Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**G. WALKER**	**DATE:**	**JUNE 10, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS AND MISCELLANEOUS PARAMETERS**
CSS PANAMA CITY – CTO 184
SAMPLE DELIVERY GROUP (SDG) – F12939

SAMPLES: 3/AQUEOUS/

10GLM0101	10GLM0301	10GLM0701

3/SOIL/

03GLM0401	03GLM0501	03GLM0601

Overview

The sample set for CSS Panama City, CTO 184, SDG F12939, consists of three (3) aqueous and three (3) soil environmental samples.

The aqueous samples were analyzed for arsenic, calcium, magnesium, manganese, potassium, sodium, ions, and Total Organic Carbon (TOC). The soil samples were analyzed for TAL metals, cyanide, and percent solids. The samples were collected by Tetra Tech NUS April 17, 2002 and analyzed by Accutest Laboratories Southeast, Inc. Metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7471A. Chloride, nitrate, nitrite, and sulfate analyses were conducted using method EPA 300. Total Organic Carbon analyses were conducted using method EPA 415.1. Cyanide analyses were conducted using method SW846 9010. Percent solids analyses were conducted using method EPA 160.3

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Cold Vapor Atomic Absorption (CVAA) methodologies

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Recoveries
• Laboratory Blank Analyses
* • ICP Interference
• Matrix Spike/Matrix Spike Duplicate Recoveries
* • Laboratory Control Sample Results
• ICP Serial Dilution Results
• Laboratory Duplicate Results
* • Sample Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Aqueous Action Level	Soil Action Level
Aluminum	53.5 ug/L	NA	26.8 mg/kg
Antimony	3.8 ug/L	NA	1.9 mg/kg
Barium	0.49 ug/L	NA	0.245 mg/kg
Beryllium	0.36 ug/L	NA	0.18 mg/kg
Cadmium	0.38 ug/L	NA	0.19 mg/kg
Calcium	45.5 ug/L	NA	22.8 mg/kg
Calcium[(1)]	75.5 ug/L	378 ug/L	NA
Chromium[(2)]	0.10 mg/kg	NA	0.5 mg/kg
Cobalt	0.96 ug/L	NA	0.48 mg/kg
Copper[(2)]	0.068 mg/kg	NA	0.34 mg/kg
Iron	32.1 ug/L	NA	16.1 mg/kg
Lead	2.7 ug/L	NA	1.35 mg/kg
Magnesium	34.5 ug/L	173 ug/L	17.3 mg/kg
Manganese	0.55 ug/L	2.75 ug/L	0.275 mg/kg
Nickel[(2)]	0.63 mg/kg	NA	3.15 mg/kg
Potassium	689 ug/L	3445 ug/L	345 mg/kg
Selenium	3.0 ug/L	NA	1.5 mg/kg
Silver	0.59 ug/L	NA	0.295 mg/kg
Sodium	198 ug/L	990 ug/L	99.0 mg/kg
Thallium	3.1 ug/L	NA	1.55 mg/kg
Vanadium	0.65 ug/L	NA	0.325 mg/kg
Zinc	1.2 ug/L	NA	0.6 mg/kg

[(1)] Maximum concentration found in aqueous preparation blank.
[(2)] Maximum concentration found in soil preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. In the aqueous samples, positive results < Action Level for potassium were qualified (U) for blank contamination. In the soil samples, positive results < Action Level for antimony, cadmium, cobalt, nickel, potassium, selenium, and silver were qualified (U) for blank contamination. All other analytes were not qualified because the sample values were either greater than the action level or were nondetects.

Matrix Spike Noncompliance

The soil matrix spike %R for chromium and lead were below the control limit of 75-125%. Positive results were qualified as estimated (J).

Laboratory Duplicate Noncompliance

The soil laboratory duplicate Relative Percent Differences (RPD's) for chromium and lead were above the control limit of 35% and both sample values were >5X CRDL. Positive results were qualified as estimated (J).

The soil laboratory duplicate differences for lead and manganese were above the control limit of >2X CRDL and at least one sample value was <5X CRDL. Positive results were qualified as estimated (J).

ICP Serial Dilution Noncompliance

The aqueous ICP serial dilution percent differences (%D's) for manganese and potassium were greater than 10% and the original sample results were >50X IDL. Positive results (>IDL) were qualified as estimated (J).

The soil ICP serial dilution %D's for calcium, copper, and potassium were greater than 10% and the original sample results were >50X IDL. Positive results for calcium and copper were qualified as estimated (J). Qualification action was not required for potassium because it was qualified due to blank contamination.

Notes

The CRDL %R for antimony was above the control limit of 80-120%. No validation action was taken.

The aqueous and soil laboratory duplicate RPD's for arsenic were above the control limits. No validation action was taken because of low sample concentrations.

The aqueous and soil ICP serial dilution %D's for potassium were greater than 10% and the original sample results were >50X IDL. No validation action was taken because the samples were qualified for blank contamination.

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Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks. Several analytes were qualified due to matrix spike noncompliance. Several analytes were qualified due to laboratory duplicate noncompliance. Several analytes were qualified due to ICP serial dilution noncompliance.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 2834

SDG: F12939 MEDIA: WATER DATA FRACTION: M

nsample	10GLM0101
samp_date	4/17/2002
lab_id	F12939-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ARSENIC	2.8	U	
CALCIUM	15400		
MAGNESIUM	1730		
MANGANESE	15.8	J	I
POTASSIUM	2000	U	A
SODIUM	3050		

nsample	10GLM0301
samp_date	4/17/2002
lab_id	F12939-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ARSENIC	2.8	U	
CALCIUM	15000		
MAGNESIUM	2440		
MANGANESE	15.3	J	I
POTASSIUM	2070	U	A
SODIUM	2550		

nsample	10GLM0701
samp_date	4/17/2002
lab_id	F12939-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ARSENIC	2.8	U	
CALCIUM	64800		
MAGNESIUM	4050		
MANGANESE	102	J	I
POTASSIUM	2730	U	A
SODIUM	4840		

PROJ_NO: 2834

SDG: F12939 MEDIA: SOIL DATA FRACTION: MISC

nsample	03GLM0401
samp_date	4/17/2002
lab_id	F12939-5
qc_type	NM
units	MG/KG
Pct_Solids	65.4
DUP_OF:	

Parameter	Result	ValQual	QualCode
CYANIDE	3.1	U	
PERCENT SOLIDS	65.4		

nsample	03GLM0501
samp_date	4/17/2002
lab_id	F12939-6
qc_type	NM
units	MG/KG
Pct_Solids	66.7
DUP_OF:	

Parameter	Result	ValQual	QualCode
CYANIDE	3.0	U	
PERCENT SOLIDS	66.7		

nsample	03GLM0601
samp_date	4/17/2002
lab_id	F12939-7
qc_type	NM
units	MG/KG
Pct_Solids	79.1
DUP_OF:	

Parameter	Result	ValQual	QualCode
CYANIDE	2.5	U	
PERCENT SOLIDS	79.1		

PROJ_NO: 2834

SDG: F12939 MEDIA: SOIL DATA FRACTION: M

nsample	03GLM0401
samp_date	4/17/02
lab_id	F12939-5
qc_type	NM
units	MG/KG
Pct_Solids	65.4
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	563		
ANTIMONY	0.38	U	A
ARSENIC	0.32	U	
BARIUM	1.1		
BERYLLIUM	0.029	U	
CADMIUM	0.17	U	A
CALCIUM	135	J	I
CHROMIUM	21.8	J	DF
COBALT	0.15	U	A
COPPER	4.7	J	I
IRON	769		
LEAD	76.6	J	DF
MAGNESIUM	94.0		
MANGANESE	3.1	J	F
MERCURY	0.014	U	
NICKEL	0.66	U	A
POTASSIUM	84.7	U	A
SELENIUM	0.26	U	A
SILVER	0.062	U	
SODIUM	170		
THALLIUM	0.17	U	
VANADIUM	0.90		
ZINC	49.0		

nsample	03GLM0501
samp_date	4/17/02
lab_id	F12939-6
qc_type	NM
units	MG/KG
Pct_Solids	66.7
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1900		
ANTIMONY	0.96	U	A
ARSENIC	1.8		
BARIUM	3.4		
BERYLLIUM	0.038	U	
CADMIUM	0.47		
CALCIUM	530	J	I
CHROMIUM	11.9	J	DF
COBALT	0.40	U	A
COPPER	52.9	J	I
IRON	2800		
LEAD	49.8	J	DF
MAGNESIUM	719		
MANGANESE	11.8	J	F
MERCURY	0.15		
NICKEL	5.5		
POTASSIUM	293	U	A
SELENIUM	0.32	U	A
SILVER	0.39	U	A
SODIUM	2530		
THALLIUM	0.22	U	
VANADIUM	5.4		
ZINC	146		

nsample	03GLM0601
samp_date	4/17/02
lab_id	F12939-7
qc_type	NM
units	MG/KG
Pct_Solids	79.1
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	165		
ANTIMONY	0.38	U	A
ARSENIC	0.35	U	
BARIUM	0.94		
BERYLLIUM	0.032	U	
CADMIUM	0.032	U	
CALCIUM	159	J	I
CHROMIUM	1.0	J	DF
COBALT	0.082	U	A
COPPER	37.6	J	I
IRON	685		
LEAD	27.2	J	DF
MAGNESIUM	381		
MANGANESE	1.8	J	F
MERCURY	0.060		
NICKEL	0.68	U	A
POTASSIUM	200	U	A
SELENIUM	0.36	U	A
SILVER	0.068	U	
SODIUM	2100		
THALLIUM	0.19	U	
VANADIUM	0.77		
ZINC	21.7		

