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NS MAYPORT
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LETTER REPORT REGARDING GROUNDWATER SAMPLING AT SOLID WASTE MANAGEMENT UNIT 13 NS MAYPORT FL

5/2/2003

TETRA TECH NUS

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Document Tracking Number 03JAX0124

May 2, 2003

Project Number N4231

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Ms. Adrienne Wilson (Code ES31)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order Number 0245

Subject: Groundwater Sampling Letter Report – Solid Waste Management Unit (SWMU) 13
Naval Station (NS) Mayport
Mayport, Florida

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this letter report for the referenced Contract Task Order (CTO). This report was prepared for the United States Navy Southern Division, Naval Facilities Engineering Command under CTO 0245 for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. This letter report provides a brief summary of past sampling activities and a summary of the groundwater sample collection activities conducted by TtNUS at SWMU 13 in March 2003.

Site Location

SWMU 13, the Old Firefighting Training Area, consisted of three distinct areas used for fire fighting training exercises between 1972 and 1983. These areas are currently located around or near Building 1552 in the northeastern part of NS Mayport. The site location of SWMU 13 within the confines of NS Mayport is presented on Figure 1.

Background Information

The firefighting training area consisted of earthen berms constructed on top of an abandoned asphalt runway. The berms were partially filled with two-thirds water and one-third flammable material during training exercises. Flammable materials such as aviation fuel (90 to 95 percent); waste oil (5 to 10 percent); and a minor percentage of solvents (toluene and trichloroethene), paint thinner, transformer oil, and hydraulic oil were poured on the water and ignited. Liquids not consumed in the fire were left in the berm and were either infiltrated, evaporated, or allowed to drain off the sides of the pit toward the runway (A. T. Kearney, 1989).

Prior to 1986, the southernmost area was disturbed during a pipeline installation. For a period of time, it was suspected that soil excavated from the pipeline may have been spread over the immediate area. The area was later paved with asphalt and is now used as a parking lot [Environmental Science and

Engineering, Inc. (ESE), 1986]. Soil in the other two areas may have also been disturbed during the building of the Aircraft Intermediate Maintenance Depot (Building 1553), the Naval Supply Center (Building 1554), and the helicopter hangars (Building 1552); however it was not confirmed [ABB Environmental Services (ABB-ES), 1996].

The three areas of SWMU 13 are depicted on Figure 2.

Previous Investigations

The Navy Installation Restoration Program Initial Assessment Study (ESE, 1986) recommended the former firefighting training area, later identified as SWMU 13 in the Hazardous and Solid Waste Amendments of 1984 permit, be investigated (ABB-ES, 1996). Three monitoring wells (MPT-13-MW01S, MPT-13-MW02S, and MPT-13-MW03S) were installed during the Expanded Site Investigation (ESI) conducted in 1987 (E. C. Jordan, 1988). Subsurface soil samples were collected during the installation of the three monitoring wells. Soil and groundwater samples were analyzed for priority pollutant volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and inorganics. None of the target analytes were detected in the subsurface soil samples. Lead and mercury were detected in two separate groundwater samples during the ESI (ABB-ES, 1996).

Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) field activities were conducted at SWMU 13 in 1992 and 1994 by ABB-ES. The field activities consisted of the collection of sediment samples, subsurface soil samples, and groundwater samples. The sediment, soil, and groundwater samples were analyzed for target analytes including VOCs, SVOCs, pesticides, PCBs, metals, and cyanide.

In 1992, three sediment samples were collected from stormwater runoff swales located south and west of SWMU 13. Three subsurface soil samples were collected during the installation of monitoring wells MPT-13-MW04S, MW05S, and MW06S. Groundwater samples were collected from six monitoring wells and one piezometer (ABB-ES, 1996).

In 1994, the field activities included using a Terraprobe^{sm} to collect 15 subsurface soil samples and 13 groundwater samples which were screened for total petroleum hydrocarbons. Four monitoring wells were installed based on the results of the field screening, and groundwater samples were collected from the existing and new monitoring wells (ABB-ES, 1996).

RCRA Facility Investigation Findings

An RFI was prepared by ABB-ES in 1996 to document the findings of the field investigation program. The RFI noted the detection of four SVOCs and three pesticides in sediment samples. VOCs and PCBs were not detected in the sediment samples. None of the SVOCs or pesticides were detected at concentrations exceeding benchmark standards. Eight inorganic analytes were detected in the sediment samples. Arsenic was the only constituent in soil sediments which exceeded benchmark standards.

As indicated in the RFI for SWMU 13, the organic target analytes detected in subsurface soil samples consisted of three VOCs, one SVOC, and one pesticide. PCBs were not detected in the subsurface soil samples. None of the VOCs, SVOCs, or pesticides were detected in concentrations exceeding benchmark standards. Eight inorganic analytes were detected in subsurface soil samples, three of which were detected at concentrations greater than background screening concentrations. None of the analytes were detected at concentrations exceeding benchmark standards.

As indicated in the RFI, two VOCs and three SVOCs were detected in groundwater samples collected at SWMU 13 in 1994. Pesticides and PCBs were not detected in the groundwater samples. The VOC 1,1-dichloroethene was detected as a single occurrence and at a concentration below benchmark standards. Acetone was detected in six samples, but was attributed to laboratory contamination and was detected below benchmark standards in all six samples. Three SVOCs (3&4-methylphenol, bis(2-ethylhexyl)phthalate, and benzoic acid) were detected at SWMU 13. 3&4-Methylphenol and benzoic acid were both detected at an estimated concentration of 6 micrograms per liter (µg/L) in the sample collected from monitoring well MPT-13-MW08S. Bis(2-ethylhexyl)phthalate was detected at 16 µg/L from well MPT-13-MW02S and 41 µg/L in the groundwater sample from monitoring well MPT-13-MW06S. The SVOC bis(2-ethylhexyl)phthalate was detected at concentrations that exceeded benchmark standards (ABB-ES, 1996). Monitoring well locations are depicted on Figure 2.

Fourteen inorganic analytes were detected in groundwater samples collected from SWMU 13. Six analytes were detected at concentrations exceeding background screening values and five were detected at concentrations exceeding benchmark standards. Constituents exceeding benchmark standards were antimony from well MPT-13-MW02S; arsenic from wells MPT-13-MW09S and MPT-13-MW10S; iron in wells MPT-13-MW01S, MPT-13-MW04S, MPT-13-MW09S, and MPT-13-MW10S; manganese in wells MPT-13-MW02S through MW05S and MW07S through MW10S; and sodium in wells MPT-13-MW02S through MW05S, MW07S, and MW08S.

ABB-ES concluded in the RFI that there was not a significant release to the environment from the firefighting activities conducted at SWMU 13.

TtNUS Field Activities

Field Sampling Event 1

TtNUS mobilized to SWMU 13 from May 13 to May 16, 2002, to collect groundwater samples from the site monitoring wells. The purpose of the additional sampling was to identify current groundwater constituent concentrations and to confirm the 1996 RFI findings for SWMU 13. Groundwater samples were collected from select monitoring wells and analyzed for select SVOCs and inorganic constituents previously detected above groundwater cleanup target levels (GCTLs).

Groundwater samples were collected from monitoring wells MPT-13-MW02S and MPT-13-MW06s and analyzed for 3&4-methylphenol and bis(ethylhexyl)phthalate by United States Environmental Protection Agency (USEPA) Method 8270C. Groundwater samples were collected from monitoring wells MPT-13-MW01S, MW02S, MW04S, MW05S, MW07S, MW08S, MW09S, and MW10S and analyzed for antimony, iron, manganese, sodium, and vanadium by USEPA Method 6010B. Table 1 provides a summary of organic compounds detected in groundwater samples at SWMU 13, and Table 2 provides a summary of inorganic compounds detected in groundwater samples at SWMU 13. Groundwater analytical results from Severn Trent Laboratories (STL) are provided in Attachment A. The monitoring well locations are depicted on Figure 2.

TtNUS recommended that SWMU 13 be resampled for iron and manganese based upon the analytical results for the site. The NS Mayport Partnering Team reviewed the Field Event 1 analytical data and concurred with TtNUS's recommendation. A second field sampling event for iron and manganese was performed at SWMU 13.

Field Sampling Event 2

TtNUS mobilized to SWMU 13 on March 12, 2003, to collect groundwater samples from the site monitoring wells. The objective of the additional sampling was to determine if a No Further Action (NFA) status could be obtained for SWMU 13. Groundwater samples were collected from select monitoring

wells and analyzed for the inorganic constituents iron and manganese. The select monitoring wells had previous inorganic detections above GCTLs and maximum background screening values.

Groundwater samples were collected from four wells in accordance with the updated Florida Department of Environmental Protection (FDEP) Standard Operating Procedures. Depth-to-water was measured, and the wells were purged prior to sample collection. Purging was accomplished with a peristaltic pump using a low flow purge technique. During purging, field parameters (pH, conductivity, temperature, turbidity, dissolved oxygen, and oxidation-reduction potential) were measured at approximately 5 to 10 minute intervals using a Horiba® Model U-22. The instrument was calibrated according to manufacturer's specifications at the beginning and end of the day. A Field Calibration Log is provided in Attachment B. Groundwater Sample Log Sheets and Low Flow Purge Data Sheets compiled during purging and sampling at each location are provided in Attachment B. After collection, groundwater samples were placed on ice and shipped overnight via Federal Express to STL in Pittsburgh, Pennsylvania.

Groundwater samples were collected from monitoring wells MPT-13-MW04S, MW08S, MW09S, and MW10S and analyzed for iron and manganese by USEPA Method 6010B. Table 2 provides a summary of inorganic compounds detected in groundwater samples at SWMU 13. Groundwater analytical results from STL are provided as Attachment A.

Discussion of Groundwater Analytical Results

Field Sampling Event 1

Organic Constituents

The analytical results indicated the organic constituents 3&4-methylphenol and bis(2-ethylhexyl)phthalate were not detected in monitoring wells MPT-13-MW02S and MPT-13-MW06S. The constituents were also not detected in the duplicate sample from MPT-13-MW02S or the equipment blank MPT-13-EB-01.

Inorganic Constituents

The inorganic constituent antimony was not detected in any of the monitoring wells. Sodium was detected at concentrations above the August 1999 FDEP GCTLs in monitoring wells MPT-13-MW02S, MPT-13-MW04S, MPT-13-MW05S, MPT-13-MW07S, and MPT-13-MW08S, but below background screening values. Vanadium was detected in six wells but at concentrations below both the background screening value and the GCTL.

Monitoring wells MPT-13-MW04S, MPT-13-MW08S, MPT-13-MW09S, and MPT-13-MW10S exceeded both the maximum background screening value and the GCTL for the inorganic constituent iron. The concentration of manganese exceeded the maximum background value and GCTL in the groundwater samples from monitoring wells MPT-13-MW04S and MPT-13-MW10S. The manganese concentration in samples from monitoring wells MPT-13-MW08S and MPT-13-MW09S were above the background screening value and GCTL, but were below the maximum background screening value.

Field Sampling Event 2

Inorganic Constituents

Monitoring wells MPT-13-MW04S, MPT-13-MW08S, MPT-13-MW09S, and MPT-13-MW10S exceeded both the GCTL and maximum background screening value for the inorganic constituent iron. The concentration of manganese exceeded the maximum background screening value and GCTL in the groundwater samples collected from monitoring wells MPT-13-MW04S and MPT-13-MW08S. The manganese concentration in samples collected from monitoring wells MPT-13-MW09S and

MPT-13-MW10S were above the background screening value and GCTL, but below the maximum background screening value.

Conclusions and Recommendations

The groundwater sampling and analysis activities conducted on March 12, 2003, indicated the inorganic constituents iron and manganese are present in the SWMU 13 groundwater at concentrations above both the maximum background screening values and FDEP GCTLs. Iron and manganese exceedances detected in March 2003 were similar to the analytical results reported for the previous sampling event (May 2002). Table 2 compares the sampling results for the previous event (May 2002) and the recent event (March 2003). The goal of the additional sampling was to attain a NFA status. A NFA status is unattainable due to iron and manganese concentrations remaining above the GCTLs and maximum background screening values. TtNUS recommends implementing Land Use Control Measures for iron and manganese at SWMU 13.

If you have any questions with regard to this submittal, please contact me at (850) 385-9860 or via e-mail at hansent@ttnus.com.

Sincerely,

Terry Hansen P.G.
Task Order Manager
02 May 03

Alan Pate
Deputy Task Order Manager

Attachments (6)

pc: Mr. J. Cason P.G., FDEP (2 copies)
Ms. C. Mitchell, NS Mayport
Ms. D. Lancaster, NS Mayport
Mr. C. Benedikt, EPA
Mr. M. Halil P.E., JA Jones
Mr. M. Albert P.E., TtNUS
Ms. D. Wroblewski, TtNUS (letter only)
Mr. M. Perry/File, TtNUS (unbound copy)
Project File

TABLES

TABLE 1
Summary of Organic Compounds Detected in Groundwater Samples at SWMU 13

SWMU 13 Letter Report
Naval Station Mayport
Mayport, Florida

Parameter	GCTL[1]	Sample Number MPT-13-			
		EB-01	MW02S-01	MW02S-01-D	MW06S-01
		Date Sampled			
		5/16/2002	5/14/2002	5/14/2002	5/14/2002
3&4-Methylphenol	4	9.6 U	9.6 U	9.8 U	9.6 U
Bis(2-ethylhexyl)phthalate	6	9.6 U	9.6 U	9.8 U	9.6 U

Notes:
[1] GCTLs from Chapter 62-777, FAC
U = compound not detected
FAC = Florida Administrative Code

TABLE 2
Summary of Inorganic Compounds Detected in Groundwater Samples at SWMU 13

SWMU 13 Letter Report
Naval Station Mayport
Mayport, Florida

Parameter	MBSV (µg/L)	BSV (µg/L)	GCTL (µg/L)	Sample Number MPT-13-				
				MW01S-01	MW02S-01	MW02S-01-D	MW04S-01	MW05S-01
				Date Sampled				
				5/14/2002	5/14/2002	5/14/2002	5/13/2002	5/13/2002
USEPA Method 6010B								
Antimony	6	5.3	6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Iron	660	494	300	275	159	210	**1190**	34.2
Manganese	228	141	50	55.5	47.1	46.4	**229**	94.5
Sodium	3,310,000	1,524,588	160,000	20600	552,000	497,000	936,000	349,000
Vanadium	5.8	6	49	0.46 U	0.71	0.91	0.74	0.46 U

Parameter	MBSV (µg/L)	BSV (µg/L)	GCTL (µg/L)	Sample Number MPT-13-				
				EB-01	MW07S-01	MW08S-01	MW09S-01	MW10S-01
				Date Sampled				
				5/16/2002	5/13/2002	5/16/2002	5/16/2002	5/14/2002
USEPA Method 6010B								
Antimony	6	5.3	6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
Iron	660	494	300	18.9 U	73.4	**713**	**2140**	**5820**
Manganese	228	141	50	0.40 U	45.6	*215*	*225*	**261**
Sodium	3,310,000	1,524,588	160,000	119	456,000	733,000	85,500	105,000
Vanadium	5.8	6	49	0.46 U	1.8	0.87	0.71	0.75

Notes:

MBSV = Max Background Screening Value
BSV = Background Screening Value
U = Compound not detected
Bold indicates an exceedance of the MBSV.
Italics indicates an exceedance of the BSV, but below the MBSV.

