Received..: 01/29/01 17:35 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AN
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 003119	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.080	
Arsenic	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AP
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Antimony	0.0048 B U	0.060	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AQ
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Barium	0.70	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AR
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cadmium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AT
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Chromium	0.020	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AU
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Beryllium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AV
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.00050	
Lead	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AW
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0020	
Selenium	ND	0.0050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51AX
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	

(Continued on next page)

A 6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-005 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A0
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A1
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A2
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A3
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A[illegible]
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	0.0060 B	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A5
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0019 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A6
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.17	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA51A7
		Dilution Factor: 1		Analysis Time..: 15:28	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	

Prep Batch #...: 1033406

Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAA51CJ
		Dilution Factor: 1		Analysis Time..: 16:04	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

A 6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-006
Date Sampled...: 01/29/01 14:10 Date Received..: 01/29/01 17:35 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1032399						
Aluminum	ND	0.20	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 003119 MDL.....: 0.080	DVAA71A1
		Dilution Factor: 1 Instrument ID..: M01				
Arsenic	ND	0.010	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA71A2
		Dilution Factor: 1 Instrument ID..: M01				
Antimony	0.0044 B U	0.060	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA71A3
		Dilution Factor: 1 Instrument ID..: M01				
Barium	1.0	0.020	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA71A4
		Dilution Factor: 1 Instrument ID..: M01				
Cadmium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA71A5
		Dilution Factor: 1 Instrument ID..: M01				
Chromium	0.0013 B	0.010	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0010	DVAA71A6
		Dilution Factor: 1 Instrument ID..: M01				
Beryllium	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.00050	DVAA71A7
		Dilution Factor: 1 Instrument ID..: M01				
Lead	ND	0.0050	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0020	DVAA71A8
		Dilution Factor: 1 Instrument ID..: M01				
Selenium	0.0052	0.0050	mg/L	SW846 6010B Analysis Time..: 15:36 MS Run #.....: 1032197	02/01-02/02/01 Analyst ID.....: 0031197 MDL.....: 0.0040	DVAA71A9
		Dilution Factor: 1 Instrument ID..: M01				

(Continued on next page)

6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

DISSOLVED Metals

Lot-Sample #...: E1A290172-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AA
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Cobalt	ND	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AC
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AD
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0040	
Molybdenum	ND	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AE
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Nickel	0.013 B	0.040	mg/L	SW846 6010B	02/01-02/02/01	DVAA71A
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0030	
Thallium	ND	0.010	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AG
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0050	
Vanadium	0.0012 B	0.050	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AH
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.0010	
Zinc	0.30	0.020	mg/L	SW846 6010B	02/01-02/02/01	DVAA71AJ
		Dilution Factor: 1		Analysis Time..: 15:36	Analyst ID.....: 0031197	
		Instrument ID..: M01		MS Run #.....: 1032197	MDL.....: 0.010	
Prep Batch #...: 1033406						
Mercury	ND	0.00020	mg/L	SW846 7470A	02/03/01	DVAA71CL
		Dilution Factor: 1		Analysis Time..: 16:05	Analyst ID.....: 0210887	
		Instrument ID..: M04		MS Run #.....: 1033204	MDL.....: 0.00010	

NOTE(S):

B Estimated result. Result is less than RL.

6-4-07

LDC #: 6395B14

SDG #: E1A290172

Laboratory: Severn Trent Laboratories

VALIDATION COMPLETENESS WORKSHEET

X Tier 2

Date: 5-11-01

Page: 1 of

Reviewer:

2nd Reviewer:

METHOD: Dissolved Metals (EPA SW 846 Method 6010/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-01
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A ~~N~~	~~NO MS/MSD NOTE~~ MS/MSD
VI.	Duplicate Sample Analysis	A ~~N~~	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	NOT UTILIZED
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	NOT REQUIRED
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(2, 3)
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: AC AQ