PROJ_NO: 2834

SDG: F12939 MEDIA: WATER DATA FRACTION: MISC

nsample	10GLM0101
samp_date	4/17/2002
lab_id	F12939-4
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	20	U	
NITRATE	0.10	U	
NITRITE	0.10	U	
SULFATE	20	U	
TOTAL ORGANIC CARBON	11.6		

nsample	10GLM0301
samp_date	4/17/2002
lab_id	F12939-1
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	20	U	
NITRATE	0.10	U	
NITRITE	0.10	U	
SULFATE	20	U	
TOTAL ORGANIC CARBON	5.2		

nsample	10GLM0701
samp_date	4/17/2002
lab_id	F12939-3
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
CHLORIDE	20	U	
NITRATE	0.10	U	
NITRITE	0.10	U	
SULFATE	20	U	
TOTAL ORGANIC CARBON	18.8		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0101		
Lab Sample ID:	F12939-4	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.8 U	10	2.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Calcium	15400	1000	3.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Magnesium	1730 B	5000	9.9	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Manganese	15.8	15	0.16	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Potassium	2000 B	5000	14	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Sodium	3050 B	5000	150	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A

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RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0301		
Lab Sample ID:	F12939-1	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.8 U	10	2.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Calcium	15000	1000	3.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Magnesium	2440 B	5000	9.9	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Manganese	15.3	15	0.16	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Potassium	2070 B	5000	14	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Sodium	2550 B	5000	150	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0701		
Lab Sample ID:	F12939-3	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.8 U	10	2.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Calcium	64800	1000	3.8	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Magnesium	4050 B	5000	9.9	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Manganese	102	15	0.16	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Potassium	2730 B	5000	14	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A
Sodium	4840 B	5000	150	ug/l	1	04/18/02	04/22/02	DM	SW846 6010B	SW846 3010A

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RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0401		
Lab Sample ID:	F12939-5	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	65.4
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	563	22	0.74	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Antimony	0.38 B	6.7	0.17	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Arsenic	0.32 U	0.56	0.32	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Barium	1.1 B	22	0.055	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Beryllium	0.029 U	0.56	0.029	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cadmium	0.17 B	0.45	0.029	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Calcium	135 B	560	0.43	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Chromium	21.8	1.1	0.048	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cobalt	0.15 B	5.6	0.056	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Copper	4.7	2.8	0.050	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Iron	769	11	0.80	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Lead	76.6	11	0.14	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Magnesium	94.0 B	560	1.1	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Manganese	3.1	1.7	0.018	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Mercury	0.014 U	0.23	0.014	mg/kg	1	04/25/02	04/25/02	LIR	SW846 7471A	SW846 7471A
Nickel	0.66 B	4.5	0.12	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Potassium	84.7 B	560	1.6	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Selenium	0.26 B	11	0.22	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Silver	0.062 U	1.1	0.062	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Sodium	170 B	560	16	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Thallium	0.17 U	1.1	0.17	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Vanadium	0.90 B	5.6	0.053	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Zinc	49.0	2.2	0.066	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0501		
Lab Sample ID:	F12939-6	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	66.7
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1900	29	0.95	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Antimony	0.96 B	8.6	0.22	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Arsenic	1.8	0.72	0.41	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Barium	3.4 B	29	0.071	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Beryllium	0.038 U	0.72	0.038	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cadmium	0.47 B	0.58	0.038	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Calcium	530 B	720	0.55	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Chromium	11.9	1.4	0.062	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cobalt	0.40 B	7.2	0.072	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Copper	52.9	3.6	0.063	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Iron	2800	14	1.0	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Lead	49.8	14	0.18	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Magnesium	719 B	720	1.4	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Manganese	11.8	2.2	0.023	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Mercury	0.15 B	0.20	0.012	mg/kg	1	04/25/02	04/25/02	LIR	SW846 7471A	SW846 7471A
Nickel	5.5 B	5.8	0.16	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Potassium	293 B	720	2.0	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Selenium	0.32 B	14	0.29	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Silver	0.39 B	1.4	0.079	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Sodium	2530	720	21	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Thallium	0.22 U	2.8	0.22	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Vanadium	5.4 B	7.2	0.068	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Zinc	146	2.9	0.085	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0601		
Lab Sample ID:	F12939-7	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	79.1
Project:	CSS Panama City-N2834(CTO-0184)		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	165	25	0.81	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Antimony	0.38 B	7.4	0.19	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Arsenic	0.35 U	0.62	0.35	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Barium	0.94 B	25	0.061	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Beryllium	0.032 U	0.62	0.032	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cadmium	0.032 U	0.50	0.032	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Calcium	159 B	620	0.47	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Chromium	1.0 B	1.2	0.053	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Cobalt	0.082 B	6.2	0.062	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Copper	37.6	3.1	0.055	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Iron	685	12	0.88	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Lead	27.2	12	0.15	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Magnesium	381 B	620	1.2	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Manganese	1.8 B	1.9	0.020	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Mercury	0.060 B	0.21	0.013	mg/kg	1	04/25/02	04/25/02	LIR	SW846 7471A	SW846 7471A
Nickel	0.68 B	5.0	0.13	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Potassium	200 B	620	1.7	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Selenium	0.36 B	12	0.25	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Silver	0.068 U	1.2	0.068	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Sodium	2100	620	18	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Thallium	0.19 U	2.4	0.19	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Vanadium	0.77 B	6.2	0.058	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B
Zinc	21.7	2.5	0.073	mg/kg	1	04/22/02	04/23/02	DM	SW846 6010B	SW846 3050B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0401		
Lab Sample ID:	F12939-5	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	65.4
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By	Method
Cyanide, Total	<3.1	3.1	mg/kg	1	04/29/02 SJL	SW846 9010
Solids, Percent	65.4		%	1	04/19/02 LL	EPA 160.3 M

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0501		
Lab Sample ID:	F12939-6	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	66.7
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Cyanide, Total	<3.0	3.0	mg/kg	1	04/29/02	SJL	SW846 9010
Solids, Percent	66.7		%	1	04/19/02	LL	EPA 160.3 M

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	03GLM0601		
Lab Sample ID:	F12939-7	**Date Sampled:**	04/17/02
Matrix:	SO - Soil	**Date Received:**	04/18/02
		Percent Solids:	79.1
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By	Method
Cyanide, Total	<2.5	2.5	mg/kg	1	04/29/02 SJL	SW846 9010
Solids, Percent	79.1		%	1	04/19/02 LL	EPA 160.3 M

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0101		
Lab Sample ID:	F12939-4	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Chloride	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrate	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Sulfate	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Total Organic Carbon	11.6	4.0	mg/l	4	05/03/02	ATX	EPA 415.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0301		
Lab Sample ID:	F12939-1	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Chloride	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrate	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Sulfate	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Total Organic Carbon	5.2	2.0	mg/l	2	05/03/02	ATX	EPA 415.1

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	10GLM0701		
Lab Sample ID:	F12939-3	**Date Sampled:**	04/17/02
Matrix:	AQ - Ground Water	**Date Received:**	04/18/02
		Percent Solids:	n/a
Project:	CSS Panama City-N2834(CTO-0184)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed By		Method
Chloride	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrate	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Nitrogen, Nitrite	<0.10	0.10	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Sulfate	<20	20	mg/l	1	04/18/02	LL	EPA 300/SW846 9056
Total Organic Carbon	18.8	4.0	mg/l	4	05/03/02	ATX	EPA 415.1

RL = Reporting Limit

APPENDIX C
SUPPORT DOCUMENTATION

CHAIN OF CUSTODY

ACCUTEST

4405 VINELAND ROAD • SUITE C-15
ORLANDO, FL 32811
TEL: 407-425-6700 • FAX: 407-425-0707

ACCUTEST JOB #: F12939 (cont'd)
ACCUTEST QUOTE #:

CLIENT INFORMATION

NAME: Tetra Tech NUS, Inc.
ADDRESS: 1401 Oven Park Dr. Ste 201
CITY, STATE, ZIP: Tallahassee FL 32308
SEND REPORT TO: Gerry Walker
PHONE #: 850-385 9899

FACILITY INFORMATION

PROJECT NAME: PCY RFI
LOCATION: SWMU 10
PROJECT NO.: 2834 Cto 184
FAX #: WR# 184PC-2
850-385-9860

ANALYTICAL INFORMATION

MATRIX CODES

DW - DRINKING WATER
GW - GROUND WATER
WW - WASTE WATER
SO - SOIL
SL - SLUDGE
OI - OIL
LIQ - OTHER LIQUID
SOL - OTHER SOLID

ACCUTEST SAMPLE #	FIELD ID / POINT OF COLLECTION	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	MATRIX	# OF BOTTLES	PRESERVATION HCl	NaOH	HNO3	H2SO4	NONE	TCL VOC 8260	SVOC 8270C	PAH 8310	TOC	Metals As, Na, Mg, Cu, Pb, Mn 6010B	Diss. Gases (Methane Ethane Ethene)	Anions - Cl, SO4, NO2, NO3	TAL METALS (+Cr+Hg)	PEST / PCBS			LAB USE ONLY
3	10GLM0701 ✗	4/17/02	08:15	JJ/JF	GW	13	✓		✓		✓	3	2	2	1	1	3	1	–	–			
4	10GLM0101 ✗	4/17/02	09:00	JJ/JF	GW	13	✓		✓		✓	3	2	2	1	1	3	1	–	–			
5	03GLM0401 ✗	4/17/02	11:55	BO/MTN	SO	2					✓	3	1	1	–	–	–	–	1	1			
6	03GLM0501 ✗	4/17/02	11:25	↓	↓	↓					✓	3	1	1	–	–	–	–	1	1			
7	03GLM0601 ✗	4/17/02	11:05	↓	↓	↓					✓	3	1	1	–	–	–	–	1	1			
													✓						✓				

DATA TURNAROUND INFORMATION

☒ STANDARD
☐ 48 HOUR RUSH
☐ 24 HOUR EMERGENCY
☐ OTHER

APPROVED BY:

EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED

DATA DELIVERABLE INFORMATION

☐ STANDARD
☐ COMMERCIAL "B"
☐ DISK DELIVERABLE
☐ STATE FORMS
☒ OTHER (SPECIFY) Tt NUS

COMMENTS/REMARKS

Airbill # ~~8311 5252 8718~~
8311 5252 8729

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESION, INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE TIME:	RECEIVED BY:
1.	4/17/02 15:00	1.	2.	4/18 900	2. Amanda Harpst
RELINQUISHED BY: 3.	DATE TIME:	RECEIVED BY: 3.	RELINQUISHED BY: 4.	DATE TIME:	RECEIVED BY: 4.
RELINQUISHED BY: 5.	DATE TIME:	RECEIVED BY: 5.	SEAL #	PRESERVE WHERE APPLICABLE ☐	ON ICE ☐

TEMPERATURE 4.0 C

CHAIN OF CUSTODY

ACCUTEST

4405 VINELAND ROAD • SUITE C-15
ORLANDO, FL 32811
TEL: 407-425-6700 • FAX: 407-425-0707

ACCUTEST JOB #: F12939
ACCUTEST QUOTE #:

CLIENT INFORMATION

NAME: Tetra Tech NUS Inc
ADDRESS: 1401 Oven Park Dr Ste 201
CITY, STATE, ZIP: Tallahassee FL 32308
SEND REPORT TO: Gerry Walker
PHONE #: 850-385-9899

FACILITY INFORMATION

PROJECT NAME: PCY RFI
PROJECT NAME: SMWU 10
LOCATION: 2834 CTO 184
PROJECT NO.: WR# 184PC-2
FAX #: 850-385-9860

ANALYTICAL INFORMATION

ACCUTEST SAMPLE #	FIELD ID / POINT OF COLLECTION	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	MATRIX	# OF BOTTLES	PRESERVATION HCl	NaOH	HNO3	H2SO4	NONE	8260B-TCL VOCs	8270C-TCL SVOCs	8310-PAH	6010B-As, Na, Mg, Ca, K, Mn	TOC	Dissolved Gases-Methane Ethane Ethene	Anions-Cl, SO4, NO2, NO3	LAB USE ONLY
1	10GLM0301	4/17/02	0845	MA/SS	GW	15	X		X		X	3	2	2	1	3	3	1	
2	10GLM0301MS	4/18/02	↓	↓	↓	8	X		X		X	3	2	2	1	–	–	–	matrix spike
3	10GLM0301MD		↓	↓	↓	8	X		X		X	3	2	2	1	–	–	–	MSD
4	10TB041702	↓	—	—	DI	3	X					2	–	–	–	–	–	–	trip blank

MATRIX CODES

DW - DRINKING WATER
GW - GROUND WATER
WW - WASTE WATER
SO - SOIL
SL - SLUDGE
OI - OIL
LIQ - OTHER LIQUID
SOL - OTHER SOLID

DATA TURNAROUND INFORMATION

☒ STANDARD
☐ 48 HOUR RUSH
☐ 24 HOUR EMERGENCY
☐ OTHER

APPROVED BY:

EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED

DATA DELIVERABLE INFORMATION

☐ STANDARD
☐ COMMERCIAL "B"
☐ DISK DELIVERABLE
☐ STATE FORMS
☒ OTHER (SPECIFY) TtNUS

COMMENTS/REMARKS

Airbill # ~~8311 5252 8718~~
8311 5252 8729

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESION, INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE TIME:	RECEIVED BY:
1. [signature]	4/17/02 15:00	1.	2.	4/18 900	2. Amanda Tarpet
RELINQUISHED BY: 3.	DATE TIME:	RECEIVED BY: 3.	RELINQUISHED BY: 4.	DATE TIME:	RECEIVED BY: 4.
RELINQUISHED BY: 5.	DATE TIME:	RECEIVED BY: 5.	SEAL #	PRESERVE WHERE APPLICABLE ☐	ON ICE ☐ TEMPERATURE 22 °C

ACCUTEST LABORATORIES SOUTHEAST
SAMPLE RECEIPT CONFIRMATION

Accutest's Job Number: F12939

Client/Project: TetraTech NUS/ PCY RFI

Date/Time Received: 4/8/02 900. Total Number of Coolers 3

Method of Delivery: FedEx Greyhound UPS Pickup Delivery Other

Air Bill Number: 8311 5252 8729

Cooler Temperatures: 2.2, 2.0, 4.0

Custody Seals Intact?	YES	NO	
Trip Blank Intact?	YES	NO	NA
Chain of Custody Provided?	YES	NO	
Chain of Custody Match Bottles?	YES	NO	
Sample Labels Present?	YES	NO	
Are All Bottles Unbroken?	YES	NO	
Proper Preservative?	YES	NO	
Correct Containers Used?	YES	NO	
Sufficient Sample Volume?	YES	NO	
Number of Encores	9		

Comments:

Signature: Miranda Haupt Date: 4/8/02

0009

Rev. 08/28/01 SI

F12939

HOLDING TIME
05/20/02

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
%	03GLM0401	F12939-5	NORMAL	F12939		04/17/02	/ /	04/19/02	0	0	2
%	03GLM0501	F12939-6	NORMAL	F12939		04/17/02	/ /	04/19/02	0	0	2
%	03GLM0601	F12939-7	NORMAL	F12939		04/17/02	/ /	04/19/02	0	0	2
MG/L	10GLM0101	F12939-4	NORMAL	F12939	CL	04/17/02	04/18/02	04/18/02	1	0	1
%	10GLM0301	GP3124-S2	NORMAL	F12939	CL	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0701	F12939-3	NORMAL	F12939	CL	04/17/02	04/18/02	04/18/02	1	0	1
MG/KG	03GLM0401	F12939-5	NORMAL	F12939	CN	04/17/02	04/25/02	04/29/02	8	4	12
MG/KG	03GLM0501	F12939-6	NORMAL	F12939	CN	04/17/02	04/25/02	04/29/02	8	4	12
MG/KG	03GLM0601	F12939-7	NORMAL	F12939	CN	04/17/02	04/25/02	04/29/02	8	4	12
UG/L	10GLM0101	F12939-4	NORMAL	F12939	ETHA	04/17/02	/ /	04/25/02	0	0	8
%	10GLM0301	F12939-1DUP	NORMAL	F12939	ETHA	04/17/02	/ /	04/25/02	0	0	8
UG/L	10GLM0701	F12939-3	NORMAL	F12939	ETHA	04/17/02	/ /	04/25/02	0	0	8
UG/L	10GLM0101	F12939-4	NORMAL	F12939	ETHE	04/17/02	/ /	04/25/02	0	0	8
%	10GLM0301	F12939-1DUP	NORMAL	F12939	ETHE	04/17/02	/ /	04/25/02	0	0	8
UG/L	10GLM0701	F12939-3	NORMAL	F12939	ETHE	04/17/02	/ /	04/25/02	0	0	8
MG/KG	03GLM0401	F12939-5	NORMAL	F12939	HG	04/17/02	04/25/02	04/25/02	8	0	8
MG/KG	03GLM0501	F12939-6	NORMAL	F12939	HG	04/17/02	04/25/02	04/25/02	8	0	8
MG/KG	03GLM0601	F12939-7	NORMAL	F12939	HG	04/17/02	04/25/02	04/25/02	8	0	8
%	03GLM0401	MP4355-SD1	NORMAL	F12939	M	04/17/02	04/22/02	04/23/02	5	1	6
MG/KG	03GLM0501	F12939-6	NORMAL	F12939	M	04/17/02	04/22/02	04/23/02	5	1	6
MG/KG	03GLM0601	F12939-7	NORMAL	F12939	M	04/17/02	04/22/02	04/23/02	5	1	6
UG/L	10GLM0101	F12939-4	NORMAL	F12939	M	04/17/02	04/18/02	04/22/02	1	4	5
%	10GLM0301	MP4350-SD1	NORMAL	F12939	M	04/17/02	04/18/02	04/22/02	1	4	5
UG/L	10GLM0701	F12939-3	NORMAL	F12939	M	04/17/02	04/18/02	04/22/02	1	4	5

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	10GLM0101	F12939-4	NORMAL	F12939	METH	04/17/02	/ /	04/25/02	0	0	8
%	10GLM0301	F12939-1DUP	NORMAL	F12939	METH	04/17/02	/ /	04/25/02	0	0	8
UG/L	10GLM0701	F12939-3	NORMAL	F12939	METH	04/17/02	/ /	04/25/02	0	0	8
MG/L	10GLM0101	F12939-4	NORMAL	F12939	NTA	04/17/02	04/18/02	04/18/02	1	0	1
%	10GLM0301	GP3124-S2	NORMAL	F12939	NTA	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0701	F12939-3	NORMAL	F12939	NTA	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0101	F12939-4	NORMAL	F12939	NTI	04/17/02	04/18/02	04/18/02	1	0	1
%	10GLM0301	GP3124-S2	NORMAL	F12939	NTI	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0701	F12939-3	NORMAL	F12939	NTI	04/17/02	04/18/02	04/18/02	1	0	1
%	03GLM0401	F12939-5	NORMAL	F12939	OS	04/17/02	04/23/02	04/24/02	6	1	7
%	03GLM0501	F12939-6	NORMAL	F12939	OS	04/17/02	04/23/02	04/24/02	6	1	7
UG/KG	03GLM0601	F12939-7	NORMAL	F12939	OS	04/17/02	04/23/02	04/23/02	6	0	6
%	10GLM0101	F12939-4	NORMAL	F12939	OS	04/17/02	04/19/02	05/02/02	2	13	15
%	10GLM0301	F12939-1	NORMAL	F12939	OS	04/17/02	04/19/02	05/02/02	2	13	15
%	10GLM0701	F12939-3	NORMAL	F12939	OS	04/17/02	04/19/02	05/02/02	2	13	15
%	03GLM0401	F12939-5	NORMAL	F12939	OV	04/17/02	/ /	04/24/02	0	0	7
%	03GLM0501	F12939-6	NORMAL	F12939	OV	04/17/02	/ /	04/24/02	0	0	7
%	03GLM0601	F12939-7	NORMAL	F12939	OV	04/17/02	/ /	04/24/02	0	0	7
%	10GLM0101	F12939-4	NORMAL	F12939	OV	04/17/02	/ /	04/22/02	0	0	5
%	10GLM0301	F12939-1MSD	NORMAL	F12939	OV	04/17/02	/ /	04/19/02	0	0	2
%	10GLM0701	F12939-3	NORMAL	F12939	OV	04/17/02	/ /	04/19/02	0	0	2
%	10TB041702	F12939-2	NORMAL	F12939	OV	04/17/02	/ /	04/22/02	0	0	5
UG/KG	03GLM0401	F12939-5	NORMAL	F12939	PAH	04/17/02	04/25/02	04/25/02	8	0	8
UG/KG	03GLM0501	F12939-6	NORMAL	F12939	PAH	04/17/02	04/25/02	04/25/02	8	0	8
UG/KG	03GLM0601	F12939-7	NORMAL	F12939	PAH	04/17/02	04/25/02	04/26/02	8	1	9
%	10GLM0101	F12939-4	NORMAL	F12939	PAH	04/17/02	04/23/02	04/24/02	6	1	7
%	10GLM0301	OP5022-MSD	NORMAL	F12939	PAH	04/17/02	04/23/02	04/24/02	6	1	7

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
%	10GLM0701	F12939-3	NORMAL	F12939	PAH	04/17/02	04/23/02	04/24/02	6	1	7
%	03GLM0401	F12939-5	NORMAL	F12939	PCB	04/17/02	04/22/02	04/23/02	5	1	6
%	03GLM0501	F12939-6	NORMAL	F12939	PCB	04/17/02	04/22/02	04/23/02	5	1	6
%	03GLM0601	F12939-7	NORMAL	F12939	PCB	04/17/02	04/22/02	04/23/02	5	1	6
%	03GLM0401	F12939-5	NORMAL	F12939	PEST	04/17/02	04/22/02	04/30/02	5	8	13
%	03GLM0501	F12939-6	NORMAL	F12939	PEST	04/17/02	04/22/02	04/30/02	5	8	13
%	03GLM0601	F12939-7	NORMAL	F12939	PEST	04/17/02	04/22/02	04/30/02	5	8	13
MG/L	10GLM0101	F12939-4	NORMAL	F12939	SO4	04/17/02	04/18/02	04/18/02	1	0	1
%	10GLM0301	GP3124-S2	NORMAL	F12939	SO4	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0701	F12939-3	NORMAL	F12939	SO4	04/17/02	04/18/02	04/18/02	1	0	1
MG/L	10GLM0101	F12939-4	NORMAL	F12939	TOC	04/17/02	/ /	05/03/02	0	0	16
MG/L	10GLM0301	F12939-1	NORMAL	F12939	TOC	04/17/02	/ /	05/03/02	0	0	16
MG/L	10GLM0701	F12939-3	NORMAL	F12939	TOC	04/17/02	/ /	05/03/02	0	0	16

Accutest Laboratories Southeast, Inc.
Analytical Narrative

Client: Tetra Tech, NUS
Site: CSS Panama City-N2834 (CTO-184)
Report Date: May 15, 2002
Job Number: F12939

7 samples were collected on April 17, 2002, and received on April 18, 2002. Samples were properly cooled, preserved and intact. A listing of the Laboratory Sample ID, Client Sample ID, and dates of collection are presented in the Results Summary section of this report.

All method specified holding times, calibrations and quality control performance criteria were met, with the following notes:

VOCs, SW846-8260B:

- The MS/MSD associated with analytical batch number VG504 affected by matrix. The Blank spike was within acceptance limits. The Method Blank was free of interference from this compound. Data not adversely affected.

SVOC, SW846-8270C:

- The MS/MSD associated with analytical batch number SW533 had Pentachlorophenol recovery below acceptance limits. All RPDs were within acceptance limits. The Blank spike was within acceptance limits. The Method Blank was free of interference from this compound. Data not adversely affected.

Dissolved Gases:

- No problems detected

Chlorinated Pesticides/SW-846 8081A:

- Several analytes recovered below lower acceptance limit in CCVs. These analytes are calibrated to 1/2RL and not detected in the samples. Data acceptable.