TABLE 3
Summary of Analytes Detected in Groundwater at SWMU 13

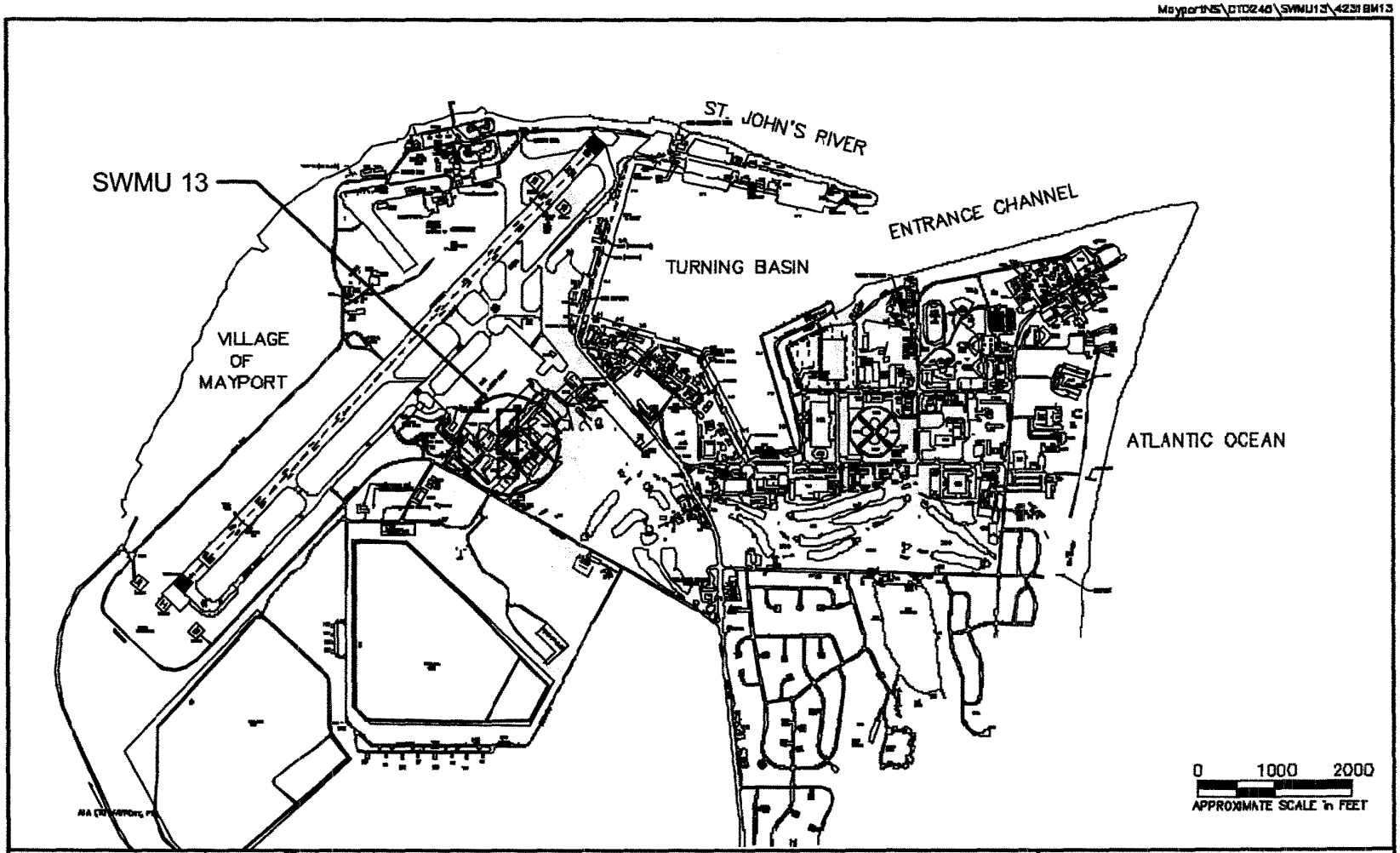
SWMU 13 Letter Report
Naval Station Mayport
Mayport, Florida

Metals[1] (mg/L)	GCTL[2]	Sample Number MPT-13-			
		MW-04S	MW-08S	MW-09S	MW-10S
		Date Sampled			
		3/12/2003	3/12/2003	3/12/2003	3/12/2003
Iron	**300**	**1170**	**2210**	**2210**	**6500**
Manganese	**50**	**265**	**441**	**211**	**456**

Notes:
[1] SW-846 6010B (Metals)
[2] GCTLs from Chapter 62-777, FAC
Bold indicates an exceedance of limits. **Bold** indicate which regulatory limit was exceeded.

FIGURES

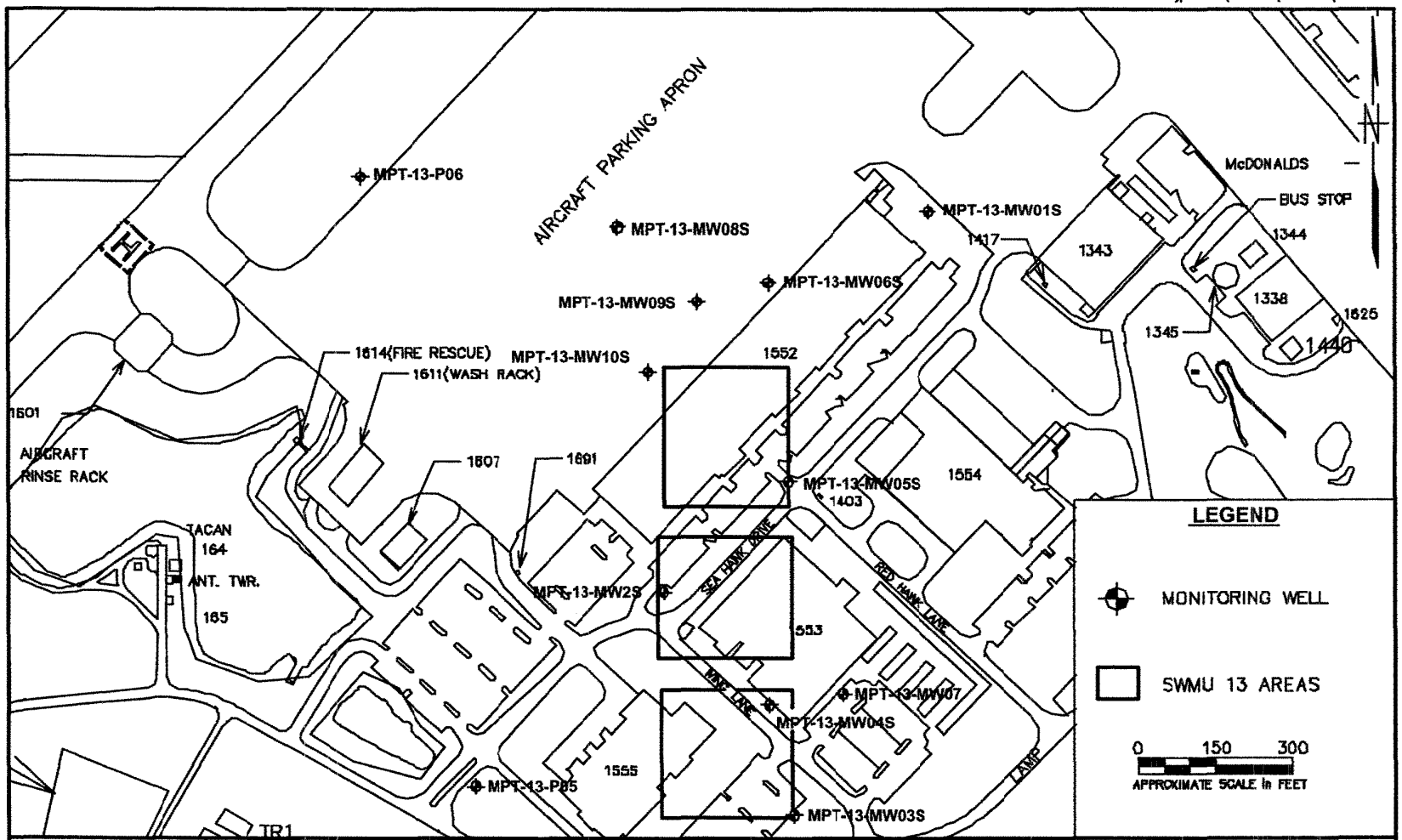
MayportNS\CTO246\SWMU13\4231SM13



DRAWN BY LLK DATE 10/25/02		CONTRACT NO. 4231	
CHECKED BY DATE	SITE LOCATION MAP SWMU 13 MAYPORT NAVAL STATION MAYPORT, FLORIDA	APPROVED BY DATE	
COST/SCHED-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 1	REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

MaypartNS\CTO245\SWMU13\4231MW13



DRAWN BY LLK	DATE 10/25/02	MONITORING WELL LOCATIONS SWMU 13 MAYPORT NAVAL STATION MAYPORT, FLORIDA	CONTRACT NO. 4231
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 REV. 0

FORM CADD NO. 5DIV_AH.DWG – REV D – 1/20/98

ATTACHMENT A

GROUNDWATER ANALYTICAL REPORT

EVENT 1

Analytical Data

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**JULY 12, 2002**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- SVOA/PCB**
CTO 245, NS MAYPORT
SDG MP050 and MP051

SAMPLES: 4 / Aqueous

MPT-13-DUP01-01 MPT-13-MW02S-01 MPT-13-MW06S-01 MPT-13-EB-01

3 / Solid

MPT-16-SSE7-01 MPT-16-SSF2-01 MPT-16-SSG7-1.5

OVERVIEW

The sample set for NS MAYPORT, SDG MP050 consists of one (1) equipment blank, three (3) aqueous environmental samples, and three (3) solid environmental samples. The samples were analyzed for 3&4-methylphenol, bis(2-ethylhexyl)phthalate, and PCBs. One (1) field duplicate pair was included in this SDG: MPT-13-DUP-01-01 / MPT-13-MW02S-01.

The samples were collected by TetraTech NUS on May 14, 15, and 16 2002 and analyzed by Severn Trent Laboratories Inc. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8270C and 8082 analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- * Data completeness
- * Holding times
- * Initial/continuing calibrations
- Laboratory method blank results
- * Surrogate Recoveries
- * Blank Spike/Blank Spike Duplicate Results
- * Matrix Spike/Matrix Spike Duplicate Results
- * Internal Standards
- * Field Duplicates
- * Compound Quantitation
- * Compound Identification
- * Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

Semivolatiles

The following compound was detected in t[redacted]

Compound
Bis(2-ethylhexyl)phthalate

- Value < Reporting Limit (RL);
- Value > RL and < Action leve[redacted]

Sample aliquot and dilution factor[redacted]
Bis(2-ethylhexyl)phthalate was no[redacted]
was necessary.

PCBs

Data qualification was not necessary.

Additional Comments: None.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Bis(2-et[redacted]

Other Factors Affecting Data Quality: N[redacted]

The data for these analyses were reviewe[redacted]
Validation (10/99), and the NFESC guid[redacted]
formulated to address only those problem a[redacted]

"I attest that the data referenced herein v[redacted]
specified in the NFESC guidelines and the [redacted]

Edward Sedlmyer
Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 4231

SDG: MP051 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	MPT-16-SSE7-01
samp_date	5/15/2002
lab_id	C2E170169005
qc_type	NM
units	UG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
AROCLOR-1016	40	U	
AROCLOR-1221	40	U	
AROCLOR-1232	40	U	
AROCLOR-1242	40	U	
AROCLOR-1248	40	U	
AROCLOR-1254	40	U	
AROCLOR-1260	40	U	

nsample	MPT-16-SSF2-01
samp_date	5/15/2002
lab_id	C2E170169004
qc_type	NM
units	UG/KG
Pct_Solids	81
DUP_OF:	

Parameter	Result	ValQual	QualCode
AROCLOR-1016	41	U	
AROCLOR-1221	41	U	
AROCLOR-1232	41	U	
AROCLOR-1242	41	U	
AROCLOR-1248	41	U	
AROCLOR-1254	41	U	
AROCLOR-1260	41	U	

nsample	MPT-16-SSG7-1.5
samp_date	5/15/2002
lab_id	C2E170169006
qc_type	NM
units	UG/KG
Pct_Solids	78
DUP_OF:	

Parameter	Result	ValQual	QualCode
AROCLOR-1016	42	U	
AROCLOR-1221	42	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	42	U	
AROCLOR-1260	42	U	

PROJ_NO: 4231

SDG: MP050 MEDIA: WATER DATA FRACTION: OS

nsample	MPT-13-DUP01-01
samp_date	5/14/2002
lab_id	C2E150174004
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	MPT-13-MW02S-01

Parameter	Result	ValQual	QualCode
3&4-METHYLPHENOL	9.8	U	
BIS(2-ETHYLHEXYL)PHTHALAT	9.8	U	

nsample	MPT-13-MW02S-01
samp_date	5/14/2002
lab_id	C2E150174005
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
3&4-METHYLPHENOL	9.6	U	
BIS(2-ETHYLHEXYL)PHTHALAT	9.6	U	

PROJ_NO: 4231

SDG: MP051 MEDIA: WATER DATA FRACTION: OS

nsample	MPT-13-EB-01
samp_date	5/16/2002
lab_id	C2E170169007
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
3&4-METHYLPHENOL	9.6	U	
BIS(2-ETHYLHEXYL)PHTHALAT	9.6	U	

nsample	MPT-13-MW06S-01
samp_date	5/16/2002
lab_id	C2E170169001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
3&4-METHYLPHENOL	9.6	U	
BIS(2-ETHYLHEXYL)PHTHALAT	9.6	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

TETRA TECH NUS INC

Client Sample ID: MPT-13-DUP01-01

GC/MS Semivolatiles

Lot-Sample #...:	C2E150174-004	Work Order #...:	E1FPH1AA	Matrix.....:	WATER
Date Sampled...:	05/14/02	Date Received..:	05/15/02	MS Run #.....:	
Prep Date.....:	05/16/02	Analysis Date..:	05/31/02		
Prep Batch #...:	2136333	Analysis Time..:	00:27		
Dilution Factor:	0.98	Initial Wgt/Vol:	1020 mL	Final Wgt/Vol..:	1 mL
Analyst ID.....:	045183	Instrument ID..:	71		
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	9.8	ug/L	0.89
3&4 Methylphenol total	ND	9.8	ug/L	3.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Phenol-d5	57	(10 - 113)
2-Fluorobiphenyl	73	(30 - 110)
Nitrobenzene-d5	68	(32 - 112)
Terphenyl-d14	69	(10 - 144)
2-Fluorophenol	51	(13 - 110)
2,4,6-Tribromophenol	78	(21 - 122)