1	TMW-6-W-012901	11		21		31	
2	TMW-4-W-012901	12		22		32	
3	TMW-4-D-012901	13		23		33	
4	TMW-3-W-012901	14		24		34	
5	TMW-9-W-012901	15		25		35	
6	XMW-09-W-012901	16		26		36	
7	TMW-6-W-012901MS	17		27		37	
8	TMW-6-W-012901MSD	18		28		38	
9	PB	19		29		39	
10		20		30		40	

Notes:

6395B14W.HA2

LDC #: 63595B14
SDG #: B1A290172

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Parameter
1 - 8	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___

Analysis Method	
ICP	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
ICP Trace	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
ICP-MS	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___
GFAA	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, CN⁻, ___, ___, ___, ___

Comments: Mercury by CVAA if performed

ELEMENTS.4

LDC #: 6[illegible]817
SDG #: 61A290172

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

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

METHOD: Trace Metals (EPA SW 846 Method 6010/7000) Soil preparation factor applied: N/A
Sample Concentration units, unless otherwise noted: mg/L Associated Samples: All

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] ~~(ug/L)~~ mg/L	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	1	2	3	4	5	6	7				
Al															Al
Sb		0.0049		0.0245	0.0080	0.0056	0.0023	0.0051	0.0048	0.0044	~~0.0030~~ U				Sb
As															As
Ba															Ba
Be															Be
Cd															Cd
Ca															Ca
Cr															Cr
Co															Co
Cu															Cu
Fe															Fe
Pb															Pb
Mg															Mg
Mn															Mn
Hg															Hg
Ni															Ni
K															K
Se															Se
Ag															Ag
Na															Na
Tl															Tl
V															V
Zn															Zn
B															B
Mo															Mo
Sr															Sr

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4S2

BOE-C6-0232865

LDC #: 63953/4
SDG #: R1A290172

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of
Reviewer:
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Qualifications
	2	3			
Aluminum					
Antimony	0.0056	0.0023	84		
Arsenic					
Barium	0.26	0.76	98		
Beryllium					
Cadmium					
Calcium					
Chromium	0.020	0.020	0		
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Mercury					
Nickel					
Potassium					
Selenium	0.00504	0.0081	200		
Silver					
Sodium					
Thallium					
Vanadium	0.0014	0.0012	15		
Zinc	0.052	0.22	123		
Cyanide					
Boron					
Molybdenum	0.0034	0.040	169		
Strontium					
Silicon					

Notes:

FLDUP.4S2

Boeing C-6 Site
Data Validation Reports
LDC# 6395

Methane-Ethane-Ethene

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Redevelopment Corp., C-6 Site

Collection Date: January 29, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E1A290172

Sample Identification

TMW-6-W-012901
TMW-4-W-012901
TMW-4-D-012901
TMW-3-W-012901
TMW-9-W-012901
XMW-09-W-012901

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 25.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

c. Laboratory Control Samples

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

V. Target Compound Identification

Target compound identification (RT) data were not reviewed for Tier 2.

VI. Compound Quantitation and CRQLs

Compound quantitation and CRQLs were not reviewed for Tier 2.

VII. System Performance

System performance data were not reviewed for Tier 2.

VIII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

Boeing Redevelopment Corp., C-6 Site
Methane, Ethane, & Ethene - Data Qualification Summary - SDG E1A290172

No Sample Data Qualified in this SDG

Boeing Redevelopment Corp., C-6 Site
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG E1A290172

No Sample Data Qualified in this SDG

TAIT ENVIRONMENTAL

Client Sample ID: TMW_6_W_012901

GC Volatiles

Lot-Sample #...:	E1A290172-001	**Work Order #...:**	DVAAX1CQ	**Matrix.....:**	WATER
Date Sampled...:	01/29/01 08:40	**Date Received..:**	01/29/01 17:35	**MS Run #.....:**	
Prep Date.....:	02/01/01	**Analysis Date..:**	02/01/01		
Prep Batch #...:	1032412	**Analysis Time..:**	11:07		
Dilution Factor:	1				
Analyst ID.....:	101605	**Instrument ID..:**	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