Metals: SW-846, 6010B

- The MS/MSD and Sample Duplicate data associated with analytical batches MP4350 and MP 4355 had %RPD above acceptance limits. All high RPDs were either due to low duplicate and sample concentrations and/or matrix interference. The Blank Spike found these metals to be within acceptance limits and the Method Blank free of interference from this compound. Data not adversely affected.
- The Serial Dilution associated with analytical batches MP4350 and MP 4355 had several RPDs above acceptance limits. All high RPDs were either due to low duplicate and sample concentrations and/or matrix interference. The Blank Spike found these metals to be within

acceptance limits and the Method Blank free of interference from this compound. Data not adversely affected.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. ALSE routinely reports Organic target analytes down to 1/2 the Reporting Level. These positive results are flagged with a "J" qualifier. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

Svetlana Izosimova, QA Officer

Date: May 15, 2002

0007

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4350
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/18/02

Metal	RL	IDL	MB raw	final
Aluminum	200	6.56	anr	
Antimony	5.0	1.52	anr	
Arsenic	10	2.83	-0.12	<10
Barium	200	.49		
Beryllium	5.0	.26	anr	
Cadmium	5.0	.26	anr	
Calcium	1000	3.82	75.5	<1000
Chromium	10	.43	anr	
Cobalt	50	.5		
Copper	25	.44	anr	
Iron	300	7.11	anr	
Lead	5.0	1.22	anr	
Magnesium	5000	9.88	6.3	<5000
Manganese	15	.16	-1.5	<15
Molybdenum	50	.75		
Nickel	40	1.08	anr	
Potassium	5000	13.9	652	<5000
Selenium	10	1.98	anr	
Silver	10	.55	anr	
Sodium	5000	145	156	<5000
Thallium	10	1.49	anr	
Tin	50	2.18		
Vanadium	50	.47	anr	
Zinc	20	.59	anr	

Associated samples MP4350: F12939-1, F12939-3, F12939-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4355
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 04/22/02

Metal	RL	IDL	MB raw	final
Aluminum	20	.656	2.8	<20
Antimony	6.0	.152	0.18	<6.0
Arsenic	0.50	.283	-0.44	<0.50
Barium	20	.049	0.0090	<20
Beryllium	0.50	.026	-0.0020	<0.50
Cadmium	0.40	.026	0.0010	<0.40
Calcium	500	.382	1.7	<500
Chromium	1.0	.043	0.10	<1.0
Cobalt	5.0	.05	-0.029	<5.0
Copper	2.5	.044	0.068	<2.5
Iron	10	.711	-3.2	<10
Lead	10	.122	0.23	<10
Magnesium	500	.988	0.95	<500
Manganese	1.5	.016	-0.054	<1.5
Molybdenum	5.0	.075		
Nickel	4.0	.108	0.63	<4.0
Potassium	500	1.39	65.4	<500
Selenium	10	.198	0.27	<10
Silver	1.0	.055	0.029	<1.0
Sodium	500	14.5	7.6	<500
Thallium	1.0	.149	-0.79	<1.0
Tin	5.0	.218		
Vanadium	5.0	.047	0.0050	<5.0
Zinc	2.0	.059	-0.13	<2.0

Associated samples MP4355: F12939-5, F12939-6, F12939-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

1052

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4358
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 04/25/02

Metal	RL	IDL	MB raw	final
Mercury	0.17	.01	-0.022	<0.17

Associated samples MP4358: F12939-5, F12939-6, F12939-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

1053

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0423M5.ASC Date Analyzed: 04/23/02 Methods: SW846 6010B
QC Limits: result < RL Run ID: MA2780 Units: mg/l

Metal	RL	IDL	ICB raw	final	CCB raw	final	CCB raw	final
Aluminum	200	6.56	1.6	<200	53.5	<200<	25.2	<200<
Antimony	0.0050	1.52	-1.1	<5.0	2.1	<5.0	3.8	<5.0
Arsenic	0.010	2.83	1.2	<10	-1.8	<10	-1.1	<10
Barium	200	.49	-0.10	<200	-0.020	<200	0.49	<200
Beryllium	5.0	.26	-0.38	<5.0	-0.080	<5.0	0.36	<5.0
Cadmium	5.0	.26	-0.16	<5.0	0.0	<5.0	0.38	<5.0
Calcium	1000	3.82	-2.5	<1000	45.5	<1000	22.7	<1000
Chromium	10	.43	-0.13	<10	0.17	<10	0.86	<10
Cobalt	50	.5	-0.13	<50	0.46	<50	0.96	<50
Copper	25	.44	0.060	<25	0.090	<25	0.57	<25
Iron	300	7.11	-6.2	<300	26.5	<300	32.1	<300<
Lead	0.0050	1.22	1.6	<5.0	2.1	<5.0	2.7	<5.0
Magnesium	5000	9.88	-0.72	<5000	34.5	<5000	16.2	<5000
Manganese	15	.16	-0.16	<15	0.090	<15	0.55	<15
Molybdenum	50	.75	anr					
Nickel	40	1.08	0.010	<40	1.2	<40	1.0	<40
Potassium	5000	13.9	654	<5000<	662	<5000<	679	<5000<
Selenium	0.010	1.98	1.4	<10	2.0	<10	3.0	<10
Silver	10	.55	-0.25	<10	-0.35	<10	0.59	<10
Sodium	5000	145	22.5	<5000	-42	<5000	177	<5000
Thallium	0.010	1.49	3.1	<10	-0.11	<10	1.4	<10
Tin	50	2.18						
Vanadium	50	.47	-0.36	<50	0.13	<50	0.65	<50
Zinc	20	.59	-0.20	<20	0.52	<20	1.2	<20

(*) Outside of QC limits
(anr) Analyte not requested

1032

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: HG0425S1.HGX Date Analyzed: 04/25/02 Methods: SW846 7471A
QC Limits: result < RL Run ID: MA2784 Units: ug/l

Metal	RL	IDL	ICB raw	ICB final	CCB raw	CCB final	CCB raw	CCB final	CCB raw	CCB final
Mercury	1.0	.06	-0.13	<1.0	-0.13	<1.0	-0.13	<1.0	-0.13	<1.0

(*) Outside of QC limits
(anr) Analyte not requested

1033

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
QC Limits: result < RL Run ID: MA2778 Units: mg/l

Metal	RL	IDL	ICB raw	final	CCB raw	final	CCB raw	final	CCB raw	final
Aluminum	200	6.56	anr							
Antimony	0.0050	1.52	anr							
Arsenic	0.010	2.83	0.56	<10	-3.0	<10	-1.4	<10	-1.9	<10
Barium	200	.49	anr							
Beryllium	5.0	.26	anr							
Cadmium	5.0	.26	anr							
Calcium	1000	3.82	4.0	<1000	17.7	<1000	3.7	<1000	4.2	<1000
Chromium	10	.43	anr							
Cobalt	50	.5	anr							
Copper	25	.44	anr							
Iron	300	7.11	anr							
Lead	0.0050	1.22	anr							
Magnesium	5000	9.88	5.2	<5000	20.4	<5000	2.1	<5000	3.3	<5000
Manganese	15	.16	0.15	<15	-0.24	<15	-0.14	<15	-0.15	<15
Molybdenum	50	.75	anr							
Nickel	40	1.08	anr							
Potassium	5000	13.9	661	<5000<	619	<5000<	667	<5000<	689	<5000<
Selenium	0.010	1.98	anr							
Silver	10	.55	anr							
Sodium	5000	145	29.6	<5000	21.8	<5000	-11	<5000	129	<5000
Thallium	0.010	1.49	anr							
Tin	50	2.18								
Vanadium	50	.47	anr							
Zinc	20	.59	anr							

(*) Outside of QC limits
(anr) Analyte not requested

1034

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
QC Limits: result < RL Run ID: MA2778 Units: mg/l

Metal	RL	IDL	CCB raw	final	CCB raw	final
Aluminum	200	6.56	anr			
Antimony	0.0050	1.52	anr			
Arsenic	0.010	2.83	-0.23	<10	-1.8	<10
Barium	200	.49	anr			
Beryllium	5.0	.26	anr			
Cadmium	5.0	.26	anr			
Calcium	1000	3.82	5.6	<1000	-0.79	<1000
Chromium	10	.43	anr			
Cobalt	50	.5	anr			
Copper	25	.44	anr			
Iron	300	7.11	anr			
Lead	0.0050	1.22	anr			
Magnesium	5000	9.88	6.1	<5000	4.0	<5000
Manganese	15	.16	0.030	<15	-1.0	<15
Molybdenum	50	.75	anr			
Nickel	40	1.08	anr			
Potassium	5000	13.9	636	<5000<	662	<5000<
Selenium	0.010	1.98	anr			
Silver	10	.55	anr			
Sodium	5000	145	55.8	<5000	198	<5000
Thallium	0.010	1.49	anr			
Tin	50	2.18				
Vanadium	50	.47	anr			
Zinc	20	.59	anr			

(*) Outside of QC limits
(anr) Analyte not requested

1035

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

Analyte	Batch ID	RL	MB Result	Units	BSP %Recov	QC Limits
Chloride	GP3124/GN9307	20	<20	mg/l	96.3	90-110%
Cyanide, Total	GP3142/GN9368	2.0	<2.0	mg/kg	92.0	80-120%
Nitrogen, Nitrate	GP3124/GN9307	0.10	<0.10	mg/l	95.0	90-110%
Nitrogen, Nitrite	GP3124/GN9307	0.10	<0.10	mg/l	95.0	90-110%
Sulfate	GP3124/GN9307	20	<20	mg/l	93.3	90-110%