TETRA TECH NUS INC

Client Sample ID: MPT-13-MW02S-01

GC/MS Semivolatiles

Lot-Sample #...:	C2E150174-005	Work Order #...:	E1FPJ1AA	Matrix.....:	WATER
Date Sampled...:	05/14/02	Date Received..:	05/15/02	MS Run #.....:	
Prep Date.....:	05/16/02	Analysis Date..:	05/31/02		
Prep Batch #...:	2136333	Analysis Time..:	00:55		
Dilution Factor:	0.96	Initial Wgt/Vol:	1040 mL	Final Wgt/Vol..:	1 mL
Analyst ID.....:	045183	Instrument ID..:	71		
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	9.6	ug/L	0.87
3&4 Methylphenol total	ND	9.6	ug/L	3.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Phenol-d5	60	(10 - 113)
2-Fluorobiphenyl	69	(30 - 110)
Nitrobenzene-d5	71	(32 - 112)
Terphenyl-d14	63	(10 - 144)
2-Fluorophenol	55	(13 - 110)
2,4,6-Tribromophenol	75	(21 - 122)

TETRA TECH NUS INC

Client Sample ID: MPT-13-EB-01

GC/MS Semivolatiles

Lot-Sample #...:	C2E170169-007	Work Order #...:	E1LG11AA	Matrix.....:	WATER
Date Sampled...:	05/16/02	Date Received..:	05/17/02	MS Run #.....:	
Prep Date.....:	05/20/02	Analysis Date..:	06/03/02		
Prep Batch #...:	2140372	Analysis Time..:	13:38		
Dilution Factor:	0.96	Initial Wgt/Vol:	1040 mL	Final Wgt/Vol..:	1 mL
Analyst ID.....:	003200	Instrument ID..:	731		
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	9.6	ug/L	0.87
3&4 Methylphenol total	ND	9.6	ug/L	3.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Phenol-d5	76	(10 - 113)
2-Fluorobiphenyl	74	(30 - 110)
Nitrobenzene-d5	77	(32 - 112)
Terphenyl-d14	95	(10 - 144)
2-Fluorophenol	68	(13 - 110)
2,4,6-Tribromophenol	86	(21 - 122)

TETRA TECH NUS INC

Client Sample ID: MPT-13-MW06S-01

GC/MS Semivolatiles

Lot-Sample #...:	C2E170169-001	Work Order #...:	E1LFJ1AA	Matrix.....:	WATER
Date Sampled...:	05/16/02	Date Received..:	05/17/02	MS Run #.....:	
Prep Date.....:	05/20/02	Analysis Date..:	06/03/02		
Prep Batch #...:	2140372	Analysis Time..:	13:09		
Dilution Factor:	0.96	Initial Wgt/Vol:	1040 mL	Final Wgt/Vol..:	1 mL
Analyst ID.....:	003200	Instrument ID..:	731		
		Method.....:	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
bis(2-Ethylhexyl) phthalate	ND	9.6	ug/L	0.87
3&4 Methylphenol total	ND	9.6	ug/L	3.4

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Phenol-d5	69	(10 - 113)
2-Fluorobiphenyl	75	(30 - 110)
Nitrobenzene-d5	72	(32 - 112)
Terphenyl-d14	43	(10 - 144)
2-Fluorophenol	64	(13 - 110)
2,4,6-Tribromophenol	80	(21 - 122)

TETRA TECH NUS INC

Client Sample ID: MPT-16-SSE7-01

GC Semivolatiles

Lot-Sample #...:	C2E170169-005	Work Order #...:	E1LGR1AC	Matrix.....:	SOLID
Date Sampled...:	05/15/02	Date Received..:	05/17/02	MS Run #.....:	2140041
Prep Date.....:	05/20/02	Analysis Date..:	05/21/02		
Prep Batch #...:	2140154	Analysis Time..:	13:23		
Dilution Factor:	1	Initial Wgt/Vol:	30 g	Final Wgt/Vol..:	10 mL
% Moisture.....:	18	Analyst ID.....:	010139	Instrument ID..:	M/N
		Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	40	ug/kg	6.3
Aroclor 1221	ND	40	ug/kg	2.3
Aroclor 1232	ND	40	ug/kg	9.6
Aroclor 1242	ND	40	ug/kg	5.7
Aroclor 1248	ND	40	ug/kg	5.2
Aroclor 1254	ND	40	ug/kg	2.5
Aroclor 1260	ND	40	ug/kg	6.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	73	(31 - 127)
Decachlorobiphenyl	99	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS INC

Client Sample ID: MPT-16-SSF2-01

GC Semivolatiles

Lot-Sample #...:	C2E170169-004	Work Order #...:	E1LF81AC	Matrix.....:	SOLID
Date Sampled...:	05/15/02	Date Received..:	05/17/02	MS Run #.....:	2140041
Prep Date.....:	05/20/02	Analysis Date..:	05/21/02		
Prep Batch #...:	2140154	Analysis Time..:	13:03		
Dilution Factor:	1	Initial Wgt/Vol:	30 g	Final Wgt/Vol..:	10 mL
% Moisture.....:	19	Analyst ID.....:	010139	Instrument ID..:	M/N
		Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	41	ug/kg	6.5
Aroclor 1221	ND	41	ug/kg	2.4
Aroclor 1232	ND	41	ug/kg	9.8
Aroclor 1242	ND	41	ug/kg	5.9
Aroclor 1248	ND	41	ug/kg	5.3
Aroclor 1254	ND	41	ug/kg	2.6
Aroclor 1260	ND	41	ug/kg	6.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	74	(31 - 127)
Decachlorobiphenyl	96	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS INC

Client Sample ID: MPT-16-SSG7-1.5

GC Semivolatiles

Lot-Sample #...:	C2E170169-006	Work Order #...:	E1LGV1AC	Matrix.....:	SOLID
Date Sampled...:	05/15/02	Date Received..:	05/17/02	MS Run #.....:	2140041
Prep Date.....:	05/20/02	Analysis Date..:	05/21/02		
Prep Batch #...:	2140154	Analysis Time..:	13:44		
Dilution Factor:	1	Initial Wgt/Vol:	30 g	Final Wgt/Vol..:	10 mL
% Moisture.....:	22	Analyst ID.....:	010139	Instrument ID..:	M/N
		Method.....:	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	42	ug/kg	6.7
Aroclor 1221	ND	42	ug/kg	2.4
Aroclor 1232	ND	42	ug/kg	10
Aroclor 1242	ND	42	ug/kg	6.0
Aroclor 1248	ND	42	ug/kg	5.5
Aroclor 1254	ND	42	ug/kg	2.7
Aroclor 1260	ND	42	ug/kg	6.9

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	88	(31 - 127)
Decachlorobiphenyl	122	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

SUPPORT DOCUMENTATION

MP050

HOLDING TIME
06/06/02

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
UG/L	MPT-13-DUP01-01	C2E150174004	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW01S-01	C2E150174006	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW02S-01	C2E150174005	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW04S-01	C2E150174002	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW05S-01	C2E150174001	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW07S-01	C2E150174003	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW10S-01	C2E150174007	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
%	MPT-13-DUP01-01	C2E150174004	NORMAL	MP050	OS	05/14/02	05/16/02	05/31/02	2	15	17
%	MPT-13-MW02S-01	C2E150174005	NORMAL	MP050	OS	05/14/02	05/16/02	05/31/02	2	15	17

MP051

HOLDING TIME
06/06/02

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
%	MPT-16-SSE7-01	C2E170169005	NORMAL	MP051		05/15/02	05/28/02	05/29/02	13	1	14
%	MPT-16-SSF2-01	C2E170169004	NORMAL	MP051		05/15/02	05/24/02	05/25/02	9	1	10
%	MPT-16-SSG7-1.5	C2E170169006	NORMAL	MP051		05/15/02	05/28/02	05/29/02	13	1	14
UG/L	MPT-13-EB-01	C2E170169007	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
UG/L	MPT-13-MW08S-01	C2E170169002	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
UG/L	MPT-13-MW09S-01	C2E170169003	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
%	MPT-13-EB-01	C2E170169007	NORMAL	MP051	OS	05/16/02	05/20/02	06/03/02	4	14	18
%	MPT-13-MW06S-01	C2E170169001	NORMAL	MP051	OS	05/16/02	05/20/02	06/03/02	4	14	18
%	MPT-16-SSE7-01	C2E170169005	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6
%	MPT-16-SSF2-01	C2E170169004	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6
%	MPT-16-SSG7-1.5	C2E170169006	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6

FIELD DUPLICATE PRECISION

ANALYTE	MPT-13-MW02S-01	MPT-13-DUP01-01	RPD	DIFFERENCE
4-Methylphenol	ND	ND	#VALUE!	#VALUE!
bis(2-ethylhexyl)phthalate	ND	ND	#VALUE!	#VALUE!

SEVERN TRENT SERVICES

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ANALYTICAL REPORT

PROJECT NO. CTO245

NAS Mayport

Lot #: C2E150174
SDG #: MP050

Terry Hanson

Tetra Tech NUS Inc

SEVERN TRENT LABORATORIES, INC.

Veronica Bortot
Project Manager

June 4, 2002

CASE NARRATIVE
ENSR
NAS Mayport, FL

CTO #245
SDG: MP050
STL Lot#: C2E150174

The following report contains the analytical results for samples submitted to STL Pittsburgh by Tetra Tech from the NAS Mayport site in Mayport, FL. The samples were received May 15, 2002, according to documented sample acceptance procedures.

STL-Pittsburgh utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

SAMPLE RECEIVING:
The SDG closed on May 15, 2002.

GCMS Semivolatiles:
The reporting limits for the samples have been adjusted to reflect the amount of sample used in the extraction procedure.

The method blank for batch 2136333 had bis (2-ethylhexyl) phthalate detected below the reporting limit but above the MDL. The result was flagged with a "J" qualifier. Any sample associated with this blank that had bis (2-ethylhexyl) phthalate detected had the result flagged with a "B" qualifier.

Metals:
Samples MPT-13-MW04S-01 and MPT-13-MW02S-01 were over the instrument's linear range for sodium and required a dilution.

For the matrix spike and matrix spike duplicate, sodium recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

METHODS SUMMARY

C2E150174

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C2E150174

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E1FN3	001	MPT-13-MW05S-01	05/13/02	13:55
E1FPA	002	MPT-13-MW04S-01	05/13/02	12:50
E1FPG	003	MPT-13-MW07S-01	05/13/02	11:00
E1FPH	004	MPT-13-DUP01-01	05/14/02	
E1FPJ	005	MPT-13-MW02S-01	05/14/02	10:50
E1FPL	006	MPT-13-MW01S-01	05/14/02	10:00
E1FPP	007	MPT-13-MW10S-01	05/14/02	09:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SEVERN TRENT SERVICES

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ANALYTICAL REPORT

PROJECT NO. CTO245

NAS Mayport, Flordia SWMU13&16

Lot #: C2B170169
SDG #: MP051

Terry Hanson

Tetra Tech NUS Inc

SEVERN TRENT LABORATORIES, INC.

Veronica Bortot
Project Manager

June 4, 2002

CASE NARRATIVE
ENSR
NAS Mayport, FL

CTO #245
SDG: MP051
STL Lot#: C2E170169

The following report contains the analytical results for samples submitted to STL Pittsburgh by Tetra Tech from the NAS Mayport site in Mayport, FL. The samples were received May 17, 2002, according to documented sample acceptance procedures.

STL-Pittsburgh utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

SAMPLE RECEIVING:
The SDG closed on May 17, 2002.

GCMS Semivolatiles:
The reporting limits were adjusted according to the initial volume extracted.

PCBs:
There were no problems associated with the analysis.

Metals:
Sample MPT-13-MW08S-01 was over the instrument's linear range for sodium and required a dilution.

For the matrix spike and matrix spike duplicate, sodium recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

General Chemistry:
There were no problems associated with the analysis.

SAMPLE SUMMARY

C2E170169

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E1LFJ	001	MPT-13-MW06S-01	05/16/02	09:45
E1LF2	002	MPT-13-MW08S-01	05/16/02	11:30
E1LF5	003	MPT-13-MW09S-01	05/16/02	10:40
E1LF8	004	MPT-16-SSF2-01	05/15/02	09:30
E1LGR	005	MPT-16-SSE7-01	05/15/02	09:15
E1LGV	006	MPT-16-SSG7-1.5	05/15/02	08:50
E1LG1	007	MPT-13-EB-01	05/16/02	14:20

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**JULY 12, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
NS MAYPORT – CTO 245
SAMPLE DELIVERY GROUP (SDG) – MP051

SAMPLES: 3/AQUEOUS/

MPT-13-EB-01 MPT-13-MW08S-01 MPT-13-MW09S-01

Overview

The sample set for NS Mayport, CTO 245, SDG MP051, consists of three (3) aqueous environmental samples.

The samples were analyzed for antimony, iron, manganese, sodium, and vanadium. The samples were collected by Tetra Tech NUS May 16, 2002 and analyzed by Severn Trent Laboratories. Metals analyses were conducted using method SW846 6010B.

Metals analyses were conducted using Inductively Coupled Plasma (ICP) methodologies.

These data were evaluated based on the following parameters:

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

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

Laboratory Blank Analyses

The following contaminant was detected in the laboratory method/preparation blanks at the following maximum concentration:

Analyte	Maximum Concentration	Action Level
Iron[1]	25.4 ug/L	127 ug/L

[1] Maximum concentration present in aqueous preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Iron was not qualified because the sample values were either greater than the action level or were nondetects.

Notes

Matrix spike/Matrix spike duplicate percent recoveries were indeterminate for sodium because the concentration of the analyte in the samples was >4X spike added.

Executive Summary

Laboratory Performance: Iron was present in the laboratory method/preparation blanks.