0

A
6-11-07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_W_012901

GC Volatiles

Lot-Sample #...: E1A290172-002 **Work Order #...:** DVAA01CT **Matrix.....:** WATER
Date Sampled...: 01/29/01 10:00 **Date Received..:** 01/29/01 17:35 **MS Run #.....:**
Prep Date.....: 02/01/01 **Analysis Date..:** 02/01/01
Prep Batch #...: 1032412 **Analysis Time..:** 11:38
Dilution Factor: 1
Analyst ID.....: 101605 **Instrument ID..:** GC1
Method.....: RSK SOP-175

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

A
6-11-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_4_D_012901

GC Volatiles

Lot-Sample #...: E1A290172-003 Work Order #...: DVAA11CT Matrix.....: WATER
Date Sampled...: 01/29/01 10:05 Date Received..: 01/29/01 17:35 MS Run #.....:
Prep Date.....: 02/01/01 Analysis Date..: 02/01/01
Prep Batch #...: 1032412 Analysis Time..: 12:01
Dilution Factor: 1
Analyst ID.....: 101605 Instrument ID..: GC1
Method.....: RSK SOP-175

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: TMW_3_W_012901

GC Volatiles

Lot-Sample #...:	E1A290172-004	**Work Order #...:**	DVAA31CT	**Matrix.....:**	WATER
Date Sampled...:	01/29/01 11:25	**Date Received..:**	01/29/01 17:35	**MS Run #.....:**	
Prep Date.....:	02/01/01	**Analysis Date..:**	02/01/01		
Prep Batch #...:	1032412	**Analysis Time..:**	12:23		
Dilution Factor:	1				
Analyst ID.....:	101605	**Instrument ID..:**	GC1		
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

6.4.07

TAIT ENVIRONMENTAL

Client Sample ID: TMW_9_W_012901

GC Volatiles

Lot-Sample #...: E1A290172-005 Work Order #...: DVAA51CT Matrix.....: WATER
Date Sampled...: 01/29/01 12:25 Date Received..: 01/29/01 17:35 MS Run #.....:
Prep Date.....: 02/01/01 Analysis Date..: 02/01/01
Prep Batch #...: 1032412 Analysis Time..: 12:46
Dilution Factor: 1
Analyst ID.....: 101605 Instrument ID..: GC1
Method.....: RSK SOP-175

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

VA
6-4-01

TAIT ENVIRONMENTAL

Client Sample ID: XMW_09_W_012901

GC Volatiles

Lot-Sample #...: E1A290172-006 Work Order #...: DVAA71CV Matrix.....: WATER
Date Sampled...: 01/29/01 14:10 Date Received..: 01/29/01 17:35 MS Run #.....:
Prep Date.....: 02/01/01 Analysis Date..: 02/01/01
Prep Batch #...: 1032412 Analysis Time..: 13:08
Dilution Factor: 1
Analyst ID.....: 101605 Instrument ID..: GC1
Method.....: RSK SOP-175

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Methane	ND	0.0010	mg/L	0.00050
Ethane	ND	0.0020	mg/L	0.00020
Ethene	ND	0.0010	mg/L	0.00030

CA 6-4-07

000050

LDC #: 6395B51

VALIDATION COMPLETENESS WORKSHEET

SDG #: E1A290172

X Tier 2

Laboratory: Severn Trent Laboratories

Date: 5/9/01

Page: 1 of 1

Reviewer: FT

2nd Reviewer: [illegible]

METHOD: GC Methane, Ethane & Ethene (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/01
IIa.	Initial calibration	A	% RSD ≤ 25%
IIb.	Calibration verification	A	% D ≤ 25%
III.	Blanks	A	
IVa.	Surrogate recovery	N	not required by method
IVb.	Matrix spike/Matrix spike duplicates	N	↓
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

water

1	TMW-6-W-012901	11		21		31	
2	TMW-4-W-012901	12		22		32	
3	TMW-4-D-012901	13		23		33	
4	TMW-3-W-012901	14		24		34	
5	TMW-9-W-012901	15		25		35	
6	XMW-09-W-012901	16		26		36	
7	MLB010000-412	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

METHANE.IV