Associated Samples:
Batch GP3124: F12939-1, F12939-3, F12939-4
Batch GP3142: F12939-5, F12939-6, F12939-7

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F12939
Account: ALSE - Accutest Labs S. E.
Project: ALSE493 - TETRFLTA: CSS Panama City-N2834(CTO-0184

Analyte	Batch ID	RL	MB Result	Units	BSP %Recov	QC Limits
Total Organic Carbon	GN2743	1.0	<1.0	mg/l	94.0	80-120%

Associated Samples:
Batch GN2743: F12939-1, F12939-3, F12939-4

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0423M5.ASC Date Analyzed: 04/23/02 Methods: SW846 6010B
QC Limits: 70 to 130 % Recovery Run ID: MA2780 Units: mg/l

Metal	CRI True	CRIA True	CRI Results	% Rec
Aluminum	0.40		377	94.3
Antimony	0.010		14.2	142.0*(a
Arsenic	0.020		17.9	89.5
Barium	0.40		401	100.3
Beryllium	0.010		10.6	106.0
Cadmium	0.010		10	100.0
Calcium	2.0		2030	101.5
Chromium	0.020		20.5	102.5
Cobalt	0.10		99.3	99.3
Copper	0.050		47.5	95.0
Iron	0.60		592	98.7
Lead	0.010		13.0	130.0*
Magnesium	10		9620	96.2
Manganese	0.030		30.4	101.3
Molybdenum	0.10		anr	
Nickel	0.080		86.8	108.5
Potassium	10		9420	94.2
Selenium	0.010		11.2	112.0
Silver	0.020		18.6	93.0
Sodium	10		8040	80.4
Thallium	0.020		16.8	84.0
Tin	0.10			
Vanadium	0.10		103	103.0
Zinc	0.040		39.5	98.8

(*) Outside of QC limits
(anr) Analyte not requested
(a) Possible positive bias, but all sample results < the DL.

1044

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: HG0425S1.HGX Date Analyzed: 04/25/02 Methods: SW846 7471A
QC Limits: to % Recovery Run ID: MA2784 Units: ug/l

Metal	CRI True	CRIA True	CRI Results	% Rec
Mercury	0.50		0.46	92.0

(*) Outside of QC limits
(anr) Analyte not requested

1045

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
QC Limits: 70 to 130 % Recovery Run ID: MA2778 Units: mg/l

Metal	CRI True	CRIA True	CRI Results	% Rec
Aluminum	0.40		anr	
Antimony	0.010		anr	
Arsenic	0.020		18.3	91.5
Barium	0.40		anr	
Beryllium	0.010		anr	
Cadmium	0.010		anr	
Calcium	2.0		2030	101.5
Chromium	0.020		anr	
Cobalt	0.10		anr	
Copper	0.050		anr	
Iron	0.60		anr	
Lead	0.010		anr	
Magnesium	10		9700	97.0
Manganese	0.030		30.1	100.3
Molybdenum	0.10		anr	
Nickel	0.080		anr	
Potassium	10		9560	95.6
Selenium	0.010		anr	
Silver	0.020		anr	
Sodium	10		8190	81.9
Thallium	0.020		anr	
Tin	0.10			
Vanadium	0.10		anr	
Zinc	0.040			

(*) Outside of QC limits
(anr) Analyte not requested

1046

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0423M5.ASC Date Analyzed: 04/23/02 Methods: SW846 6010B
QC Limits: 80 to 120 % Recovery Run ID: MA2780 Units: mg/l

Metal	ICSA True	ICSAB True	ICSA Results	% Rec	ICSA Results	% Rec	ICSAB Results	% Rec
Aluminum	500	500			515000	103.0	497000	99.4
Antimony		1.0			0.040		1060	106.0
Arsenic		1.0			1.0		1010	101.0
Barium		0.50			1.2		534	106.8
Beryllium		0.50			-1.3		515	103.0
Cadmium		1.0			0.16		902	90.2
Calcium	500	500			470000	94.0	452000	90.4
Chromium		0.50			3.1		511	102.2
Cobalt		0.50			0.46		508	101.6
Copper		0.50			-17		581	116.2
Iron	200	200			201000	100.5	191000	95.5
Lead		1.0			-0.030		964	96.4
Magnesium	500	500			532000	106.4	512000	102.4
Manganese		0.50			-0.67		544	108.8
Molybdenum		1.0			-1.9		976	97.6
Nickel		1.0			0.13		955	95.5
Potassium					662		3810	
Selenium		1.0			6.5		1030	103.0
Silver		1.0			-0.43		1050	105.0
Sodium					74.7		2430	
Thallium		1.0			-1.5		970	97.0
Tin		1.0			-2.0		983	98.3
Vanadium		0.50			2.6		503	100.6
Zinc		1.0			-3.2		907	90.7

(*) Outside of QC limits
(anr) Analyte not requested

1048

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
QC Limits: 80 to 120 % Recovery Run ID: MA2778 Units: mg/l

Metal	ICSA True	ICSAB True	ICSA Results	% Rec	ICSA Results	% Rec	ICSAB Results	% Rec
Aluminum	500	500			522000	104.4	504000	100.8
Antimony		1.0			0.080		1080	108.0
Arsenic		1.0			-0.36		1030	103.0
Barium		0.50			1.1		537	107.4
Beryllium		0.50			-1.3		520	104.0
Cadmium		1.0			-0.030		913	91.3
Calcium	500	500			472000	94.4	451000	90.2
Chromium		0.50			2.7		515	103.0
Cobalt		0.50			0.29		513	102.6
Copper		0.50			-17		588	117.6
Iron	200	200			202000	101.0	192000	96.0
Lead		1.0			2.3		975	97.5
Magnesium	500	500			536000	107.2	515000	103.0
Manganese		0.50			-0.82		548	109.6
Molybdenum		1.0			-2.5		983	98.3
Nickel		1.0			0.14		965	96.5
Potassium					690		3860	
Selenium		1.0			1.4		1050	105.0
Silver		1.0			-0.59		1070	107.0
Sodium					23.8		2380	
Thallium		1.0			0.15		982	98.2
Tin		1.0			-3.8		997	99.7
Vanadium		0.50			1.5		507	101.4
Zinc		1.0			-0.21		922	92.2

(*) Outside of QC limits
(anr) Analyte not requested

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4355
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:				04/22/02				04/22/02	
Metal	F12939-5 Original	MS	Spikelot MPFLICP	% Rec	QC Limits	F12939-5 Original	DUP	RPD	QC Limits
Aluminum	563	4540	3960	100.5	33-181	563	601	6.5	0-20
Antimony	0.38	125	137	91.3	39-125	0.38	0.38	0.0	0-22
Arsenic	0.0	504	546	92.3	77-125	0.0	1.3	200.0*(b)	0-47
Barium	1.1	536	546	98.0	78-125	1.1	0.83	28.0 (c)	0-20
Beryllium	0.0	13.8	13.7	101.1	80-125	0.0	0.0	NC	0-32
Cadmium	0.17	13.1	13.7	94.7	75-125	0.17	0.18	5.7	0-25
Calcium	135	3450	3410	97.1	10-211	135	506	115.8(c)	0-20
Chromium	21.8	56.8	54.6	64.1N(a)	72-125	21.8	5.9	114.8*(b)	0-20
Cobalt	0.15	134	137	98.0	75-125	0.15	1.5	163.6(c)	0-33
Copper	4.7	71.4	68.3	97.7	75-125	4.7	3.6	26.5 (c)	0-20
Iron	769	4320	3690	96.3	46-162	769	931	19.1	0-20
Lead	76.6	141	137	47.2N(a)	54-127	76.6	7.8	163.0*(b)	0-22
Magnesium	94.0	3290	3410	93.6	66-129	94.0	760	156.0*(b)	0-20
Manganese	3.1	143	137	102.5	72-125	3.1	8.8	95.8*(b)	0-20
Molybdenum									
Nickel	0.66	136	137	99.1	75-125	0.66	7.8	168.8*(b)	0-35
Potassium	84.7	3280	3410	93.6	53-136	84.7	127	40.0 (c)	0-20
Selenium	0.26	503	546	92.1	75-125	0.26	0.37	34.9	0-47
Silver	0.0	13.1	13.7	96.0	67-125	0.0	0.0	NC	0-20
Sodium	170	3180	3410	88.2	74-125	170	222	26.5 (c)	0-20
Thallium	0.0	546	546	100.0	75-125	0.0	0.0	NC	0-20
Tin									
Vanadium	0.90	139	137	101.2	75-125	0.90	1.1	20.0	0-20
Zinc	49.0	174	137	91.6	70-125	49.0	55.8	13.0	0-20