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: 4231

SDG: MP051 MEDIA: WATER DATA FRACTION: M

nsample	MPT-13-EB-01
samp_date	5/16/2002
lab_id	C2E170169007
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	18.9	U	
MANGANESE	0.40	U	
SODIUM	119		
VANADIUM	0.46	U	

nsample	MPT-13-MW08S-01
samp_date	5/16/2002
lab_id	C2E170169002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	713		
MANGANESE	215		
SODIUM	733000		
VANADIUM	0.87		

nsample	MPT-13-MW09S-01
samp_date	5/16/2002
lab_id	C2E170169003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	2140		
MANGANESE	225		
SODIUM	85500		
VANADIUM	0.71		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1LG1 **Client ID:** MPT-13-EB-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** 2141211

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/24/02	17:48
Iron	271.44	18.9	100	18.9	U	1	ICPST	5/24/02	17:48
Manganese	257.61	0.40	15.0	0.40	U	1	ICPST	5/24/02	17:48
Sodium	**330.23**	**113**	**5000**	**119**	**B**	**1**	**ICPST**	**5/24/02**	**17:48**
Vanadium	292.40	0.46	50.0	0.46	U	1	ICPST	5/24/02	17:48

Comments: Lot #: C2E170169 Sample #: 7

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1LF2 **Client ID:** MPT-13-MW08S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** 2141211

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/24/02	17:09
Iron	271.44	18.9	100	713		1	ICPST	5/24/02	17:09
Manganese	257.61	0.40	15.0	215		1	ICPST	5/24/02	17:09
Sodium	330.23	226	10000	733000		2	ICPST	5/28/02	10:28
Vanadium	292.40	0.46	50.0	0.87	B	1	ICPST	5/24/02	17:09

Comments: Lot #: C2E170169 Sample #: 2

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1LF5 **Client ID:** MPT-13-MW09S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** 2141211

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/24/02	17:31
Iron	**271.44**	**18.9**	**100**	**2140**		**1**	**ICPST**	**5/24/02**	**17:31**
Manganese	**257.61**	**0.40**	**15.0**	**225**		**1**	**ICPST**	**5/24/02**	**17:31**
Sodium	**330.23**	**113**	**5000**	**85500**		**1**	**ICPST**	**5/24/02**	**17:31**
Vanadium	**292.40**	**0.46**	**50.0**	**0.71**	**B**	**1**	**ICPST**	**5/24/02**	**17:31**

Comments: Lot #: C2E170169 Sample #: 3

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

APPENDIX C
SUPPORT DOCUMENTATION

MP051

HOLDING TIME
06/06/02

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
%	MPT-16-SSE7-01	C2E170169005	NORMAL	MP051		05/15/02	05/28/02	05/29/02	13	1	14
%	MPT-16-SSF2-01	C2E170169004	NORMAL	MP051		05/15/02	05/24/02	05/25/02	9	1	10
%	MPT-16-SSG7-1.5	C2E170169006	NORMAL	MP051		05/15/02	05/28/02	05/29/02	13	1	14
UG/L	MPT-13-EB-01	C2E170169007	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
UG/L	MPT-13-MW08S-01	C2E170169002	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
UG/L	MPT-13-MW09S-01	C2E170169003	NORMAL	MP051	M	05/16/02	05/21/02	05/24/02	5	3	8
%	MPT-13-EB-01	C2E170169007	NORMAL	MP051	OS	05/16/02	05/20/02	06/03/02	4	14	18
%	MPT-13-MW06S-01	C2E170169001	NORMAL	MP051	OS	05/16/02	05/20/02	06/03/02	4	14	18
%	MPT-16-SSE7-01	C2E170169005	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6
%	MPT-16-SSF2-01	C2E170169004	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6
%	MPT-16-SSG7-1.5	C2E170169006	NORMAL	MP051	PCB	05/15/02	05/20/02	05/21/02	5	1	6

STL Pittsburgh

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER MPT-051602 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	SWMU 13/16	JERRY HANSON (850) 385-9899	STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
[signature]		LANE MEDDLETON (904) 281-0400	450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX	PITTSBURGH, PA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2002	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: METALS (PERMIT, Al, Sb, Ba)	SW-846 6010B (TRACER)	SW-846 8270C	PCB SW-846 8082					COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						P	G	G						
PRESERVATIVE USED						HNO3	NONE	NONE						
5/16	0945	MPT-13-MW06S-01	GW	G	2		2							COOL TO 4°C
5/16	1130	MPT-13-MW08S-01 ✓	GW	G	1	1								
5/16	1040	MPT-13-MW09S-01 ✓	GW	G	1	1								* DO NOT HOLD
5/15	0930	MPT-16-SSF2-01	SS	G	1			1						FOR ANALYSES
5/15	0932	MPT-16-SSF2-02	SS	G	1			1*						AFTER RESULTS
5/15	0934	MPT-16-SSF2-03	SS	G	1			1*						OF 1' SAMPLES
5/15	0915	MPT-16-SSE7-01	SS	G	1			1						ARE RECEIVED.
5/15	0917	MPT-16-SSE7-02	SS	G	1			1*						TTNUS WILL
5/15	0919	MPT-16-SSE7-03	SS	G	1			1*						GIVE NOTICE
5/15	0850	MPT-16-SSG7-~~02~~ 15	SS	G	1			1						TO PROCEED.
5/15	0851	MPT-16-SSG7-02	SS	G	1			1*						
5/15	0853	MPT-16-SSG7-03	SS	G	1			1*						
5/16	1420	MPT-13-EB-01 ✓	GW	G	3	1	2							

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	5/16/02	1600	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY [signature]	5-17-02	1000

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS-001

Cooler Receipt Form
STL Pittsburgh

Client: TTNUS Project: _____ Quote: 47559

Cooler Rec'd & Opened for Temp. Check on: 5-17-02

Coolers Opened and Unpacked on: 5-17-02 By: [signature]
(Signature)

STL Pittsburgh Lot Number: C2E170169

	Yes	No
1. Were custody seals on the outside of the cooler?	✓	
If YES, how many and where? Quantity 1 Location front		
Were signatures and date correct?	✓	
2. Were custody papers included inside the cooler?	✓	
3. Were custody papers properly filled out (ink, signed, match labels)?	✓	
4. Did you sign the custody papers in the appropriate place?	✓	
5. Was shippers packing slip attached to this form?	✓	
6. Were packing materials used?	✓	
If YES, what type? bubble wrap		
7. Were the samples chilled? (Record temperatures on reverse side.)	✓	
8. Were the samples appropriately preserved?	✓	
9. Were all bottles sealed in separate plastic bags?	✓	
10. Did all bottles arrive in good condition (unbroken)?	✓	
11. Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12. Did all bottle labels and/or tags agree with custody papers?	✓	
13. Were correct bottles used for tests indicated?	✓	
14. Were all VOA vials checked for the presence of air bubbles?	N/R	
15. Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: (FEDEX) UPS CLIENT DROP-OFF OTHER AIRBORNE

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

Cooler Receipt Form

STL Pittsburgh

P: Preserved

UP: Unpreserved

Sample ID	TMET PH<2	DMET PH<2	HG PH<2	NUT(1) PH<2	CN PH ≥12	OG TPHC PH<2	PHEN PH<2	SULF PH ≥12	TOC PH<2	TOX PH<2	VOA P/UP	Indoss PH<2			
MPT-13-MW085-01	<2														
-13-MW085-01	<2														
EB01	<2														

(1) "NUT" could include sample bottles for ammonia, chemical oxygen demand, nitrate/nitrite, TKN, or total phosphorus

Comments: _____

Cooler Number	Temperature
1	3.5°C

Bottle Type	Lot Number*

* Please use an asterisk if bottle lot number was covered by the label.

CASE NARRATIVE
ENSR
NAS Mayport, FL

CTO #245
SDG: MP051
STL Lot#: C2E170169

The following report contains the analytical results for samples submitted to STL Pittsburgh by Tetra Tech from the NAS Mayport site in Mayport, FL. The samples were received May 17, 2002, according to documented sample acceptance procedures.

STL-Pittsburgh utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

SAMPLE RECEIVING:
The SDG closed on May 17, 2002.

GCMS Semivolatiles:
The reporting limits were adjusted according to the initial volume extracted.

PCBs:
There were no problems associated with the analysis.

Metals:
Sample MPT-13-MW08S-01 was over the instrument's linear range for sodium and required a dilution.

For the matrix spike and matrix spike duplicate, sodium recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

General Chemistry:
There were no problems associated with the analysis.

METHODS SUMMARY

C2E170169

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
PCBs by SW-846 8082	SW846 8082	SW846 3550
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Total Residue as Percent Solids	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C2E170169

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E1LFJ	001	MPT-13-MW06S-01	05/16/02	09:45
E1LF2	002	MPT-13-MW08S-01	05/16/02	11:30
E1LF5	003	MPT-13-MW09S-01	05/16/02	10:40
E1LF8	004	MPT-16-SSF2-01	05/15/02	09:30
E1LGR	005	MPT-16-SSE7-01	05/15/02	09:15
E1LGV	006	MPT-16-SSG7-1.5	05/15/02	08:50
E1LG1	007	MPT-13-EB-01	05/16/02	14:20

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

STL-Pittsburgh

Cover Page - Inorganic Analysis Data Package

Client ID	Lab Sample ID:
MPT-13-EB-01	E1LG1
MPT-13-MW08S-01	E1LF2
MPT-13-MW08S-01S	E1LF2S
MPT-13-MW08S-01SD	E1LF2D
MPT-13-MW09S-01	E1LF5

Comments: TETRA TECH NUS INC.
SDG: MP051
C2E170169
METALS ANALYSIS
6010B

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

Signature: _____ Name: _____

Date: _____ Title: _____

Version 4.97.1

REVIEWED BY: MBYN
DATE: 5-29-02

Cover Page Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: E1QR9B

Matrix: Water **Units:** ug/L **Prep Date:** 5/21/02 **Prep Batch:** 2141211

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.838	2.1	10.0	2.1	U	1	ICPST	5/24/02	16:58
Iron	**271.441**	**18.9**	**100**	**25.4**	**B**	**1**	**ICPST**	**5/24/02**	**16:58**
Manganese	257.61	0.40	15.0	0.40	U	1	ICPST	5/24/02	16:58
Sodium	330.232	113	5000	113	U	1	ICPST	5/24/02	16:58
Vanadium	292.402	0.46	50.0	0.46	U	1	ICPST	5/24/02	16:58

Comments: Lot #: C2E170169

Version 4.97.1

U Result is less than the IDL.
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20524B.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB1 5/24/02 4:33 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Antimony	206.838	10	2.1	U								
Iron	271.441	100	18.9	U								
Manganese	257.61	15	0.4	U								
Sodium	330.232	5000	113.0	U								
Vanadium	292.402	50	0.5	U								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20528A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB1 5/28/02 10:03 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Sodium	330.232	5000	113.0	U								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20524B.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 5/24/02 5:42 PM		CCB2 5/24/02 6:49 PM							
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Antimony	206.838	10	2.1	U	2.1	U						
Iron	271.441	100	18.9	U	18.9	U						
Manganese	257.61	15	0.4	U	0.4	U						
Sodium	330.232	5000	113.0	U	113.0	U						
Vanadium	292.402	50	0.5	U	0.5	U						

Version 4.97.1

U Result is less than the IDL.
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20528A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 5/28/02 11:12 AM									
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Sodium	330.232	5000	113.0	U								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Antimony	206.838	10.0	2.1	3/10/02
Iron	271.441	100.0	18.9	3/10/02
Manganese	257.610	15.0	0.40	3/10/02
Sodium	330.232	5000.0	113	3/10/02
Vanadium	292.402	50.0	0.46	3/10/02

STL-Pittsburgh

Metals Data Reporting Form

Preparation Log

Preparation Batch: 2141211 **Instrument:** ICP **Matrix:** Water

Sample ID	Prep Date	Weight (g)	Volume (ml)	% Moisture
E1QR9B	5/21/02	NA	50	NA
E1QR9C	5/21/02	NA	50	NA
E1LF2	5/21/02	NA	50	NA
E1LF2D	5/21/02	NA	50	NA
E1LF2S	5/21/02	NA	50	NA
E1LF5	5/21/02	NA	50	NA
E1LG1	5/21/02	NA	50	NA

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20524B.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD1		5/24/02	16:05
STD2		5/24/02	16:11
STD3		5/24/02	16:16
STD4		5/24/02	16:22
ICV1-1		5/24/02	16:28
ICB1		5/24/02	16:33
ZZZZZZ		5/24/02	16:39
ICSA		5/24/02	16:44
ICSAB		5/24/02	16:50
E1QR9B		5/24/02	16:58
E1QR9C		5/24/02	17:03
E1LF2	MPT-13-MW08S-01	5/24/02	17:09
E1LF2P	MPT-13-MW08S-01P	5/24/02	17:14
E1LF2S	MPT-13-MW08S-01S	5/24/02	17:20
E1LF2D	MPT-13-MW08S-01SD	5/24/02	17:26
E1LF5	MPT-13-MW09S-01	5/24/02	17:31
CCV1-1		5/24/02	17:37
CCB1		5/24/02	17:42
E1LG1	MPT-13-EB-01	5/24/02	17:48
ZZZZZZ		5/24/02	17:53
ZZZZZZ		5/24/02	17:59
ZZZZZZ		5/24/02	18:05
ZZZZZZ		5/24/02	18:10
ZZZZZZ		5/24/02	18:16
ZZZZZZ		5/24/02	18:21
ZZZZZZ		5/24/02	18:27
ZZZZZZ		5/24/02	18:32
ZZZZZZ		5/24/02	18:38
CCV1-2		5/24/02	18:44
CCB2		5/24/02	18:49
ZZZZZZ		5/24/02	18:55
ZZZZZZ		5/24/02	19:00
ZZZZZZ		5/24/02	19:06
ZZZZZZ		5/24/02	19:11
ZZZZZZ		5/24/02	19:17
ZZZZZZ		5/24/02	19:23
ZZZZZZ		5/24/02	19:28
ZZZZZZ		5/24/02	19:34
ZZZZZZ		5/24/02	19:39

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20524B.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		5/24/02	19:45
ZZZZZZ		5/24/02	19:50
ZZZZZZ		5/24/02	19:56
ZZZZZZ		5/24/02	20:02
ZZZZZZ		5/24/02	20:07
ZZZZZZ		5/24/02	20:13
ZZZZZZ		5/24/02	20:18
ZZZZZZ		5/24/02	20:24
ZZZZZZ		5/24/02	20:29
ZZZZZZ		5/24/02	20:35
ZZZZZZ		5/24/02	20:40
ZZZZZZ		5/24/02	20:46
ZZZZZZ		5/24/02	20:52
ZZZZZZ		5/24/02	20:57
ZZZZZZ		5/24/02	21:03