Associated samples MP4355: F12939-5, F12939-6, F12939-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
(b) High RPD due to possible sample nonhomogeneity.
(c) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4358
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 04/25/02 04/25/02

Metal	F12939-5 Original	DUP	RPD	QC Limits	F12939-5 Original	MS	Spikelot HGFLWS	% Rec	QC Limits
Mercury	0.0	0.0	NC	0-68	0.0	0.57	0.61	93.2	47-157

Associated samples MP4358: F12939-5, F12939-6, F12939-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4350
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/18/02

Metal	F12939-1 Original	DUP	RPD	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	0.0	4.0	200.0(a)	0-29
Barium				
Beryllium	anr			
Cadmium	anr			
Calcium	15000	15100	0.7	0-20
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	2440	2530	3.6	0-20
Manganese	15.3	16.0	4.5	0-30
Molybdenum				
Nickel	anr			
Potassium	2070	2150	3.8	0-20
Selenium	anr			
Silver	anr			
Sodium	2550	2710	6.1	0-20
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP4350: F12939-1, F12939-3, F12939-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4350
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/18/02

Metal	BSP Result	Spikelot MPFLICP	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	4010	4000	100.3	80-120
Barium				
Beryllium	anr			
Cadmium	anr			
Calcium	26100	25000	104.4	80-120
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	24800	25000	99.2	80-120
Manganese	1070	1000	107.0	80-120
Molybdenum				
Nickel	anr			
Potassium	24900	25000	99.6	80-120
Selenium	anr			
Silver	anr			
Sodium	22800	25000	91.2	80-120
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP4350: F12939-1, F12939-3, F12939-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

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SERIAL DILUTION RESULTS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4350
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/18/02

Metal	F12939-1 Original	SDL 1:5	RPD	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	0.00	0.00	NC	0-10
Barium				
Beryllium	anr			
Cadmium	anr			
Calcium	15000	14500	3.4	0-10
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	2440	2360	3.0	0-10
Manganese	15.3.	8.55	44.2*(a)	0-10
Molybdenum				
Nickel	anr			
Potassium	2070	4480	116.3*(a)	0-10
Selenium	anr			
Silver	anr			
Sodium	2550	2300	9.9	0-10
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP4350: F12939-1, F12939-3, F12939-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

SERIAL DILUTION RESULTS SUMMARY

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

QC Batch ID: MP4355
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 04/22/02

Metal	F12939-5 Original	SDL 1:5	RPD	QC Limits	
Aluminum	5010	5090	1.6	0-10	
Antimony	3.41	0.00	100.0(a)	0-10	OK
Arsenic	0.00	0.00	NC	0-10	
Barium	10.0	10.3	2.9	0-10	
Beryllium	0.00	0.00	NC	0-10	
Cadmium	1.48	0.00	100.0(a)	0-10	OK
Calcium	1200	1330	11.6*(b)	0-10	
Chromium	194	198	2.1	0-10	
Cobalt	1.32	0.00	100.0(a)	0-10	OK
Copper	41.4	36.7	11.3*(b)	0-10	
Iron	6840	6950	1.5	0-10	
Lead	681	707	3.9	0-10	
Magnesium	836	824	1.4	0-10	
Manganese	27.5	25.4	7.8	0-10	
Molybdenum					
Nickel	5.85	8.51	45.5 (a)	0-10	OK
Potassium	753	3210	325.8*(b)	0-10	
Selenium	2.29	0.00	100.0(a)	0-10	OK
Silver	0.00	0.00	NC	0-10	
Sodium	1510	1340	11.3 (a)	0-10	OK
Thallium	0.00	0.00	NC	0-10	
Tin					
Vanadium	8.01	5.76	28.1 (a)	0-10	OK
Zinc	435	439	0.9	0-10	

Associated samples MP4355: F12939-5, F12939-6, F12939-7

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

MP4358

Mercury Digestion Log: Water and Soil (circle one)

Method of Digestion: SW Temp., C: 95

Analyst: Linda R. Thermometer #: 37

Date/Time Started: 4/23 1300 Date/Time Ended: 4/23 1330

MA2784

*Digest solid matrices for 30 min, aqueous matrices for 2 hours.

Reagents Added	HNO_3	HCl	H_2SO_4	$KMnO_4$	$K_2S_2O_8$	$SnCl_2$	H_3NOHCl
Manuf.	Fisher						
Lot #	1101040	4101031		GN		BK	

Sample #	Wt., g	Init. Vol.,mL	Final Vol.,mL	Comments
STD 1			100	0.05
STD 2				0.1
STD 3				0.2
STD 4				0.3
STD 5				0.4
STD 6				0.5
STD 7				0.6
Cal. Blank				
Method Blank	.60			
Blank Spike	.68			3ml 7606
MS F-12939-5	.75			Some as BS
MSD 5/2 4/21 5				Some as BS
Dup. 5	.57			
1 5	.66			
2 6	.75			
3 7	.59			
4 F-12974-1	.52			
5 2	.82			
6 3	.74			
7 4	.63			
8				
9				
10				
11				
12				
13				
14				
15			CR 4/23/02	
16				
17				
18				
19				
20				

Analyst's Signature: [signature] Date: 4-23-02

Reviewer"s Signature: [signature] Date: 4/26/02

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Metals Digestion Log: Water

Method of Digestion: SW846-3010A Temp: 93 Thermometer ID 46

	HNO3	HCl
Added:		
Mfg:	Fisher	Fisher
Lot#	110104	410131

MD4350

Sample #	Init. Vol/Wt	Fin. Vol/Wt	Date	Comments
MB 4/18/02	50 ml	50 ml	4/18/02	
SB				1ml acc 255+, 25ml acc 257
MS F12939-1				
MSD F12939-1				
Dup F12939-1				
1 QC F12939-1				
2 F12939-3				
3 -4				
4 F12937-20				
5 -21				
6 -22				
7 -23				
8 -24				
9 -25				
10 F12929-1				
11 -2				
12 F12940-1				
13 -2				
14 -3				
15 -4				
16 -5				
17 -6				
18 -7				
19 -8				
20 -9				

Analyst D. Metzger Date 4/18/02

QC Review [illegible] Date 4/19/02

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029

Metals Digestion Log: Soil

Method of Digestion: SW846-3050B **Temp:** 93 **Thermometer ID** 46

Balance ID 74007

	HNO_3	HCl	H_2O_2
Added:			
Mfg:	Fisher	Fisher	Fisher
Lot#	1101040	410031	001570

MP4355

Sample #	Wt., g	Fin. Vol.	% Solid	Digestion Factor	Date	Comments
MB 4/22/02	.50	100.50ml			4/22/02	
SB ↓	.50	↓			↑	1ml acc 255F. 25ml acc 257 ↓
MS F12939-5	.54					
MSD —	—					
Dup F12939-5	.54					
1 QC F12939-5	.68					
2 ↓ -6	.52					
3 ↓ -7	.51					
4 F12923-9	.46					
5 F12949-9	.46					
6 F12980-2	.48	↓			↓	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

4/22/02

Analyst [signature] **Date** 4/22/02

QC Review [signature] **Date** 4/22/02

Rev. 07/23/01 SI

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
Analyst: DM Run ID: MA2778
Parameters: As,Ca,Mg,Mn,K,Na

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:39	MA2778-ICV1	1		
10:42	MA2778-ICB1	1		
10:45	MA2778-CRI1	1		
10:48	MA2778-ICSA1	1		
10:53	MA2778-ICSA2	1		
10:54	MA2778-ICSAB1	1		
10:58	MA2778-CCV1	1		
11:03	MA2778-CCB1	1		
11:07	MP4349-MB1	1		
11:11	MP4349-B1	1		
11:16	F12937-1	1		(sample used for QC only; not part of login F12939)
11:21	MP4349-S1	1		
11:26	MP4349-S2	1		
11:32	MP4349-D1	1		
11:49	MP4349-SD1	5		
11:53	ZZZZZZ	1		
11:57	ZZZZZZ	1		
12:02	ZZZZZZ	1		
12:06	MA2778-CCV2	1		
12:11	MA2778-CCB2	1		
12:15	ZZZZZZ	1		
12:19	ZZZZZZ	1		
12:23	ZZZZZZ	1		
12:26	ZZZZZZ	1		
12:30	ZZZZZZ	1		
12:34	ZZZZZZ	1		
12:38	ZZZZZZ	1		
12:42	ZZZZZZ	1		
12:46	ZZZZZZ	1		
12:50	ZZZZZZ	1		
12:54	MA2778-CCV3	1		
12:59	MA2778-CCB3	1		
13:03	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
Analyst: DM Run ID: MA2778
Parameters: As,Ca,Mg,Mn,K,Na