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20528A.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD1		5/28/02	9:35
STD2		5/28/02	9:41
STD3		5/28/02	9:46
STD4		5/28/02	9:52
ICV1-1		5/28/02	9:58
ICB1		5/28/02	10:03
ZZZZZZ		5/28/02	10:09
ICSA		5/28/02	10:14
ICSAB		5/28/02	10:20
E1LF2	MPT-13-MW08S-01	5/28/02	10:28
E1LF2P	MPT-13-MW08S-01P	5/28/02	10:33
E1LF2S	MPT-13-MW08S-01S	5/28/02	10:39
E1LF2D	MPT-13-MW08S-01SD	5/28/02	10:45
ZZZZZZ		5/28/02	10:50
ZZZZZZ		5/28/02	10:56
ZZZZZZ		5/28/02	11:01
CCV1-1		5/28/02	11:07
CCB1		5/28/02	11:12
ZZZZZZ		5/28/02	11:19
ZZZZZZ		5/28/02	11:24
ZZZZZZ		5/28/02	11:30
ZZZZZZ		5/28/02	11:36
ZZZZZZ		5/28/02	11:41
ZZZZZZ		5/28/02	11:47
ZZZZZZ		5/28/02	11:52
ZZZZZZ		5/28/02	11:58
ZZZZZZ		5/28/02	12:03
ZZZZZZ		5/28/02	12:09
ZZZZZZ		5/28/02	12:15
ZZZZZZ		5/28/02	12:20
ZZZZZZ		5/28/02	12:28
ZZZZZZ		5/28/02	12:34
ZZZZZZ		5/28/02	12:39
ZZZZZZ		5/28/02	12:45
ZZZZZZ		5/28/02	12:50
ZZZZZZ		5/28/02	12:56
ZZZZZZ		5/28/02	13:02
ZZZZZZ		5/28/02	13:07
ZZZZZZ		5/28/02	13:13

Version 4.97.1 *Form 14 Equivalent*

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20528A.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		5/28/02	13:18
ZZZZZZ		5/28/02	13:24
ZZZZZZ		5/28/02	13:29
ZZZZZZ		5/28/02	13:35
ZZZZZZ		5/28/02	13:41
ZZZZZZ		5/28/02	13:46
ZZZZZZ		5/28/02	13:52
ZZZZZZ		5/28/02	13:57
ZZZZZZ		5/28/02	14:03
ZZZZZZ		5/28/02	14:08
ZZZZZZ		5/28/02	14:14
ZZZZZZ		5/28/02	14:20
ZZZZZZ		5/28/02	14:25
ZZZZZZ		5/28/02	14:31
ZZZZZZ		5/28/02	14:36
ZZZZZZ		5/28/02	14:43
ZZZZZZ		5/28/02	14:49
ZZZZZZ		5/28/02	14:54
ZZZZZZ		5/28/02	15:00
ZZZZZZ		5/28/02	15:05
ZZZZZZ		5/28/02	15:11
ZZZZZZ		5/28/02	15:17
ZZZZZZ		5/28/02	15:22
ZZZZZZ		5/28/02	15:28
ZZZZZZ		5/28/02	15:33

Analysis Report 05/24/02 05:37:11 PM page 1

Method: PITTRACE Sample Name: E1LF5 Operator: RJG
Run Time: 05/24/02 17:31:41
Comment: STL PITTSBURGH ICP METALS ANALYSIS INSTRUMENT TRACEICP2
Mode: CONC Corr. Factor: 1

Elem	AG	AL	AS	BA	BE	CA	CD
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00030	.02063	.00127	.00778	.00002	146.58	-.00002
SDev	.00019	.00082	.00066	.00005	.00003	.36	.00003
%RSD	62.901	3.9927	51.542	.63539	183.42	.24893	119.27
#1	.00046	.02062	.00151	.00782	-.00002	146.16	.00001
#2	.00035	.02146	.00178	.00779	.00002	146.81	-.00005
#3	.00009	.01982	.00053	.00772	.00004	146.78	-.00003
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.0000	600.00	10.000	10.000	10.000	600.00	5.0000
Low	-.01000	-.20000	-.01000	-.20000	-.00500	-5.0000	-.00500

Elem	CO	CR	CU	FE	K_	MG	MN
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00009	.00021	.00050	2.1414	15.792	12.864	.22533
SDev	.00012	.00018	.00049	.0039	.077	.025	.00069
%RSD	129.80	87.944	97.645	.18099	.48743	.19648	.30741
#1	.00005	.00038	.00095	2.1380	15.703	12.835	.22454
#2	-.00016	.00023	.00059	2.1407	15.832	12.879	.22563
#3	-.00016	.00001	-.00003	2.1456	15.841	12.878	.22583
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	100.00	20.000	10.000	500.00	500.00	600.00	20.000
Low	-.05000	-.00500	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	NA	NI	PB/1	PB/2	PB	SB	SE/1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	85.520	.00117	.00001	-.00138	-.00092	.00159	.00015
SDev	.223	.00005	.00184	.00076	.00104	.00061	.00206
%RSD	.26121	4.3355	14181.	54.680	113.19	38.350	1409.8
#1	85.267	.00121	.00034	-.00187	-.00114	.00091	.00095
#2	85.689	.00111	-.00196	-.00177	-.00183	.00210	-.00220
#3	85.604	.00119	.00166	-.00051	.00021	.00176	.00169
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	NOCHECK
High	500.00	100.00			5.0000	10.000	
Low	-5.0000	-.04000			-.00300	-.01000	

Elem	SE/2	SE	TL	V_	ZN
Units	ppm	ppm	ppm	ppm	ppm
Avge	.00226	.00155	.00296	.00071	.00130
SDev	.00140	.00099	.00179	.00015	.00015
%RSD	61.974	63.477	60.413	21.766	11.377
#1	.00064	.00075	.00452	.00073	.00147
#2	.00299	.00126	.00333	.00085	.00123

Sample: MPT-13-MW095-01

2.1414 ppm x 1000 = 2141 mg/L

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**JULY 12, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – SELECT METALS**
NS MAYPORT – CTO 245
SAMPLE DELIVERY GROUP (SDG) – MP050

SAMPLES: 7/AQUEOUS/

MPT-13-DUP01-01	MPT-13-MW01S-01	MPT-13-MW02S-01
MPT-13-MW04S-01	MPT-13-MW05S-01	MPT-13-MW07S-01
MPT-13-MW10S-01		

Overview

The sample set for NS Mayport, CTO 245, SDG MP050, consists of seven (7) aqueous environmental samples. One (1) field duplicate pair (MPT-13-DUP01-01 / MPT-13-MW02S-01) is included in this SDG.

The samples were analyzed for antimony, iron, manganese, sodium, and vanadium. The samples were collected by Tetra Tech NUS May 13-14, 2002 and analyzed by Severn Trent Laboratories. Metals analyses were conducted using method SW846 6010B.

Metals analyses were conducted using Inductively Coupled Plasma (ICP) methodologies.

These data were evaluated based on the following parameters:

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

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

Laboratory Blank Analyses

The following contaminant was detected in the laboratory method/preparation blanks at the following maximum concentration:

Analyte	Maximum Concentration	Action Level
Sodium	126 ug/L	630 ug/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Sodium was not qualified because the sample values were greater than the action level.

Notes

Matrix spike/Matrix spike duplicate percent recoveries were indeterminate for sodium because the concentration of the analyte in the samples was >4X spike added.

Executive Summary

Laboratory Performance: Sodium was present in the laboratory method/preparation blanks.

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: 4231

SDG: MP050 MEDIA: WATER DATA FRACTION: M

nsample	MPT-13-DUP01-01
samp_date	5/14/2002
lab_id	C2E150174004
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	MPT-13-MW02S-01

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	210		
MANGANESE	46.4		
SODIUM	497000		
VANADIUM	0.91		

nsample	MPT-13-MW01S-01
samp_date	5/14/2002
lab_id	C2E150174006
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	275		
MANGANESE	55.5		
SODIUM	20600		
VANADIUM	0.46	U	

nsample	MPT-13-MW02S-01
samp_date	5/14/2002
lab_id	C2E150174005
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	159		
MANGANESE	47.1		
SODIUM	552000		
VANADIUM	0.71		

PROJ_NO: 4231

SDG: MP050 MEDIA: WATER DATA FRACTION: M

nsample	MPT-13-MW04S-01
samp_date	5/13/2002
lab_id	C2E150174002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	1190		
MANGANESE	229		
SODIUM	936000		
VANADIUM	0.74		

nsample	MPT-13-MW05S-01
samp_date	5/13/2002
lab_id	C2E150174001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	34.2		
MANGANESE	94.5		
SODIUM	349000		
VANADIUM	0.46	U	

nsample	MPT-13-MW07S-01
samp_date	5/13/2002
lab_id	C2E150174003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	73.4		
MANGANESE	45.6		
SODIUM	456000		
VANADIUM	1.8		

PROJ_NO: 4231

SDG: MP050 MEDIA: WATER DATA FRACTION: M

nsample	MPT-13-MW10S-01
samp_date	5/14/2002
lab_id	C2E150174007
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTIMONY	2.1	U	
IRON	5820		
MANGANESE	261		
SODIUM	105000		
VANADIUM	0.75		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPH **Client ID:** MPT-13-DUP01-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	13:15
Iron	271.44	18.9	100	210		1	ICPST	5/18/02	13:15
Manganese	257.61	0.40	15.0	46.4		1	ICPST	5/18/02	13:15
Sodium	330.23	113	5000	497000		1	ICPST	5/18/02	13:15
Vanadium	292.40	0.46	50.0	0.91	B	1	ICPST	5/18/02	13:15

Comments: Lot #: C2E150174 Sample #: 4

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPL **Client ID:** MPT-13-MW01S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	13:26
Iron	271.44	18.9	100	275		1	ICPST	5/18/02	13:26
Manganese	257.61	0.40	15.0	55.5		1	ICPST	5/18/02	13:26
Sodium	330.23	113	5000	20600		1	ICPST	5/18/02	13:26
Vanadium	292.40	0.46	50.0	0.46	U	1	ICPST	5/18/02	13:26

Comments: Lot #: C2E150174 Sample #: 6

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPJ **Client ID:** MPT-13-MW02S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	13:20
Iron	271.44	18.9	100	159		1	ICPST	5/18/02	13:20
Manganese	257.61	0.40	15.0	47.1		1	ICPST	5/18/02	13:20
Sodium	330.23	226	10000	552000		2	ICPST	5/18/02	19:08
Vanadium	292.40	0.46	50.0	0.71	B	1	ICPST	5/18/02	13:20

Comments: Lot #: C2E150174 Sample #: 5

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPA **Client ID:** MPT-13-MW04S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	12:53
Iron	**271.44**	**18.9**	**100**	**1190**		**1**	**ICPST**	**5/18/02**	**12:53**
Manganese	**257.61**	**0.40**	**15.0**	**229**		**1**	**ICPST**	**5/18/02**	**12:53**
Sodium	**330.23**	**226**	**10000**	**936000**		**2**	**ICPST**	**5/18/02**	**19:03**
Vanadium	**292.40**	**0.46**	**50.0**	**0.74**	**B**	**1**	**ICPST**	**5/18/02**	**12:53**

Comments: Lot #: C2E150174 Sample #: 2

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FN3 **Client ID:** MPT-13-MW05S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	12:30
Iron	271.44	18.9	100	34.2	B	1	ICPST	5/18/02	12:30
Manganese	257.61	0.40	15.0	94.5		1	ICPST	5/18/02	12:30
Sodium	330.23	113	5000	349000		1	ICPST	5/18/02	12:30
Vanadium	292.40	0.46	50.0	0.46	U	1	ICPST	5/18/02	12:30

Comments: Lot #: C2E150174 Sample #: 1

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPG **Client ID:** MPT-13-MW07S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	13:09
Iron	**271.44**	**18.9**	**100**	**73.4**	**B**	**1**	**ICPST**	**5/18/02**	**13:09**
Manganese	**257.61**	**0.40**	**15.0**	**45.6**		**1**	**ICPST**	**5/18/02**	**13:09**
Sodium	**330.23**	**113**	**5000**	**456000**		**1**	**ICPST**	**5/18/02**	**13:09**
Vanadium	**292.40**	**0.46**	**50.0**	**1.8**	**B**	**1**	**ICPST**	**5/18/02**	**13:09**

Comments: Lot #: C2E150174 Sample #: 3

Version 4.97.1

U Result is less than the IDL

B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: E1FPP **Client ID:** MPT-13-MW10S-01

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.84	2.1	10.0	2.1	U	1	ICPST	5/18/02	13:32
Iron	271.44	18.9	100	5820		1	ICPST	5/18/02	13:32
Manganese	257.61	0.40	15.0	261		1	ICPST	5/18/02	13:32
Sodium	330.23	113	5000	105000		1	ICPST	5/18/02	13:32
Vanadium	292.40	0.46	50.0	0.75	B	1	ICPST	5/18/02	13:32

Comments: Lot #: C2E150174 Sample #: 7

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form I Equivalent

APPENDIX C
SUPPORT DOCUMENTATION

MP050

HOLDING TIME
06/06/02

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
UG/L	MPT-13-DUP01-01	C2E150174004	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW01S-01	C2E150174006	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW02S-01	C2E150174005	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
UG/L	MPT-13-MW04S-01	C2E150174002	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW05S-01	C2E150174001	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW07S-01	C2E150174003	NORMAL	MP050	M	05/13/02	05/16/02	05/18/02	3	2	5
UG/L	MPT-13-MW10S-01	C2E150174007	NORMAL	MP050	M	05/14/02	05/16/02	05/18/02	2	2	4
%	MPT-13-DUP01-01	C2E150174004	NORMAL	MP050	OS	05/14/02	05/16/02	05/31/02	2	15	17
%	MPT-13-MW02S-01	C2E150174005	NORMAL	MP050	OS	05/14/02	05/16/02	05/31/02	2	15	17

STL Pittsburgh

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER MPT-051402 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	SWMU 13	TERRY HANSON	STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		LANE MEDDLETON 904-281-0400	450 WILLIAM PETT WAY
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX	PITTSBURGH, PA

STANDARD TAT ☒
RUSH TAT ☐
☒ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P G
PRESERVATIVE USED: HNO3 NONE

TYPE OF ANALYSIS: METALS (Fe, Mn, Na, Ca) SW-846 6010B; TRACE Cr SW-846 8270C

DATE YEAR 2002	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	METALS	TRACE Cr	8270C							COMMENTS
5/13	1355	MPT-13-MW05S-01 ✓	GW	G	1	1									COOL TO 4°C
5/13	1250	MPT-13-MW4S-01 ✓	GW	G	1	1									
5/13	1100	MPT-13-MW07S-01 ✓	GW	G	1	1									
5/14	0000	MPT-13-DUP01-01 ✓	GW	G	3	1	2								
5/14	1050	MPT-13-MW02S-01 ✓	GW	G	3	1	2								
5/14	1000	MPT-13-MW01S-01 ✓	GW	G	1	1									
5/14	0925	MPT-13-MW10S-01 ✓	GW	G	1	1									

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	5/14/02	1600	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY Patrick R Donat	5/14/02	1930
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS 001

Cooler Receipt Form
STL Pittsburgh

Client: Tetra Tech NUS Project: _____ Quote: 47559

Cooler Rec'd & Opened for Temp. Check on: 5/15/02

Coolers Opened and Unpacked on: 5/15/02 By: ARF (Signature)

STL Pittsburgh Lot Number: C2E150174

	Yes	No
1. Were custody seals on the outside of the cooler?	✓	
If YES, how many and where? Quantity 2 Location 1 front, 1 back		
Were signatures and date correct?	✓	
2. Were custody papers included inside the cooler?	✓	
3. Were custody papers properly filled out (ink, signed, match labels)?	✓	
4. Did you sign the custody papers in the appropriate place?	✓	
5. Was shippers packing slip attached to this form?	✓	
6. Were packing materials used?	✓	
If YES, what type? Bubble Wrap		
7. Were the samples chilled? (Record temperatures on reverse side.)	✓	
8. Were the samples appropriately preserved?	✓	
9. Were all bottles sealed in separate plastic bags?	✓	
10. Did all bottles arrive in good condition (unbroken)?	✓	
11. Were all bottle labels complete (sample ID, preservatives, etc.)?	✓	
12. Did all bottle labels and/or tags agree with custody papers?	✓	
13. Were correct bottles used for tests indicated?	✓	
14. Were all VOA vials checked for the presence of air bubbles?	NA	
15. Was a sufficient amount of sample sent in each bottle?	✓	

16. Samples received by: FEDEX UPS CLIENT DROP-OFF OTHER AIRBORNE

Explain any discrepancies: _____

Level 2 Review _____

Was contacted on _____ by _____ to resolve discrepancies.

Cooler Receipt Form

STL Pittsburgh

P: Preserved

UP: Unpreserved

Sample ID	TMET PH<2	DMET PH<2	HG PH<2	NUT(1) PH<2	CN PH ≥12	OG TPHC PH<2	PHEN PH<2	SULF PH ≥12	TOC PH<2	TOX PH<2	VOA P/UP	hardness PH<2			
MPT-13-MW05-01	2														
MPT-13-MW45-01	2														
MPT-13-MW035-01	2														
MPT-13-DUP01-01	2														
MPT-13-MW025-01	2														
MPT-13-MW015-01	2														
MPT-13-MW105-01	2														

(1) "NUT" could include sample bottles for ammonia, chemical oxygen demand, nitrate/nitrite, TKN, or total phosphorus

Comments: _____

Cooler Number	Temperature
1	3.8°

Bottle Type	Lot Number*

* Please use an asterisk if bottle lot number was covered by the label.

CASE NARRATIVE
ENSR
NAS Mayport, FL

CTO #245
SDG: MP050
STL Lot#: C2E150174

The following report contains the analytical results for samples submitted to STL Pittsburgh by Tetra Tech from the NAS Mayport site in Mayport, FL. The samples were received May 15, 2002, according to documented sample acceptance procedures.

STL-Pittsburgh utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

SAMPLE RECEIVING:
The SDG closed on May 15, 2002.

GCMS Semivolatiles:
The reporting limits for the samples have been adjusted to reflect the amount of sample used in the extraction procedure.

The method blank for batch 2136333 had bis (2-ethylhexyl) phthalate detected below the reporting limit but above the MDL. The result was flagged with a "J" qualifier. Any sample associated with this blank that had bis (2-ethylhexyl) phthalate detected had the result flagged with a "B" qualifier.

Metals:
Samples MPT-13-MW04S-01 and MPT-13-MW02S-01 were over the instrument's linear range for sodium and required a dilution.

For the matrix spike and matrix spike duplicate, sodium recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

METHODS SUMMARY

C2E150174

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C2E150174

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E1FN3	001	MPT-13-MW05S-01	05/13/02	13:55
E1FPA	002	MPT-13-MW04S-01	05/13/02	12:50
E1FPG	003	MPT-13-MW07S-01	05/13/02	11:00
E1FPH	004	MPT-13-DUP01-01	05/14/02	
E1FPJ	005	MPT-13-MW02S-01	05/14/02	10:50
E1FPL	006	MPT-13-MW01S-01	05/14/02	10:00
E1FPP	007	MPT-13-MW10S-01	05/14/02	09:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

STL-Pittsburgh

Cover Page - Inorganic Analysis Data Package

Client ID	Lab Sample ID:
MPT-13-DUP01-01	E1FPH
MPT-13-MW01S-01	E1FPL
MPT-13-MW02S-01	E1FPJ
MPT-13-MW04S-01	E1FPA
MPT-13-MW05S-01	E1FN3
MPT-13-MW05S-01S	E1FN3S
MPT-13-MW05S-01SD	E1FN3D
MPT-13-MW07S-01	E1FPG
MPT-13-MW10S-01	E1FPP

Comments: TETRA-TECH NUS INC.
C2E150174
METALS ANALYSIS
6010B

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

Signature: _____ Name: _____

Date: _____ Title: _____

Version 4.97.1

REVIEWED BY: MBM
DATE: 5-20-02

Cover Page Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: E1HQLB

Matrix: Water **Units:** ug/L **Prep Date:** 5/16/02 **Prep Batch:** 2136181

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Antimony	206.838	2.1	10.0	2.1	U	1	ICPST	5/18/02	12:19
Iron	271.441	18.9	100	18.9	U	1	ICPST	5/18/02	12:19
Manganese	257.61	0.40	15.0	0.40	U	1	ICPST	5/18/02	12:19
Sodium	330.232	113	5000	113	U	1	ICPST	5/18/02	12:19
Vanadium	292.402	0.46	50.0	0.46	U	1	ICPST	5/18/02	12:19

Comments: Lot #: C2E150174

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20518B.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB1 5/18/02 11:54 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Antimony	206.838	10	2.1	U								
Iron	271.441	100	18.9	U								
Manganese	257.61	15	0.4	U								
Sodium	330.232	5000	113.0	U								
Vanadium	292.402	50	0.5	U								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20518B.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 5/18/02 1:04 PM		CCB2 5/18/02 2:10 PM		CCB3 5-18-02 3:19p		CCB4 5-18-02 4:26p		CCB5 5-18-02 5:28p	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Antimony	206.838	10	2.1	U	2.1	U						
Iron	271.441	100	18.9	U	18.9	U						
Manganese	257.61	15	0.4	U	0.4	U						
Sodium	330.232	5000	126.0	B	113.0	U	113.0	U	113.0	U	113.0	U
Vanadium	292.402	50	0.5	U	0.5	U						

MBM 5-20-02

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: N20518B.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB6 5/18/02 6:18 PM		CCB7 5/18/02 7:25 PM							
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Sodium	330.232	5000	123.0	B	113.0	U						

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Antimony	206.838	10.0	2.1	3/10/02
Iron	271.441	100.0	18.9	3/10/02
Manganese	257.610	15.0	0.40	3/10/02
Sodium	330.232	5000.0	113	3/10/02
Vanadium	292.402	50.0	0.46	3/10/02

STL-Pittsburgh

Metals Data Reporting Form

Preparation Log

Preparation Batch: 2136181 **Instrument:** ICP **Matrix:** Water

Sample ID	Prep Date	Weight (g)	Volume (ml)	% Moisture
E1HQLB	5/16/02	NA	50	NA
E1HQLC	5/16/02	NA	50	NA
E1FN3	5/16/02	NA	50	NA
E1FN3D	5/16/02	NA	50	NA
E1FN3S	5/16/02	NA	50	NA
E1FPA	5/16/02	NA	50	NA
E1FPG	5/16/02	NA	50	NA
E1FPH	5/16/02	NA	50	NA
E1FPJ	5/16/02	NA	50	NA
E1FPL	5/16/02	NA	50	NA
E1FPP	5/16/02	NA	50	NA

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20518B.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD1		5/18/02	11:27
STD2		5/18/02	11:32
STD3		5/18/02	11:38
STD4		5/18/02	11:43
ICV1-1		5/18/02	11:49
ICB1		5/18/02	11:54
ZZZZZZ		5/18/02	12:00
ICSA		5/18/02	12:06
ICSAB		5/18/02	12:11
E1HQLB		5/18/02	12:19
E1HQLC		5/18/02	12:25
E1FN3	MPT-13-MW05S-01	5/18/02	12:30
E1FN3P	MPT-13-MW05S-01P	5/18/02	12:36
E1FN3S	MPT-13-MW05S-01S	5/18/02	12:41
E1FN3D	MPT-13-MW05S-01SD	5/18/02	12:47
E1FPA	MPT-13-MW04S-01	5/18/02	12:53
CCV1-1		5/18/02	12:58
CCB1		5/18/02	13:04
E1FPG	MPT-13-MW07S-01	5/18/02	13:09
E1FPH	MPT-13-DUP01-01	5/18/02	13:15
E1FPJ	MPT-13-MW02S-01	5/18/02	13:20
E1FPL	MPT-13-MW01S-01	5/18/02	13:26
E1FPP	MPT-13-MW10S-01	5/18/02	13:32
ZZZZZZ		5/18/02	13:37
ZZZZZZ		5/18/02	13:43
ZZZZZZ		5/18/02	13:48
ZZZZZZ		5/18/02	13:54
ZZZZZZ		5/18/02	13:59
CCV1-2		5/18/02	14:05
CCB2		5/18/02	14:10
ZZZZZZ		5/18/02	14:17
ZZZZZZ		5/18/02	14:23
ZZZZZZ		5/18/02	14:29
ZZZZZZ		5/18/02	14:34
ZZZZZZ		5/18/02	14:40
ZZZZZZ		5/18/02	14:45
ZZZZZZ		5/18/02	14:51
ZZZZZZ		5/18/02	14:56
ZZZZZZ		5/18/02	15:02

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20518B.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		5/18/02	15:08
CCV1-3		5/18/02	15:13
CCB3		5/18/02	15:19
ZZZZZZ		5/18/02	15:25
ZZZZZZ		5/18/02	15:31
ZZZZZZ		5/18/02	15:36
ZZZZZZ		5/18/02	15:42
ZZZZZZ		5/18/02	15:48
ZZZZZZ		5/18/02	15:53
ZZZZZZ		5/18/02	15:59
ZZZZZZ		5/18/02	16:04
ZZZZZZ		5/18/02	16:10
ZZZZZZ		5/18/02	16:15
CCV1-4		5/18/02	16:21
CCB4		5/18/02	16:26
ZZZZZZ		5/18/02	16:32
ZZZZZZ		5/18/02	16:38
ZZZZZZ		5/18/02	16:43
ZZZZZZ		5/18/02	16:49
ZZZZZZ		5/18/02	16:54
ZZZZZZ		5/18/02	17:00
ZZZZZZ		5/18/02	17:05
ZZZZZZ		5/18/02	17:11
ZZZZZZ		5/18/02	17:17
CCV1-5		5/18/02	17:22
CCB5		5/18/02	17:28
ZZZZZZ		5/18/02	17:33
ZZZZZZ		5/18/02	17:39
ZZZZZZ		5/18/02	17:45
ZZZZZZ		5/18/02	17:50
ZZZZZZ		5/18/02	17:56
ZZZZZZ		5/18/02	18:01
ZZZZZZ		5/18/02	18:07
CCV1-6		5/18/02	18:12
CCB6		5/18/02	18:18
ZZZZZZ		5/18/02	18:24
ZZZZZZ		5/18/02	18:29
ZZZZZZ		5/18/02	18:35
ZZZZZZ		5/18/02	18:40

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** N20518B.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		5/18/02	18:46
ZZZZZZ		5/18/02	18:51
ZZZZZZ		5/18/02	18:57
E1FPA	MPT-13-MW04S-01	5/18/02	19:03
E1FPJ	MPT-13-MW02S-01	5/18/02	19:08
ZZZZZZ		5/18/02	19:14
CCV1-7		5/18/02	19:19
CCB7		5/18/02	19:25

FIELD DUPLICATE PRECISION

ANALYTE	MPT-13-DUP01-01	MPT-13-MW02S-01	RPD	DIFFERENCE
Antimony	2.1U	2.1U	#VALUE!	#VALUE!
Iron	210	159	27.64	51
Manganese	46.4	47.1	1.50	0.7
Sodium	497000	552000	10.49	55000
Vanadium	0.91	0.71	24.69	0.2

Analysis Report 05/18/02 01:37:32 PM page 1

Method: PITTRACE Sample Name: E1FPP Operator: RJG
Run Time: 05/18/02 13:32:01
Comment: STL PITTSBURGH ICP METALS ANALYSIS INSTRUMENT TRACEICP2
Mode: CONC Corr. Factor: 1

Elem	AG	AL	AS	BA	BE	CA	CD
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00014	.01560	.00109	.00942	-.00003	154.09	-.00002
SDev	.00018	.00491	.00079	.00007	.00010	.97	.00023
%RSD	124.99	31.507	72.005	.79739	337.35	.63052	1294.5
#1	.00031	.02035	.00114	.00951	-.00014	155.17	-.00027
#2	.00015	.01589	.00029	.00937	-.00002	153.82	.00016
#3	-.00004	.01054	.00186	.00939	.00007	153.28	.00007
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.0000	600.00	10.000	10.000	10.000	600.00	5.0000
Low	-.01000	-.20000	-.01000	-.20000	-.00500	-5.0000	-.00500

Elem	CO	CR	CU	FE	K_	MG	MN
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00021	.00068	.00071	5.8173	16.630	15.950	.26131
SDev	.00027	.00022	.00022	.0358	.097	.111	.00176
%RSD	127.67	32.210	31.763	.61592	.58226	.69395	.67413
#1	-.00002	.00058	.00067	5.8565	16.714	16.073	.26327
#2	-.00052	.00053	.00095	5.8093	16.653	15.922	.26080
#3	-.00010	.00093	.00051	5.7862	16.524	15.857	.25985
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	100.00	20.000	10.000	500.00	500.00	600.00	20.000
Low	-.05000	-.00500	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	NA	NI	PB/1	PB/2	PB	SB	SE/1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	105.39	.00069	.00185	-.00014	.00052	.00008	-.00075
SDev	.52	.00024	.00134	.00173	.00076	.00117	.00157
%RSD	.49040	34.333	72.471	1222.3	145.05	1507.5	210.06
#1	105.81	.00090	.00082	.00053	.00062	-.00073	-.00058
#2	105.55	.00044	.00337	-.00210	-.00028	-.00045	.00073
#3	104.81	.00073	.00136	.00115	.00122	.00142	-.00240
Errors	LC Pass	LC Pass	NOCHECK	NOCHECK	LC Pass	LC Pass	NOCHECK
High	500.00	100.00			5.0000	10.000	
Low	-5.0000	-.04000			-.00300	-.01000	

Elem	SE/2	SE	TL	V_	ZN
Units	ppm	ppm	ppm	ppm	ppm
Avge	.00344	.00205	-.00124	.00076	.00145
SDev	.00272	.00195	.00078	.00005	.00020
%RSD	79.108	95.489	63.334	5.9490	13.902
#1	.00658	.00420	-.00034	.00077	.00160
#2	.00197	.00156	-.00180	.00071	.00122

Sample: MPT-13-MW105-01

5.8173 ppm x 1000 = 5817 mg/L

STL Pittsburgh

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER MPT-051402 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	SWMU 13	TERRY HANSEN	STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		LANE MEDDLETON 904-281-0400	450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX	PITTSBURGH, PA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P G
PRESERVATIVE USED: NONE