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:07	ZZZZZZ	1		
13:11	ZZZZZZ	1		
13:15	ZZZZZZ	1		
13:18	ZZZZZZ	1		
13:22	ZZZZZZ	1		
13:26	MP4350-MB1	1		
13:30	MP4350-B1	1		
13:35	F12939-1	1		
13:39	MP4350-S1	1		
13:43	MA2778-CCV4	1		
13:49	MA2778-CCV5	1		
13:54	MA2778-CCB4	1		
14:21	MP4350-S2	1		
14:28	MP4350-D1	1		
14:31	MP4350-SD1	5		
14:35	F12939-3	1		
14:39	F12939-4	1		
---------->	Last reportable sample/prep for job F12939			
14:43	ZZZZZZ	1		
14:47	ZZZZZZ	1		
14:51	ZZZZZZ	1		
14:55	ZZZZZZ	1		
14:59	ZZZZZZ	1		
15:03	MA2778-CCV6	1		
15:08	MA2778-CCB5	1		
---------->	Last reportable CCB for job F12939			
15:12	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:23	ZZZZZZ	1		
15:27	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:35	ZZZZZZ	1		
15:39	ZZZZZZ	1		
15:43	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
Analyst: DM Run ID: MA2778
Parameters: As,Ca,Mg,Mn,K,Na

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:47	ZZZZZZ	1		
15:51	MA2778-CCV7	1		
15:56	MA2778-CCB6	1		
16:00	ZZZZZZ	1		
16:07	ZZZZZZ	1		
16:11	MP4354-MB1	1		
16:14	MP4354-B1	1		
16:20	F12946-1	1		(sample used for QC only; not part of login F12939)
16:23	MP4354-S1	1		
16:27	MP4354-S2	1		
16:34	MP4354-D1	1		
16:38	MP4354-SD1	5		
16:42	ZZZZZZ	1		
16:45	MA2778-CCV8	1		
16:51	MA2778-CCB7	1		
17:06	ZZZZZZ	1		
17:10	ZZZZZZ	1		
17:13	ZZZZZZ	1		
17:17	ZZZZZZ	1		
17:21	ZZZZZZ	1		
17:25	ZZZZZZ	1		
17:29	ZZZZZZ	1		
17:33	ZZZZZZ	1		
17:37	ZZZZZZ	1		
17:41	ZZZZZZ	1		
17:45	MA2778-CCV9	1		
17:51	MA2778-CCB8	1		
17:55	ZZZZZZ	1		
17:59	ZZZZZZ	1		
18:03	ZZZZZZ	1		
18:07	ZZZZZZ	1		
18:11	ZZZZZZ	1		
18:15	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0422M5.ASC Date Analyzed: 04/22/02 Methods: SW846 6010B
Analyst: DM Run ID: MA2778
Parameters: As,Ca,Mg,Mn,K,Na

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:18	ZZZZZZ	1		
18:22	ZZZZZZ	1		
18:26	MA2778-CCV10	1		
18:33	MA2778-CCB9	1		

Refer to raw data for calibration curve and standards.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: IR0423M5.ASC Date Analyzed: 04/23/02 Methods: SW846 6010B
Analyst: DM Run ID: MA2780
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	10:36	MA2780-ICV1	1		
	10:38	MA2780-ICB1	1		
	10:41	MA2780-CRI1	1		
	10:48	MA2780-ICSA1	1		
	10:52	MA2780-ICSA2	1		
	10:53	MA2780-ICSAB1	1		
	10:57	MA2780-CCV1	1		
	11:02	MA2780-CCB1	1		
	11:06	MP4355-MB1	1		
	11:10	MP4355-B1	1		
	11:15	F12939-5	1		
	11:19	MP4355-S1	1		
	11:24	MP4355-D1	1		
	11:28	MP4355-SD1	5		
	11:32	F12939-6	1		
	11:36	F12939-7	1		
---------->	Last reportable sample/prep for job F12939				
	11:40	ZZZZZZ	1		
	11:44	ZZZZZZ	1		
	11:48	MA2780-CCV2	1		
	11:53	MA2780-CCB2	1		
---------->	Last reportable CCB for job F12939				
	11:57	ZZZZZZ	1		
	12:01	ZZZZZZ	1		
	12:04	MP4354-S2	1		
	12:08	MA2780-CCV3	1		
	12:13	MA2780-CCB3	1		

Refer to raw data for calibration curve and standards.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: F12939
Account: TETRFLTA - Tetra-Tech, NUS
Project: TETRFLTA2893 - CSS Panama City-N2834(CTO-0184)

File ID: HG0425S1.HGX Date Analyzed: 04/25/02 Methods: SW846 7471A
Analyst: LIR Run ID: MA2784
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:00	MA2784-ICV1	1		
00:00	MA2784-ICB1	1		
00:00	MA2784-CCV1	1		
00:00	MA2784-CCB1	1		
00:00	MA2784-CRI1	1		
00:00	MP4358-MB1	1		
00:00	MP4358-B1	1		
00:00	MP4358-S1	1		
00:00	MP4358-D1	1		
00:00	F12939-5	1		
00:00	F12939-6	1		
00:00	F12939-7	1		
00:00	MA2784-CCV2	1		
00:00	MA2784-CCB2	1		
00:00	ZZZZZZ	100		
00:00	ZZZZZZ	10		
00:00	ZZZZZZ	1		
00:00	ZZZZZZ	1		
00:00	MA2784-CCV3	1		
00:00	MA2784-CCB3	1		

Refer to raw data for calibration curve and standards.

Method: TRACE6 Sample Name: F12939-3 Operator: DM
Run Time: 04/22/02 14:35 Filename: R0422M5
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	Ba4934	Be3130	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0014	.0877	.0003	.0163	-.0004	64.79
SDev	.001	.009	.0011	0	.0001	.3825
%RSD	73.53	10.29	337.8	.2574	29.52	.5904

Elems	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0006	-.0004	.0007	-.0018	1.598	2.726
SDev	.0001	.0003	.0003	.0002	.0152	.0265
%RSD	14.71	83.13	46.08	11.92	.9498	.9706

Elems	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	2203/1
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.050	.1025	.0027	4.843	.0005	.0012
SDev	.0155	.0003	.0002	.0966	.0006	.0019
%RSD	.382	.3233	8.78	1.994	135.5	160.2

Elems	2203/2	Pb2203	Se1960	Sb2068	1960/1	1960/2
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.0019	.0006	-.0005	-.0004	.0005	-.0032
SDev	.0021	.0008	.0015	.0026	.0024	.0015
%RSD	107.8	126.4	289.2	721.3	476.2	47.63

Elems	Sn1899	V 2924	Zn2062	Tl1908
Units	ppm	ppm	ppm	ppm
Avge	.0005	.0010	-.0017	-.0018
SDev	.0007	.0003	.0002	.0011
%RSD	148.3	30.82	13.42	57.59

Sample 10GLM0701

64.79 ppm x 1000 = 64,790 ug/L

aqueous matrix

Method: TRACE6 Sample Name: F12939-6 Operator: DM
Run Time: 04/23/02 11:32 Filename: R0423M5
Mode: CONC Type: S Corr. Factor: 1.00000
Lab ID.: Cust. Smpl. ID.: Cust. ID.:

Elems	Ag3280	Al3082	As1890	Ba4934	Be3130	Ca3179
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0027	13.21	.0125	.0235	.0000	3.676
SDev	.0016	.041	.0029	.0003	.0002	.0154
%RSD	57.42	.3105	23	1.113	1450	.4177

Elems	Cd2265	Co2286	Cr2677	Cu3247	Fe2714	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.0033	.0028	.0825	.3666	19.45	2.033
SDev	.0001	.0003	.0003	.0004	.0425	.0204
%RSD	2.086	12.39	.3303	.1149	.2185	1.006

Elems	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	2203/1
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	4.984	.0820	.0229	17.56	.0379	.3515
SDev	.0197	.0004	.0001	.1202	.0008	.0098
%RSD	.3959	.4826	.4143	.6844	2.037	2.786

Elems	2203/2	Pb2203	Se1960	Sb2068	1960/1	1960/2
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.3406	.3458	.0023	.0067	-.0047	.0035
SDev	.0042	.0011	.0022	.0009	.0041	.0051
%RSD	1.22	.3185	97.06	14.13	86.52	143.8

Elems	Sn1899	V 2924	Zn2062	Tl1908
Units	ppm	ppm	ppm	ppm
Avge	.0195	.0374	1.011	L-.0126
SDev	.0023	.0006	.0066	.0006
%RSD	11.85	1.639	.6527	4.506

sample: 03GLM0501

$0.0125 \text{ ppm} \times \frac{50 \text{ mL}}{0.52 \text{ g}} = \frac{1.20}{0.667} = 1.8 \text{ mg/kg}$

soil matrix