TYPE OF ANALYSIS: METALS (TCL, MP, NOT SOD, HAVS); SW-846 8010 B/TPH GRO; SW-846 8270C

DATE YEAR 2002	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS			COMMENTS
5/13	1355	MPT-13-MW05S-01	GW	G	1	1		COOL TO 4°C
5/13	1250	MPT-13-MW14S-01	GW	G	1	1		
5/13	1100	MPT-13-MW07S-01	GW	G	1	1		
5/14	0000	MPT-13-DUP01-01	GW	G	3	1	2	
5/14	1050	MPT-13-MW02S-01	GW	G	3	1	2	
5/14	1000	MPT-13-MW01S-01	GW	G	1	1		
5/14	0925	MPT-13-MW10S-01	GW	G	1	1		

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	5/14/02	1600	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY: Patrick R Daust	5/14/02	1730
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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STL Pittsburgh

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER MPT-051602 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	SWMU 13/16	TERRY HANSON (850) 385-9899	STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
[signature]		LANE MEDDLETON (904) 881-0400	450 WILLIAM PITT WAY
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX	PITTSBURGH, PA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P G G

PRESERVATIVE USED: HNO3 NONE NONE

TYPE OF ANALYSIS: METALS (Pb, Mn, Ni, Sn, Zn) SW-846 6010B (TRACE); SW-846 8270C; PCB SW-846 8082

DATE YEAR 2002	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	METALS	8270C	PCB						COMMENTS
5/16	0945	MPT-13-MW065-01	GW	G	2		2							COOL TO 4°C
5/16	1130	MPT-13-MW085-01	GW	G	1	1								
5/16	1040	MPT-13-MW095-01	GW	G	1	1								* ~~DO NOT~~ HOLD
5/15	0930	MPT-16-SSF2-01	SS	G	1			1						FOR ANALYSES
5/15	0932	MPT-16-SSF2-02	SS	G	1			1*						AFTER RESULTS
5/15	0934	MPT-16-SSF2-03	SS	G	1			1*						OF 1' SAMPLES
5/15	0915	MPT-16-SSE7-01	SS	G	1			1						ARE RECEIVED.
5/15	0917	MPT-16-SSE7-02	SS	G	1			1*						TINUS WILL
5/15	0919	MPT-16-SSE7-03	SS	G	1			1*						GIVE NOTICE
5/15	0850	MPT-16-SSG7-~~02~~ 1.5	SS	G	1			1						TO PROCEED.
5/15	0851	MPT-16-SSG7-02	SS	G	1			1*						
5/15	0853	MPT-16-SSG7-03	SS	G	1			1*						
5/16	1420	MPT-13-EB-01	GW	G	3	1	2							

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	5/16/02	1600	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY [signature]	5-17-02	1000

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TINUS-001

EVENT 2

Analytical Data

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**MARCH 26, 2003**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – IRON AND MANGANESE**
NS MAYPORT – CTO 245
SAMPLE DELIVERY GROUP (SDG) – 130250

SAMPLES: 4/AQUEOUS/

MPT-13-MW04S MPT-13-MW08S MPT-13-MW09S
MPT-13-MW10S

Overview

The sample set for NS Mayport, CTO 245, SDG 130250, consists of four (4) aqueous environmental samples.

The samples were analyzed for iron and manganese. The samples were collected by Tetra Tech NUS March 12, 2003 and analyzed by Severn Trent Laboratories. Metals analyses were conducted using method SW846 6010B.

Metals analyses were conducted using Inductively Coupled Plasma (ICP) methodology.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Method/Preparation Blank Analyses
* • ICP Interference
* • Matrix Spike Recoveries
* • Laboratory Duplicate Results
* • Laboratory Control Sample Recoveries
* • Serial Dilution 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	Action Level
Iron	17.6 ug/L	88.0 ug/L
Manganese	1.3 ug/L	6.5 ug/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Iron and manganese were not qualified because the sample values were greater than the action level.

Notes

The matrix spike and matrix spike duplicate percent recoveries (%Rs) were <0% for iron. No qualification action was required because the initial sample concentrations were >4X the spike added.

Executive Summary

Laboratory Performance: No quality control issues were noted for this SDG.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", July 2002 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: 4231

SDG: 130250 MEDIA: WATER DATA FRACTION:

nsample	MPT-13-MW04S
samp_date	3/12/2003
lab_id	C3C130250004
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	1170		
MANGANESE	265		

nsample	MPT-13-MW08S
samp_date	3/12/2003
lab_id	C3C130250003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	2210		
MANGANESE	441		

nsample	MPT-13-MW09S
samp_date	3/12/2003
lab_id	C3C130250002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	2210		
MANGANESE	211		

PROJ_NO: 4231

SDG: 130250 MEDIA: WATER DATA FRACTION:

nsample	MPT-13-MW10S
samp_date	3/12/2003
lab_id	C3C130250001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
IRON	6500		
MANGANESE	156		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: FJ4KP **Client ID:** MPT-13-MW04S

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	259.94	10.8	100	1170		1	ICP	3/21/03	16:29
Manganese	257.61	0.51	15.0	265		1	ICP	3/21/03	16:29

Comments: Lot #: C3C130250 Sample #: 4

Version 4.97.1

U Result is less than the IDL

B Result is between IDL and RL

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: FJ4KN **Client ID:** MPT-13-MW08S

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	259.94	10.8	100	2210		1	ICP	3/21/03	16:25
Manganese	257.61	0.51	15.0	441		1	ICP	3/21/03	16:25

Comments: Lot #: C3C130250 Sample #: 3

Version 4.97.1

U Result is less than the IDL.
B Result is between IDL and RL

Form 1 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: FJ4KK **Client ID:** MPT-13-MW09S

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	259.94	10.8	100	2210		1	ICP	3/21/03	16:22
Manganese	257.61	0.51	15.0	211		1	ICP	3/21/03	16:22

Comments: Lot #: C3C130250 Sample #: 2

Version 4.97.1

U Result is less than the IDL.
B Result is between IDL and RL.

Form I Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Sample Results

Lab Sample ID: FJ4KH **Client ID:** MPT-13-MW10S

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	259.94	10.8	100	6500		1	ICP	3/21/03	16:02
Manganese	257.61	0.51	15.0	156		1	ICP	3/21/03	16:02

Comments: Lot #: C3C130250 Sample #: 1

Version 4.97.1

U Result is less than the IDL

B Result is between IDL and RL

Form I Equivalent

APPENDIX C

SUPPORT DOCUMENTATION

130250

HOLDING TIME

03/26/03

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
%	CHECK SAMPLE	C3C200000163C	LCS	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
UG/L	INTRA-LAB BLANK	C3C200000163B	M_BLANK	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
UG/L	MPT-13-MW04S	C3C130250004	NORMAL	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
UG/L	MPT-13-MW08S	C3C130250003	NORMAL	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
UG/L	MPT-13-MW09S	C3C130250002	NORMAL	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
UG/L	MPT-13-MW10S	C3C130250001	NORMAL	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
%	MPT-13-MW10SMS	C3C130250001S	MS	130250	M	03/12/03	03/20/03	03/21/03	8	1	9
%	MPT-13-MW10SMSD	C3C130250001D	MSD	130250	M	03/12/03	03/20/03	03/21/03	8	1	9

STL Pittsburgh

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 0375 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	Mayport SWMU13	Alan Pate	904-636-6125	STL Pittsburgh
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles Metz		Charles Metz	904-636-6125	450 William Pitt Way
		CARRIER/WAYBILL NUMBER		CITY, STATE
				Pittsburgh PA 15238

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: HNO_3

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: 6010B (Fe+Mn)							COMMENTS
3-12	1045	MPT-13-MW10s				GW	G	1	1✓							
3-12	1145	MPT-13-MW09s				GW	G	1	1✓							
3-12	1240	MPT-13-MW08s				GW	G	1	1✓							
3-12	1325	MPT-13-MW04s				GW	G	1	1✓							

1. RELINQUISHED BY: Charles Metz	DATE: 3-12-03	TIME: 1655	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY: Patrick R Bauer	DATE: 3/13/03	TIME: 1000
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

WHITE (COMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

5

SEVERN TRENT STL

ANALYTICAL REPORT

PROJECT NO. CTO 0245

NAVSTA, Mayport, Florida

Lot #: C3C130250

Alan Pate

Tetra Tech NUS Inc

SEVERN TRENT LABORATORIES, INC.

Veronica Bortot
Project Manager

March 25, 2003

Severn Trent Laboratories, Inc.
STL Pittsburgh • 450 William Pitt Way, Pittsburgh, PA 15238
Tel 412 820 8380 Fax 412 820 2080 • *www.stl-inc.com*

A part of Severn Trent plc

CASE NARRATIVE

NAVSTA Mayport, FL
CTO #245

STL Lot#: C3C130250

The following report contains the analytical results for samples submitted to STL Pittsburgh by Tetra Tech from the NAVSTA Mayport site in Mayport, FL. The samples were received March 13, 2003, according to documented sample acceptance procedures.

STL-Pittsburgh utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

SAMPLE RECEIVING:
The lot closed on March 13, 2003.

Metals:
For the matrix spike and matrix spike duplicate, iron recoveries were not calculated due to the concentration of analyte in the sample being >4 times the concentration of spike added.

METHODS SUMMARY

C3C130250

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

C3C130250

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FJ4KH	001	MPT-13-MW10S	03/12/03	10:45
FJ4KK	002	MPT-13-MW09S	03/12/03	11:45
FJ4KN	003	MPT-13-MW08S	03/12/03	12:40
FJ4KP	004	MPT-13-MW04S	03/12/03	13:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

STL-Pittsburgh

Cover Page - Inorganic Analysis Data Package

Client ID	Lab Sample ID:
MPT-13-MW04S	FJ4KP
MPT-13-MW08S	FJ4KN
MPT-13-MW09S	FJ4KK
MPT-13-MW10S	FJ4KH
MPT-13-MW10SS	FJ4KHS
MPT-13-MW10SSD	FJ4KHD

Comments: TETRA TECH NUS INC.
LOT#: C3C130250
METALS ANALYSIS
6010B

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

Signature: _____ Name: _____

Date: _____ Title: _____

Version 4.97.1

REVIEWED BY: MBM
DATE: 3-24-03

Cover Page Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: FKFFLB

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Iron	259.94	10.8	100	10.8	U	1	ICP	3/21/03	15:56
Manganese	257.61	0.51	15.0	-0.65	B	1	ICP	3/21/03	15:56

Comments: Lot #: C3C130250

Version 4.97.1

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICP **Units:** ug/L

Chart Number: J30321A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB1 3/21/03 12:51 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	259.94	100	17.6	B								
Manganese	257.61	15	1.2	B								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICP **Units:** ug/L

Chart Number: J30321A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB1 3/21/03 1:30 PM		CCB2 3/21/03 2:10 PM		CCB3 3/21/03 2:49 PM		CCB4 3/21/03 3:33 PM		CCB5 3/21/03 4:12 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	259.94	100	26.7	B	32.1	B	10.8	U	10.8	U	10.8	U
Manganese	257.61	15	1.8	B	2.0	B	1.4	B	1.3	B	1.2	B

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICP **Units:** ug/L

Chart Number: J30321A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB6 3/21/03 4:35 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Iron	259.94	100	10.8	U								
Manganese	257.61	15	6.7	B								

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: FJ4KHS

Original Sample ID: FJ4KH **Client ID:** MPT-13-MW10SS

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Iron	259.9	6500		7560	NC	1000		1	1	ICP	3/21/03	16:02	3/21/03	16:15
Manganese	257.6	156		653		500	99.3	1	1	ICP	3/21/03	16:02	3/21/03	16:15

Comments: Lot #: C3C130250 Sample #: 1

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: FJ4KHD

Original Sample ID: FJ4KH **Client ID:** MPT-13-MW10SSD

Matrix: Water **Units:** ug/L **Prep Date:** 3/20/03 **Prep Batch:** 3079163

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Iron	259.9	6500		7620	NC	1000	0	1	1	ICP	3/21/03	16:02	3/21/03	16:19
Manganese	257.6	156		655		500	99.8	1	1	ICP	3/21/03	16:02	3/21/03	16:19

Comments: Lot #: C3C130250 Sample #: 1

Version 4.97.1

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL-Pittsburgh

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICP **Units:** ppb

Element	Wavelength	Reporting Limit	IDL	Date of IDL
Iron	259.940	100.0	10.8	1/15/03
Manganese	257.610	15.0	0.51	1/15/03

STL-Pittsburgh

Metals Data Reporting Form

Preparation Log

Preparation Batch: 3079163 **Instrument:** ICP **Matrix:** Water

Sample ID	Prep Date	Weight (g)	Volume (ml)	% Moisture
FKFFLB	3/20/03	NA	50	NA
FKFFLC	3/20/03	NA	50	NA
FJ4KH	3/20/03	NA	50	NA
FJ4KHD	3/20/03	NA	50	NA
FJ4KHS	3/20/03	NA	50	NA
FJ4KK	3/20/03	NA	50	NA
FJ4KN	3/20/03	NA	50	NA
FJ4KP	3/20/03	NA	50	NA

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICP **Chart Number:** J30321A.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
STD1		3/21/03	12:38
STD5A		3/21/03	12:41
STD5B		3/21/03	12:44
ICV2-1		3/21/03	12:48
ICB1		3/21/03	12:51
CRA-1		3/21/03	12:54
ICSA		3/21/03	12:57
ICSAB		3/21/03	13:01
ZZZZZZ		3/21/03	13:04
ZZZZZZ		3/21/03	13:07
ZZZZZZ		3/21/03	13:11
ZZZZZZ		3/21/03	13:14
ZZZZZZ		3/21/03	13:17
ZZZZZZ		3/21/03	13:20
ZZZZZZ		3/21/03	13:24
CCV2-1		3/21/03	13:27
CCB1		3/21/03	13:30
ZZZZZZ		3/21/03	13:34
ZZZZZZ		3/21/03	13:37
ZZZZZZ		3/21/03	13:40
ZZZZZZ		3/21/03	13:43
ZZZZZZ		3/21/03	13:47
ZZZZZZ		3/21/03	13:50
ZZZZZZ		3/21/03	13:53
ZZZZZZ		3/21/03	13:56
ZZZZZZ		3/21/03	14:00
ZZZZZZ		3/21/03	14:03
CCV2-2		3/21/03	14:06
CCB2		3/21/03	14:10
ZZZZZZ		3/21/03	14:13
ZZZZZZ		3/21/03	14:16
ZZZZZZ		3/21/03	14:19
ZZZZZZ		3/21/03	14:23
ZZZZZZ		3/21/03	14:26
ZZZZZZ		3/21/03	14:29
ZZZZZZ		3/21/03	14:32
ZZZZZZ		3/21/03	14:36
ZZZZZZ		3/21/03	14:39
ZZZZZZ		3/21/03	14:42

Version 4.97.1 *Form 14 Equivalent*

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICP **Chart Number:** J30321A.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
CCV2-3		3/21/03	14:46
CCB3		3/21/03	14:49
ZZZZZZ		3/21/03	14:57
ZZZZZZ		3/21/03	15:00
ZZZZZZ		3/21/03	15:03
ZZZZZZ		3/21/03	15:07
ZZZZZZ		3/21/03	15:10
ZZZZZZ		3/21/03	15:13
ZZZZZZ		3/21/03	15:16
ZZZZZZ		3/21/03	15:20
ZZZZZZ		3/21/03	15:23
ZZZZZZ		3/21/03	15:26
CCV2-4		3/21/03	15:29
CCB4		3/21/03	15:33
ZZZZZZ		3/21/03	15:36
ZZZZZZ		3/21/03	15:39
ZZZZZZ		3/21/03	15:43
ZZZZZZ		3/21/03	15:46
ZZZZZZ		3/21/03	15:49
ZZZZZZ		3/21/03	15:52
FKFFLB		3/21/03	15:56
FKFFLC		3/21/03	15:59
FJ4KH	MPT-13-MW10S	3/21/03	16:02
FJ4KHP	MPT-13-MW10SP	3/21/03	16:05
CCV2-5		3/21/03	16:09
CCB5		3/21/03	16:12
FJ4KHS	MPT-13-MW10SS	3/21/03	16:15
FJ4KHD	MPT-13-MW10SSD	3/21/03	16:19
FJ4KK	MPT-13-MW09S	3/21/03	16:22
FJ4KN	MPT-13-MW08S	3/21/03	16:25
FJ4KP	MPT-13-MW04S	3/21/03	16:29
CCV2-6		3/21/03	16:32
CCB6		3/21/03	16:35
ZZZZZZ		3/21/03	16:38
ZZZZZZ		3/21/03	16:42
ZZZZZZ		3/21/03	16:45
ZZZZZZ		3/21/03	16:48
ZZZZZZ		3/21/03	16:51
ZZZZZZ		3/21/03	16:55

Version 4.97.1 *Form 14 Equivalent*

STL-Pittsburgh

Metals Data Reporting Form

Instrument Runlog

Instrument: ICP **Chart Number:** J30321A.ARC

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		3/21/03	16:58
ZZZZZZ		3/21/03	17:01
ZZZZZZ		3/21/03	17:04
ZZZZZZ		3/21/03	17:08

Sample: MPT-13-MW085

0.44092 ppm x 1000 = 441 mg/L ✓

Analysis Report 03/21/03 04:29:00 PM page 1

Method: PITT61E Sample Name: FJ4KN Operator: DAB
Run Time: 03/21/03 16:25:47
Comment: STL PITTSBURGH ICP METALS ANALYSIS - INSTRUMENT JA61EICP
Mode: CONC Corr. Factor: 1

Elem	AG	AL	AS	B_	BA	BE	CA
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00310	.04497	-.01493	.33321	.01362	.00003	257.97
SDev	.00050	.01290	.00780	.00383	.00028	.00003	1.86
%RSD	16.019	28.692	52.261	1.1504	2.0377	89.942	.72264
#1	-.00281	.03071	-.01395	.33060	.01330	.00005	256.13
#2	-.00368	.04835	-.02318	.33142	.01378	-.00000	257.91
#3	-.00282	.05584	-.00767	.33761	.01378	.00005	259.86
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2.0000	600.00	100.00	100.00	100.00	10.000	600.00
Low	-.01000	-.20000	-.30000	-.20000	-.20000	-.00400	-5.0000

Elem	CD	CO	CR	CU	FE	K_	LI
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00079	-.00085	-.00096	-.00041	2.2065	17.528	.01750
SDev	.00101	.00099	.00087	.00177	.0172	.149	.00146
%RSD	128.59	116.26	90.249	434.93	.77966	.84744	8.3707
#1	-.00012	.00027	-.00090	.00123	2.1889	17.603	.01917
#2	-.00029	-.00160	-.00185	-.00228	2.2072	17.357	.01642
#3	-.00195	-.00122	-.00013	-.00017	2.2233	17.624	.01692
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	100.00	100.00	100.00	50.000	400.00	500.00	20.000
Low	-.00500	-.05000	-.01000	-.02500	-.10000	-5.0000	-.05000

Elem	MG	MN	MO	NA	NI	PB	SB
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	38.735	.44092	.00133	254.45	.00105	.00084	.01399
SDev	.246	.00257	.00236	1.04	.00103	.00300	.01045
%RSD	.63414	.58361	177.05	.40804	98.176	357.62	74.651
#1	38.486	.43818	.00133	253.43	.00071	.00431	.02003
#2	38.742	.44131	-.00103	254.43	.00222	-.00090	.00193
#3	38.977	.44328	.00370	255.50	.00023	-.00089	.02002
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	600.00	50.000	50.000	400.00	100.00	100.00	100.00
Low	-5.0000	-.01500	-.04000	-5.0000	-.04000	-.10000	-.06000

Elem	SE	SI	SN	SR	TI	TL	V_
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.01390	24.611	-.00203	1.3549	-.01737	-.01163	.00191
SDev	.01576	.164	.00940	.0045	.00028	.01163	.00145
%RSD	113.40	.66489	462.21	.32965	1.5857	100.01	75.746
#1	-.02983	24.446	.00794	1.3515	-.01713	-.01832	.00341
#2	.00169	24.613	-.01073	1.3533	-.01731	-.01836	.00054

ATTACHMENT B

FIELD DATA FORMS

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 13
Project No.: CTO 245
Location: MAYPORT
Personnel: C. Metz
Weather Conditions: Sunny/80°F
Measuring Device: Water Level Indicator
Tidally Influenced: Yes ___ No _X_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
MPT-MW04S	3/12/2003			12.2	3.80			
MPT-MW08S	3/12/2003			12.2	1.64			
MPT-MW09S	3/12/2003			12.4	1.57			
MPT-MW10S	3/12/2003			~~12.4~~ 12.4	1.77			

* All measurements to the nearest 0.01 foot

EQUIPMENT CALIBRATION LOG

PROJECT NAME : SWMU 13

PROJECT NUMBER : N4231 (CTO 0245)

CALIBRATION DATE	INSTRUMENT NAME/MODEL	SERIAL #	STANDARDS USED	PRE SETTINGS	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
3/12/2003	Horiba U-22	ATR 3463	4.0 pH	4.19	calibration	3.99	CM	
3/12/2003	Horiba U-22	ATR 3463	4.0 pH	4.10		3.99	CM	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 13	Sample ID No.:	MPT-MW04S
Project No.:	N4231, CTO 245	Sample Location:	MPT-MW04S
		Sampled By:	C. Metz
[ ] Domestic Well Data		C.O.C. No.:	0375
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 3/12/2003	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mv	Other
Time: 1325								
Method: Low Flow Peristaltic	black	6.57	6.65	20.2	81.2	0	-350	

PURGE DATA

Date: 3/12/2003	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 12.2								
Static Water Level (WL): 3.80								
One Casing Volume(gal/L): 5.2								
Start Purge (hrs): 1240								
End Purge (hrs): 1321								
Total Purge Time (min): 41								
Total Vol. Purged (gal/L): 16								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Total Fe + Mn	HN03	1 X 500mL Plastic	CM

OBSERVATIONS / NOTES

Appeared to have small patches of free-product floating in purge water bucket

Circle if Applicable:		Signature(s): Charles Metz
MS/MSD	Duplicate ID No.:	
None	None	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 13
PROJECT NUMBER: N4231, CTO 245

WELL ID.: MPT-MW04S
DATE: 3/12/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cum Vol (mL)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1240	3.80	0	300	—	—	—	—	—	—	Start Purge
1245	4.02	1.5	300	—	—	—	—	—	—	
1250	4.10	3.5	400	6.37	5.53	48.6	0	19.9	-337	
1255	4.05	5.5	400	6.34	5.79	53.1	0	19.9	-340	
1300	4.05	7.5	400	6.44	8.87	38.0	0	20.1	-346	
1305	4.05	9.5	400	6.47	7.92	21.5	0	20.2	-352	
1310	4.05	11.5	400	6.49	7.47	12.6	0	20.2	-353	
1315	4.05	13.5	400	6.50	7.02	6.1	0	20.1	-352	
1318	4.05	14.5	400	6.51	6.82	1.0	0	20.2	-351	
1320	4.05	15.5	400	6.52	6.70	0.7	0	20.2	-351	
1321	4.05	16	400	6.52	6.65	1.2	0	20.2	-350	
1325 = Sample Time										

SIGNATURE(S): Charles Mc

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: SWMU 13
Project No.: N4231, CTO 245

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

Sample ID No.: MPT-MW08S
Sample Location: MPT-MW08S
Sampled By: C. Metz
C.O.C. No.: 0375
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 3/12/2003	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1240	Visual	Standard	mS/cm	°C	NTU	mg/l	mv	
Method: Low Flow Peristaltic	gray/brk	6.16	2.78	21.2	8.6	0	-351	odor

PURGE DATA

Date: 3/12/2003	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 1.64								
Static Water Level (WL): 12.2								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1200								
End Purge (hrs): 1220								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 10								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Total Fe + Mn	HN03	1 X 500mL Plastic	CM

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:
None	None

Signature(s): Charles Metz

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 13
PROJECT NUMBER: N4231, CTO 245

WELL ID.: MPT-MW08S
DATE: 3/12/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cum Vol (mL)	Flow (Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1200	1.64	0	500	—	—	—	—	—	—	Start Purge
1205	1.77	2.5	500	6.09	3.41	38.1	0.37	21.2	-313	
1210	1.77	5	500	6.08	3.09	11.0	0.21	21.2	-325	
1215	1.77	7.5	500	6.14	2.84	10.2	0.03	21.2	-342	
1220	1.77	10	500	6.16	2.78	8.6	0	21.2	-351	
1225	1.77	12.5	500							
1230	1.77	15	500							
1235	~~1.77~~ 1.77	17.5	500							
1237	1.77	18.5	500							
1238	1.77	19	500							

1240 = Sample Time

Had to sample at 1220 because was not permitted to be on air craft parking anymore. Well was in middle of taxiway

SIGNATURE(S): Charles Mott

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	SWMU 13	Sample ID No.:	MPT-MW09S
Project No.:	N4231, CTO 245	Sample Location:	MPT-MW09S
		Sampled By:	C. Metz
[ ] Domestic Well Data		C.O.C. No.:	0375
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 3/12/2003	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1145	Visual	Standard	mS/cm	°C	NTU	mg/l	mv	
Method: Low Flow Peristaltic	Clear	6.70	1.13	20.4	0	0	-138	

PURGE DATA

Date: 3/12/2003	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): —								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 12.4								
Static Water Level (WL): 1.57								
One Casing Volume(gal): 6.2								
Start Purge (hrs): 1100								
End Purge (hrs): 1140								
Total Purge Time (min): 40								
Total Vol. Purged (gal): 19								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Total Fe + Mn	HN03	1 X 500mL Plastic	CM

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	Charles Metz
None	None	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 13
PROJECT NUMBER: N4231, CTO 245

WELL ID.: MPT-MW09S
DATE: 3/12/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cum Vol (mL)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1100	1.37	0	300	—	—	—	—	—	—	START Purge
1105	1.38	1.5	500	6.56	1.10	21.2	1.46	20.9	-98	
1110	1.45	4	500	6.63	1.08	6.3	0.27	20.7	-114	
1115	1.46	6.5	500	6.66	1.09	1.6	0	20.4	-123	
1120	1.48	9	500	6.68	1.10	0	0	20.4	-128	
1125	1.48	11.5	500	6.68	1.12	0	0	20.3	-131	
1130	1.48	14	500	6.68	1.12	0	0	20.3	-133	
1135	1.48	16.5	500	6.69	1.13	0	0	20.3	-135	
1137	1.48	17.5	500	6.70	1.13	0	0	20.4	-137	
1139	1.48	18.5	500	6.70	1.13	0	0	20.4	-137	
1140	1.48	19	500	6.70	1.13	0	0	20.4	-138	End Purge

1145 = Sample Time

SIGNATURE(S): Charles Mc

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: SWMU 13
Project No.: N4231, CTO 245

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

Sample ID No.: MPT-MW10S
Sample Location: MPT-MW10S
Sampled By: C. Metz
C.O.C. No.: 0375
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 3/12/2003	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP mv	Other
Time: 1045								
Method: Low Flow Peristaltic	Clear	6.76	0.91	20.5	0	0	-184	

PURGE DATA

Date: 3/12/2003	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	
Method: Low Flow Peristaltic								
Monitor Reading (ppm): —								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 13.4								
Static Water Level (WL): 8.17								
One Casing Volume(gal/L): 0.62								
Start Purge (hrs): 1000								
End Purge (hrs): 1039								
Total Purge Time (min): 39								
Total Vol. Purged (gal/L): 19								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
Total Fe + Mn	HN03	1 X 500mL Plastic	CM

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:
None	None

Signature(s): Charles Metz

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: SWMU 13
PROJECT NUMBER: N4231, CTO 245

WELL ID.: MPT-MW10S
DATE: 3/12/2003

Time (Hrs.)	Water Level (Ft. below TOC)	Cum Vol (mL)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1000	1.77	0	400	—	—	—	—	—	—	Start Purge
1005	1.87	2	400	6.53	1.60	53.1	1.20	20.9	-171	
1010	1.93	4.5	400	6.67	0.97	14.8	0	20.6	-180	
1015	1.94	7.5	500	6.69	0.95	6.1	0	20.5	-181	
1020	1.94	9.5	500	6.71	0.91	2.0	0	20.5	-181	
1025	1.94	12	500	6.73	0.92	0	0	20.5	-182	
1030	1.94	14.5	500	6.74	0.91	0	0	20.5	-183	
1035	1.94	17	500	6.75	0.91	0	0	20.5	-183	
1037	1.94	18	500	6.76	0.91	0	0	20.5	-184	
1039	1.94	19	500	6.76	0.91	0	0	20.5	-184	End Purge

1045 = Sample Time

SIGNATURE(S): Charles [illegible]

334 7260

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER 0375

PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4231	Maypoit SWMU13	Alan Pate	904-636-6125	STL Pittsburgh
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles Metz		Charles Metz	904-636-6125	450 William Pitt Way
		CARRIER/WAYBILL NUMBER		CITY, STATE
				Pittsburgh PA 15238

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P

PRESERVATIVE USED: HNO_3

TYPE OF ANALYSIS: 6010B (Fe+Mn)

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	6010B (Fe+Mn)								COMMENTS
3-12	1045	MPT-13-MW10s				GW	G	1	1								
3-12	1145	MPT-13-MW09s				GW	G	1	1								
3-12	1240	MPT-13-MW08s				GW	G	1	1								
3-12	1325	MPT-13-MW04s				GW	G	1	1								

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Charles Metz	3-12-03	1655	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R

FORM NO. TINUS 001